



Environmental History

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Introduction

Environmental history in this volume explores the relationship between the natural world and people, and how it has changed over time. It is a story of how human beings have thought about, managed, used, and tried to preserve nature, and how the natural environment has been affected by human behavior. The focus here is largely on the modern history of Japan; as such, the essays speak to, and can thus be incorporated into teaching about, some of the main concerns of modern Japanese history: efforts in the late 1800s to craft a modern, national identity; conceptions of modernity expressed in ideas about space, technology, and science; the costs of industrialization; the workings of democratic politics and civil society; the complicated relationship between Japan and the U.S. in the postwar period; and the enduring legacies of this past.

Three themes about the relationship between the natural world and people are woven throughout this introduction and the essays that follow. First, people have in various ways and at various times sought to control, manage, and harness nature. From the manipulation and conquest of the natural and built environments of the northern island of Hokkaidō in the late nineteenth and early twentieth centuries, to the belief in the human capacity to render nuclear power completely safe in the 1950s and beyond, people have been convinced that they can triumph over nature in a variety of ways.

Second, these actions have revealed the extent to which humans can indeed alter the environment and, in many cases, not necessarily for the good of the natural world or its people. In the Meiji period (1868-1912), effluent from the Ashio Copper Mine poisoned the Watarase and Tone rivers northwest of Tokyo and contaminated land in Tochigi and Gunma prefectures. In the 1950s, effluent from the Chisso Corporation poisoned Minamata Bay and the Shiranui Sea, contaminating local fishing communities on the southern island of Kyūshū and causing Minamata disease. Japanese became aware in the 1950s and 1960s of other diseases that resulted from environmental pollution, such as Itai-Itai disease caused by cadmium released by mining companies that poisoned the ecosystem of Toyama prefecture in western Japan for decades. Furthermore, air pollution from the port of Yokkaichi in the southeastern prefecture of Mie during the 1960s and 1970s caused various pulmonary illnesses, including what was called Yokkaichi asthma. In addition to these “pollution diseases,” the manmade environmental degradation that was one of the many side effects of the U.S. military’s large presence on the main island of Okinawa has harmed its natural world in the postwar period. And the environmental and human devastation caused by the nuclear meltdown at the Fukushima Daiichi Nuclear Power Plant in March 2011 was the result of both environmental triggers and human failure.

Third, people have resisted and tried to prevent such environmental degradation. Be it efforts to preserve the culture of the indigenous Ainu of what became known as Hokkaidō, attempts to forestall state control of nature, criticism of nuclear weapons, challenges to nuclear power, or legal campaigns pursued by the victims of Minamata disease, human destruction of the natural environment and people’s lives has provoked human opposition and activism.

Part I – Conceptions of Nature and Space

“Designs of Power: The ‘Japanization’ of Urban and Rural Space in Colonial Hokkaidō”

Vivian Blaxell

August 31, 2009

<http://www.japanfocus.org/-Vivian-Blaxell/3211>

The emergence of a modern Japan in the late 1800s involved struggles to define what it meant to “be modern” and what it meant to “be Japanese.” Vivian Blaxell’s essay explores this issue of identity formation through a focus on the transformation of the island that we now know as Hokkaidō. The term “Hokkaidō” dates to 1869 when it was so named by the Meiji government. These northern reaches used to be known as Ezochi and were inhabited by the Ainu, indigenous people who considered themselves distinct from “the Japanese” (*wajin*) who populated the lands to their south. Blaxell examines the incorporation of Ezo-turned-Hokkaidō into modern Japan, a process that she frames as Japan’s first colonial acquisition, with particular attention to the built and natural environments. While considering Blaxell’s argument about how ideas of modernity and national identity were revealed and extended by the manipulation of space, note the various kinds of space discussed in the essay and how Blaxell approaches and views what “being Japanese” meant for Hokkaidō.

Designs of Power: The “Japanization” of Urban and Rural Space in Colonial Hokkaidō

Vivian Blaxell

It is Japan, but yet there is a difference somehow. Isabella Bird, 1878.

A whole history remains to be written of spaces --- which would at the same time be the history of powers --- from the great strategies of geo-politics to the little tactics of the habitat. Michel Foucault, “The Eye of Power”

Though Hokkaidō may seem a natural part of Japan, manacled to Tokyo as it is by law, by language, by economics, and by the 54 kilometer undersea Seikan Tunnel, Hokkaidō was not always Japan. Hokkaidō was not always Hokkaidō. Hokkaidō was modern Japan’s first foreign conquest; its first colony in a deliberate imperial trajectory begun in 1869, concluded in 1945 and eventually encompassing vast tracts of East and Southeast Asia. The colonization of Hokkaidō took place in many ways, most especially through the catastrophic de-culturation, dispossession and subjugation of the island’s indigenous population, the Ainu. [1] Yet, the business of making Hokkaidō, “Hokkaidō,” of turning the island known as Ezochi, a wild untrammelled sort of place, into an integral part of modern Japan was also about space, about creations of space and about remaking local space in ways that delivered Ezochi up to Hokkaidō and surrendered Hokkaidō to Japan.

To be sure, the late 19th century sequestration of the Ainu on small farms and in designated villages, conversion of the landscape from forest and grasslands into mines and fields for cash crops, immigration of Japanese settlers, along with the simple privatization of the island’s geography produced spaces within which colonial subjects and the colonial political entity could themselves be effectively produced. But Hokkaidō’s colonization occurred before the geopolitical gesture contained in the 1918 Wilsonian ideal of self-determining nation-states. Hokkaidō became Hokkaidō at a time when Japan’s imperial discourse and its elaborations in the material realm tended to vigorously assimilate colonized space and colonized subjects as Japanese (Hokkaidō, Okinawa, Korea) or represented colonial spaces and subjects as becoming Japanese (Taiwan and Micronesia).[2] In Hokkaidō, this “being Japanese” required more than destruction of Ainu economics and culture, more than the introduction of American and European cash crops. It required careful productions of Japanese spaces on the island. Without Japanese spaces elaborated from Japanese myth, history and contemporaneous discourses about modernity, the Japanese identity of the island could not be well forged and thus its subjects’ “Japaneseness” could not be assumed. This essay attends to the elaboration of discourse in, and the production of, Japanese spaces in colonial Hokkaidō: the design of Sapporo; the architecture of some of Sapporo’s most important 19th century buildings; the introduction of wet rice agriculture, for it is at these historical spaces that more about the technologies of Japan’s takeover of Ezochi and its transformation into Hokkaidō, into Japan, more about Japanese colonialism, and more about what Foucault calls “the history of powers”, is to be found.

The samurai and the city

For more than 200 years the shoguns in Edo (Tokyo) asserted rights of suzerainty over Ezochi, the island that would become Hokkaidō. Matsumae, the northernmost feudal domain in Tokugawa Japan, held a border fief with a small castle town capital at the far south of the island. Yet for most of the Tokugawa era the shoguns’ claims to Ezochi were rhetorical rather than

substantive. The Matsumae clan used Japanese middlemen to control a profitable trade with the Ainu in herring and other small fish processed and sent south to the island of Honshū to be used as fertilizer for rice cultivation. The trade resulted in Ainu adoption of elements of Japanese culture: rice consumption and the use of lacquerware, for example, but beyond the small space governed by Matsumae at the extreme southern tip of a peninsula just across the strait from Honshū, Ezochi was essentially a foreign land in theoretical fealty to Japan. The arrival of foreigners in Japanese waters during the 1840s culminating in the demands for treaties and trade made by the American, Matthew Perry, in 1853 changed all that.

The treaty concluded with the United States by the shogun, Tokugawa Iesada, in 1854 stipulated the opening of two ports where foreign ships could re-supply and consular representatives could be stationed. One of those ports was Hakodate. The southernmost harbor settlement in Ezochi, Hakodate was under direct control of the shogun in Edo and the resting place of the first American citizen to be buried in Japan. In almost immediate response to American demands, the shogunate posted a governor to Hakodate, an early sign of the importance Ezochi would henceforth assume in Japanese national projects. At the same time, fear of the expansionist tendencies of the Russian Empire in Siberia turned Ezochi from a foreign land into a Japanese fortification against the designs of Saint Petersburg. Even as it was disintegrating, the shogunal government began plans for development of Ezochi. For a brief period at the end of the civil war between the shogunate and the supporters of Emperor Meiji, Ezochi became the site of a short-lived republic after the northern clans still loyal to the Tokugawa regime retreated across the strait. But with the Boshin War concluded, the ingestion of Ezochi began in earnest. In early July of 1869 the new Meiji government established the Kaitakushi (Hokkaidō Colonization Commission), an official entity to lead and oversee colonization of Ezochi. Less than a month later the government in Tokyo re-named the northern island: Ezochi became Hokkaidō and Hokkaidō became a vital part of Japan's plans for the future. Officials departing Tokyo for tours of duty in Hokkaidō left with exhortations at once imperious and benevolent ringing in their ears:

Hokkaidō is the most important place for the Northern Gate of the Empire. With regard to the proclaimed development, sincerely carry out the Imperial Will, and make efforts to spread welfare, education and morals with kindness. With the gradual immigration of mainlanders, make sincere efforts to encourage harmony with the natives and a prosperous livelihood. [3]



Hokkaidō colonial headquarters, Sapporo

The Imperial Will demanded a capital city for the newly named island. The Kaitakushi charged Shima Yoshitake, a former samurai of the Saga domain, with the design and construction of Sapporo. In surviving pictures, Shima is grave for the camera, the beard of a Chinese sage garnishes his chin, and in one, perhaps taken at the time he received honors from the Meiji emperor, he is dressed in the formal headgear and kimono of a senior feudal retainer.



Shima Yoshitake

He looks very much a traditionalist. And in the syncretic revolutionary fashion of the first Meiji modernizers, he was: born to substantial privilege on October 26, 1822 (Bunsei 5) into an *uma-mawari* (around the lord's horse) family that had been on the inner circle of the Saga lords for generations. The family was entitled to the generous income of 300 *koku* of rice.[4] Shima inherited the family fortune in 1844 and went to study with Satō Issai and Fujita Tōko in Edo.

According to Kōzen Noburu, Shima appears to have been especially influenced by Fujita, a senior retainer in the Mito domain and a central figure in the 19th century intellectual attempt to reconcile neo-Confucianist ethical universalism with the Japanese nativism of *kokugaku* (national learning) in which the source of Japanese history and culture was not China but Japan itself. Kōzen argues that Shima agreed with Fujita that the right course to set for national independence and strength was to actively open the country to modern technologies and methods; keep the Westerners out and retain a “traditionalist” even “native” form of politics and

culture with the resuscitated imperial institution above it all. Shima also agreed with Fujita that the island of Ezochi was vital to the defense and future of Japan. [5]



Fujita Toko

Back at Saga, Shima resumed service to the Saga daimyo, Nabeshima Naomasa. Even six years prior to the intrusion of the United States in Japanese waters, Shima was much concerned about how Japan was to respond to foreign efforts to engage with Japan. In this context, Shima and Naomasa demonstrated significant concern with the defense of both the Saga domain and of Ezochi. Though far to the northeast of Saga, the island that would become Hokkaidō held a place of keen interest in the intellectual and political life of the domain leadership which, having been in contact with Russian ships at Nagasaki and elsewhere on the southwestern coast, saw a clear threat to Japan's northern borders posed by the flimsy Japanese sway over such a large and undeveloped island proximate to the eastern borders of the Russian Empire.

In 1856 Naomasa sent Shima on an official expedition to survey and assess Ezochi and Karafuto (Sakhalin). Upon his return the following year, Shima produced a record of his expedition, *Nyūhokki* [Account of being in the North]. Shima also wrote *kanshi* (Chinese language poetry) during his travels in 1856 and 1869. *Kanshi* was an essential art for a samurai of Shima's status and time, but though its genealogy harked back to Chinese poetry and it was written using only Chinese characters, by the nineteenth century *kanshi* in Japan had become a "native" Japanese poetic form. Shima's *kanshi* constitute a sort of abbreviated biography of his experiences, his impressions, and his consciousness, a "poetic journal." The 1869 *kanshi* are rich in all the sorts of tropes and figures one might expect of an early Meiji official, educated in Mitogaku and charged with colonization, indeed "civilization," of territory: imperial edicts linked to the landscape and Shima's journey to it and through it; invocations of Shinto deities as protection and as witnesses of his submission to the Imperial will. The poems work less as poems than as signs of Shima's interior discourse and his place in the exterior ideologies and discourse of his

times. His *kanshi* reveals the late Tokugawa vision of the island in Shima's thinking: inhospitable; frightening; exotic:

Mountain after mountain, heavy going,
 scaling the next mountain keeps the chill windy days warm.
 Suddenly, the howling voice of a wolf echoes lonely in the ravine below,
 desolate crescent moon in the sky above
 glitters coldly on the mountain peaks.
 In the valley, hanging clouds hide the moon
 the path ahead is dark,
 a mountain rivulet flows at my feet, its waters sounding angry.
 I am quite unnerved,
 but then local people come to welcome us
 bearing scarlet paper lanterns.
 A tradition of the land, used in place of normal torches.
 And as we travel on, our hands light up, a blushing red.

But in another poem we find signs of a different consciousness about Ezochi and mobilization of a Japanese screen through which to understand the island:

I peek at the deep drop from a cliff 100 feet high,
 The steep path snakes right and left again.
 The scenery here is astonishingly beautiful.
 It seems to be a *sansui* landscape painting, just like *nanga*. [6]

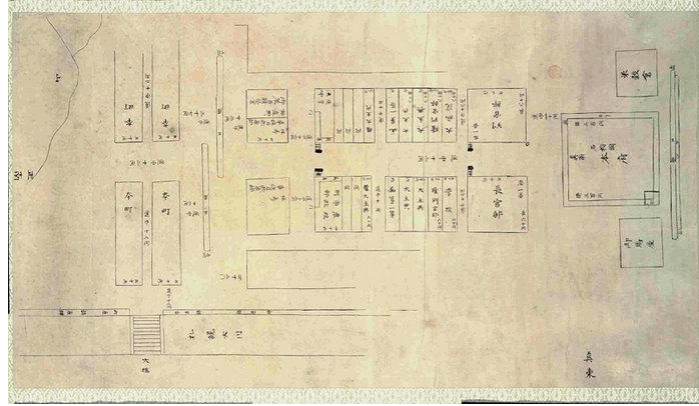
Shima's concern with the natural landscape is a standard trope for this type of Japanese poetry. Like other cultured, high-ranking samurai, Shima cultivated an aesthetic and spiritual sensitivity to nature. More importantly for the discussion here and for the design of Sapporo, the final line of the latter poem with its attempt to frame the landscape of Ezochi in *nanga* painting, itself a nativized Chinese art form like the *kanshi* poetic form, domesticates the new and strange by framing them in the old or familiar. This is of course a conventional strategy for understanding the new and the other in travel writing. On her visit to Hokkaidō in 1878, Isabella Bird could not resist likening the island to Scotland, Ireland and even Gibraltar. In the 1940s as the Japanese empire pushed into tropical Southeast Asia, newspapers and magazines published photographs, cartoons and drawings of Filipino and Javanese volcanoes and likened them to Fujisan, while elements of Malay culture were identified as proto-historical Japanese characteristics, all as a way of making the new, old, and the strange, familiar. But while Shima's poems about Ezochi employ this common device of travel narratives, there is also a repeated framing of the island in terms of Japan and its nativist or mythical traditions throughout the poems. In some, Shinto deities inhabit the landscape. In others, the island is a geographical subject of the emperor. Mountains, lakes and rivers remind Shima of Saga or of tales from the *Kojiki* and the *Nihongi*. Ezochi is at once foreign and Japanese to Shima.

Shima's repetitive slippage into writing Ezochi in terms of a nativist vision of Japan and its history suggests something beyond making the strange, familiar, and the incomprehensible, comprehensible. Just as the *sonnō jōi* (revere the Emperor; expel the barbarians) samurai envisioned a future Japan by simultaneously looking back at an imaginary time when the Japanese emperor was revered and foreign influences had done nothing to sully the purity of Japanese culture, yet at the same time bought guns and Western technology, Shima looked at the

spatial future of Japan in Ezochi in terms of a largely invented Japanese past yet one tempered by the sort of pragmatism required for the emerging nation to survive in a world dominated by the western imperial powers. We can find delicate traces of this future/past vision of Ezochi in Shima's poetic voice, but when it came to the design of Sapporo, Shima turned explicitly to the old to make the new. In July 1869 Shima's aging daimyo, Naomasa, appointed Shima to the position of Kaitakushi *hangan*, Hokkaidō Colonization Commissioner, charged with designing and building a capital city for the new territory. Shima was already 49 years of age, no longer a young man by the standards of Japan at the time and already beyond retirement age for an upper level feudal retainer. But he was close to Naomasa; his committed service to the forces leading the fight against the shogunate and for the restoration of the imperial institution to its political place above politics, along with his knowledge of Hokkaidō brought him the reward and burden of imperial service in the northern district.

Shima saw his work as a service to the emperor but also to his vision of a Japanese imperial state with its modernity profoundly conditioned by the nativist vision of the past. His design of Sapporo stands as a spatial testament to his imperial loyalty and his concept of a natively modern state. The received wisdom has it that the vision for Sapporo came to Shima in the autumn of 1869 as he viewed the Ishikari Plain from the high flanks of a hill to the west of where the city now stands. Even today, there are still patches of old growth forest here where Shima sat, and a zoo where in winter one can encounter giraffes looking bemused in the snow. Shima designated the hill as a city park. He named the park "Maruyama," which is the name of a famous park in the heart of Kyoto, Japan's imperial capital city until 1868. Then Shima situated a Shinto shrine next to his Maruyama Park and in it, he installed the *tamashiro* of three deities newly dedicated to colonization by the religious office of the government in Tokyo, the Jingikan.[7] Construction and dedication of a *jinja* at the site of Sapporo represented a vital step in the creation of Japanese space in the regions of Hokkaidō beyond Shiraoi and what had been the Matsumae domain. The shrine that was to become the Hokkaidō Jingu elaborated the ideological and administrative discourses about Shinto and its power to unify the state and its subjects around the imperial institution in material space. Thereafter, construction of *jinja* became a central spatial technique of Japanese colonialism, a means of Japanizing possessions from Toyohara and Naha to Seoul, Taipei, Shinkyō in Manchuria, Rangoon and Singapore.

By the time he arrived on the Maruyama belvedere, Shima already had a design for the city of Sapporo in mind, a plan for a new city inspired by the ancient imperial capital of Kyoto, a design for the future of Hokkaidō grounded in the Japanese past.[8] The 8th century planners of Kyoto had imported and adapted the Chinese imperial design of the Tang capital city, Chang'an, into Japan to produce Kyoto as "a magical act, the aim being to bestow on the Yamato Court the power of its Chinese counterpart." [9] For Shima, however, the act of importing Kyoto into Hokkaidō for the production of Sapporo was both magical and political. In his design for Sapporo, Shima found new meanings "for older materializations of space and time." [10] In Hokkaidō the *gobannome* (Go board rectangular grid plan) of Kyoto and its spatial orders (governmental power to the north, trade to the south) achieved two ends: it brought the center to the periphery so that the periphery could be brought into the Meiji imperial order, and it gave spatial elaboration to the ideology circulated by Shima and other leaders in the early Meiji modernization of Japan that modern and western were not coterminous and that the new was in fact the old.



Shima Yoshitake's Plan for Sapporo

Although other important cities were built in colonial Hokkaidō and played major roles in the island's political economy and in its colonization, they were designed on the principles of American urban planning and Sapporo with its spatial recovery of the past for the purposes of modernization remained at the heart of colonial governance. As Japan's first planned colonial city then, Sapporo stood as a material elaboration in space of a particular 19th century Japanese vision of Japanese modernity based on a mythical historicism and founded in an ideological effort to remake Japan as a natively modern state. Sapporo stood too as a stamp of Japanese imperial ambitions and practices on the face of Hokkaidō. In its spatial elaboration of nativist discourse and Heian imperial symbology recovered for a modern future, Shima's Sapporo represents a first pass at the practice of colonial urban design by a Japanese planner. In later years other Japanese planners would design and produce colonial urban spaces at Toyohara in Karafuto, Japanese settler towns in Japanese Micronesia and the cities of Dairen and Shinkyō in the puppet state of Manchukuo, all imbued with the ideological and symbolic freight of their discursive times.[11]

In January of 1870 Shima was dismissed, ostensibly for fiscal extravagance in the construction of Sapporo, but more likely because of deep differences with his superior, Higashikuse, over what sort of modernity Japan should have. Yet his vision of Sapporo as a new but also traditional Japanese space persisted. In 1873 Shima penned a *jōsho* memo to Iwakura Tomomi arguing that Sapporo should be renamed with the same characters used for Peking, the imperial capital of Qing China, and designated as the imperial residence for the emperor during his summer retreat.[12] Sapporo was thus a spatial container for Shima's dream of a modern Japan uncontaminated by foreign forms, the same dream that led him with Eto Shimpei into the failed Saga Rebellion, itself an act of protest against the western forms Japanese modernity had begun to take by 1874. Beheaded for his role in the rebellion, his head was displayed to the public.

Discursive architectures

After Shima, the development of Sapporo came under the direction of Kuroda Kiyotaka, who went on to become Japan's second Prime Minister from 1888 to 1889. Kuroda sometimes drank far too much, turned nasty and violent when inebriated, and later was rumored to have killed his wife in a drunken fury. But Kuroda was one of the heroes of the war against the shogunate and the job of managing the colonization of Hokkaidō was a reward for his services. Born into a family of samurai retainers to the Satsuma daimyo, Kuroda had once imagined a native form of Japanese modernity.



Kuroda Kiyotaka

This vision he shared with Shima, but only for a time: after a visit to the United States in 1871 Kuroda quickly adopted the view that the form of modernity mattered less for Japan's survival in the world of the imperial powers than modernity itself. As head of the Kaitakushi, Kuroda secured a huge increase in the budget. He used a substantial part of it to employ Americans to shape the colonization of the island and its transformation into a productive and placid part of Japan. Soon a variety of men "bitten with Orientalism"[13] or simply in need of a job, or nostalgic for a "frontier experience" already elusive in America, arrived from the United States to help the Japanese government enact its imperial dream in Hokkaidō. The conduct of some of these men in Hokkaidō was at times violent and licentious: one shot six Ainu hunting dogs while in a drunken rage, smashed up an inn and stabbed the Japanese military officers who tried to restrain him, but the miniaturized American look of rural Hokkaidō, still much remarked upon in travel literature today, is part of their legacy. The barns and silos that remind 21st century tourists of Wisconsin were ordered from the Sears Roebuck catalogue and assembled in a landscape now "rural-ized" and given over to orchards, dairy farming, corn and beet cropping.

Under Kuroda, Sapporo grew beyond its original design. New buildings rose along Shima's geomantic streets. Several of these buildings survive today and supply some of the city's identity, just as they did when Kuroda and the Kaitakushi undertook their construction. Indeed, one of the most enduring symbols of Sapporo for Japanese from other islands is the Sapporo Clock Tower, built in 1878 as the Drill Hall of the Sapporo Agricultural College (the predecessor of Hokkaidō University) to an American design by William Wheeler. With white clapboards, sash windows and fretwork eaves, the Sapporo Clock tower could have been lifted directly from almost any New England town. In 1970 the government in Tokyo designated the Clock Tower as an Important Cultural Property. Visitors to the city invariably stop to admire it, though it now seems

so diminished in a surrounding thicket of office towers that the Clock Tower is classed by some as one of the “three great disappointments of Japan” (*Nihon san-dai gakkari*), the two other great disappointments being the Harimayabashi, a tiny red painted bridge spanning a filled-in river in the city of Kochi on the island of Shikoku, and the Eiffel-esque Nagoya Television Tower.[14]

But disappointing or not, the 19th century buildings of Sapporo look very American. The first head office for the Kaitakushi burned to the ground in 1879, yet from the perspective drawings and photographs available in the archive, it was a neat blend of the design of the original Massachusetts state house and the Maryland capitol building in Annapolis. Its successor, the Akarenga, was built of red bricks. In 1888 bricks were still a novel and expensive construction material in Japan: it was bricks along with gas lighting that had made the Ginza such a vital sign of modernity and the power of the Meiji state in 1872, and the red brick Akarenga provided an important symbol of state authority and modernity in Hokkaidō; the building is an elegant Japanese rendition of late nineteenth century American Baroque revival architecture. The house of the prefectural governor might pass as a neo-Tudor mansion in Bethesda or Bel Air, except that there is something not quite right about the half-timbering. But European or American looking as they were, these Sapporo buildings from the 1870s and 1880s were also quite Japanese; products of a Japanese spatial practice in which the debates about Japanese modernity were elaborated in architecture and architectural embellishment. The red bricks of the Akarenga repeated in Hokkaidō a particularly Japanese vision of modernity and state power previously elaborated in Ginza, and the uncanny neo-Tudor half-timbering of the governor’s mansion gestures to debates about how perfectly “western” modern forms in Japan needed to be to build the state.

In contrast to Shima’s city plan with its modernity grounded in an imagined Japanese past, many of the new buildings constructed under the aegis of Kuroda took their principles of construction and the bases of their design from architecture in the West, principally from the United States. But their details and often their interiors derived as much from Japanese architectural themes and visions as they did from America. In this at least, such buildings complied with the beginnings of a discursive resolution reached in the second decade of Meiji as traditionalists like Shima, Eto, and Saigo Takamori increasingly lost control over meaning to men like Ito Hirobumi and even Iwakura Tomomi, whose vision of Japanese modernity ousted the last nativist mutterings of “revere the emperor; oust the barbarians” and replaced them with their opposite: Western learning; Japanese spirit. Now the Japanese modern took a newer form than that imagined by Shima. And we can detect this in two Hokkaidō buildings: the Seikatei and the Hōheikan Guest House. While not among the grandest of Sapporo’s buildings from the period, both were designed and built to accommodate the Emperor Meiji on his visits to the city. The alloy of American, European, and Japanese design found in these buildings was carefully formulated, attesting to the effort to transform built space in the city in ways that recirculated the prevailing discourses of modernity and Japaneseness.

Both the Seikatei and the Hōheikan guest house were built in 1880. The mix of Western style with Japanese features that creates a distinctive spatial realization of Japanese modernity is immediately apparent in the little Seikatei house, where a bay window and horizontal clapboards consort with a glassed-in traditional Japanese porch, *engawa*.



The Seikatei

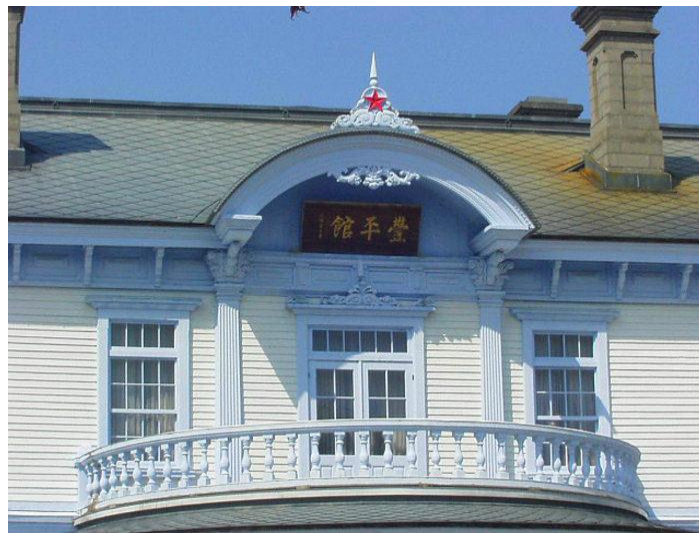
The interior is divided between *washitsu* traditional Japanese rooms and western rooms in a fashion that continues in Japanese houses to the present day. The kitchen has a floor of earth in the traditional Japanese manner. At first glance, the Seikatei in its stand of hemlocks evokes an unpainted New England house, or summer cottage on the shore of one of the Finger Lakes in upstate New York, but the alloy of Japanese and western design testifies to something different, a spatial operation most apparent in Hōheikan.

William Coaldrake suggests that the American expert Louis Boehmer supervised construction of Hōheikan, but Boehmer can only be credited with design of the gardens in which the building originally stood.[15] Certainly the method of construction was western. Certainly too, as Coaldrake suggests, it is easy to imagine Hōheikan as home to a rich nineteenth century New England family in the Pondside neighborhood of Boston: the architectural foundations of the design are patently American. But Hōheikan is more complex and interesting than that. The design of the building owes as much to a Japanese way of doing modernity as it does to an American template. Hōheikan was one of only three major Kaitakushi building projects during the 1870s and early 1880s: the Kaitakushi headquarters building; the Kaitakushi Bussanurisabaki-sho trading and reception center in Tokyo; Hōheikan.[16]



The Hōheikan

Unlike the original headquarters of the Kaitakushi building which appears to have been almost entirely free of Japanese characteristics and was reportedly designed by Horace Capron, and unlike the Bussanurisabaki-sho Kaitakushi trading center designed by Josiah Conder, Hōheikan's "architect" was Japanese: Adachi Kikō, a senior Kaitakushi construction department official.[17] Ōoka Sukeuemon managed construction.[18] The technical fundamentals of Hōheikan are American: a timber frame behind clapboards. But many of the details of the design are Japanese. The balcony above the main entrance to Hōheikan is topped by an open segmental pediment, itself descended from the pediments on Michelangelo's tomb for Lorenzo di Medici but also common in late nineteenth century American Georgian Revival and Beaux Arts architecture. There is nothing Japanese about this. But the Georgian style pediment transported to Hokkaidō has a *gegyo*, a traditional decorative Japanese gable pendant that recovers the Japanese architectural conventions of an earlier time. And the pediment has a prominence on the front of Hōheikan more Japanese than American, a prominence that refers us to the considerable frontality of *karahafu* entrance gate gables in elite Tokugawa dwellings and temples.



The Japanese *gegyo* on the Hōheikan pediment

The interior of the Hōheikan seems to be an especially Japanese translation of an American interior. The ceilings are astonishingly high, meters higher than any Japanese traditional ceiling and much higher than those in any Boston ballroom. These days the interior of Hōheikan is decorated in a Victorian style, but much of the interior fittings and furniture were added in the late twentieth century as exhibits, an evocation of the period that does not well represent the stark appearance of the rooms and public spaces in the 1880s. Even the famed chandeliers depending from plaster mouldings embellished with a cherry blossom theme were added to Hōheikan some years after construction. This alloy of American construction and basic design with Japanese motifs, themes and stripped down interior represents the 1880s Meiji moment in a built structure and invokes the rhetoric of "Japanese spirit, Western learning." Hōheikan is less American than it is Japanese and, as one of the three major built spaces designed and constructed the Kaitakushi in the 1880s, it must be understood as a major architectural elaboration of discourse and colonial purpose: its design played a role in Japanizing the still uncertainly domesticated space of Hokkaidō.

The core design of Sapporo and the design of Hōheikan and the Seikatei house embody two different points in a uniquely Japanese project: the construction of a unified modern Japanese identity drawing on reworked forms from Japan's past and selected Western forms. As such, they do not then represent the American or Western impact on the development of Hokkaidō so much as they show how vigorously the Kaitakushi and the Meiji government in Tokyo sought to Japanize the island by reworking its built space into Japanese spatial orders that elaborated discourses of modernity and furthered the mission to subjugate Hokkaidō in service to a Japanese dream.

Rice and the Postmaster

While the urban design and the design of public buildings in Sapporo functioned as instruments of power elaborating Meiji ideologies about Japanese identity and modernity on the island space, they did so in a sort of delimited and talismanic space. For Japanization of space to be more widely implemented, ideological signs of Japanese identity needed to be elaborated on a wider scale. This meant the island landscape. "Landscape patterns are both material and conceptual" writes Andrew Sluyter.[19] They are comprised of physical matter and symbolic communications and capital. Colonial transformations of landscape space change both the physical matter of the land and what the land means. In the Hokkaidō countryside north of the southern Hakodate region, Tokyo engaged in two sorts of landscape transformation after 1868. Initially, American and Japanese experts acting on Kaitakushi policy began the job of turning the indigenous Ainu off their land, turning forest and grassland into farms for crops of beets and corn, into orchards, and into pasture for cattle. The impact on the landscape and human life in the landscape space was significant and included eradication of the local wolf [20] and catastrophic destruction of Ainu culture and economics. Hunting and gathering, subsistence agriculture and indigenous fishing enterprises were replaced by a landscape transformed both materially and symbolically for the modern business of colonists, cash-cropping, resource exploitation and commercial fishing. These transformations of space represented significant instruments of power for Japanese colonialism, yet in symbolic terms it was the introduction of wet rice culture to Hokkaidō that did most to turn the landscape of the island into Japanese space.

The matrix of rice, Japanese territory and Japanese identity has been well set out by Emiko Ohnuki-Tierney, but it bears reiteration here.[21] Rice is Japan, and rice in Hokkaidō makes the island Japanese. Nothing is more a complete and doxological sign of the business of being Japanese than rice and rice paddies. Rice and wet rice fields do two things in Japan: they signify what it is to be Japanese, and they constitute or make the Japanese, Japanese, and Japan, Japan. The signs of rice and rice fields as both symbols and instruments of Japanese identity spread thickly and historically through Japanese culture, society, politics and business. Rice, not coin or precious metal, was the currency of feudal Japan; samurai stipends were paid in rice, though by the end of the Tokugawa period the line between rice and coin was quite blurred. Traditional Japanese flooring, *tatami*, is made from woven rice stalks. Rice bran provides a facial scrub and rice starch, glue for binding books. Where Americans and Australians might imagine a man in the moon, Japanese see a rabbit pounding rice to make sticky rice cakes. During the time of Japan's imperialism in Asia, rice came to symbolize the purity of Japanese intentions in a world of struggle. It was rice, and thus the Japanese themselves, that was to be saved by territorial expansion and wars to preserve expansion. Lunch boxes appeared with representations of the national flag: a square of white rice with a red pickled plum in the center. And this was only natural: both emperor and the imperial institution were and still are powerfully linked to rice.

Rice plays a crucial part in the imperial enthronement and accession ceremonies. Japanese emperors bless the rice crop every year and bear ritual responsibility for good harvests, for Japanese rice is not just a grain it is a divine being: each grain of Japanese rice has a soul (*ina dama*) and each *ina dama* is a Shinto deity, a *kami* known as Uka no Kami. In the 1990s huge furors erupted in Japan about the importation and sale of rice grown in California, Western Australia, and Thailand, and though the uproar was usually couched in economic terms, the fuss was less about the economics of an increasingly uncompetitive Japanese agricultural industry than it was about Japanese identity. Rice is at the center of both community and ownership in Japan. In Japan rice is “our” food and rice paddies are “our” lands, and when it comes to Hokkaidō, it was rice, rice paddies and their spatiality that transformed this chilly northern island into a home island of Japan.

Wet rice cultivation should be impossible in all but the southern tip of Hokkaidō. Sapporo and the surrounding regions in which wet rice is grown are at the same latitude as Marseilles and Milwaukee, but the climate is more like Wisconsin than southern France. Thanks to mountain ranges, cold ocean currents originating in the Arctic, the Yamase winds and the proximity of the Siberian landmass, winters are brutally cold. In January the average temperature ranges from a low of minus 12 degrees Celsius to a high of minus 4 degrees Celsius. Hokkaidō summers are very short with up to 15 hours of daylight. These were not conditions for growing wet rice. Rice accumulates amylose, a kind of starch, if the temperature remains low for an extended period of time when its grains ripen. That causes the rice to become less sticky when cooked and then its taste suffers. In Hokkaidō, Japanese immigrants had their Shinto deities newly minted by the Emperor Meiji. They had land. They had government money to build homes and barns. They had the beginnings of a modern infrastructure. They even had ample supplies of rice imported from the islands further south. But what the immigrants to Hokkaidō did not have was a vital practice of Japanese space and Japanese identity: wet rice agriculture.

This represented a serious absence. How could the land and its new inhabitants be Japanese without the business of rice? How could rice be grown in such inhospitable climes? It fell to Nakayama Kyūzō, an amiable looking postmaster, to make Hokkaidō truly Japanese. Born second son into a reputable family of farmers in the Kansai region, Nakayama seemed to be constantly heading north. In 1845 at age 17 he defied his family, left the family farm at the village of Kasuga near Osaka and moved to Edo, the great capital city of the shoguns. For a while Nakayama became a bit of a wanderer along the Tōkaidō highway between Osaka and Edo, but in 1853 he met Katakura Eima and headed further north. Katakura was a member of a high-ranking samurai family, senior retainers to the Date lord. Nakayama entered service to Katakura as *hanshi*, a low-ranking local retainer. He moved from Edo to Sendai, the Date clan’s castle city in the northern Tōhoku region. Still moving northward, Nakayama shuttled between Sendai and Shiraoui, a little settlement on the southern coast of Hokkaidō where the Date clan was attempting to establish a foothold. In 1868, the Date clan sided with the Tokugawa Shogunate in the civil war against the modernizing samurai and the Emperor Meiji, fighting on even after the last Shogun had surrendered and Edo had fallen to the Imperial forces. The final defeat of the Date clan and their allies and retainers in the autumn of 1868 sent Nakayama Kyūzō and many other loyalists into a sort of exile near the vanquished shogun Tokugawa Yoshinobu at the pretty seaside area of Shizuoka for a while, but the attraction of the northern regions never left him. In 1869 Nakayama made his way back to Sendai, apparently a troubled and sorrowful man, full of doubts about the course his life had taken. At Sendai, Nakayama made what must have been the

very difficult decision to quit his service to Katakura Eima, and he returned to Hokkaidō, to Shiraoi, but not for long, before he left the island again and travelled to his hometown near Osaka. In 1871, however, the urge to go north reasserted itself and Nakayama traveled back to Hokkaidō, this time as an immigrant, first to Tomakomai and then to the wetlands of Shimamatsu where he settled on the south bank of the Shimamatsu River, an area between present-day Eniwa and Kitahiroshima. He returned to farming and in 1884 also became master of the Meiji communications station at Shimamatsu, handling postal services and at one point, a visit by the Meiji emperor.



Nakayama Kyūzō

Determined Japanese patriot and adventurer that he was, Nakayama saw the problem posed by the absence of rice cultivation in the northern island, and set about solving it. He struggled for years to germinate rice in wet fields on the Hokkaidō plains. He used a variety of rice that was resistant to cold: Akagi. Cold days and even colder nights in the growing season reduced the temperature of the water in the paddies too much for germination, so Nakayama cut shallow zig-zag canals in his fields, filled them with water taken from the river, and left it to warm in the sun before carrying it to the rice plants. On especially cold nights he toted warm water from his bathtub into the fields. Finally his tenacity paid off and in the autumn of 1883, Nakayama produced 345 kilograms of rice per 1000 square meters. Nakayama's success encouraged other immigrant farmers to grow wet rice and to stamp the occupied land with the geometry of wet rice fields, to mark Hokkaidō with the insignia of Japanese identity and possession.[22] Just as Shima's historically inspired grid design for the city of Sapporo produced an urban space that recovered a Japanese past for deliverance of a Japanese future for Hokkaidō, Nakayama's victory over the limits to rice cultivation in Hokkaidō produced a specifically Japanese landscape characterized by both production of a central sign of Japanese identity and culture and by a

geometry analogous to the *gobannome* Go board rectangular grid plan of both the city and the rural landscape of the rest of Japan.



The geometry of rice cultivation, Hokkaidō 1909

For years, wet rice cultivation challenged farmers in Hokkaidō and each killing summer freeze, each dismal harvest seemed to threaten the miracle of possession wrought by Nakayama's transformation of heterogeneous rural space into home space. Reversing its policy of encouraging alternative crops, and ignoring the evidence that rice cultivation in Hokkaidō might never turn a profit, the government in Tokyo now opted to promote rice cultivation and thereby promote the rhetoric of Japanese identity and ownership articulated in the spaces required for rice cultivation. It fixed the price of rice high enough to make even the most capital intensive forms of rice cultivation profitable, and it encouraged the Chubetsu Agriculture Experimental Station, set up in 1886 at Asahikawa, to develop a new strain of rice that could be sown, germinated, grown, ripened and harvested in Hokkaidō's short growing season: a hundred days or less. The project succeeded, or it succeeded enough to make wet rice cultivation and the marks of Japaneseness that cultivation bears, an enduring feature of Hokkaidō. But the solution, though clever, was never perfect and Hokkaidō's farmers always battled crop failures, poverty, sometimes famine, when winter arrived too soon. The land under rice cultivation expanded until by the end of the twentieth century it represented approximately 20 percent of all cultivated land in Hokkaidō. In 1940, Hokkaidō produced 3.2 percent of all rice grown in Japan. By 1968, the island produced 6.8 percent.[23] At the end of the 20th century, rice grown in Hokkaidō represented 10 percent of the total Japanese rice crop.[24] These days Hokkaidō Oborozuki rice is one of the most prized rice varieties in the cities of southwestern Japan: transformed from other to self by the practices of space, the colony exports the identity of the center back to its origins and the imperial transaction is complete; a transaction begun with Nakayama Kyūzō's transformation of rural space in Hokkaidō into rice cultivation space, from foreign to domestic.

Concluding remarks

As Henri Lefebvre argues, when space is understood and analyzed as empirical material rather than mental matter, social and political relations appear as operations within space and both produced *by* and productive *of* space.[25] Attention to the material spaces of late 19th century Hokkaidō reveals the spatial technologies of modern Japan's first colonial project. Meiji designs

of built space in the city plan of Sapporo, the architecture of some its major buildings, and the transformation of a landscape seemingly inhospitable to wet rice agriculture into a landscape marked by rice paddy provided Tokyo and its colonizers with a central strategy of colonialism; with ways to pacify the problem of Hokkaidō's otherness. Here the destructive practices involved in Ainu dispossession and subjugation and in turning the island into a part of the new nation state's modernizing economy occurred in concert with constitutive practices, for in Shima's city streets with their recovery of a certain history, in the syncretic architectural styles of public buildings and in the spread of wet rice fields, discourses and ideological registers about Japanese identity and Japanese modernity were elaborated in material form to produce spaces at once Japanese and productive of "Japanese-ness" in Hokkaidō thereby easing the passage of the island from wild and foreign place to a productive and naturalized unit of the Japanese state.

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Notes

[1] See for example, Richard Siddle. 1996. *Race, Resistance and the Ainu of Japan*. London: Routledge and Brett L. Walker. 2001. *The Conquest of Ainu Lands: Ecology and Culture in Japanese Expansion, 1590-1800*. Los Angeles: University of California Press.

[2] See Dick Stegewerns. 2003. "The Japanese 'Civilization Critics' and the National Identity of Their Asian Neighbours, 1918-1932: The Case of Yoshino Sakuzo" Li Narangoa and R. B. Cribb, eds. *Imperial Japan and National Identities in Asia, 1895-1945*. London: Routledge, pp. 107-128. Also, Vivian Blaxell. 2008. ["New Syonan and Asianism in Japanese-era Singapore."](#) *The Asia-Pacific Journal*, January 23.

[3] Quoted in Siddle, op.cit. p. 53.

[4] Kōno Tsunekichi. 1902. *Kōno Tsunekichi-shi kengensho*. [Memoriam of Kōno Tsunekichi], Nihon hokuken kankei kyūki mokuroku, document held in the Hoppo Shiryoshitsu, University of Hokkaidō.

[5] Kōzen Noburu. 1978. *Shisetsu kaitaku hangan Shima Yoshitake den*. [The Life of Hokkaidō Colonization Commissioner Shima Yoshitake: An Historical View] Tokyo: Shima hangan kenshokai, pp. 38-39.

[6] Both poems translated into English by the author from a 1978 translation of the original poem into standard Japanese and found in Kōzen Noburu, op.cit. pp. 123-124.

[7] Aoi Akihito. 2005. *Shokuminchijinja to teikoku Nihon*. [Colonial Shrines and Imperial Japan]. Tokyo: Yoshikawa Kobunkan, p. 93.

[8] Kawamura Hisashi, Katayama Kaori, Tamaki Shingo. 1999. "Sapporo-shi ni okeru toshi kōsō

to hōi: Meiji zenki Hokkaidō ni okeru shokumintoshi sekkei shuhō ni kansuru kenkyū (sono 2)” [Town planning and direction in Sapporo: Research on the design techniques of colonial cities in early Meiji period Hokkaidō – No. 2] *Summaries of the technical papers of the Annual Meeting of the Architectural Institute of Japan: Urban planning, building economics and housing problems*. Vol 1999, pp. 261-262.

[9] Berque, Augustin. 1997. *Japan Cities and Social Bonds*. Yelvertoft Manor, Northamptonshire: Pilkington Press. Translated by Chris Turner, pp. 51-52. Berque insists, however, that though the go-board pattern of urban design originating in Kyoto was used in Sapporo, the urban plan itself was very much influenced by American urban planning principles and by American experts. There is no evidence for this. Shima’s plan was developed and put into construction at least two years before the arrival of American expertise.

[10] Harvey, David. 1991. *The Condition of Post-Modernity*, London: Wiley Blackwell, p. 204.

[11] See: Morris-Suzuki, Tessa. 2002. “Shokuminchi to shisō to imin: Toyohara no chōbō kara [Colonialism and migration: From the landscape of Toyohara] in Komoro Yōichi, et al. eds. *Iwanami Kōza Kindai Nihon no bunkashi 6: Kakudai suru modaniti 1920-30 nendai 2* [Iwanami lectures on modern Japanese cultural history, 6: Expanding modernity in the 1920s and 1930s, 2] Tokyo 2002, pp. 185-204; K. Ono and J. Lea. 2001 “Colonial towns of the northern Marianas: Rediscovering the urban morphology of Saipan and Tinian” Seminar presented at the Resource Management in the Asia-Pacific Series, Research School of Asian and Pacific Studies, Australian National University, Canberra, 31 May 2001; Louise Young, *Japan’s Total Empire: Manchuria and the Culture of Wartime Imperialism*, Berkeley: University of California Press, 1997, 248-250.

[12] Mentioned in Kōno Tsunekichi. 1902. *Kōno Tsunekichi-shi kengensho*.

[13] Quote attributed to [Benjamin Smith Lyman](#), a geologist from Northampton, Massachusetts who surveyed Hokkaidō’s mineral resources in the 1870s. Accessed July 8, 2008.

[14] See [this link](#) and numerous other websites such as [this](#) when 日本三大がっかり is used as a search term in Google.

[15] [Kunishitei jyūyōnukazai Hōheikan](#) [A National Important Cultural Property: The Hōheikan], Accessed August 27, 2008.

[16] Endō Akihisa. 1986. “Hōheikan saisetsu” [The Hōheikan Revisited] *Summaries of the technical papers of the Annual Meeting of the Architectural Institute of Japan: Urban planning, building economics and housing problems*. Vol. 1986, p. 1.

[17] Adachi was also the architect for the Nemuro Prefectural Government Office, which bears a remarkable resemblance in overall design to the Hōheikan. See Endō Akihisa. 1965. “[Adachi Kikō bunsho ni yoru Nemuro kenchōsha](#)” [The building of the Nemuro Prefectural Government Office as found in the archives of Adachi Kikō] *Transactions of the Architectural Institute of Japan, extra summaries of technical papers of the annual meeting of AIJST*, No. 40, p. 668.

Accessed August 19, 2008.

[18] Endō Akihisa. 1961. "[Kaitakushi goyōkai Adachi Kikō ni tsuite: Dai 1 hō Rireki to sono gyōseki no gaiyō.](#)" [Concerning Hokkaidō Colonization Commission official Adachi Kikō: Report 1, An outline of his career and achievements] *Nihon kenchiku gakkai kenkyū hōkoku*. No. 56, pp. 75-83. Accessed August 20, 2008. Also *Hōheikan – Seikatei*, Sapporo bunko 15, Sapporo-shi kyoiku iinkai hen www.sapporobunko.jp Accessed August 17 2008. This website offers digitized publications about Sapporo authorized by the city government. The Japanese language software T-Time 5 is required to read the downloaded texts. And [Zenkoku namae jiten](#) at Accessed August 20, 2008.

[19] 2002. *Colonialism and Landscape: Postcolonial Theory and Applications*, Rowman and Littlefield, p. 9.

[20] See Brett L Walker. 2005. *The Lost Wolves of Japan*. Seattle: University of Washington Press, for an illuminating study of the fate of the Hokkaidō and Honshū wolves of Japan.

[21] 1993. *Rice as Self: Japanese Identities Through Time*. Princeton, NJ: Princeton University Press.

[22] All information about Nakayama Kyūzō is taken from Kōno Tsunekichi. 1900. *Nōgyō tokushisha Nakayama Kyūzō-ō jiseki torishirabe yōryō* [Outline of the investigation into the agricultural contributions of Mr. Nakayama Kyuzo] a document held in the Hoppo Shiryoshitsu, University of Hokkaidō, and [this site](#), Accessed December 3, 2007.

[23] [\[Link\]](#) Accessed July 1, 2009. Sum Kong Sut. nd. "[Rice Cultivation in Japan and its Related Problems](#)" Accessed July 1, 2009.

[24] Ohnuki-Tierney, Emiko. *op. cit.* p. 18.

[25] See *The Production of Space*, Wiley-Blackwell, 1992.

“Mounting Modernization: Itakura Katsunobu, the Hokkaidō University Alpine Club and Mountaineering in Pre-War Hokkaidō”

David A. Fedman

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http://www.japanfocus.org/-David_A_Fedman/3236

Not unlike the ways in which early Meiji-era Japanese extended their gaze northward to Hokkaidō in the interest of modernization, in the early decades of the twentieth century, various people became interested in Hokkaidō's alpine landscape informed by a belief in science and technology as the embodiments of modernity and progress. Be it government officials who wanted to develop the land or elite mountaineers who thought that science could help them overcome the challenges of nature, the story of alpinism told by David A. Fedman is one of Hokkaidō's scientific and cultural incorporation into Japan and the conquest of the natural world by modern science. Reading Blaxell's and Fedman's essays together, the authors share a concern with how modernity shaped the relationship between people and the natural world and how this was manifested in the dynamics between Hokkaidō and the rest of Japan. Because they deal with slightly different time periods, the two pieces also raise questions about the extent to which attempts by the state and those outside of Hokkaidō to tame the environment of this northernmost main island was characterized by continuity in concerns, approaches, and aims.

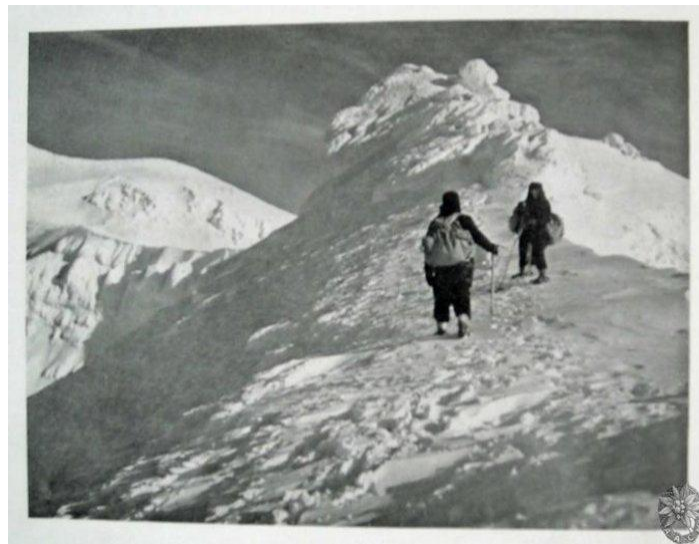
Mounting Modernization: Itakura Katsunobu, the Hokkaido University Alpine Club and Mountaineering in Pre-War Hokkaido

David A. Fedman

Writing in 1919, shortly after his first solo winter ascent of Yarigatake (3180 meters), the then 24 year-old alpinist Itakura Katsunobu waxed poetic on the Japan Alps:

At the seat of heaven
where peaks and valleys come into view
I climb in a sea of whiteness
to see inside myself.[1]

To be sure, Itakura's solo winter ascent marked a significant step in the advancement of alpinism: the popularization and refinement of winter season mountaineering. For decades, Yarigatake had been considered "the mountaineers' mountain," a test piece for any aspiring alpinist. Kojima Usui's successful climb in 1902 marked "the dawn of modern mountaineering," despite evidence that others, including the Buddhist monk Banryū, had beat him to the summit decades earlier. In 1907, alpine luminary Kojima Usui and a team of climbers from the Nihon Sangaku Kai (Alpine Club of Japan) were the first to summit in winter conditions. And then came Itakura: a solo climber on a winter peak, as Japanese alpinists submitted to the unrelenting call to new extremes.[2]



Two climbers approaching the corniced summit of Yarigatake.

Image courtesy of the AACH, Sangakukan, Sapporo, Hokkaido.

Like many adventurous young men in the 1910s, Itakura joined the ranks of a cadre of ambitious mountaineers putting up winter first ascents in the Alps. In contrast to their predecessors, this generation of climbers was singularly focused on Japan's virgin peaks, pulling out all stops to be the first to summit them—in season or out. By the 1920s, alpinism (*arupinizumu*), and its attendant philosophy, had drastically transformed: the previous generation of alpine enthusiasts and recreational climbers gave way to a younger breed of versatile (*katsudōteki*), competitive (*kyōgiteki*), and radicalized (*kagekiteki*) climbers.

Throughout the latter half of the nineteenth century the locus of Japanese alpinism was the vertiginous Shinano highlands, a towering spine of peaks cutting through central Honshu. As Japan's most prominent mountain range and a beacon for foreign climbers, the Japan Alps drew the nation's top climbers to Honshu. It comes as no surprise, then, that the Japan Alps have long had a commanding influence over scholarship on mountaineering in Japan. A cursory survey of Japanese mountaineering literature reveals the centrality of the Alps to the development of the sport throughout the pre-war period. This study, however, contends that beginning in the late 1920s, the nexus of cutting-edge mountaineering shifted to Hokkaido's remote backcountry ridges, as Japanese climbers began to experiment with and refine expeditionary climbing in places like the Daisetsuzan and Hidaka ranges.[3]

This myopic focus on the Japan Alps has undoubtedly obscured Itakura Katsunobu's pioneering legacy in Hokkaido. After enrolling in the geography department of Hokkaido University in 1919, Itakura set off on a little known winter mountaineering campaign to take on, in his own words, "Hokkaido's unconquered snow peaks." By year's end Itakura had mobilized a skilled team of climbers and successfully ascended winter peaks in some of Japan's most extreme conditions. In this way, Hokkaido found a new ambassador for winter season alpinism in Itakura; and Itakura found a new vessel for alpinism in the Academic Alpine Club of Hokkaido (AACH).[4]

Alpinists like Itakura and his contemporaries at the AACH provide critical insight into the cultural milieu of pre-war Hokkaido. Their exposure to what Brett Walker aptly calls "the scientific station" of Hokkaido placed them in the confluence of the prevailing currents of science and technology that set their roots in Hokkaido and, in turn, cast the mold for modern Japan. As Kären Wigen has shown with the Japan Alps, mountaineering in the late nineteenth century became a means to modern "enlightenment"—propagated by the powerful memes of science, literature, imagination, and above all else, modernity.[5] In Meiji era Japan (1868-1912), this march to modernity was fueled by a breakneck campaign of "civilization and enlightenment," and, by the late nineteenth century, mountaineering provided a means to both—at least south of Hokkaido. It was not until decades later that alpine enthusiasts took to Hokkaido's peaks to begin a process of scientific modernization that left an indelible imprint on Japan's mountaineering history and Hokkaido's cultural terrain.

Using the story of the Academic Alpine Club of Hokkaido (AACH), this paper explores the mountains and those who scaled them as a lens into Hokkaido's mountaineering culture and its evolving relationship with the rest of Japan. Notably, the AACH was the first mountaineering club of its kind in Hokkaido, and as such it merits further study as both a pioneering institution and a representative slice of mountaineering culture in this period.[6] Furthermore, as the only official record keeper of mountaineering in this period, the AACH archive—a veritable museum of early mountaineering—provides a rare glimpse into the academic rigor, the scientific experimentation, and the search for adventure that defined Hokkaido's frontier. And yet, despite the AACH's central role in the origination of alpinism in Hokkaido, its vast resources have not been presented in any major treatment on mountaineering history, in English or Japanese.

Long before first ascents were put up across the island, indigenous Ainu populations, Japanese explorers, and government members of the Kaitakushi (Hokkaido Development Agency) trekked through the highlands of Hokkaido—each with different motivations and aims. In the 1920s, however, Hokkaido's alpine landscape began to change: pitons were hammered, ropeways went

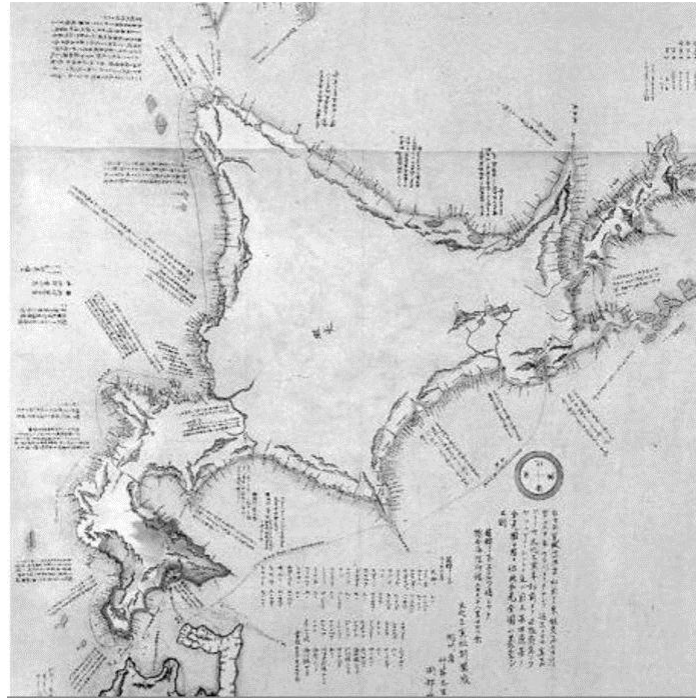
up, and passes were abandoned for peaks. As Kären Wigen has observed, “turn-of-the century alpine enthusiasts celebrated the fact that climbing mountains was modern...to the point of disowning its indigenous, pre-modern roots.”[7] Alpinists in Hokkaido were no different, but their story comes much later. Before we address it, however, we must first understand the role of Hokkaido’s mountains before they were climbed for sport—the subject to which we now turn.

The Place of Mountains in Meiji Era Hokkaido

Most Japanese treatments of mountaineering history date the advent of modern alpinism to the arrival of Commodore Matthew Perry and his black ships—that is, as concomitant with the opening of Japan to the western world.[8] In its earliest stages, mountaineering in Japan was advanced greatly by the efforts of “hired foreigners” (*yatoi gaikokujin*). These early climbers were limited to Mt. Fuji and its surrounding peaks—those easily accessed from Tokyo and its outskirts. It was not until the efforts of the Englishman William Gowland (1842-1922) and the subsequent arrival of missionary-cum-mountaineer Walter Weston (1860-1940) in 1888 that the locus of mountaineering shifted to the Alps.

In the following decades, mountaineering activity on Honshu increased considerably. Regular trail systems, publications, and guidebooks skyrocketed to popularity around the turn of the twentieth century and climbing vocabulary such as alpinist (*arupinisuto*) and mountaineer (*gakujin* is one of many variations) made its way into the popular vernacular. In Hokkaido, however, the onset of summit-oriented mountaineering—as opposed to forays into the mountains for practical endeavors such as hunting, foraging, or surveying—did not come until the late 1910s, an indication of both the difficulty of Hokkaido’s still inaccessible alpine terrain and, perhaps more importantly, of its place outside of the cultural sphere of Tokyo and the influence of the “small cadre of cosmopolitan climbers” identified as the catalysts of Meiji mountaineering.[9] In other words, prior to the arrival of Itakura, Hokkaido’s peaks remained on the periphery of the Japanese alpine imagination, despite the government’s comprehensive effort to hem the island into the cultural fabric of modern Japan.[10]

Central to this comprehensive effort was mapmaking. While the Japan Alps were enjoying what historian Shigeo Yasukawa has called “mountaineering fever” (*tozan netsu*) around the turn of the century, Hokkaido was in the midst of its “age of exploration” (*tanken no jidai*).[11] Prior to the 1870s, mountains in most parts of Hokkaido were terra incognita—both uncharted and unclimbed. As Brett Walker has shown, throughout the century preceding the Meiji era, Hokkaido saw a major influx in Japanese cartographers, explorers, and frontier communities. “By 1778,” writes Walker, “the Bakufu [central government], in an effort to compete with encroaching Russian interests in Hokkaido and throughout the northern territories, arranged for an exploration of the territories.”[12] This and other early forays into the northern territories were, however, principally focused on mapping the coastline of Ezo (present-day Hokkaido) as a means to stake national claims over sovereignty in the universalizing language of scientific maps. As a result of this vigorous campaign to map Hokkaido’s coastline, alpine areas—and indeed much of the interior of the island—were left as blank swatches of land. It was not until the establishment of the Kaitakushi (Hokkaido Development Agency) in 1870 that a concerted effort to map Hokkaido’s inland territories was initiated. Spurred on in part by the growing necessity for reliable topographic maps, development agents shifted their sights to Hokkaido’s inner regions, looking for viable routes for infrastructure, commerce, and natural resource reserves.[13]



A map of Hokkaido. Note the unmapped interior of the island.

Courtesy of Hokkaido University, Northern Studies Collection, Sapporo, Hokkaido

Naturally, the mapping of Hokkaido's alpine terrain was a precursor to and catalyst for mountaineering activity. Indeed, as Kären Wigen has observed "in the late 1800s, mountaineering was part and parcel of modern geography."^[14] In Japan, as in many parts of Europe, geography provided an important professional *raison d'être* for Meiji mountaineers who in turn honed technical climbing skills and disseminated alpine knowledge to the rest of the Japanese population now eyeing the once inaccessible mountaintops.^[15] Unsurprisingly, geographer-cum-climber figures, both foreign and Japanese, hold a commanding influence over the earliest stages of Japanese mountaineering history.^[16] In 1874, Benjamin Smith Lyman (1835-1920), an American mining engineer and Kaitakushi surveyor, "explored the towering Taisetsuzan range while seeking the source of the Ishikari River."^[17] His expedition journal includes notes on geography, topography, natural sciences, and access to the range's towering mountain peaks—information that would later be used by mountaineers, including those at the AACH.^[18] Unlike mountaineers on Honshu, however, Kaitakushi agents were looking for mountain passes for roadways and railroad tracks, not the challenge of reaching the summit. This stands in marked contrast to the Alps, where many climbers were beginning to orient their climbing to the summit as part of the race to be the first to bag virgin peaks.

The development of cartographic knowledge and the establishment of an island-wide infrastructure engendered new perceptions of Hokkaido's alpine territories. Traditional reverence for the peaks, long espoused by the diminishing populations of indigenous Ainu, were displaced by a regime of knowledge based in science and development that came as part and parcel of the imperial project. Hokkaido's peaks no longer represented lush ecosystems abounding with animal and plant deities (*kamuy*, in Ainu) that were to be protected and revered.^[19] Rather, by the turn of the century, they had been appropriated into an imperial agenda that championed the strategic importance of resource harvesting and the efficacy of scientific progress. Trails began

to honeycomb the major peaks, surveying stations and mountain outposts were constructed deep in Hokkaido's mountain ranges, and scientists and surveyors quickly made their mark on the countryside. While Ainu guides were frequently employed to navigate the remote alpine terrain, their command over the alpine environments of Hokkaido was quickly transferred to the frontier explorers and brought to bear in the strategic effort to modernize the island.

The delayed onset of mountaineering in Hokkaido comes as no surprise when one considers two other realities that set its highlands apart from other Japanese regions at the time: the long approach and the severe winter conditions. Whereas the Alps had been made accessible through a vast network of trains, logging roads, and well-marked mountain trails, in Hokkaido a basic infrastructure, to say nothing of alpine trails, was barely in place well into the twentieth century.[20] As a result, many of Hokkaido's mountainous regions were left inaccessible to those who wanted to climb them. Moreover, approaches in Hokkaido made its peaks extremely taxing, requiring intense planning, enormous amounts of supplies, and large expedition-style climbing teams. The AACH was the first group that put together an organization that was up to this test, placing its members on the cutting edge of their craft. Expedition-style climbing, a precursor to the siege tactics that would characterize the next step in the evolution of Japanese mountaineering techniques, was born in Hokkaido, nurtured and refined by Itakura and his cohorts at the AACH.

Itakura Katsunobu and the Gospel of 'Dynamic Mountaineering'

Itakura's upbringing is worth brief mention, in part because it is similar to that of many other alpinists of his day. Born in Toyama Prefecture on December 12, 1897, Itakura spent his childhood near the base of Tsurugidake—one of the Alps' most awe-inspiring peaks. As a teenager, he relished mountain literature, absorbing Shiga Shigetaka's classic *Nihon fūkeiron* and the many mountaineering publications of the thriving Nihon Sangaku Kai (Alpine Club of Japan). At the age of fifteen, Itakura joined a local mountaineering club, where he first climbed with the Austrian mountaineer Leopold Winkler. After two summers roped up with Winkler in the Alps, Itakura had developed a versatile set of mountaineering skills and had firmly established himself as one of Japan's trailblazing alpinists. To his elation, Itakura was invited to join the Nihon Sangaku Kai in 1917.[21]

Soon after his sensational solo ascent of Yarigatake in the Northern Alps in 1919, Itakura began a radical campaign of solo winter season climbing. This solo campaign—that is, climbing without a rope partner or support team—was the next step in the race for first winter ascents in the Alps. While other climbers were vying for alternative routes and variations to the already “conquered” Alps, Itakura decided to up the ante and go it alone.

By early 1919, Itakura had made a reputation for himself as a fearless, if not reckless, climber, and was featured in numerous mountaineering journals, including *Sangaku*—the very magazine that had fed his alpine appetite as a young boy. Itakura's 1919 winter campaign in the Alps is credited with the creation of a new mountaineering style: dynamic mountaineering, or what Ikeda Tsunemichi has described as “a powerful mix of rock climbing, snow climbing, and skiing rather than walking up slopes.”[22] The advent of dynamic mountaineering marked not only the transition to winter season mountaineering, but also the incorporation of various climbing tools including the multi-loop harness, a crude prototype of the ice screw, and mountaineering boots capable of interchanging between skis and crampons.

In a period of burgeoning consumer culture and a growing literate population in many parts of Japan, mountaineering publications served as an expeditious means for spreading the alpine gospel. While most alpinists of the 1920s helped to popularize mountaineering through the written word, Itakura displayed little literary ambition, though he did maintain personal climbing diaries. Instead, he initiated an ambitious campaign of hands-on instruction: holding workshops and clinics on mountaineering techniques throughout Honshu, and taking young and inexperienced climbers into the highlands, much like he did with the AACH.[23] If twenty years earlier Japan had found “a veritable mountaineering missionary” in Kojima Usui and his writings, by the 1920s Itakura had become the spokesman (or more precisely, stuntman) for the new generation of more radical winter climbers.[24]



Itakura Katsunobu in 1922. Courtesy of the AACH, Sangakukan, Hokkaido University, Sapporo.

In 1919, Itakura moved to Sapporo to begin his studies at Hokkaido University, an institution with a close connection to the Kaitakushi and a long history of alpine studies—including Japan’s premier geography department. It did not take long for Itakura to light upon like-minded alpine enthusiasts. In 1920, he joined what was then the Hokkaido University Ski Club, where he met a core group of climbers. Within two years, with the help of his friend Maki “Yūkō” Aritsune (who was supplying mountaineering equipment including sets of crampons, axes, and ropes from Switzerland),[25] Itakura and other more adventurous comrades from the Ski Club had abandoned the ski slopes for winter snow peaks. Before they could climb, however, they needed a crash course in winter mountaineering—something only Itakura could deliver.[26]

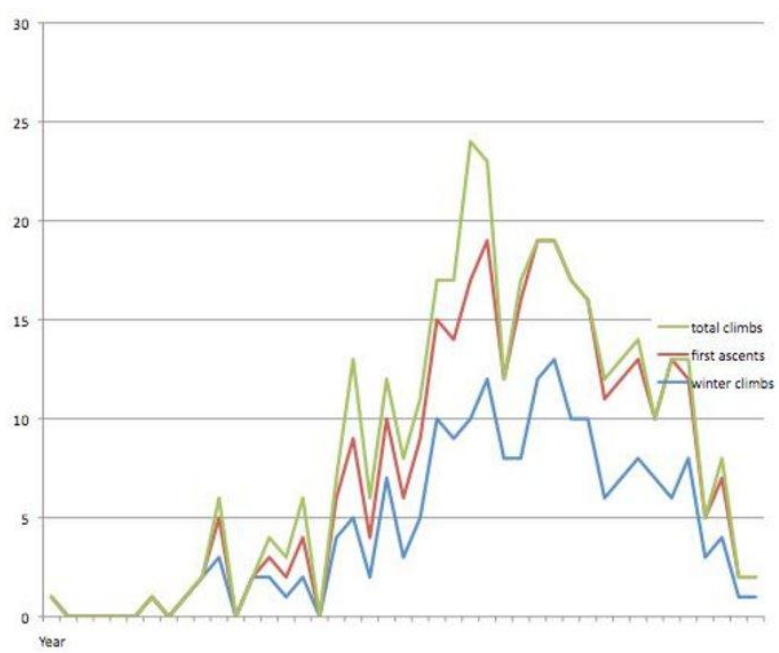
Contemporary sources reveal that the club started with the basics. Records from 1921 indicate that the Hokkaido University Ski Club held its very first workshop on basic mountaineering skills, trading in their skis for crampons and poles for axes. Itakura, described in these documents as the club’s “*senkusha*” (pioneer), served as the head instructor, creating a strict training regimen that included summer rock climbing, winter skiing, conditioning, and basic skills training such as map reading and survival skills. This regimen continued throughout the next three years until Itakura’s graduation—and likely persisted thereafter.[27]



Itakura and the founding members of the Hokkaido University Alpine Club on Asahidake.

Image courtesy of the AACH, Sangakukan, Sapporo, Hokkaido.

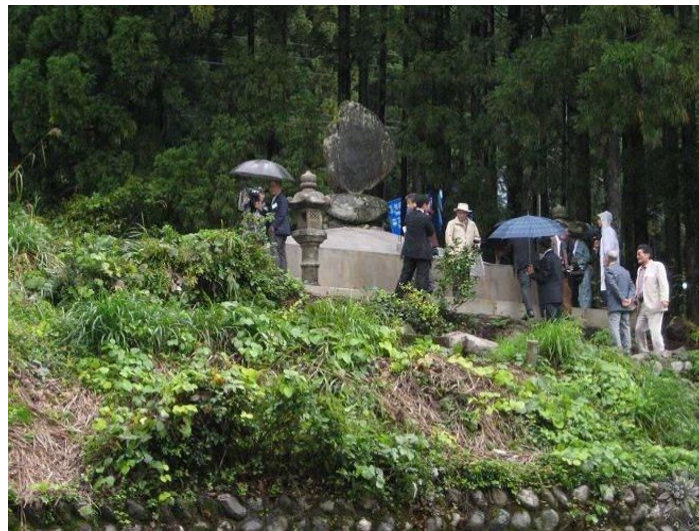
In January 1922, the club attempted the first winter climb of Asahidake (2216 meters), summiting four members from the Yokomanbetsu ridge to the southwest. Later that same winter, a team of six climbers, led by Itakura, summited Kurodake (1984 m) after spending three days pinned down in a whiteout. This slew of audacious yet successful climbs ushered in an era of winter expedition-style alpinism that can only be described as a tour de force: during the two decades to follow the club tallied over 100 first winter season ascents as the premier—and virtually sole—institution mounting winter climbs in Hokkaido.



A graphical representation of the AACH's climbing activities, 1903-1945. Based on data compiled by Nakamura Haruhiko in the "Hokudai sangaku yama no kai, hachijyū shūnen nenpyō," Academic Alpine Club of Hokkaido.

Itakura, of course, was not one to rest on his laurels. During the season when Hokkaido's snow melted off, Itakura returned to the Alps, where he spent his summer vacations pioneering the sport of rock climbing—roping up with the likes of Maki Aritsune to put up alpine classic routes throughout the Northern Alps. Both Itakura and Maki were involved in the establishment of the Rock Climbing Club (RCC) of Japan. The RCC, like the Nihon Sangaku Kai, firmly established itself as the premier training ground for technical rock climbing, and, by 1926, had launched a groundbreaking series of expeditions to Europe.[28]

As is too often the case with ambitious alpinists, Itakura's life was tragically cut short. On January 12, 1924, while on a trip to Tateyama with some of his fellow Hokkaido University climbers, Itakura and two others were separated from their party in a sudden storm. After a two-day struggle to locate Itakura in what one member recounted as “a tempest,” the party reluctantly departed from the hut in which they had taken refuge, leaving Itakura and his companions to die of exposure somewhere below the ridgeline.[29] He was 27. He is enshrined in Toyama near the base of Tateyama, where alpinists continue to pay their respects to the lesser-known founding father of the sport.[30]



A picture of AACH “Old Boys” visiting Itakura’s monument at Ashikuraji in Toyama Prefecture.

Image courtesy of the AACH, Sangakukan, Sapporo, Japan.

Although Itakura did take extensive notes on his expeditions, his lack of interest in publication suggests that he was climbing principally for the challenge and thrill of the ascent—a trait that sets him apart from previous generations of recreational climbers, or what Wigen brands as “armchair alpinists.”[31] A cursory glance at Itakura's writings shows that he was, above all else, attempting to push the limits of human resolve, a point that he expresses time and again in his posthumously published memoirs, *Yama to yuki no nikki* (A Diary of the Mountains and Snow). Void of scientific analysis, technical details, or Arcadian sentimentality, Itakura's writings can perhaps best be described as those of a bone fide mountain realist. He writes:

Humans come face to face with their limits in the mountains, and to achieve what was once thought impossible is the true thrill of the hills. Risk and sacrifice is the way of life at altitude... We climb not just because it is fun, but to test the limits of the human will.[32]

In retrospect, this passage, written within a year of his death, portends the untimely fate of a man living, quite literally, on the precipice.

Alpinism Starts its Climb

In the fall of 1926, nearly two years after Itakura's death, his climbing partners in Hokkaido formally broke from the Hokkaido Ski Club to form the Hokudai sangakubu (Hokkaido University Alpine Club)—the same institution that exists today. The club that initially began with seven members had by 1928 swelled to sixteen members. By 1935, it had 33 members (all male) within its ranks and by 1937 it reached its zenith at 39.[33] As a result, the club's expeditions grew more frequent and included larger numbers of climbers. These large teams (sometimes of up to 14 climbers) were integral to the refinement of the AACH's innovative expedition-style siege tactics. Naturally, the AACH also grew more ambitious, utilizing its growing ranks to put up impressive first ascents in the Daisetsuzan Range in central Hokkaido.



A panoramic shot of the Daisetsuzan range taken from the summit of Tokachidake.

By the late 1920s, it seems that the popular mountaineering culture emanating from the Alps had at last reached Hokkaido's shores. A few pivotal developments in this period—some confined to Hokkaido and others felt nationwide—help to explain this phenomenon.

The most easily identifiable is advancements in print and broadcast media. Due in large part to the efforts of scores of climbing advocates extolling alpine virtues through the enhanced media of radio and print, alpinism had reached new heights in the realm of popular culture. Mountains and mountaineers were featured in numerous magazines, now distributed nationwide. Major publications including *Yama to keikoku* (Mountain and Valley, founded 1930) and *Gakujin* (Alpinist, founded 1935) saw a significant and steady expansion of their readership.[34] These widely circulated publications offered advice on climbing techniques, equipment, guide services, and alpine photography (another burgeoning field).[35] Radio programs included interviews with mountaineers and exhilarating reports on the progress of Japanese mountaineering feats, including the sensational ascent of the Eiger from the Mittellegi Ridge by Maki Arisune in 1921. Films including a dramatic re-enactment of Maki's ascent as well as more lighthearted shorts like *Yama no naka* (Inside the Mountains) were available in theaters in Tokyo and other urban areas.

Another critical force driving the popularization of mountaineering in this period was the Nihon Sangaku Kai (Japan Alpine Club, JAC hereafter), founded in the fall of 1905 by Kojima Usui and other alpine enthusiasts.[36] The JAC actively recruited alpine enthusiasts—using a charter that established lax rules for eligibility—and became an efficient fundraising machine. Importantly, the JAC oversaw—and funded—the creation of mountaineering clubs throughout Honshu, concentrating initially on Japan's elite national universities. The JAC sponsored expeditions abroad and hosted climbers from across the globe to experience the Japan Alps, outfitting them with equipment and connecting them with guides.[37] Additionally, the JAC established and expanded Japan's premier mountaineering literature publishing house.[38]

As Andrew Bernstein has shown, another important development was that mountains (and the act of climbing them) had become a powerful symbol of the Japanese nation-state, and of the

modernity that lay at its foundation. Detached from their previous religious significance, mountains—especially Mt. Fuji—became central to the imperial project, both as a laboratory for scientific experimentation and as a playground for recreation.[39] Mountains in this period were thus wedded to a modern regime of knowledge (derived from the newly flourishing disciplines of geology, meteorology, physiology, and others), which brought their resources into the national effort to understand and, in turn, triumph over the natural world.[40] What is more, mountain climbing was appropriated into the discourse on exercise and the body, providing a new means for creating a healthy, hardy citizenry. Importantly, these nationalistic forces, and the practical political considerations at their core, did much to weave Hokkaido's local spaces into the cultural fabric of the rest of Japan.[41] The "northern frontier," a territory that just forty years earlier had lain at the fringes of the Japanese nation-state, was now repositioned within the boundaries of Japan's geographical imagination—scientifically, politically *and* culturally.

In Hokkaido, growing access to the island's backcountry was another force behind the mountaineering boom of the 1930s. As Kaitakushi officials indefatigably pursued the development of the island, the northern frontier—including its remotest peaks—was opened by a series of roads, tracks, and trails.[42] It was not long before small mountain huts, used and maintained by mining communities, were built far up in the mountains in places near Asahidake and Furanodake. These mining communities served as important links between Hokkaido's highlands and the teams of explorers, surveyors, and eventually mountaineers who were then pursuing distant peaks and passes.[43]

Perhaps the greatest legacy of the frontier development of Hokkaido, however, was the promotion of science and its inextricable link to progress, as was almost religiously espoused by the Kaitakushi. "Drawing on the U.S. experience," writes Brett Walker, "Hokkaido's working lands became nothing less than laboratories—literally, experiment stations—where the Kaitakushi...tested newly imported agriculture technologies." [44] The mountains, too, were experiment stations, for it was in the highlands that Kaitakushi officials deployed new mapping and mining techniques and refined the sciences of geography, mineralogy, and surveying that were a central part of their mission. Revealingly, the Kaitakushi had for years been headquartered at the Sapporo Agricultural College founded in 1876 (which became Hokkaido Imperial University in 1918). As such, it did not take long for the AACH to anchor its mountaineering techniques to this faith in science, as it was quickly applied to the climbing techniques and technologies implemented by the AACH in the years to come.

In any case, by the early 1930s Hokkaido was beginning to be recognized as a new frontier of climbing—a training ground for a form of mountaineering new to Japan. The advent of expedition-style climbing—that is, siege-style climbing based on the laborious installation of multiple base camps and caches (as opposed to a swift approach completed in one fell swoop)—marked a new chapter in Japan's mountaineering history, and an important reorientation of the efforts and energies of Japanese mountaineers towards Hokkaido.



A group shot of the Hokudai Sangakubu.

Image courtesy of the AACH, Sangakukan, Hokkaido University, Sapporo.

The Battle for Petegaridake

By the late 1930s, the AACH had completed winter first ascents of nearly every major peak in Hokkaido. Thus, beginning in 1937, the AACH initiated what Ikeda Tsunemichi has described as the “race to traverse plural peak ridges...in winter.”[45] In the winter of 1937, a team of ten climbers successfully traversed the Daisetsuzan range over a period of three weeks.[46] The club next shifted its focus to the Hidaka range to the southeast, where it would spend the next four years engaged in a spectacular “struggle” (*chōsen*) to open the unclimbed winter range; and its greatest battle to “conquer” (*seifuku*) the merciless Petegaridake.[47]

When one considers its remote location, its erratic climate, and the intricate web of knife’s-edge ridges that runs through its spine, it comes as no surprise that the Hidaka range was the last to be traversed in Hokkaido.[48] In order to surmount this formidable topography, the AACH transitioned its climbing technique from that of alpine-style climbing to expedition-style climbing. In dealing with these grueling traverses, the AACH devoted a great deal of time to strategic planning and innovation. The AACH archives overflow with documents from this period outlining the preparation of equipment outlays, food caches, and contingency routes that were an essential part of the AACH’s highly successful expeditionary climbing.

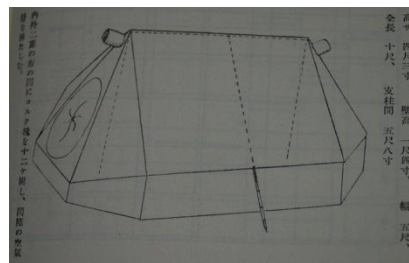


Two AACH climbers negotiating the Hidaka range’s winter ridges.

Image courtesy of the AACH, Sangakukan, Sapporo, Japan.

It did not take long for the club to successfully traverse most of the range—completing climbs from Pirikanopuri (1631 m) to Nakanodake (1519 m) in the south and Kamuiekuchikaushiyama (1979 m) to Idonmappudake (1752 m) in the north. In 1937, the club attempted a traverse from Koikashūsapporodake to Petegaridake, but was forced to turn back near the summit due to bad weather and gale force winds. This failure only steeled the AACH for another attempt to conquer what one member described as the “crown jewel” of the Hidaka range. The club continued its expeditions to the range throughout the decade, and by 1940 only Petegaridake stood in its way.[49]

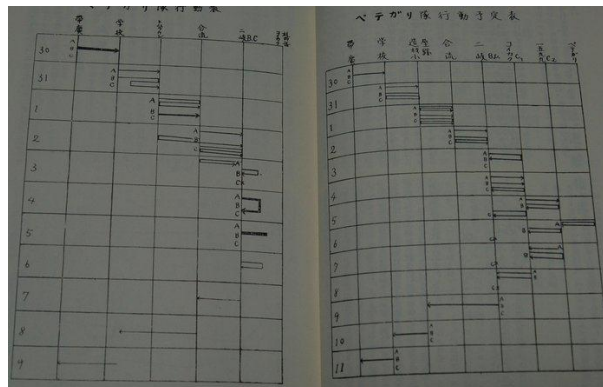
Naturally, in its effort to conquer Petegaridake, the AACH turned to modern alpine technology.[50] In 1937, the AACH began a strategic map-making project and employed the various skills of its members to, among other things, draw pictures, take photographs, record detailed scientific calculations of snow conditions, and build scale models of the range in order to gather the intelligence it needed to triumph over Petegaridake. Records indicate that the AACH was even involved in developing new mountaineering hardware: numerous documents contain prototype drawings of winter climbing equipment—including tents, skis, and cooking stoves.[51] One team, led by club president Oikawa Sei, was put in charge of designing a new tent. What they produced was an impressive four-season tent, supported by strengthened metal poles, and a pulley system to securely cinch closed the dual doors and air vents. The tent was tailor-made for long treks and high altitude camping, and was the first of its kind.



A prototype drawing of the tent designed for the harsh conditions of the Hidakasanmyaku range.

Courtesy of the AACH, Sangakukan, Hokkaido University, Sapporo.

Yet another team drew up an expedition itinerary, dividing the ten-man team into three summit groups, each assigned a different rotation in the climbing schedule and maintenance of the four different camps along the route.



An expedition schedule of the AACH attempt of Petegaridake in 1940.

Courtesy of the AACH, Sangakukan, Hokkaido University, Sapporo.

One might think that these men were taking a crack at Everest. But all of this effort was for a mountain standing at a humble 1736 meters. After nearly six months of planning and preparation, the AACH was ready for another attempt at the siege of Petegaridake.

On December 29, 1940 a team of climbers departed Sapporo bound for Petegaridake. On January 2, 1940, the ten-man team set up their advanced base camp near the banks of the Satsunai River and settled in to wait for a stretch of good weather. On January 5 it came, and the team set off for camp II, determined to dig in just above the ridge of Koikashūsatsunaidake (1721 m). One member of the team, Hashimoto Ryō, stayed behind, stricken with “a nasty cold.” After a long approach leading to the gulley that would take them up to the ridge, the team sat down for lunch before the exhausting push up to the ridge. At around noon the team shouldered their packs and readied their axes for the steep climb ahead. Slowly but steadily they advanced towards the ridgeline. Then, suddenly, a large slab of corniced snow and ice broke loose, triggering an avalanche that instantly entombed the party. Only Uchida Takehiko, the climber at the tail end of the team, survived the avalanche (due in large part to the heroic search-and-rescue effort by Hashimoto).



The last photograph taken of the AACH party lost in the 1940 accident. On the far right, facing the camera, is Uchida Takehiko, the only survivor of the accident.

Image courtesy of the AACH, Sangakukan, Hokkaido University, Sapporo.

After carrying out a thorough search for the remaining eight members, and determining that they were beyond recovery, Hashimoto retreated to the nearby town of Sapporosatsunai (a taxing two-day hike away), where he dispatched the following terse telegram, whose original is still preserved in the archives of the AACH:

Showa 15, January, 9

To: Oikawa Seia [Club Leader]

Petegari, on the 5th; Koiboku [name of gulley], just under the ridge; Wrapped in avalanche; Kasai, Arima, Katayama, Tokura, Shimizu, Haneta, Kondō, Watanabe lost; No hope (*nozomi nashi*); Uchida and Hashimoto spared.[52]

The telegram was received early in the afternoon of January 9th, and a rescue party was deployed within hours, despite the fact that the party had been trapped under the avalanche for nearly four days.

News of the accident sent shockwaves throughout the country, with stories of the accident running on January 10 in every major newspaper—including the widely read *Tokyo Asahi Shimbun*, *Yomiuri Shimbun*, and *Tokyo Nichinichi Shimbun*. Most of these articles, bearing headlines like *Yomiuri Shimbun*'s “Eight Perish in Avalanche Accident,” simply laid out the facts of the incident: the names of the deceased, the time, the place, and so forth. However, a series of more detailed articles in the *Hokkai Times* (*Hokkai Taimuzu*) conveyed the grizzly details of the search to dig up the bodies and return them for burial.



The Hokkai Taimuzu, January 10, 1940, detailed the accident and the climbers lost.

Public shock and outrage persisted for weeks, but it was not until the publication of a seething editorial in the *Hōchi Shimbun* on January 21 that the AACH was publicly condemned for its actions. Bearing the title “To Those Who Tempt the White Devil,” the author, writing under a pseudonym, excoriated the “pervasive hysteria” of the sport, urging young climbers to eschew “their foolhardy faith” and not to forget the legacy of the lost climbers. In one revealing passage, the author opines as follows:

That nine [sic. eight] bright young men were lost for no other reason than to climb for notoriety reveals the irrationality at the heart of the sport. What was once a leisurely and safe pastime is now a reckless competition, squandering the potential of many of our nation's youth...Climbers must reconsidered their priorities...How many more lives will it take?[53]

Passages such as this one further stoked the flames of public outrage, prompting the AACH to defend itself in an editorial published in the Hokkaido University newspaper, and picked up by papers like *Hokkai Taimuzu* and *Yomiuri Shimbun*. The club wrote:

We had planned all contingencies and had no way of predicting the freak accident. We cannot bring back our lost colleagues, but we can remember them by taking every opportunity to scale back risk in the future...We cannot, however, give up on the mountains...that would be to betray the friends that we lost.[54]

On February 18, the AACH members held a town hall meeting where it gave an account of the accident and presented a defense of its own actions, asserting, provocatively, that they would not stop climbing: “to conquer Petegaridake is the only way to honor the lost; to abandon the

challenge is to render their deaths in vain.” As promised, a team of AACH climbers returned to the Hidaka range in 1942, and after two taxing attempts finally completed the first successful “siege” of Petegaridake—traversing from the Koikashū ridge on January 5, 1942.

The story of Petegaridake is illuminating not only because it provides insight into the motivations that drove these men into the heart of Hokkaido’s most dangerous peaks, but also because it elucidates an important division between Japan’s elite climbers and the general public. Not unlike the public outcry that followed in the wake of the legendary Whymper Party accident on the Matterhorn in 1865, media outlets around the country began to question the value of the sport and the escalating levels of risk involved. This, in turn, forced climbers to defend mountaineering for the first time and articulate a rational justification for why they should continue to climb.[55]

Those justifications are revealing. Central to their defense is a deep faith in science and progress as a means to triumph over existing natural forces. Indeed, what is striking about the story of Petegaridake is how its ascent was conceived in military terms: as a “battle” (*sentō*), planned by a “council of war,” against a mountain to be defeated.[56] Confident in the virtues of technology, science, and the art of war, these men lost their lives in the pursuit of a mountain they had climbed in-season countless times before. The competitive drive spurred on by the eternal race to be the *first* was no doubt also at the core of their ambition. In order to sustain the legacy of their predecessors—including the likes of such pioneers as Itakura—the AACH had been forced to search for new extremes and to take new risks.

Conclusion

By 1940, the effects of total war had begun to take a toll on the AACH, limiting the club’s enrollment to fewer than 10 members. Although the club managed to complete climbs throughout the war, its ambition and resources were markedly curbed, as they averaged a mere three climbs per year from 1941-45. Most of the club’s members were sent off to the front. Indeed, mountaineering clubs throughout the country were forced to cut back (or, in some cases, halt entirely) their alpine activities through the war years. The development and evolution of Japanese mountaineering was thus suspended until the Himalayan big peak explosion that came nearly a decade after surrender.[57]

Alpinism in the pre-war period, as the story of the AACH has shown, was deeply rooted in modern science and its subjugation of the natural world. Indeed, as Peter Hansen described with reference to the transformation of Swiss Alpine mountaineering decades earlier, “mountain conquest transferred prestige from the mountain to the climber.”[58] In Hokkaido the philosophical and ideological mores of climbing culture were similarly and immutably altered. Previous notions of reverence and awe that once tempered humankind’s relationship with the mountains were forever changed by a new emphasis on the ability to subjugate or conquer the landscape, and the advent and advancement of winter mountaineering only further supported this notion. The writings of the AACH ring with language expressing confident dominance over the mountains through which they tread.[59] This outlook no doubt sprang from the decades-long legacy of modernization that had already transformed Hokkaido’s alpine frontier.

The subtle undercurrent of the story of the AACH is the gradual shift in perceptions of Hokkaido that brought its mountains to the fore of the Japanese alpine imagination. By 1940, Hokkaido’s peaks featured prominently in alpine journals and magazines and heralded, by the climbing

monthly *Gakujin*, for example, as “the training ground for *modern* mountaineering expeditions.”[60] This stands in marked contrast to the turn-of-the century alpine literature that expressed but a tincture of interest in scaling the mountains of Hokkaido. That alpinists in the 1930s came from all over the country to experience the unique conditions of Hokkaido’s peaks demonstrates not only the heightened interest in winter season mountaineering, but also Hokkaido’s legitimated status as a part of the Japanese empire. Indeed, as Japanese began to look outward toward empire in Asia, they quickly forgot that Hokkaido was once a liminal space on the fringes of the nation. In the process, Hokkaido’s mountains were thrust to prominence as modern symbols of an otherwise provincial frontier: as the givers of vital resources and scientific truths that lay at the core of modern Japan’s political and intellectual identity.

If any single individual could embody the culture that colored Japan’s alpine consciousness in this period, it was Itakura Katsunobu. His exposure to the radical developments in technology and science that were at the core of alpinism propelled him to the cutting-edge of the sport. Furthermore, his willingness to embrace these developments and fashion them into his own style of climbing set him apart from many of the more seasoned alpinists of his day. More compelling than a hunger for extremes, however, was Itakura’s curiosity: he wanted nothing more than to shatter the limitations he had set for himself. This type of natural curiosity will forever drive mountaineering and its trailblazers to new extremes. Indeed, the alpinists who followed in Itakura’s wake knew this all too well, for he and many of his fellow AACH climbers lost their lives with “their heads in the sky and their *sights to the summit*.”[61]

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Notes

[1] Itakura Katsunobu, *Yama to yuki no nikki*, (Sapporo: Nihon sangaku meitai zenshū, 1962), 195.

[2] For a detailed account of Kojima’s ascent see Kondō Nobuyuki, *Kojima Usui: Yama no fūryū shisha den* (Tokyo: Sōbunsha, 1978); For more on Banryū’s alpine exploration see Matsuura Takashirō, “Banryū shōnin ni yarigatake kaizan” (Sokayama no kai: 2004).

[3] For more on Itakura’s mountaineering feats in the Alps see Yasukawa Shigeo, *Kindai nihon tozan shi* (Tokyo: Kiseitsu shokan, 1976), 339-359; and Tsunemichi Ikeda, “From the Japanese Alps to the Greatest Ranges of the World,” in *Japanese Alpine Centenary*, (Tokyo: Alpine Club of Japan, 2005), 31-36.

[4] Itakura, *Yama to yuki no nikki*, 211.

[5] See Kären Wigen, “Discovering the Japanese Alps: Meiji Mountaineering and the Quest for Geographical Enlightenment,” *Journal of Japanese Studies*, Vol. 31, No. 1, (2005).

[6] Due in great part to the relative youth of settlements in Hokkaido, Hokkaido University was the only national university (*kokuritsu*) on the island, which made the AACH the only sponsored mountaineering club until the end of the Second World War. While a few *tankenbu* (exploration club) and *wandabogeru* (wandervogel, in German) existed at Hokkaido University, no other club actively pursued technical mountaineering until the late 1950s. After the postwar education reforms numerous universities were founded, and with them came an influx in university mountaineering clubs.

[7] Wigen, “Meiji Mountaineering,” 5.

[8] See, for example, Yasukawa Shigeo, *Kindai nihon tozan shi*, 1-11. Yasukawa periodizes the advent of modern mountaineering history as concurrent with the arrival of Perry’s blackships in 1853, and devotes a great deal of attention to the influence of foreign climbers on pioneering Japan’s first major ascents; see also Alpine Club of Japan, *Nihon sangaku kai hyakunen shi* (Tokyo: Nihon sangaku kai, 2007), 5-14.

[9] Wigen, “Meiji Mountaineering,” 1.

[10] For an exhaustive analysis of this effort to rein in Hokkaido see [Vivian Blaxell](#), “Designs of Power: The “Japanization” of Urban and Rural Space in Colonial Hokkaidō,” *The Asia-Pacific Journal*, Vol. 35-2-09, August 31, 2009.

[11] See “Tanken no jidai,” in *Me de miru nihon tozan shi* (Tokyo: Yama to keikokusha, 2005), 28.

[12] Brett Walker, “Mamiya Rinzō and the Japanese Exploration of Sakhalin Island: cartography and empire,” *Journal of Historical Geography*, Vol. 33, (2007), 288.

[13] The two most prominent industries pursued by the Kaitakushi in Hokkaido at the time were coal mining and timber harvesting. See *Kaitakushi jidai*, (Sapporo-shi Kyōiku iinkai: 1989), 33-60.

[14] Wigen, “Meiji Mountaineering,” 6.

[15] Literature on mountaineering is prodigious. See, for example, Colin Wells, *A Brief History of British Mountaineering*, (London: British Mountaineering Council, 2002); Peter H. Hansen, “Albert Smith, the Alpine Club, and the Invention of Mountaineering in Mid-Victorian Britain,” *Journal of British Studies*, Vol. 34, No. 3 (1995); Fergus Flemming, *Killing Dragons: The Conquest of the Alps*, (London: Granta Books, 2000); and Trevor Braham, *When the Alps Cast Their Spell: Mountaineers of the Golden Age of Alpinism*, (New York: In Pinn, 2004).

[16] Shiga Shigetaka, for example, studied geography at Sapporo Agricultural College in Hokkaido and went on to play a central role in the popularization of mountaineering in the late nineteenth century. See Wigen, “Meiji Mountaineering,” 6-10. Other geographer-cum-climbers include Benjamin Lyman and Itakura Katsunobu.

[17] “Hito wa naze yama ni noboru no ka,” in *Taiyo Bessatsu: Nihon no kokoro*, Vol. 103,

Tokyo: Heibonsha, 1998), 60. Special thanks to Martin Hood for bringing this passage to my attention.

[18] Lyman's journals are available in the Northern Studies Collection, Hokkaido University, Sapporo, Japan. Taisetsuzan is a less common transliteration of Daisetsuzan, a towering mountain range in central Hokkaido.

[19] Ainu contributions to the pioneering of the sport are a highly understudied topic. Scant records indicate that Ainu guides played a critical role in the earliest in-season ascents of Hokkaido's peak. Kaitakushi agents regularly hired Ainu guides and used their knowledge of hunting trails and mountain passes to scout routes and plan climbs. Due to the nature of the documentation, which was written by the foreign mountaineers themselves, the importance of these Ainu guides is understated, if not absent altogether. Indeed, this was the case for the earliest ascents of Japanese peaks throughout the archipelago. The earliest climbs of Britain's Walter Weston, for example, would not have happened without the aid of local hunter guides. In fact, it is likely that many claims at first ascents are likely false: local hunters and Buddhist practitioners of *shugendō* (an ascetic, mountain-dwelling faith), such as Banryū, likely beat sport climbers by decades. This debate has elicited much comment and some criticism by modern scholars interested in Japan's alpine landscapes. For a critical assessment of Weston and a convincing description of the role played by the lesser-known Japanese guides see Scott Schnell, "Reverence or Recreation," Working Paper, Asian Studies Conference Japan, (June 2009). For more on Ainu perceptions of mountains and nature see, for example, Yamada Takako, *The Worldview of the Ainu: Nature and the Cosmos From Language*, (Tokyo: Kegan Paul International, 2002).

[20] For a more detailed profile of the trail blazers in Hokkaido see "Ezo sangaku kai kaihō," No. 39, 22-44; and Koizumi, T., *Tozan no tanjyō: Hito ha naze yama ni noboru you ni natta no ka*, (Tokyo: Chūkō shinsho, 2001).

[21] See Yasukawa Shigeo, *Kindai nihon tozan shi*, 325-375.

[22] Tsunemichi Ikeda, "From the Japanese Alps to the Greatest Ranges of the World," in *Japanese Alpine Centenary*, (Tokyo: Alpine Club of Japan, 2005), 31.

[23] For further information on the emergence of the mountaineering literature genre in Japan see Fujioka Nobuko, "Vision or Creation? Kojima Usui and the Literary Landscape of the Japanese Alps," *Comparative Literature Studies*, Vol. 39, No. 4, (2002), 3, 4, 8, 11; Wigen, "Meiji Mountaineering," 8, 10-16; and Yasukawa Shigeo, *Kindai nihon tozan shi*, 73-121.

[24] Wigen, "Meiji Mountaineering," 23.

[25] Although he is best known for his mountaineering feats in the Japan and Swiss Alps, Maki "Yūkō" Aritsune's greatest contribution to mountaineering in Japan lies in the role he played as a conduit and distributor of modern climbing technology, a responsibility he took on as an ambassador for the Nihon Sangaku kai to Europe. Maki's distribution of equipment gave countless aspiring alpinists the hardware they needed to innovate their craft.

[26] The history of Hokkaido's peaks would be incomplete without a brief mention of the thriving ski culture that well predates mountaineering. Beginning in the early 1880s, ski slopes and resorts were established in the southern half of the island, with the first recorded recreational

slope opened at Mt. Teine just outside of Sapporo in 1882. In 1903, Hokkaido University created its own ski club, which held regular trips to the slopes near Sapporo and soon ventured further into the wilderness to places like Niseko and Daisetsuzan where they engaged in backcountry skiing—a natural precursor to alpine mountaineering. For more on its history see *Hokkaido daigaku sukii bu nanajyūnen shi* (Sapporo: Hokudai yama no kai, 1982); for a broader discussion of the history of skiing in Japan see Nakamura Kenji, *Nihon sukii no hasshōsen shi ni tsuite no kenkyū*, *Hokkaido University Collection of Academic Papers*, (2001) Vol. 84, 85-106.

[27] The club's activities from 1926-2005 have been expertly documented by the AACH's archivist, Nakamura Haruhiko. See Hokudai sangakubu yama no kai, *Sangakubu nenpyō*, (Sapporo: 2007). For further information on the activities examined in this paper see Hokudai sangakubu yama no kai, *Hokkaido sangakubu yama no kai shashin shū*, (Sapporo: 2007), 1-9.

[28] For more on the foundation of the RCC and Itakura's contributions to it see Yasukawa Shigeo, *Kindai nihon tozan shi*, 377-383.

[29] *Nihon sangaku meishu zenshū*, (Tokyo: Akanu shuppansha, 1962), 154.

[30] The shrine, Ashikuraji (芦峠寺), was erected near Itakura's birthplace in Toyama. It is still visited regularly by mountaineers climbing in the nearby Chubu Sangaku National Park.

[31] Wigen, "Meiji Mountaineering," 15.

[32] Itakura, *Yama to yuki no nikki*, 175.

[33] Aspiring female alpinists did not join the AACH until the postwar era. This is not as much a reflection of the limited role played by females in the pioneering of the sport as it is a product of the overwhelmingly male demographics of Hokkaido University. Only 29 female students were enrolled at Hokkaido University from 1918 to 1947. See Hokkaido Daigaku hyakunijyūnen shi, henshūshitsu (ed), "Hokudai no hyakunijyūnen shi", (Sapporo: Hokkaido Daigaku Tosho Kankōkai, 2001), 37. For a comprehensive treatment of the history of women and mountaineering in Japanese see Sakakura Toshiko, *Nihon jyosei tozan shi*, (Tokyo: Daitsuki shoten, 1992).

[34] For more on the history of mountaineering publications in the pre-war period see Matsūra Takashi, *Sangaku zasshi no rekishi ni tsuite*, (Tokyo: Sokayama no kai shuppan, 2003).

[35] An excellent collection of documents that reveal the burgeoning consumer culture underlying mountaineering, including nearly 1000 pages of advertisements, profiles, and photographs, is *Nihon sangaku kai*, *Sōhō*, Vol. 8, (Tokyo: Nihon sangaku kai, 1989).

[36] The Japanese Alpine Society was founded nearly half a century after the British Alpine club (1857). It came at the tail end of a long lineage of premier national mountaineering institutions: the Österreichische Alpenverein in 1862, the Schweizer Alpenclub and the Club Alpino Italiano in 1863, and the Club Alpin Francais and the Österreichischer Alpenclub in 1878. In North America, the Appalachia Mountain Club was established in 1878, then the American Alpine Club in 1902. Both the New Zealand Alpine Club and the Mountain Club of South Africa were founded in 1891.

[37] See, for example, Hattori Hideo, *Tōge no rekishigaku*, (Tokyo: Asahi shimbunsha, 2007).

[38] For more on the creation of the JAC see *Me de miru nihon tozan shi*, 130-152; Yasukawa Shigeo, *Kindai nihon tozan shi*, 210-224; and Wigen, "Meiji Mountaineering," 4, 7-10.

[39] See Andrew Bernstein, "Whose Fuji? Religion, Region, and State in the Fight for a National Symbol," *Monumenta Nipponica*, Vol. 63, No 1, (2008).

[40] For more on the social and political forces brewing at this time see Kevin Doak. *A History of Nationalism in Modern Japan: Placing the People*. (Boston: Brill Publishers, 2007).

[41] For more on the creation of Hokkaido and the history of local spaces see Vivian Blaxell, "Designs of Power: The "Japanization" of Urban and Rural Space in Colonial Hokkaidō."

[42] For an in-depth narrative of the development of Hokkaido's railway industry see Dan Free, *Early Japanese Railways 1853-1914: Engineering Triumphs That Transformed Meiji-era Japan* (New York: Tuttle, 2009); for general information on the Kaitakushi and scientific programs in Hokkaido see Brett Walker, "Sanemori's Revenge"; and John Maki, *William Smith Clark: a Yankee in Sapporo*, (Boston: Lexington Books, 2002).

[43] Interestingly, these coal seams were discovered by Benjamin Lyman in 1873 during his exploration of the island as a Kaitakushi official and professor of Geology at Sapporo Agricultural College.

[44] Brett Walker, "Sanemori's Revenge: Insects, Eco-System Accidents, and Policy Decisions in Japan's Environmental History" *Journal of Policy History*, Vol. 19, No. 1 (2007), 17.

[45] Tsunemichi Ikeda, "From the Japanese Alps to the Greatest Ranges of the World," 32.

[46] By the 1930s it became club protocol to write pre- and post-expedition reports on each climb. These reports are available in the club's archives. See *Hokudai sangakubu jyōhō*, Vol. 7, (Sapporo: Hokudai sangakubu yama no kai zenshū, 1940), 5-65.

[47] *Hokudai sangakubu yama no kai, Hachijyū shūnen shi*, (Sapporo: Hokudai sangakubu yama no kai, 2007), 22.

[48] The Hidaka range is the only range in Hokkaido, and one of only three ranges in all of Japan, that shows evidence of glaciation. For more see Umezawa S., Sugawara Y., and Nakagawa J., *Hokkaido hidaka sanmyaku no yama* (Sapporo: Hokkaido Shimbunsha, 1991).

[49] *Hokudai sangaku yama no kai kaihō*, Vol. 7, (Sapporo: Academic Alpine Club of Hokkaido, 1942), 22-32. For additional accounts of these traverses see *Hokudai sangaku yama no kai, Kaihō*, Vol. 7, 7-35; and *Kaihō*, Vol. 8, 1-84.

[50] In a revealing document dated 1939 the author describes the effort to conquer Petegaridake: "this tent, born from a lengthy development process, will give us the advantage to conquer the mountain...we have considered every contingency and feel more confident." See *Hokudai sangakubu yama no kai, Kaihō*, Vol. 7, 89.

[51] See *Hokudai sangakubu yama no kai, Kaihō*, Vol. 7, 22.

[52] The original telegram is available in the AACH archives. See *Hokudai sangaku bu yama no kai*, "Uchida Takehiko shū," Sangakukan, Sapporo, Hokkaido.

[53] *Hōchi Shimbun*, "To Those Who Tempt the White Devil", January 21, 1940.

[54] *Hokkaido Daigaku Shimbun*, February 8, 1940, page 3.

[55] On July 14, 1865 a group of seven climbers successfully summited the Matterhorn in the Swiss Alps. On the descent a member of the team lost his footing and took three of his rope partners over a cliff to their deaths. Whymper and the remaining two guides were spared only because the rope snapped. In the days to follow, sensational accounts of the accident captivated European media outlets and prompted a public condemnation of the mountaineering community in general and the Whymper party in particular. For more on the Whymper party incident see Peter Hansen, “Albert Smith, the Alpine Club, and the Invention of Mountaineering in Mid-Victorian Britain,” 318.

[56] Hokudai sangakubu yama no kai, *Kaihō*, Vol. 7, 24, 26, 33.

[57] In the decades following the conclusion of the Second World War, Japanese climbers shifted their sights to Himalayan big peak climbing, undertaking impressive expeditions to Tibet and Nepal to put up a slew of first ascents and variations.

[58] Peter Hansen, “Albert Smith, the Alpine Club, and the Invention of Mountaineering in Mid-Victorian Britain,” 317.

[59] For examples of this type of language in AACH documents see Hokudai sangaku bu yama no kai, *Kaihō*, Vol. 7, 90, 92, 96, 106, 108.

[60] “Hokkaido no yuki yama e ikō,” in *Gakujin*, January 1943, 25.

[61] Itakura, *Yama to yuki no nikki*, 88. “*Teppen made*” was a common rallying cry for alpinists and is a term regularly used by the AACH.

“The Goddess of the Wind and Okikurmi”

Kayano Shigeru, transl. with introduction by Kyoko Selden

<http://www.japanfocus.org/-Kayano-Shigeru/3621>

October 24, 2011

Blaxell and Fedman make reference to the displacement and deculturation of Ainu in the process of Hokkaidō's incorporation into modern Japan. Indeed, the assimilation of Ainu resulted in what some have characterized as near “cultural extinction” and provoked enduring worries about the loss of Ainu identity as mixed marriages between Ainu and Japanese increased; practices in clothing, housing, and food became more Japanese; and the Ainu language fell out of daily use. In response, there have been attempts, especially since the 1970s to protect, revive, and promote Ainu culture. Kayano Shigeru (1926-2006) was a prominent conservationist of Ainu culture who, in 1999, offered in a children's book an adaptation of an Ainu *kamuy yakur*, a song of gods and demigods. Or more precisely, a *yakur* is an epic poem that draws on Ainu oral traditions, and *kamuy* are spirit forces that are believed to control the visible universe. This particular *kamuy yakur*, translated into English by Kyoko Selden, is about an encounter between Pikatakamuy, the goddess of the wind, and Okikurmi, the guardian god of the Ainu. Consider this song as a primary source that speaks to Ainu views of gods, nature, and the relationship between humans and nature. And compare this to the understandings of the natural environment that were discussed in the Blaxell and Fedman essays, with sensitivity to both resonances and tensions. Kayano Shigeru wore many hats as a promoter of Ainu culture. In one significant legal case he became an environmental activist against the construction of the Nibutani Dam on the Saru River in Hokkaidō during the 1990s. Like many environmental activists in Japan over the last century, one inspiration was Tanaka Shōzō, profiled in the next essay.

The Goddess of the Wind and Okikurmi¹

By Kayano Shigeru

Translated and Introduced by Kyoko Selden

Kayano Shigeru (1926-2006) was an inheritor and preserver of Ainu culture. As collector of Ainu folk utensils, teacher of the prominent Japanese linguist Kindaichi Kyōsuke, and recorder and transcriber of epics, songs, and tales from the last of the bards. He was also a fierce fighter against the construction of a dam in his village that meant destruction of a sacred ritual site as well as of nature. In addition, Kayano was the compiler of an authoritative Ainu-Japanese dictionary, a chanter of old epics, the founder of a museum of Ainu material culture as well as of an Ainu language school and a radio station. He was the first (and so far the only) National Diet member to address the assembly in Ainu. Kayano was also an inspiration behind today's appreciation of Ainu culture in which young people, Ainu and non-Ainu of various nationalities, join to celebrate aboriginal cultures and their contemporary development. That includes recent youthful attempts to create new forms that combine traditional Ainu oral performances with contemporary music and dance. "Ainu Rebels" which formed in 2006, for example, is constituted mostly of Ainu youth but also includes Japanese and foreigners. They are a creative song and dance troupe that draws on Ainu oral tradition adapted to hip hop and other forms, as well as engaging in artistic activities that combine traditional Ainu art with contemporary artistic elements.

The three major genres of Ainu oral tradition were *kamuy yukar*, songs of gods and demigods, *yukar*, songs of heroes, and *wepeker*, prose, or poetic prose, tales. The Ainu linguist Chiri Mashiho (1909-1961) saw the origin of Ainu oral arts in the earliest *kamuy yukar* songs of gods, in which a shamanic performer imitated the voices and gestures of gods. In Ainu culture, everything had a divine spirit: owl, bear, fox, salmon, rabbit, insect, tree, rock, fire, water, wind, and so forth, some not so esteemed or even regarded downright wicked, and others revered as particularly divine. This gestured mimicry apparently developed into *kamuy yukar* songs of gods, or enacting of songs sung by gods, in which a human chanter impersonates a deity. *Kamuy yukar* later included songs of Okikurmi-kamuy (also called Kotan-kar-kamuy), a half god, half human hero who descended from the land of gods to the land of the Ainu (humans), to teach how to make fire, hunt, and cultivate to humans living in *kotan* (hamlets).

The following piece by Kayano Shigeru, published in 1999 as a children's book with Saitō Hiroyuki's illustrations, is an adaptation-translation from an old *kamuy yukar* dramatizing a contest of strength between the goddess of the wind and the demi-god Okikurumi.

I am Pikatakamuy,
 Goddess of the Wind from the land of the gods.
 I have the power to fly through the sky
 and raise winds at will,
 whether
 a gentle waft
 a strong gust
 or a stormy blast.

In the land of the gods,
 or in the land of the humans,
 women need be good at embroidery.
 I lived at my house in the land of the gods,
 and passed my days
 always embroidering.

One day,
 I stopped my hand that held a needle
 and chanced to look
 across the land of the humans.
 A village caught my eyes.
 It was a big village of the Ainu.

How cheerful the village looked!
 All the people of the village
 were busy working.
 Children and little dogs ran about joyfully.
 My old habit began again:
 All right, I'll dance the dance of the winds
 and scare the humans—
 so I thought.
 Once I felt like playing tricks
 there was no restraining myself.

Right away, I donned
 layers of particularly beautiful
 wind-stirring robes
 storm-hurling gowns
 that I had embroidered,
 then, with a swoop
 I flew up to the sky.
 I flew and flew across the sky-

and on landing on a lofty mountain,
 I chanted,
 "Blow wind, blow wind—"



and began to dance my dance,
my wind-stirring dance,
my storm-hurling dance.
Then, as usual,
from the tips of my hands,
from inside my sleeves,
fierce winds began to blow,
they blew from the mountains out to sea,
raising fearful large waves.
The large waves,
like waterfalls
began pounding
upon the village of the Ainu.

The raging winds
made me so happy
day and night with no rest
for six days running
I danced on.
When I finished dancing
and looked at the village of the Ainu,
it was clean and bare,
not one thing was left.
Yet I found—

one house was still there all alone.
It was the house where a young man lived.
Upset and upset,
at once, I danced more fiercely than before.
When I finished dancing,
I looked carefully and there it was,
the house, not yet blown away.
Upset and upset, I thought of trying one more time,
but too tired to dance again, with nothing to do
I went home to the land of the gods.

When I came home,
again I passed my days
embroidering.
After days had passed, one day
I recalled the events in that village
and looked that way. To my surprise
the village, which I thought I had blown away,
was just as before.
Having rebuilt the houses,
all villagers lived cheerfully.

Vexed and vexed to see this,
donning at once my wind-stirring robes
and storm-hurling gowns
I flew to the top of the mountain
and danced powerfully
the wind-stirring dance, the storm-hurling dance.

From the tips of my hand
from the sleeves of my robes
piercing winds began blowing
sand storms swirled around the Ainu village
creating such turmoil
it was as if the sea was turning upside down.
Day and night for six days,
as I sent the winds,
the gods of the trees began wailing
so as not to be blown down,
big trees broke with snaps
while those that did not break
flew away, pulled up by the roots.

While dancing the wind-stirring dance
the storm-hurling dance,
I glanced at the village of the Ainu.
The village had blown off, leaving
a bleak, empty wasteland.
Yet, believe it or not,
all by itself, the young man's house
still stood there
as before the storm.
Appalled by this
I gave up trying to blow the house away,
went home to the land of the gods
and passed my days embroidering.

Soon afterwards,
suddenly at my door
a young Ainu appeared.
How daring of him to come to my door
before I, a goddess, realized it—
I was vexed by the horrid Ainu.
But he smiled sweetly and said,
“Pikatakamuy, goddess of the wind,
thank you for showing us your delightful dance.
As a token of gratitude, let me show you
the dance of the Ainu.”

The moment he said this—

the young man came into my house,
and started to dance his dance.
Then from the tips of his hands
from the sleeves of his robe, began blowing
strong, strong, piercing winds,
things fell from the shelf,
ashes and fire rose from the fireplace,
the house shook, the ceiling tore apart,
and in moments a mere framework
was all that was left of the house.

“Pikatakamuy, goddess of the wind,
The dance of the Ainu is not done yet,
I will show you another.”

Taking from his pocket
a fan, he danced.
On the fan was a drawing
of cold winter clouds
and as he fanned,
cold, cold winds blew at me;
when he fanned harder,
snow and hail danced around,
grains of ice pelting against me.
In the blink of an eye, my robes were torn,
my entire body was
covered with bruises.

My body was cold as ice,
I thought I was freezing to death.
Then the young man said,
“Pikatakamuy, goddess of the wind,
the dance of the Ainu
is not done yet.”
With this he flipped his fan.
Now there was a drawing
of a burning red sun.
This time, each time he fanned
there was dazzling light
and a hot, hot wind.

It was hot, so hot, my eyes went blind,
my skin scorched and charred,
it was so painful

I could think of nothing.
Falling like a rag,
I lost my senses.
After a while when I came to,
the young man approached me and said,
“Pikatakamuy, why did you
so devastate the village of the Ainu?
Because of you so many humans
lost their lives.”

“I thought, Pikatakamuy,
of killing you as I should have.
But you are the goddess of the wind in the land of the gods.
So I only punished you while keeping you alive.
If you make such strong winds one more time
know that I won’t forgive you then.”
This said, the young man fanned me
with his fan.
Strangely, each time he fanned,
bruise after bruise on my skin
was gone.

As the young man fanned me with his fan,
my robes that were like tattered cloth flipped and flapped
into the beautiful robes they were before.
No, not only that, as he fanned around him,
my shattered house pulled and heaved
into the fine house that it was before.
“Who really are you?
Please let me know your name.”

When I asked,
“I am Okikurmi,”
the young man answered briskly.
“What? So you are Okikurmi!”
I was stunned to learn his name.
No wonder he was so strong.
Okikurmi is none other
than the strong, strong, wise youth, who went
from the land of the gods to the land of the Ainu.

Ever since,
I send no strong winds
toward the Saru River
by which Okikurmi lives;
I only send

gentle winds
refreshing winds
healing winds.

In these words,
Pikatakamuy, the goddess of the wind
told us the story
of Okikurmi and the village of the Ainu.

On This Picture Book

Kayano Shigeru

This is a retelling in modern Japanese from a *kamuy yukar* (a story told by a god) in literary Ainu, further adapted into a style fit for an illustrated storybook.

Pikatakamuy,² the spirit of the wind, is a wind that blows down from the mountains, or *yamase* (cold mountain wind) in Japanese, and it is a *wenkamui* (evil spirit). The general word for “wind” in Ainu is *rera*, but this includes both good and bad winds. This explains why the wind in this story is called Pikatakamuy.

Okikurmi, who punishes this evil god, is the guardian god of the Ainu, also called Ainurakkur (“humanlike god,” “Ainu” meaning “human”), who teaches skills of livelihood to humans. He lives in the village of the Ainu, teaches how to live, encourages the gods to protect the Ainu, and occasionally, as in this story, punishes gods who play wicked tricks. Through Okikurumi, Ainu have expressed their ideal human image.

The Ainu have a unique view of the gods (*kamui*). The gods are not the absolute; they are divine only to the extent that they are beneficial to humans. For example, if a child drowns in the river, the Ainu would sharply reprimand the god of the river, saying, “This came about because you were not watchful. From now on, be sure to protect Ainu.” Of course, the Ainu not only expected protection, but rewarded the gods with prayers and constant offerings of *inau* (a sacred twig, equivalent to the Japanese *gohei*, a sacred staff with strips of cut paper).³

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Notes

¹ Ainu no min'wa: *Kaze no kami to Okikurumi*, narrated by Kayano Shigeru and illustrated by Saitō Hiroyuki (Komine Shoten, 1975/1990).

² The word *pikata* in Pikatakamui means south, south wind, or southwest wind.

³ *Inau* is a ceremonial whittled twig or pole, usually of willow, with shavings still attached and decoratively curled.

“Remake Politics, Not Nature: Tanaka Shōzō’s Philosophies of ‘Poison’ and ‘Flow’ and Japan’s Environment”

Robert Stolz

<http://www.japanfocus.org/-Robert-Stolz/2331>

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In this essay, Robert Stolz takes us back to the Meiji period to examine the ideas of an early environmental activist, Tanaka Shōzō. Stolz describes Tanaka as a “modern environmental thinker” whose theory of the relationship between “poison” and “flow” informed his Meiji-era activism against both the Ashio Copper Mine’s pollution of rivers and the Meiji state’s designs for flood control on the Kantō plain. Tanaka’s concern with humanity’s relationship to nature should be read alongside the attitudes of his contemporaries discussed in the Blaxell and Fedman essays. In addition, Stolz’s discussion of how Tanaka’s ideas might be relevant to present-day controversies over dams enables a consideration of how state efforts to control nature have, and have not, changed over the course of the modern period.

Remake Politics, Not Nature: Tanaka Shozo's Philosophies of "Poison" and "Flow" and Japan's Environment

By Robert Stolz

Tanaka Shozo (1841–1913) is widely acknowledged as Japan's "first conservationist." A former village headman, in the 1890s he led the fight against the Ashio Copper Mine's pollution of the Watarase and Tone rivers northwest of Tokyo. Tanaka's endeavors are frequently cast as a peasant warning to an industrializing Japan, but they can more accurately be seen as the work of a modern environmental thinker who developed a sophisticated ecological theory of society based on the twin processes of nature: "poison" (*doku*) and "flow" (*nagare*). From this position he went on to combat the Meiji state's flood control plans for the Kanto plain: a massive reengineering of the entire watershed and the beginning of the Japanese state's systematic intervention in nature. In response to the state's flood control plan, Tanaka's Fundamental River Law (*konponteki kasenho*) and philosophies of "poison" and "flow" describe the harm that comes from ignoring the dictates of an active nature in the name of absolute human agency. His law revered flow, "not as a made thing" but as fundamental to nature, indeed, to all life.

Tanaka developed his theory in the fight to save the village of Yanaka from a destruction deemed necessary to make way for a flood control reservoir, and although he was writing before the era of large dam construction, his explicit linking of bad environmental policy to social woes has much to offer the current debate on the relationship between society, economics, and the environment, and not only in Japan. His expansive concept of "poison" seems especially appropriate to new, diffuse forms of environmental degradation such as global warming. A veteran of the 1870's Popular Rights and Liberty Movement that succeeded in transforming Japan into a constitutional monarchy with a representative National Diet, Tanaka was perhaps the first to see that environmental degradation threatened to erode Japanese citizens' newly won civil rights. In his struggle against the Ashio mine and the state's flood control plans, Tanaka's evolving views on humanity's relationship to nature linked the ecological and the social to the point where they became inseparable.

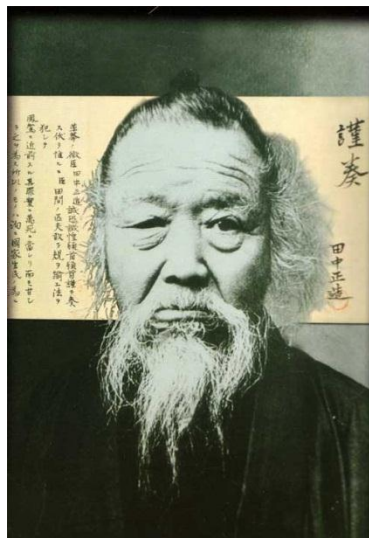


FIG. 1: Portrait of Tanaka Shozo. (Source: *Tanaka Shozo to sono jidai: tenno jikiso hyaku nen shunen*, Sano-shi, Tochigikenritsu hakubutsukan, 2001.)

The Ashio Copper Mine Pollution Incident

Though an exploited copper mine since the seventeenth century—the copper roofs of the Tokugawa shrine at Nikko are from Ashio—the Ashio mine increased greatly in size and output after being acquired by Meiji success story Furukawa Ichibei (1832–1903) in 1877. In 1882 and 1884 increasingly rich veins of copper were discovered. These discoveries, coupled with Furukawa's introduction of cutting-edge extraction technologies, meant a rapid increase in the mine's output. During the 1880s the remote mountain town of Ashio became, in the words of Fred Notehelfer, "one of the most technologically advanced centers of the country," boasting Japan's first electric railway, first hydro-electric plant, compressed air rock drills, electric lighting and centrifugal fans for ventilation. [1]

Citing an edict from the governor of Tochigi forbidding the sale or consumption of fish taken from the Watarase, contemporary narratives of the Ashio Incident often date the first hints of trouble to 1880. While this has recently been shown to be a misreading of an anti-cholera edict, not in dispute is that on 12 August 1885 the Choya Shinbun reported sweetfish (*ayu*) in the Watarase river were so weak children were catching them by hand. The editorial suspected pollution from Ashio as the cause. In autumn 1887 there was a mobilization by local students from afflicted households, and by the time of the fifty-year-flood of 1890 a protest group had already discovered, and arranged for the Utsunomiya hospital and soil scientist Kozai Yoshinau of the National Agricultural College to confirm, the presence of Ashio copper in the degraded fields. (While pre-Ashio floods had brought necessary green fertilizer, the floods of the 1890s brought pollution.) With the unprecedented, damaging floods of 1896, the Ashio Copper Mine Pollution Incident (*Ashio Kodoku Jiken*) became a national issue. According to Meiji journalist Miyake Setsurei, Ashio and the Great Treason Incident of 1911 were the top two social problems of the Meiji era (1868–1912).

In August and September 1896 floodwaters overwhelmed the Watarase and Tone watershed's levee system, leaving a layer of poisoned topsoil on the valleys' rice paddies, mulberry groves, and dry fields. A host of pollutants including arsenic, mercury, chlorine, sulfur, aluminum oxide, magnesia, iron, copper sulphate (blue vitriol), and nitric and phosphoric acids turned the waters eerily blue and left sores on the feet and ankles of anyone exposed to river water for any length of time. Ashio effluent also made the water unusable for the large and celebrated indigo industry downstream from the town of Ashikaga in Tochigi. Through flooding and the use of Watarase water to irrigate rice paddies, these pollutants became embedded in the fields where they then had to be removed by hand in order to have any hope of a harvest. Further, Ashio was located at the headwaters of the Watarase. Toxic smoke from the refinery's stacks and the clear-cutting of the mountains surrounding Ashio (used for shaft support and smelting fuel) deforested the mountains and exacerbated flooding downstream. With no trees to hold the rainwater or soil, rain on Ashio's denuded slopes quickly entered the Watarase, not only increasing the volume of water that reached the Watarase-Tone system but also increasing the river's silt-load. This, in turn, raised the riverbed several feet relative to the levees, thereby ensuring continued and increased flooding.

Former village headman Tanaka Shozo became the voice and public face of Japan's first protest against industrial-scale pollution. Tanaka was one of many of the pre-Meiji rural elites who participated in the flowering of popular activism in the years immediately following the Meiji Restoration of 1868. In the 1870s Tanaka was active in the Popular Rights and Liberty

Movement as a member of the Progressive Party (*Kaishinto*). As editor of *The Tochigi News* he called for a representative assembly and a constitution and published other activists' translations of John Stuart Mill and Jeremy Bentham. When the National Diet opened in 1890, like many other early Party activists, Tanaka won a seat. In his role as Diet member representing Shimotsuke prefecture (present-day Tochigi), Tanaka worked with activists in the valley to document the extent of the damage to fields, rivers and livelihoods, which he then used as material for his Diet speeches and critical questioning of the government's response to the emerging pollution problem.

In large part due to this grassroots organization, in 1897 the government formed a Pollution Prevention Committee to investigate the Ashio case; later that year the Committee issued Japan's first anti-pollution order. Written in the spirit of liberal capitalism and laissez-faire politics characteristic of the mid-Meiji period, the order sought to avoid a "cross contamination" of competing property interests between the mine and the farmers: issued by the government to Furukawa Ichibei as "owner-operator of the Ashio mine," the order required Furukawa to prevent pollutants from entering the Watarase system. Specifically, Furukawa was required to build settling ponds and retaining walls, and install a "smoke-scrubber" (a mist of lime-water) in the Ashio chimneys, all at his own expense. [2] In this same spirit, the national and prefectural governments endorsed a plan whereby the Furukawa Company would pay "condolence monies" (*mimaikin*) in exchange for valley residents foregoing legal action against the mine for several years. Promoted as a way to give the 1897 measures time to work, the condolence payment system was fraught with rumor-mongering, intimidation and outright fraud. Despite the 1897 order and the small sums paid out by Furukawa, the pollution problem continued, and a second Pollution Prevention Committee was created in 1902.

Unlike its predecessor, the Second Pollution Prevention Committee put flooding center stage. Gone too was the Liberal emphasis on the inviolability of property rights. In its place was a proactive, massive nature-transforming project of national scope and scale. Invoking the 1896 River Law, the state claimed jurisdiction over any river that "had a strong effect on the benefits or harm to the public good." The Law also gave the Home Minister control over any project "when such riverine/riparian construction's harms or benefits do not coincide with any one city (*fu*) or prefecture's boundaries...or when the construction is especially urgent." [3] The Committee's recommendations announced in March 1903 called for a national project of enormous scale, a moment of ascendancy for the government, especially the Home Ministry's Civil Engineering Division. The project also marked a major change in Japanese flood control policy; moving from a "low-water levee" policy which sought to soften occasional floods, the Committee adopted a "high-water levee" policy which took a "zero tolerance" approach to flooding of any kind. This project was the beginning of Japan's now (in)famous wholly controlled, concrete-lined river system. By its completion in 1930 Japan had constructed 186 linear kilometers of high-water levees and displaced 220 million cubic meters of earth—by contrast the contemporary Panama Canal displaced 180 million cubic meters.

The Committee was able to achieve this switch from a focus on pollutants in the river to the river itself by the way it defined pollution. Treating soluble and insoluble copper separately, the Committee found that effluent from Ashio did contain soluble copper that traveled down the Watarase reaching the paddies, irrigation canals, drinking wells, and even the breast milk of local women. But it further held that "the amount was not sufficient to cause harm in humans." It even added that in small doses copper was a necessary dietary trace metal, the apparent but unspoken

conclusion being that the residents of the Watarase and Tone valleys merely had an unorthodox way of receiving their recommended daily allowances.

Huge deposits of insoluble copper in the riverbed were considered the greater threat to public health. In a confusion of agents and causes, the Committee held that insoluble copper from Ashio was only a danger when it was agitated: it was only during a flood that the copper in the riverbed could burst forth and cause harm. In other words, the Committee concluded that it was floods, and not the mine, that “caused” the pollution damage to the farmers’ fields, and this would continue even if Ashio were closed. The river, nature itself, was identified as the problem. To prevent further flooding, the Committee’s proposals sought to completely sever the river from its watershed through the construction of concrete beds and banks, high levees, and engineered “choke-points”. The ultimate goal was to control water levels across the system: “[We must] be able to restrict the flow to only that necessary under ordinary conditions.... New levees will be built wherever there is now nothing to block the flow.” While girding of the river’s banks and bed along its course would achieve much of this, a final piece, a flood-control reservoir at the confluence of the Watarase and Tone Rivers, meant the acquisition of Yanaka village through eminent domain (UK: compulsory purchase) and the forced displacement of its residents. The final recommendation, needless to say, did not call for the closing of the mine but argued that the Kanto plain, historically one of Japan’s most fertile, while compatible with mining, was “completely unsuited to agriculture.” This discovery of the “general poverty” of nature allowed the Committee’s proposal to remake the Kanto plain to be cast as a necessary intervention into nature and even as an improvement of nature itself. [4]

Tanaka’s Philosophies of Poison and Flow

Tanaka’s environmental philosophy and activism existed not only as an environmentalist exaltation of nature but as a historically specific polemic against the Committee’s proposals and the state’s 1896 River Law. While the state saw nature as a passive object to be manipulated by humans, Tanaka’s Law argued for an active nature in motion. Here his thought was grounded in a tradition of Japanese agronomy, scientific farming, a monistic tradition that conceived nature as the constant motion of an infinite material energy. But Tanaka’s encounter with industrial-scale pollution taught him to doubt whether or not nature was indeed infinite. To the more optimistic eighteenth-century belief in the eternal motion of material energy, which Tanaka called “flow” (*nagare*), he added another category: “poison” (*doku*). In Tanaka’s thought *doku* represents the flow of nature’s energy in harmful, destructive ways. As Tanaka theorized *nagare* and *doku* they came to take many forms, moving easily from the material and ecological to the social and political.

For Tanaka, because motion was inherent in nature, the state’s policies of control through constriction and manipulation of the rivers’ currents would not have the desired effect of wholly controlling the river. On the contrary, they would result in a harmful “backflow” or “reversal of flow” (*gyakuryu*) as the river confronted the concrete banks, sluices, and reservoirs and reversed itself, resulting in flooding upstream. (This is precisely what happened.) Whereas human practice based on the state’s policy of stopping and reversing flow would lead to an accumulation of harm in larger and larger artificial and toxic floods—*doku*—Tanaka’s fostering of flow, *nagare*, would lead to an accumulation of life. As Tanaka’s thought developed, *doku* came to describe not only the presence of toxins in the watershed’s fields, but also the horizon of beneficial human intervention in nature. *Doku* revealed the limit of responsible human agency. This too continued

the Agronomy tradition that had said famine was not natural but the result of bad social practices. In dealing with pollution, Tanaka, like agronomists before him, and unlike the 1902 Committee, argued for the need to remake politics, not nature.

To prevent *doku* and to foster life, humans needed to learn how to organize themselves in a way that lets them take advantage of the benefits of a freely flowing ecosystem. A diary entry from 26 January 1912 shows Tanaka playing with the Japanese characters for mountain (*yama*) and river (*kawa*) to illustrate the complementary relationship of the land and water in fostering flow. Tanaka's own caption read: "These diagrams express the principle of nature. River managers who understand the meaning of these pictures are rare indeed."



FIG. 2: A Tanaka diary entry from 26 Jan 1912.

(Source: *Tanaka Shozo zenshu*, Iwanami shoten, 1977–80. Vol. 13, p. 65.)

Even fish had something to teach humanity in dealing with pollution:

Observe. Fish have no [legal] protection and though they live in the dark polluted waters [of the Watarase] do they not avoid total extinction? The reason the polluters, with all their power, are unable to destroy these fish is this: though no law protects them, the fish instinctively rely on nature and follow a path out of danger to unpolluted streams, happily saving themselves. This is the way to use nature. The fish do it. Why should not people do so, all the more? [5]

As he developed his environmental philosophy and social vision, Tanaka increasingly located the source of rights and salvation in the material environment, continuing to the point where the two

concepts, the social and the ecological were nearly inseparable. Because they were created in the wholly human world of politics, laws like the 1896 River Law were corruptible, but Tanaka's Fundamental River Law, based on his philosophy of flow, accommodated itself to what nature would allow, declaring "the essence of water is honest.... Water does not harm people... it has no class distinctions... water is not false...[and though] people may deceive each other, flowing water never deceives." [6] In this understanding nature was the necessary starting point for all human social practice; Humans must abide by nature's principles if the result was to foster life.

Doku was not merely a separate substance, a by-product, or unintended waste. Rather, *doku* was created through a systemic incompatibility—a result of the Way of Humans and the Way of Nature fighting each other. While in Tanaka's thought nature was the most powerful force known, it was not invincible. In many ways this was the lesson of Ashio. *Doku* was a new category of thought injected into the Japanese discourse on nature that signaled a historical break in the human-nature relationship. Despite its status as nature's ultimate principle, *nagare* could be thwarted by human action forcing it to flow in unintended and harmful ways with serious reverberations in all spheres of life:

The mine-poisoned floods *borrow the great power of the land* and thus make it all the way into the Home Ministry. The Ministry's civil engineering division is destroyed by the mine pollution; the pollution dooms it to a cycle of destruction, rebuilding, and further destruction. *Poison runs on the lay of the land and rides the river's currents* to the welfare bureau, eventually felling people. The police are powerless to stop death by poisoning....(emphasis added). [7]

The modern aspects of Tanaka's philosophies of *doku* and *nagare* are clear in a position paper he wrote to counter the 1902 Committee's assumptions on nature. His language is nothing less than the "discovery" of the modern ecological concept of "ecocide":

If the pollution continues for too long, the river's headwaters will trickle out from a poisoned mountain of foul rocks and polluted soil that wholly penetrates the water, *forming a second [toxic] nature (dai ni no tensei o nashi)*. Once this happens, it will no longer even be possible to talk of healing flood damage (emphasis added). [8]

In other words, once this toxic second nature is created, the window of salvation open to the Watarase fish will have closed. The world itself will have become fatal to humans as *doku* will have completely co-opted the processes of a nature in motion: the system would continue to move, but its product would no longer be a life-sustaining flow. In its place would be the movement of a "second, toxic nature" that would produce increasing sickness, poverty, starvation and, ultimately, death.

This emphasis on what is being produced by humans' manipulation of nature clearly shows Tanaka's vision is social and ecological, not a paean to rural values or a romantic retreat from modern society. Writing at the beginning of Japan's modern transformation, Tanaka was worried about what the Ashio and flood control problems signaled for the future, even speculating what kind of national essence (*kokutai*) this experience would produce. Without a radical examination and transformation of attitudes and policy he feared what was being created:

The degeneration of people's hearts is of one with the harm caused by Ashio. Both are invisible to the naked eye. Japan is a young country, and so Japan is the same as a child

who contracts a disease. Though ill the child may still grow up. Japan too will grow older. [But] once grown it will be impossible to distinguish the disease [from Japan] (*miwakegatashi*). [9]

Because nature was constantly in motion, human activity must complement and never thwart that motion if *doku* was to be avoided. In his language the Way of Nature and the Way of Human(ity) must work together. If they did not, which is how he came to see the Ashio Incident and the state's flood control policies, the result was an accumulation of harm that moved from the environmental to the social realms. The sad fate of the village of Yanaka, destroyed in 1907 to make room for a reservoir, was an example of how bad environmental policy eventually required social oppression. Not just in Yanaka but everywhere he looked, Tanaka saw humans "fighting rather than following" nature.

Tanaka's move to the doomed village of Yanaka in 1904 should not be seen as a retreat from the progressive politics of the Popular Rights and Liberty Movement or from his dramatic appeal to the emperor in 1901. Tanaka's universalistic monism also means that it cannot be consigned to the familiar agriculture versus industry debate: nature flows equally in all places, and its thwarting anywhere results in *doku*. Rather, Tanaka's identification with Yanaka was the logical move to the place where, more than any other, Japan was poisoning itself. Here too it is clear Yanaka was important in terms of *doku* and *nagare* more than its status as a proto-typical village community. Yanaka was a village destroyed by the state in a futile war against the *nagare* principle of the river. It was in Yanaka, whose sons were being killed in Manchuria fighting the Russians even as their parents were being evicted through eminent domain, that Tanaka and other activists like Shimada Saburo, Kinoshita Naoe, Arahata Kanson, and Ishikawa Sanshiro chose to make their stand on the fundamental questions of Japanese modernity. Many of these activists became Yanaka landholders in a "one-*tsubo* movement" (one *tsubo* = 3.31 m²) intended both as aid to the impoverished residents and to complicate the state's acquisition of the village, a movement eventually defeated by the use of eminent domain.

For Tanaka, Yanaka's destruction represented the linking of bad environmental policy with political repression: the government's mistaken faith in the ability of humans to totally manipulate nature was behind its river projects. The project's failure resulted in escalating costs, required the silencing of the anti-mine petitioners, the use of eminent domain, and the eventual violent destruction of a village. In a preface to Arahata Kanson's *Yanaka mura metsuboshi* (*The Extermination of Yanaka*, 1907), Tanaka made this explicit: "The mine pollution problem has mutated; it has become the theft and destruction of homes." [10] It is the philosophies of *nagare* and *doku* that allow this linking, and Yanaka is the point of convergence of the two systems. In Tanaka's theory it is no coincidence that it was at precisely the point where the state made the ultimate attempt at control—completely stopping the flow of the river in a reservoir—that the greatest social oppression and human suffering occurred.

In his later years Tanaka tried to develop something he called *Yanakagaku* (Yanaka studies, or literally Yanaka-ology), a way of living that would not produce *doku* but foster *nagare*. *Yanakagaku* authorized his defiance of the River Laws and the Home Ministry and his rallying villagers to build their own levees according to their own understanding of nature's flows. These were built, torn down by authorities, and rebuilt repeatedly from 1904–10; even after the state destroyed their homes in 1907, sixteen families built shacks from the pieces of their former homes and continued to try and live according to *nagare*. *Yanakagaku* showed how alternative

practices of nature contained within them alternative social visions. Importantly, Tanaka believed an adequate idea of the self, and therefore the existence of rights, was impossible in a poisoned environment. This belief that the physical environment must guarantee rights ultimately achieved a subversive universalism in his theory of what he called a “universal constitution” (*hiroki kempo, uchuteki kempo*). His appeal to nature to justify resisting the mine and the state appears most dramatically in Tanaka’s declaration of 1912 where he claimed, “We have a constitution. Unfortunately this constitution is based on [narrow] Japanese principles, not on universal [natural] principles. As such, even if Japan were to die, we are under no obligation to die with it.” [11]

Tanaka’s Relevance Today

Tanaka’s linking of the ecological and the social had a strong effect on pre-war Japanese anarchists and socialists like Arahata Kanson and especially Ishikawa Sanshiro. The Japanese state’s crackdown on these ideologies in the 1920s and 1930s meant the loss of this vision. One exception was Tanaka’s protégé, a young student named Kurosawa Torizo, who later moved to Hokkaido, became a dairy farmer, and started a producers’ cooperative that became Snow Brand Dairy (Yukijirushi), a company that until its recent merger was Japan’s largest dairy producer. In the post-war period, Tanaka was rediscovered during the citizens’ movements of the 1960s and the outbreak of the methyl mercury poisoning in Minamata Bay, in southern Japan. Today there are groups dedicated to preserving and expanding Tanaka’s vision. The Watarase Study Group (Watarase Kenkyukai) and a citizens’ reading group calling itself “Tanaka Shozo University” ([Tanaka Shozo Daigaku](#)) organize “field trips” and publish journals such as *Tanaka Shozo to Ashio kodoku jiken kenkyu* and *Kugen*, where they seek to link issues of social inequality, nuclear weapons, pollution, and conservation. In the early 1990s Tanaka Shozo University followed the Furukawa group to the Philippines where the Ashio case had “jumped” and the whole saga of mine pollution was being replayed on the international stage. This last example shows that neither the Ashio Incident nor Tanaka’s thoughts on *doku* are limited to Japan or dependent on any culturally specific understanding of nature. He himself clearly did not think so as seen in his views on the “universal constitution.”

At Ashio itself, every year hundreds of volunteers from Ashio Green Growing Association ([Ashio ni Midori o Sodateiru Kai](#)) assemble near the remains of the Ashio refinery in an attempt to replant the mountainsides. This process is slow and requires much experimentation as the soil still contains large amounts of sulfur left by one hundred years of toxic smoke from Ashio’s stacks.



FIG. 3: Remains of the Ashio Refinery, 2002. (Photo: Robert Stolz.)



FIG. 4: Meeting of the Ashio Green Growing Association, 2002.
(Photo: Robert Stolz.)



FIG. 5: Experimental reforestation at Ashio: The green zone at the top is a mix of soil, seed and fertilizer sprayed onto the rock in an attempt to compensate for the lack of topsoil.
(Photo: Robert Stolz, 2002.)

In a great historical irony, the Yanaka reservoir has become a place of “nature recreation” and its brochure features a cartoon windsurfer enjoying the open water. Yet even while the banks of the reservoir today appear natural, their earthen facades are built on a base of hard-engineering and concrete.



FIG. 6: Concrete bank of the Yanaka Reservoir, 2002. (Photo: Robert Stolz.)

Given this history, it is interesting to note the discourse on dams in modern Japan where new construction or removal maps so closely to bureaucratic initiatives, on the one hand, or citizen-led ones, on the other. From former Nagano governor Yasuo Tanaka's "Dam Removal Declaration" (*Datsu damu sengen*) to the citizens' groups forming in opposition to the Arase and Nagara dam projects, the convergence of river policy and political and social movements remains strong. Outside Japan the saga of dams and displacement continues on an even larger scale. Like Tanaka's warnings nearly one hundred years earlier, Arundhati Roy's *The Cost of Living* (1999) takes on the "illusions of India's progress" in a polemic against the massive dam projects in the Narmada valley as India strives toward Great Power status—which today means not only large nature-transforming projects but also means the risk of unleashing the ultimate *doku*: nuclear weapons. [12]

Other writers have highlighted the disturbing, but probably not coincidental, connection between large-scale intervention in nature and less democratic government. Both Patrick McCully of [International Rivers Network](#) and Michael Goldman have demonstrated that in the wake of growing citizen's movements against dam displacement, larger projects like China's Three Gorges Dam (1.9 million displaced) and the World Bank-sponsored Nam Theun 2 in Laos are now only undertaken in more authoritarian states. [13] While the river projects Tanaka was fighting were undertaken in the conscious construction of Japan as a Great Power, today's dam construction and nature-reforming projects are less often undertaken for imperial glory than attempted in the name of another cause, possibly even more intractable and insatiable than Empire: the cause of growth for its own sake, a process likely just as resistant to democratic politics.

Tanaka's thoughts on *doku* and *nagare* attune us to the possibility that pollution may not look like what we think it is. Or it is much more than we think. To be sure, the presence of certain parts per million of methyl mercury in the bodies of fish in Minamata bay is still clearly pollution. But *doku* suggests that pollution can be systemic and manifest itself at the social level with reverberations far from any chemically polluted space—many displaced Yanaka villagers

were resettled in Saroma, Hokkaido, on the Sea of Okhotsk. Pollution, understood as *doku*, is not something extra; it is not waste or a by-product of an otherwise healthful process. At its worst *doku* is a positive production, the result of an affirmative choice, though, unfortunately, it is no less fatal for being intended. Today we can see certain trends and counter-trends. Global warming with its attendant creation of new disasters, poverty, the impending displacement of coastal citizens, and the spread of tropical diseases is for the most part a choice that has been in the affirmative, in the name of economic health. On the other hand, the recent awarding of the Nobel Peace Prize to Wangari Maathai for her work in founding [the Green Belt Movement](#) in Kenya shows a growing understanding of the inseparability of the ecological and the social. Which view will eventually win out remains unclear—but the stakes are not.

As [Gavan McCormack previously has argued](#) on this site, “Minamata disease was above all a disease of the spirit to which Japan succumbed as growth, money, material wealth come to be valued above the natural environment or humanity.” [14] Tanaka warned in 1902 that such attitudes may eventually turn the world itself against us; indeed, this may already be happening. A recent story on water pollution in the *Washington Post* introduced readers to the startling idea that wildlife waste was a major cause of pollution in the Potomac and Anacostia rivers. From this scientists arrived at “the strange proposition that nature is apparently polluting itself,” creating “a serious conundrum for government officials charged with cleaning up the rivers.” Later, in an even stronger echo, the article proffers the chilling possibility that this could be “the ultimate irony of people’s impact on nature[;] that the entire system has changed so radically that wild animals now degrade their own environment.” [15] Tanaka, McCormack, and the *Washington Post* article describe a pollution that does not have a technological fix but rather requires a change of attitude, of lifestyle, and most importantly, a change of social organization itself: remake politics, not nature.

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Notes

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[2] “*Kodoku chosa iinkai chosahokokusho*” in *Tochigi kenshi shiryohen genkindai* 9 (Tokyo: Gyosei, 1980). 635–6.

[3] Kasenho 1896, *Horei zensho*, Okurasho insatsukyoku.

[4] *Kodoku chosa*, 992.

[5] Tanaka Shozo, *Tanaka Shozo senshu* 7 vol., ed. Anzai Kunio, Kano Masanao, Komatsu Hiroshi, Sakaya Junji and Yui Masaomi (Tokyo: Iwanami shoten, 1989). 4: 159.

[6] Tanaka (1989), 5: 333.

[7] Tanaka (1989), 4: 149–50.

[8] Tanaka (1989), 4: 137–8.

[9] Tanaka (1989), 4: 228.

[10] Tanaka Shozo, preface to Arahata Kanson, *Yanakamura metsuboshi* (Tokyo: Iwanami bunko, 1999). 8.

[11] Tanaka (1989), 7: 247.

[12] Arundhati Roy, *The Cost of Living* (New York: Modern Library Paperbacks, 1999).

[13] Patrick McCully, *Silenced Rivers: The Ecology and Politics of Large Dams* (New York: Zed Books, 2001) and Michael Goldman, *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization* (New Haven: Yale University Press, 2005).

[14] [Gavan McCormack, "Minamata: The Irresponsibility of the Japanese State"](#)

[15] David A. Fahrenthold, "Wildlife Waste is Major Water Polluter, Studies Say," *The Washington Post*, 29 September 2006.

“The Exquisite Corpses of Nature and History: The Case of the Korean DMZ”

Julia Adeney Thomas

<http://www.japanfocus.org/-Julia-Adeney-Thomas/3242>

October 26, 2009

Julia Adeney Thomas takes us beyond Japan to the nearby Korean peninsula to consider the broadly significant issue of the relationship between human beings and nature through the particular and unusual case of a space with minimal human intervention: the Korean Demilitarized Zone, or DMZ. Thomas focuses on this strip of land—over 2 miles wide and about 160 miles long—that runs roughly along the 38th parallel that separates North and South Korea. Heavily militarized along each border, this buffer zone of 64 million square feet is hostile to and barren of much human life. This has made it a space unique in its relative absence of human intervention that has become, quite by accident, a refuge for wildlife. In contrast to the other essays discussed in this volume, Thomas explores a *lack* of human intention and action vis-à-vis the environment, and asks how deliberate human action might now preserve an ecosystem that was created without design. Also, in a more methodological vein, she poses questions about how the complexities and contingencies of environmental history challenge the foundations of the discipline of history.

The Exquisite Corpses of Nature and History: The Case of the Korean DMZ

Julia Adeney Thomas

Environmental protection in the Korean DMZ is purely accidental. In 1953, no one gave a thought to protecting wildlife when a temporary truce halted the fighting there. Instead, North and South Korea and their respective allies wanted only to end the human savagery that had killed 10 percent of the peninsula's civilian population and resulted in military casualties numbering, on one side, 900,000 Chinese and 520,000 North Korean troops, and, on the other, 400,000 United Nations troops.¹ The war began on 25 June 1950 when North Korea backed by the Soviet Union and the Chinese invaded South Korea in an attempt to reunify the nation, a nation divided in the last days of World War II. The 1953 truce, still in effect today, created a narrow no-man's land roughly along the 38th parallel where no army is supposed to go. Although called the Demilitarized Zone or DMZ, this thin ribbon of territory is decidedly militarized. As the American GIs there say, "there ain't no D in the DMZ."² Unlike every other inch of dry land on the planet besides Antarctica, the Korean DMZ falls outside the control of any single military or any single nation. It is truly a no-man's land. Reckless human violence has necessitated the evacuation of all human beings, and the unintended result is a zone left free for other species. Although the consequences of the continued low-grade war have been tragic for humans, other creatures have flourished because of our relative absence.

Two aspects of this situation fascinate me: the accidental nature of this area's ecological salvation and the difficulties historians face as we try to represent this accidental quality. While making meaning out of the chaos of human history has always been difficult, the addition of physical forces, vast amounts of time, and the activities of non-human species magnify the complexity of our disciplinary enterprise, stretching it perhaps beyond recognition. In this essay, I will look first at the DMZ fauna and the human actions (and non-actions) that produced this "treasure house of ecosystems."³ Then, I will consider the sheer randomness of the natural and political forces that have come together over the past sixty years to save a few creatures and a bit of land from devastation on a peninsula in northeast Asia and how that randomness challenges the separation of history from nature, a separation that in many ways undergirds the discipline. Oddities abound on all levels, material and abstract.

Animals

Let me begin with the Amur goral (*Naemorhedus caudatus raddeanus*).



Amur Goral. Courtesy Hall L. Healey

The goral is sort of like a goat and sort of like an antelope. Referred to as a “fossil animal,” it retains many characteristics found in its distant ancestors. Not much is known about these rare creatures, although in 2002 a team of Italian and South Korean scientists (from Trento and Gangwon provinces, respectively) began a three year study. Apparently your average Amur Goral spends most of its time curled up on a mountain ledge, nibbling on snow-covered twigs, conserving energy under its heavy brown coat. In the near future, this snow will likely disappear except from the highest peaks due to global warming.⁴ The goral observes the world and its little group of 15 to 30 similarly engaged companions from under short, backwards-curving horns. This lack of dynamism may not make for exciting video footage, but given the million or so landmines in the Korean DMZ, inactivity is surely an advantage.



Amur Goral in Springtime

During warmer seasons, the Amur Goral, weighing between 25 and 40 kilograms (55 and 88 lbs.), treads (gingerly, one hopes, given the explosives) down the slopes of the DMZ's high mountains to graze on foliage and acorns, and, more peculiarly, to drink seawater. Another oddity is that female gorals have four functional breasts, unlike the females in related species and despite having no more than two offspring at a time. In short, these animals' peculiarities underscore the sheer contingency of the evolutionary process, a creature that is the product of no one's imagination, no one's design, and continues to exist by sheer good luck.⁵

As an aside, it might be pointed out that the gorals' behavior is not nearly as peculiar (and much more benign) than that of its principal enemy, human beings, who like to eat their fetuses for their alleged medicinal benefits. Indeed, along with habitat loss, the biggest danger to the few goral outside the DMZ is poaching. The gluttony for goral fetuses is a real threat to this species where females give birth to only one or two kids a year after a long, 230 day gestation period. Current estimates of the long-tailed Amur Goral population in the DMZ and a few other areas in northeast Asia puts the number at about 700 to 800, making this odd creature officially endangered as are many of the fifty-some mammals there including the Asian Black Bear.



Asiatic Black Bear. Courtesy Hall L. Healey

However, South Korea has awarded the goral its own stamp and commemorative coin.⁶

Unlike the goral with its limited range, many of the DMZ's birds are migratory, carving out vast territories while still dependent on the DMZ.



White Cranes

Only fifteen species of crane remain worldwide. For three of them, the Korean DMZ is essential to their survival, providing winter habitat and resting areas, and for several others very important. Taken together, migratory bird species create a different template for organizing the landscape, one that defies human territorial markers and stretches from the South Pole to the North, their frail existence dependent on dozens of human governmental entities.⁷ While the cries of birds in

the early morning are still rich enough to awe ornithologists, human encroachment has already emptied former habitats outside the DMZ, forcing the birds into smaller areas within it.



Birds in Flight in the Togyo Reservoir, Cheorwon County, CCZ. Courtesy Hall L. Healy

The Black-faced Spoonbill is less charismatic than the cranes.



Black-Faced Spoonbills

It does not symbolize longevity, monogamy, spirituality, nobility, or good fortune as its more elegant cousins do, but it is an endearing creature nonetheless. Like the cranes, the spoonbill also creates a transnational flyway from the wintering sites in Taiwan, Vietnam, and the New Territories of Hong Kong to the DMZ.⁸ Their favorite Korean islets are Yudo and Yodo on the western side of the peninsula. The valiantly optimistic Korean biologist, Dr. Lee Kisup, reports a slight increase in numbers of breeding pairs on these islets from one hundred in 2003 to three hundred in 2006. Alas, these couples did not all raise chicks. Even Lee dims his optimism to report that of the 104 pairs on the islet of Yudo, none produced offspring in 2006, though no one knows the reason why.⁹

The watery domains of marine species complement the birds' airy territories in defying human boundaries.



Brown-Spotted Seal

The endangered brown spotted seals seem, although it is not certain, to traverse the Yellow Sea spending the spring, summer, and autumn feeding along the west coast of the DMZ and returning in winter to their breeding grounds in China in October. Likewise, whale migration maps a vast area of ocean, also regardless of national borders, but reliant on the feeding grounds along the DMZ's eastern coast. The Korea-Okhotsk Gray Whale has now been designated a "Natural Monument" by the Cultural Heritage Administration of South Korea, an official procedure redounding in ironies: the irony of a mobile, living monument (monuments being generally understood as fixed markers reifying dead glories); the irony of a natural species claimed as cultural heritage; and, finally, the irony of the South Korean government declaring dominion over a species whose very name indicates its transnational existence between Korean and Russia. But irony aside, the DMZ for marine animals as for land dwellers and migratory birds is crucial to survival.

According to one reckoning, the DMZ shelters in one way or another 52 species of mammals, 201 of birds, 28 of amphibian and reptiles, 100 of fresh water fish plus uncounted ocean species, 602 species of insects, 282 species of mushrooms and other fungi, and 1597 taxa of vascular plants.¹⁰ Telling the story of their activities and place in the world, their emergence as species and the delicate balance that supports their continued existence is surely crucial to understanding the value of the DMZ, but is telling this story the work of historians? If so, what does it do to our ideas of agency when the agents are non-human, of time when it involves millennia, and of place when the territories spill beyond and above human borders? I will return to these questions, but let me briefly consider the political history of the DMZ, a story well within the traditions of the discipline.

Land

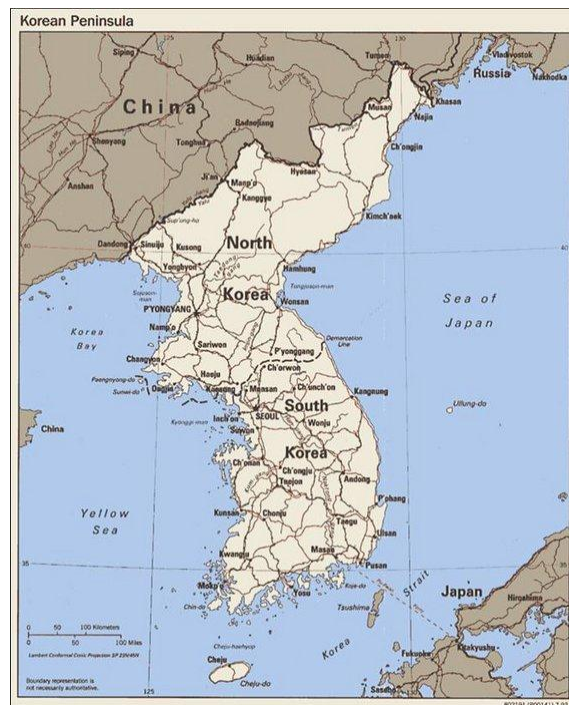
The Korean DMZ is only four kilometers wide and 250 kilometers long, bisecting the peninsula along the thirty-eighth parallel. On one side is impoverished, secretive North Korea (the DPRK or Democratic People's Republic of Korea). On the other side is South Korea (the ROK or the Republic of Korea), a modern industrial state with the world's eleventh largest economy. Immediately south of the DMZ's border is an area called the Civilian Control Zone or the CCZ (sometimes referred to as the Civilian Control Area or CCA) which is currently 10 to 20 kilometers wide.¹¹



Looking North across the CCZ. Courtesy Hall L. Healy

No one is permitted to live in the CCZ for security reasons, but farmers are allowed to enter to plant crops and harvest them. They then leave the gleanings to migratory birds, especially cranes, who flourish in the deserted fields.

Apparently, the line dividing the peninsula was quite casually drawn. Certainly it was drawn without reference to biodiversity.



Map of Korean Peninsula

On the night of August 10, 1945, as Soviet forces finally entered the war against imperial Japan, two young colonels, Dean Rusk and Charles H. Bonesteel, were told to partition the peninsula, carving out U.S. and U.S.S.R. zones of occupation. Without particular knowledge of Korea or even a precise map, Rusk and Bonesteel sliced it like a birthday cake, leaving the capital in the south and pushing in the knife a tad further north than they actually believed would be acceptable

to the Soviets. In the event, the Soviets made no objections and halted at the agreed upon line.¹² In 1950, things changed. North Korean leader Kim Il Sung persuaded Stalin to support his invasion of South Korea. When the horrific fighting played itself out in exhaustion, the Armistice Agreement of July 27 1953 established the DMZ pretty much along the same 38th parallel where the original partition ran.



Alfred Eisenstaedt. The 38th Parallel, 1953

In its early days, it was hardly more than a slab of plywood across the road. Today, it is heavily fortified.

Given all this activity, the DMZ is hardly a sanctuary in the sense of an undisturbed terrain, glorying under the dust of ages. It was farmland for an estimated 5,000 years and is currently full of deserted villages. The bones of tens of thousands of men still lie unburied between the lines, and military hardware litters the ground. Even today, army operations continue; military personnel are killed; and, the unresolved state of hostilities molds and disturbs the ecosystem. Forest fires, for instance, are lit for site clearing, and the North assiduously tunnels under the soil, creating military conduits that could flood South Korea with tens of thousands of North Korean troops in a few hours.¹³ Nevertheless, a tense semi-peace has reigned for almost sixty years inside the lines drawn by fear.

The semi-peace has preserved geographical features as well as fauna. The land of the DMZ and CCZ can be divided into four geographical zones: (1) the east coast region of lagoons, wetlands, and valleys, (2) the mid-eastern mountains and highland moors, (3) the inland mid-west region of the upper Hantan river watershed and lava plateau, and (4) the west coast hills, salt marshes and islands, each with its own peculiarities.¹⁴ Like the preservation of the animals of the DMZ, the preservation of this landscape is unintentional. Some agents in its creation are non-human physical forces like tectonic plates, water, and wind over eons of time and others are the usual

suspects of human history like eager colonels, but neither non-human nor human entities willed the preservation of lagoons, high moors, or free-running rivers.



The DMZ with Barbed Wire. Courtesy of Green Korea United

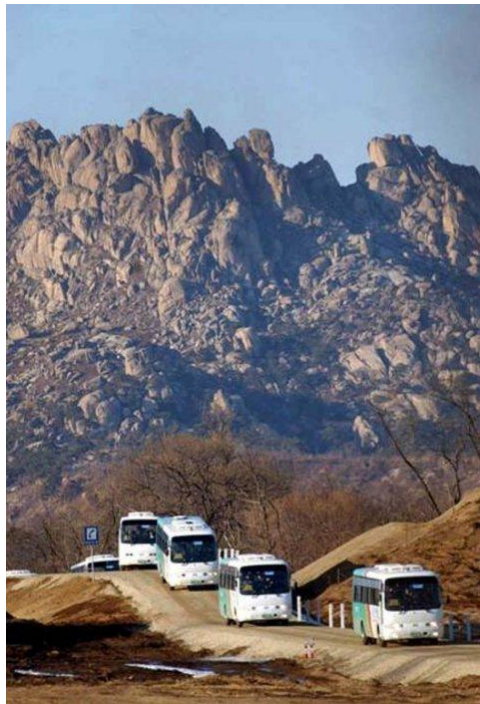
People and Politics

When we turn from the animals, land, and unintended consequences of Cold War politics to the environmentalists, we shift quite abruptly to the terrain of conscious agency, dedicated activity, and limited time frames. Historians are particularly comfortable here. People make plans to protect the environment; organizations and nations produce publications and archives; the time frame narrows from millions of years to months. Currently, the interests and concerns of governments, armies, and environmentalists serendipitously coalesce to protect the DMZ from human predation, but this could change overnight as the two countries come to terms. The goal of the conservationists is to turn serendipity into policy. They have a difficult task. An established peace, the rationalization of economic interests, concerns about North Korean poverty, and the imperatives of cultural unity could very well wipe “clean” the DMZ’s biological efflorescence and homogenize its diverse territory into modern grids of suburb and highway. Indeed, very little would stand in the way of this predation. According to the 2005 Yale Environmental Sustainability Index, the two Koreas do not get high marks for environmental stewardship. South Korea ranks 122nd and North Korea is in last place out of the 146 countries studied for their ability to protect their environments over the next several decades.¹⁵

South Korea’s low ranking is surprising given the vibrant environmental movement that sprang up as part of the democratization movement of the 1980s. By 2004, about half of the 24,000 registered NGOs in South Korea were environmental groups.¹⁶ However, according to South Korean sociologist Lee Hongkyun, the population’s seemingly high-level of environmental awareness is undercut by their inadequate recognition of the need to change their own behavior. Instead, South Koreans revel in increasing rates of personal consumption, while blaming environmental degradation on corporations and government policies catering to the very consumption they desire. As Lee puts it, South “Korean society seeks growth and expansion of the private space rather than preservation of shared space, i.e. the environment. They are unwilling to restrict the expansion of the private space in order to preserve shared space.”¹⁷ As for North Korea, its autarkic ideology of self-reliance (*juche*) does not appear to encompass a self-sustaining environment. Immediately after the war, through ruthless exploitation of mineral

resources and forests, its economy soared. For the first twenty-five postwar years, North Korea was far richer than South Korea. Now both the economy and the environment are devastated.¹⁸ As Peter Hayes has noted recently, the degradation of the North Korean environment has accelerated since the early 1990s with the total forested area falling by roughly one-third over 15 years.¹⁹ It appears that neither mindless growth nor dire poverty has spurred heightened concern for resource conservation.

Today, cooperation between the Koreas grows by fits and starts with bad environmental consequences for the DMZ. Already overland highways and railways traverse the DMZ and promote “reconciliation, economic cooperation, and cultural and tourist exchanges”²⁰ The South Korean Hyundai Corporation in partnership with the North Korean government has built an industrial park within sight of the DMZ.²¹ The Diamond Mountain resort, located just north of the DMZ, has hosted upwards of 1.9 million visitors, most of them South Korean, since opening in 1998.



Tour buses moving through the DMZ

These visits were suspended in July 2008 when a North Korean guard shot in the back and killed a middle-aged tourist as she walked down the beach.²² And yet, as of 2009, there were no systematic studies of the DMZ’s ecological resources. Time for a comprehensive evaluation of the area’s biodiversity is running out since South Korean scientists already report that “the DMZ and neighboring CCA have been damaged to the extent that significant wetland and forested areas have been lost.”²³ Compared with the evolutionary time frame required to produce a “fossil animal” like the Amur Goral, the temporal scale of the actions required to preserve the peninsula’s biodiversity are but a blink of the eye.

The most concerted organized effort to forestall ecological destruction is the called the DMZ Forum, founded in 1998 by Korean-American scientists, Dr. Ke Chung Kim and Dr. Seung Ho Lee. The DMZ Forum takes a three-pronged approach: conservation, sustainable agriculture, and

economic growth. It aims to turn the DMZ into a nature reserve under the auspices of UNESCO, while coping with the economic trauma bound to occur were the two disparate systems of North and South to integrate further. German reunification, it will be remembered, was hampered by the lack of economic parity, but East Germany's economy was at least a third the size of West Germany's whereas North Korea's economy is estimated to be only about one thirtieth the size of South Korea's. If this statistic is even approximately correct, reunification would be economically harrowing and the pressure to develop every possible resource would immediately menace the creatures of the DMZ.



Hall L. Healy, President DMZ Forum

The DMZ Coalition, an offshoot of the DMZ Forum, offers itself as an umbrella organization for everyone interested in protecting Korea's unique resources. Its hodge-podge of about thirty individuals and organizations comes from all over the world, but, mindful of Korean national pride and prerogatives, the DMZ Coalition aims to place itself at the service of the Korean people, aiding rather than directing their conservation efforts. As a group, DMZ Coalition members are almost as diverse as the flora and fauna they want to protect. Four South Korean organizations have joined, including a government research institute and the municipal government of Hwacheon, a county abutting the DMZ.

American members include the current President of the DMZ Forum, L. Hall Healy, various universities—Harvard, Tufts, and Syracuse—and NGOs including the Sierra Club and the National Resources Defense Council. Ted Turner, the media mogul, is also a member of the Coalition and is generous in his support. The International Crane Foundation headquartered in Baraboo, Wisconsin participates enthusiastically. One of its co-founders, George Archibald, saw the last Crested Ibis in South Korea in the late 1970s. Japanese ministries have not yet shown an interest despite the fact that Red-Crowned Cranes are so beloved in Japan. However, several Japanese individuals and non-governmental organizations belong to the DMZ Coalition. The Coalition has even drawn members from South Africa's Peace Parks group, the world's foremost implementer of transboundary nature reserves. In short, the people and organizations in the DMZ Coalition come from many walks of life, many countries, and many callings. Through fortuitous circumstances, these quirky groups cohere in finding the DMZ a vital place.

But for all their efforts, the environmentalists, as compared with the military, have done nothing as yet toward saving the DMZ's biodiversity.²⁴ The paradox is that the preservation of these

creatures and landscapes has so far rested not with mindful economic development nor with environmental activists but with armies. As long as North Korea does not carry out its threats to turn South Korea into a “sea of fire” or a “heap of ashes,” cold animosity preserves biodiversity. The dreadful truth is that the salvation of countless non-humans lies in human hostility. The absence of our species means the presence of others. From the perspective of the goral, internecine human hatred looks a lot like love.

But, my focus so far on environmental groups and the military standoff is insufficient. A more global view is necessary to truly understand the pressures weighing on the tiny strip of land between the Koreas. These pressures transcend national boundaries, transnational organizations, and human will, just as do the migrating spoonbills. China, Russia, Japan and the United States are included in the Six Party Talks, but those nations are only part of the weight. The multiplication of the human species from 1.6 billion in 1900 to over 6.6 billion impinges on this tiny strip of land. The fate of the approximately 3,000 non-human species in the DMZ is tied to that of the other species threatened with extinction around the planet, where The International Union for Conservation of Nature estimates that 40 percent of all organisms are currently endangered. The greenhouse gases that sweep over the peninsula come from thousands of miles away; the Korean peninsula lies within warming oceans; the planet spins in an uncomprehending cosmos. In one sense, every entity, living and non-living, has impact. In one sense, all the universe impinges on this fragile landscape.

History: Problems of Agency and Narrative

What are historians to make of all these marvelously idiosyncratic animals, geographical forms, individuals, non-state, state, and multinational organizations? The numbers multiply almost to infinity like the bodhisattva of an esoteric mandala, the past, present and future, the human and the non-human, sentient beings and non-biological energies. Who are the agents of this history when purposeless evolutionary pressures, instinctual responses, casual acts, and passionate deliberations all shape the narrative? Where does this history take place with so many territories mapped by so many different creatures and physical forces? What is the time frame when eons of evolution and yesterday’s diplomatic initiatives both matter? What does it suggest to us when the narratives are so radically at odds? After all, the DMZ is a comedy of errors from the point of view of the gorals; a sixty-year tragedy from the point of view of the Koreans; a necessary evil from the perspective of American policy; an emblem of U.S. failure in the eyes of historian Bruce Cumings; a triumph for cranes; and, from the point of view of geology and physics, just another set of circumstances best conveyed without narrative tropes. Can a history encompass all this and yet remain a history? Environmental history’s multiplication and transformation of central tools of the discipline--agency and narrative--threaten the discipline’s very foundations, and many environmental historians do not realize how radical this challenge is.

Take, for instance, environmental historian Ted Steinberg. Steinberg argues that if we focus on the natural environment--for example, if we pay attention to the working class’s roaming pigs in early-nineteenth century American cities--and take “an ecologically minded and socially sensitive approach,” we will understand social networks better and, because of this, we’ll be able to put history “back together again.”²⁵ As Steinberg sees it, history, like Humpty Dumpty, lies in pieces--political, intellectual, and economic histories, histories of sexuality, class, race, and gender--and all that is required is “the natural world” to make it whole again. Similarly, historian John McNeill writes that “just as history is a seamless web, so in ecology everything is

connected to everything else.”²⁶ Environmental historians such as Steinberg and McNeill adopt a Unified Theory of Everything. Two difficulties arise. First, the world’s supposed “seamlessness” is itself a point of contention, especially among physicists and, for different reasons, among historians, literary theorists, and others concerned with discursive disjunctions. Second, even if one were to grant the assumption that the universe is a “seamless web,” there is no reason to think that our powers of representation will be able to render this totality meaningful. Representation, by its very nature, involves selection, but some environmental historians confuse reality with representation, the object of knowledge with the forms of knowledge.²⁷

In order to recognize environmental history as the challenge that it is, historians must begin, I think, by recognizing the assumptions that founded our discipline. Modern history, institutionalized in the nineteenth century in Europe and elsewhere, came into being as one among many technologies of modernity, arising as human beings began to subdue and master—or so we thought—the environment in unprecedented ways.²⁸ Overcoming nature was the key to giving shape and sense to the object of our investigations as academic historians. History centered on human agency—our thought and our free (though limited) will—and the patterns of development created through the expression of that will in action.²⁹ We relegated nature to the background of human activities not out of casual forgetfulness, but out of the imperative of our discipline. If our discipline’s assumptions about the limited importance and force of nature are wrong, as Steinberg, McNeill, and environmental historians argue, then our assumptions about history’s meaningfulness may be wrong as well. It is not merely the “arrogance of anthropocentrism” that is being challenged when the environment is taken seriously, but the very prospect of meaning itself. This is a challenge historians should not skirt—and more reflective environmental historians have proposed several ways of coping with it.

Three solutions—all pertinent to our attempt to understand and represent events in the DMZ—present themselves. The first, articulated most compellingly by American environmental historian William Cronon, maintains the separation between nature and history, between reality and our modes of representation. Cronon recognizes the environment as chaotic, voiceless, formless, and inherently meaningless. Non-human species, mountain ranges, and the universe itself “lack the compelling drama that comes from having a judgeable protagonist. Things in nature usually ‘just happen’,” he tells us, “without raising questions of moral choice.”³⁰ This being the case, environmental historians do not represent the environment as they find it. Instead, Cronon argues, we supply judgeable protagonists by placing “human agents at the center of events,”³¹ even ecological ones; we remain committed “to narrative ways of talking about nature that are anything but ‘natural.’”³² History, even environmental history, requires human agency and narrative. Cronon’s reason for “organizing ecological change into beginnings, middles, and ends—which from the point of view of the universe are fictions, pure and simple” is to create didactic tales, to provide the “moral compass” that is at the heart of story-telling.³³ For Cronon, then, the formal unity of environmental history resides not in the object of its investigation, but in our existential commitment to caring about certain things: ourselves, nature, moral rectitude, meaningful stories. In Wallace Stegner’s phrase, “we see the world through our ‘own human eyes.’”³⁴

Cronon would be the first to acknowledge that human agents have more often operated like blind moles than insightful or rational actors in affecting the earth. He would certainly recognize that no one willed the accidental wonderland of the DMZ or the preservation of the Red-crowned Crane’s migratory route. And yet he would still insist that we tell the story of the DMZ as he tells

the story of the American West, not from the perspective of gorals, spoonbills, or seals and not as a set of circumstances emerging in geologic time, but from the human point of view. Even after wrestling with the unnatural nature of history, he would, I think, still focus this story on accidental Cold War bounty and deliberate preservation efforts. Human beings, even when acting blindly, are still willful and still culpable. For scholars like Cronon, historical meaning arises from crafting the formal storylines that underscore our moral responsibility.

The second group of historians, emphasizing how attenuated human will is once environmental factors are considered, blur the concepts of “agency” and “role” and discount narrative. In a 2008 *American Historical Review* forum, Richard C. Hoffman articulates this second approach arguing that environmental history raises “the possibility of imagining other points of view” besides the human and suggests that narrative unity may be “reductionist.”³⁵ This expanded sense of who plays a historical role suggests that thought and will, the very processes that Cronon and others treat as essential, are merely matters of scale and perspective.³⁶ All animate beings, human and non-human, have historical roles. Environmental historian Brett Walker, for instance, describes the Japanese beetle as stowing “itself away in the root-bundles of a batch of azaleas shipped to Riverton, New Jersey in 1916.” Walker calls it an “advantageous *decision* for the hungry chafers, as they managed to escape several species of predatory flies and wasps not to mention several deadly diseases . . .”³⁷ At first we may balk at the image of insects calculating their best advantage and making decisions, but looking at human history, it is not entirely clear that human calculations have been any more knowing. Just as beetles munched a particularly juicy root that happened to be in transit to a predator-free paradise in America, so too humans marked their territories on the Korean peninsula like wolves wary of mutual destruction and hunkered down in a way that happened to suit gorals. If sheer contingency and unintended consequences move history at least as much if not more than mindful action—as the DMZ seems to bear out—there is little to differentiate the pullulating mass of human beings from multiplying microbes or the decisions of dictators from the desires of whales. By these lights, every animate being has “agency,” but of such a deracinated kind that “role” becomes the better word. All creatures play these roles not in a unified moral drama, but in various competing stories. With this loss of unitary perspective and unitary narrative comes the loss of moral perspective. Gardeners may talk crossly about invasive species and hate the Japanese beetle, but on what basis are we to discount its triumphant narrative and elevate our own distress?

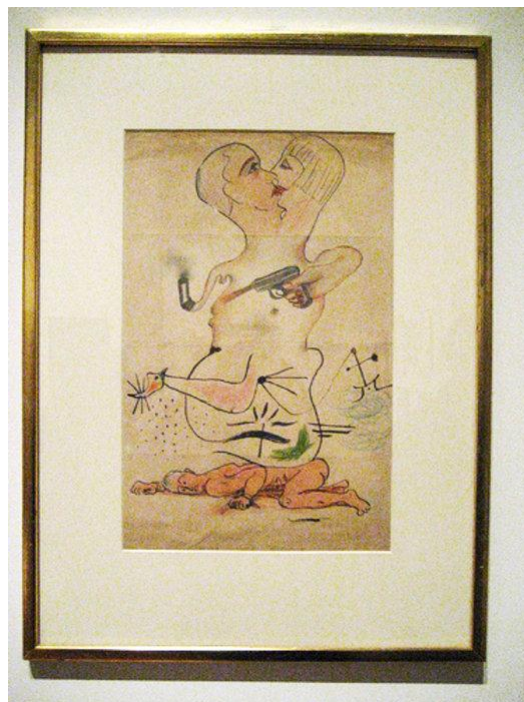
The third, most radical, group are those historians who forgo a primary concern with animate agency or roles of any kind, moving beyond the biological to look at physical forces. A prime example is historian of fire Stephen Pyne who has tried to combine science and history in practice as well as in conceptualization. In 1990, working in Arizona State’s history department, but researching in conjunction with scientists, Pyne argued optimistically that, “Done right, science and history can combine like epoxy into an unbreakable bond.”³⁸ Today, the epoxied bonds are broken. Arguing that “the sciences and humanities operate very differently,” Pyne has left the history department for the School of Life Sciences and speaks of “Environmental History without Historians.”³⁹ His understanding treats all species (humans included) as epiphenomenal to the physical forces that shape the world. From this vantage, the DMZ is not primarily a political or social arena, nor even a field of biological struggle, but another site of the vast, chaotic clash of energy and matter. Both agency and narrative are discarded.

With this third approach, making our forms of representation match the physical environment, we must forgo the artifice of stories with beginnings, middles, and ends coalescing around

protagonists. This form of representation rejects old narrative strategies and adopts numeric modes. As Annales School historian Emmanuel LeRoy Ladurie once argued, “in the long run, even in the more esoteric branches of history, . . . there will always come a moment when the historian . . . will need to start counting: to record frequencies, significant repetitions, or percentages.”⁴⁰ In his view, all history will eventually become quantitative and scientific rather than narrative and anecdotal. Such positivism rarely asks how meaning will arise out of the sheer accumulation of fact without selection or value judgments.⁴¹ Certainly for the DMZ, mere accumulation of data without a moral storyline enfeebls any imperative for us to act one way or the other.

As we stand back from all three of these approaches, we can see that none of them is wrong, none of them belie the truth of occurrences on the Korean peninsula, and yet the insights they provide about what happened and why are not commensurate. They exist on different planes of understanding, presented through different formal mechanisms. What they show is that adding environmental concerns, instead of putting “history back together again” (as Steinberg promises) may well tear the discipline apart which is perhaps why some of our very best historians continue to ignore environmental questions altogether.⁴² Environmental history, such that it is considered at all, is treated as a subspecialty, an additional topic, rather than the epistemological challenge that it is. We need to confront the possibility that with the introduction of nature, our frail construction of coherent stories and our sense of who we are in relation to the past may tumble, and that after the fall, it may not be so easy to put the discipline back together again.

The contingency seen in both the DMZ and in history reminds me of a parlor game invented by the Surrealists in 1925. The game is called “the exquisite corpse,” a game you may have played as a child. A piece of paper is folded in four parts, and each of the four participants adds an element to a drawing without being able to see what the others have drawn. The result is a concoction of random additions. With luck, the result can be weirdly beautiful, an emanation, according to the surrealists, of the collective unconscious.





One version of the "Exquisite Corpse" (left) by, from top to bottom, Man Ray, Yves Tanguy, Joan Miro, and Max Morise.

In this particular version, the exquisite corpse, like the Korean peninsula, has a gun around its middle. The beauty and biological diversity of Korea's DMZ arose from sheer contingency due to guns. Right now, the DMZ is a paradox, a dead zone fortuitously alive with beauty, an "exquisite corpse" created unintentionally by many forces. The question for environmentalists, governments, militaries, indeed for all of us human and non-human, is whether it will remain an exquisite corpse or become well and truly dead. The same question, I might argue, also applies to the discipline of history as it confronts the challenge posed by environmental factors. History may also be an exquisite corpse, an accidental marvel of a discipline, one that emerged in conjunction with the nineteenth-century upsurge in human predation on planetary resources. In light of what we now understand about the environment, we need to consider whether the discipline of history can be rejuvenated to meet new environmental imperatives, or, if not rejuvenated, consider how disciplines, like species, may evolve entirely new forms.

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Notes

¹ Don Oberdorfer, *The Two Koreas: A Contemporary History* (Reading, Massachusetts: Addison-Wesley, 1997), 9-10.

² Don Oberdorfer, *ibid.*, 2.

³ This phrase is used in Kwi-Gon Kim and Dong-Gil Cho, 'Status and Ecological Resource Value of the Republic of Korea's Demilitarized Zone,' online publication 19 March 2005 © International Consortium of Landscape and Ecological Engineering and Springer-Verlag Tokyo 2005.

⁴ [Gavan MacCormack](#), "The Road to Copenhagen," 13 September 2009 (accessed October 15, 2009)

⁵ Park Grimm, "Distribution and Protection of the Long-tailed Goral in the DMZ and Civilian Control Zone," *DMZ: Biodiversity and Conservation in the DMZ* (Seoul: Korean Environment Institute, conference proceedings, 1006), 49.

⁶ Park Grimm, *ibid.*, 50.

⁷ David S. Wilcove, *No Way Home: The Decline of the World Great Animal Migrations* (Washington: Island Press, 2008) traces bird migration in South and North America, a migration which has the same parallels and perils as the great bird migrations from Australia to Russia.

⁸ Lee Woo-Shine, Wee-Haeng Hur and Shin-Jae Rhim, "Distribution Characteristics of Black-faced Spoonbill *Platalea minor* in Western Coast of South Korea," *Korean Journal of Ecology* 24/4 (2001), 219.

⁹ Lee Kisup, "Importance of DMZ for Breeding Side of Black-Faced Spoonbills," *DMZ: Biodiversity and Conservation in the DMZ* (Seoul: Korean Environment Institute, conference proceedings, 2006), 28.

¹⁰ Joon Hwan Shin, Jong-Hwan Lim, and Jung Hwa Chun, 'Unique Biodiversity and Landscapes of Korea's Demilitarized Zone (DMZ): Overviews,' *International Conference on Korea's DMZ Conservation: Science and Impact Assessment* (Seoul: conference proceedings, 4 June 2007), VI-10-14.

¹¹ The ROK Ministry of Defense has proposed reducing the CCZ by five kilometers. Hall Healy, 'Korean Demilitarized Zone: Peace and Nature Park,' *International Journal on World Peace* 24/4 (December 2007), 72.

¹² In 1896, discussions between Japan and Russia almost resulted in dividing the peninsula, although apparently not at the thirty-eighth or thirty-ninth parallel as many historians have claimed, according to Bruce Cumings, *Korea Place in the Sun* (updated edition) (New York: W.W. Norton & Company, 2005), 123.

¹³ Don Oberdorfer, *ibid.*, 58.

¹⁴ Joon Hwan Shin, Jong-Hwan Lim, and Jung Hwa Chun, "Unique Biodiversity and Landscapes of Korea's Demilitarized Zone (DMZ): Overviews," *International Conference on Korea DMZ Conservation: Science and Impact Assessment* (Seoul: conference proceedings, 4 June 2007), VI-4.

- ¹⁵ The 2005 Environmental Sustainability Index was produced by the Yale Center for Environmental Law and Policy and the Center for International Earth Science Information Network, Columbia University. It integrates seventy-six data sets to measure the ability of nations to protect their environments in the coming years. These findings emphasize the importance of government policy in creating sustainability, and find that there is no direct corollary between economic development and environmental protection, although civil and political liberties correlate highly with sustainability. [Link](#). (accessed 19 January 2009).
- ¹⁶ Cho Myung-Rae, 'The Emergence and Evolution of Environmental Discourses in South Korea,' *Korea Journal* 44/3 (Autumn 2004), 139.
- ¹⁷ Lee Hongkyun, 'Environmental Awareness and Environmental Practice in Korea,' *Korea Journal* 44/3 (Autumn 2004), 178.
- ¹⁸ Lisa M. Brady, 'Life in the DMZ: Turning a Diplomatic Failure into an Environmental Success,' *Diplomatic History* 32/4 (September 2008), 597.
- ¹⁹ Peter Hayes, "Unbearable Legacies: The Politics of Environmental Degradation in North Korea," *The Asia-Pacific Journal*, Vol. 41-2-09, October 12th, 2009.
- ²⁰ Kwi-Gon Kim and Dong-Gil Cho, 'Status and Ecological Resource Value of the Republic of Korea's Demilitarized Zone,' online publication 19 March 2005 © International Consortium of Landscape and Ecological Engineering and Springer-Verlag Tokyo 2005.
- ²¹ Lisa M. Brady, 'Life in the DMZ: Turning a Diplomatic Failure into an Environmental Success,' *Diplomatic History* 32/4 (September 2008), 609.
- ²² Tours to the Diamond Mountain were suspended in July 2008 by the South Korea's Unification Ministry when Park Wang-ja was killed by a North Korean soldier when she walked into a fenced-off military zone near the resort in the early morning of July 11, 2008. Choe Sang-Hun, "South Korea to heed North on quick exit from resort" *International Herald Tribune* 11 August 2008.
- ²³ Kwi-Gon Kim and Dong-Gil Cho, 'Status and Ecological Resource Value of the Republic of Korea's Demilitarized Zone,' online publication 19 March 2005 © International Consortium of Landscape and Ecological Engineering and Springer-Verlag Tokyo 2005.
- ²⁴ Choe Sang-Hun, 'N. Korea Scraps Accords with South,' *New York Times* 30 January 2009 [here](#).
- ²⁵ Ted Steinberg, 'Down to Earth: Nature, Agency, and Power in History,' *American Historical Review*, 107/ 3 (June 2002), 798-820.
- ²⁶ J. R. McNeill, *Something New Under the Sun: An Environmental History of the Twentieth-Century World*, (New York: W.W. Norton and Company, 2000), 20.
- ²⁷ Other scholars have also noted environmental history's relative lack of self-reflection and engagement with theoretical issues, most especially in the social sciences. Sörlin Sverker and Paul Warde, 'The Problem with The Problem of Environmental History: A Re-reading of the Field,' *Environmental History* 12/1 (January 2007), paragraph 28. [Link](#). (accessed 30 January 2009)

²⁸ The first chair of history was founded at the University of Berlin in 1810. France followed suit in 1812, and England, belatedly, joined the movement with Oxford's Regis Professorship of History in 1866. It was not until 1875 that English undergraduates could read for a degree in historical studies. See Hayden White, *Metahistory: The Historical Imagination in Nineteenth-Century Europe* (Baltimore: John Hopkins University Press, 1973) 136. In Japan, Tokyo Imperial University invited a German historian, Ludwig Riess, to hold the first chair of history, meaning non-Japanese history, in 1887. Two years later, in 1889, a department of Japanese history was established. See Jiro Numata, 'Shigeno Yasutsugu and the Modern Tokyo Tradition of Historical Writing,' in W.G. Beasley and E.G. Pulleyblank, eds., *Historians of China and Japan* (London: Oxford University Press, 1961), 278.

²⁹ One of the earliest articulations of history in this sense can be found in a charming essay by Jean Bodin, *Methodus ad facilem historiarum cognitionem* (1566): "Of History, that is, the true narration of things, there are three kinds: human, natural, and divine. . . . In accordance with these divisions arise history's three accepted manifestations - - it is probable, inevitable, and holy - - and the same number of virtues are associated with it, that is to say, prudence, knowledge, and faith." After many recondite elaborations, Bodin places his bets on human history and probability. The agents historians should focus on are human. Historical narratives in tracing the wisdom or folly of human choices will accord neither with the inevitable script of natural necessity nor the providential randomness of miraculous intervention. Instead of knowledge or faith, says Bodin, historians end up with a prudent grasp of probabilities. History, importantly, is the territory of limited free will. Jean Bodin, *Method for the Easy Comprehension of History* translated by Beatrice Reynolds, (New York: W.W. Norton, 1945), 15.

³⁰ William Cronon, 'A Place for Stories: Nature, History, and Narrative,' *The Journal of American History* 78/4 (March 1992), 1368.

³¹ Cronon, *ibid.*, 1375.

³² Cronon, *ibid.*, 1367.

³³ Cronon, *ibid.*, 1375.

³⁴ Quoted in Nancy Langston, 'AHR Conversation: Environmental Historians and Environmental Crisis,' *American Historical Review* 113/5 (December 2008), 1441.

³⁵ Richard C. Hoffman, 'AHR Conversation: Environmental Historians and Environmental Crisis,' *American Historical Review* 113/5 (December 2008), 1442 and 1446.

³⁶ The transformation in agency and the redefinition of human and animal is happening not only in historical research but in law and society more generally. Spain passed a limited bill of rights for primates in July 2008. [Link](#).

³⁷ Brett L. Walker, "Animals and the Intimacy of History," unpublished paper. [emphasis mine] I am grateful to Professor Walker for permission to quote from his paper.

³⁸ Stephen J. Pyne, 'Firestick History,' *The Journal of American History* 76/4 (March 1990), 1139.

³⁹ Steve Pyne, 'Environmental History without Historians,' *Environmental History* 10 (January 2005), 72.

⁴⁰ E. LeRoy Ladurie, *The Territory of the Historian*, translated by Ben and Sian Reynolds (Chicago: University of Chicago Press, 1979), 15.

⁴¹ E. H. Carr examines and excoriates this view in Carr, *What is History?* (New York: Vintage Books, 1961), 13-20.

⁴² See, for instance, Geoff Eley's magnificent examination of historical practice in the late twentieth century. Not only does Eley not mention environmental history (despite a photograph of a Great Blue Heron on the dedication page) as he traces the major debates in the field, those responding to his book in a special forum of the *American Historical Review* did not consider this a problematic omission. Eley, *A Crooked Line: From Cultural History to the History of Society* (Ann Arbor: University of Michigan Press, 2007).

“Natural Environments, Wildlife, and Conservation in Japan”

Catherine Knight

<http://www.japanfocus.org/-Catherine-Knight/3292>

January 25, 2010

While the Robert Stolz and Julia Adeney Thomas essays focus on environmental protection, this piece by Catherine Knight illustrates the challenges faced by conservationists in contemporary Japan. Knight provides a useful overview of the condition of Japan's natural environments and wildlife a decade into the twenty-first century as well as the human actions that have both degraded the environment and forestalled its protection. Some of the themes in this piece will resonate with what we have read about earlier periods regarding legal weakness and lack of political will, but here we better understand some of the environmental consequences of phenomena that became especially pronounced in the postwar years—the increased use of agricultural chemicals, the encouragement of tourism, and the heightened tensions between conservation and development in an era of significant economic growth. This essay thus allows us to reflect on what has changed, and what has remained largely the same, with conservation efforts in modern Japan.

Natural Environments, Wildlife, and Conservation in Japan

Catherine Knight

Abstract

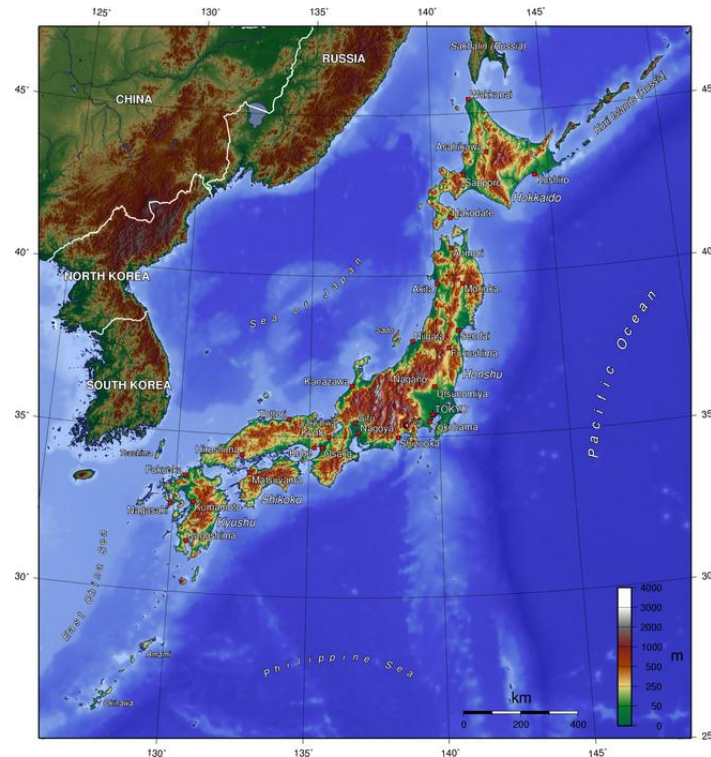
Owing to its diverse geology, geography and climate, Japan is a country rich in biodiversity. However, as a result of accelerated development over the last century, and particularly the post-war decades, Japan's natural environments and the wildlife which inhabit them have come under increased pressure. Now, much of Japan's natural forest, wetlands, rivers, lakes and coastal environments have been destroyed or seriously degraded as a consequence of development and pollution. Despite increasing awareness of the importance of preserving Japan's remaining natural environments and wildlife, habitat destruction (both direct and indirect), inadequately controlled hunting, and introduced species pose a threat to these. This paper explores these factors, and the underlying forces—political, legislative and economic—which have undermined efforts to preserve Japan's natural heritage during the post-war decades.

Introduction

This article outlines the state of Japan's natural environments and wildlife, and assesses the key threats to habitat destruction, hunting and introduced pests. It then examines the key factors—political, legislative and economic—which contribute to Japan's failure to adequately protect wildlife and natural environments from these threats, and in particular, the primary threat of habitat destruction.¹ It will be seen that the key factors are the relative weakness of the legislative framework for nature conservation; a system for managing national parks that emphasises tourism rather than the ecological function of parks; and the strong impetus for development, particularly in rural areas, which undermines attempts to protect natural environments and the wildlife which inhabit them. It should be emphasised that Japan is not alone in struggling to adequately protect its natural heritage—this is a problem faced by many nations around the world. Also, considered in the context of its long period of human occupation and very high population density, it might be suggested that it is remarkable that Japan has retained as much of its natural environments as it has.²

The state of Japan's natural environments and wildlife

The Japanese archipelago consists of almost 4000 islands with a combined coastline of approximately 33,000 kilometres (Organisation for Economic Cooperation and Development (OECD) 2002: 136). Japan's topography is characterised by mountainous regions, which cover 75 per cent of the land area. Before human activity impacted on the environment, Japan was for the most part covered in forest: subtropical forest in the southern part of Honshu, Shikoku and Kyushu, as well as the southern islands; temperate forests through the remainder of Honshu; and boreal forests in Hokkaido and the highlands of Honshu. On flatter ground, in river valleys or natural basins, bog vegetation predominated: consisting of rushes, grasses and small trees (Bowring & Kornicki 1993: 13–14). There was a complex network of fast-flowing rivers across the archipelago, feeding into numerous lakes.



Topographical map of Japan (source: Wikipedia Commons)

Japan's geographical isolation, diverse topography and climate has supported a high level of biological diversity. About 200 mammal species have been identified in Japan, compared to 67 in the United Kingdom and Ireland, an area roughly similar in size. Over 700 bird species, including sub-species, have been recorded, again approximately double the number found in United Kingdom and Ireland (Environment Agency 2000: vol.1, 285; Kellert 1991: 298).



Mixed coniferous and regenerating indigenous forest in Tohoku (Photo: C. Knight)

Today, about 67 per cent of Japan's land area is forested, however a large proportion of that—about 40 per cent—is coniferous plantation forest (Statistics Bureau of Japan, 2006: 19, 255). Of the remaining natural (non-plantation) forest, only a small percentage is primeval forest, and the area of primeval forest continues to decrease (OECD 2002: 135–136). Wetlands cover

approximately 50,000 hectares (0.13 per cent of Japan's land area), but many of these are threatened by water pollution and land reclamation projects (OECD 2002: 149; Nature Conservation Society of Japan (NACSJ) 2003). Most major rivers have been modified with dams, dykes, concrete embankments, and straightening works. Nagara river, the last free-flowing river in Honshu was dammed in 1994 (McCormack 1996: 46). Only 45 per cent of the coastline of the four main islands remains in an unmodified state – the rest has been transformed by land reclamation, dredging, construction of port facilities, seawalls, breakwaters and other shoreline protection works (OECD 2002: 136, Nature Conservation Society of Japan (NACSJ) 2003). Many of Japan's lakes and rivers are polluted: for example, in 2005, the level of pollution of 47 per cent of all lakes exceeded environmental standards (Ministry of the Environment 2007). In the same year, the level of pollution of 24 per cent of Japan's coastal waters exceeded environmental standards, and enclosed areas in particular, such as the Seto Inland Sea, Ise Bay and Tokyo Bay are seriously polluted by household and industrial waste (Ministry of the Environment 2007).



Concrete "tetrapods" on the Fukushima coast, used to minimise erosion (Mike Beddall photograph)

Data from the "red data lists" compiled by the Japanese Ministry of the Environment (MOE) provide an indication of the state of Japan's native flora and fauna. The red data list, a list of endangered species, was first compiled by the Environment Agency in 1991 and subsequently updated according to IUCN (World Conservation Union) criteria.³ Of the approximately 200 mammal species, the red list currently lists 4 as extinct, and 48 as critically endangered, endangered or vulnerable. Of about 700 bird species, it lists 14 as extinct or extinct in the wild, and 89 as critically endangered, endangered or vulnerable. Of about 300 fresh or brackish water fish species, it lists 3 as extinct, and 76 as critically endangered, endangered or vulnerable (MOE 2006).

Threats to Japan's natural environments and wildlife

The three primary threats to Japan's natural environments and wildlife are habitat loss and degradation, poorly-controlled hunting, and introduced species. Habitat loss, degradation and fragmentation is undoubtedly the most serious threat to Japan's wildlife and natural environments. There are two aspects to habitat loss in Japan: failure to protect habitats (through legislative measures and conservation management practice), and direct habitat destruction, such as deforestation, land reclamation and pollution.

One key problem in Japan is the level of protection provided for flora and fauna in areas designated as national or natural parks. Japan has 29 national parks, covering 5.4 per cent of its land area (MOE 2008a).⁴ To compare with countries of similar size, the United Kingdom has 14, comprising nearly 8 per cent, Korea has 17 (6.6 per cent) and New Zealand 14 (11.5 per cent). Therefore, as a percentage of land area, this is less (though not significantly less) than in similarly sized nations (United Kingdom, Korea and New Zealand), while more than larger countries such as the United States and Canada, whose national parks (but not necessarily “protected areas” comprise about 2 per cent of their land areas.

However, little of the national park area in Japan is protected from environmentally detrimental development or human activity. The Natural Parks Law, which governs the management of these areas, does not preclude development, construction, or other human activities that may detrimentally impact on the parks’ environments. In fact, development of tourist facilities in national parks is explicitly encouraged by the Resort Law (1987). Furthermore, the designation of these areas as national parks in itself brings about environmentally damaging impacts as a consequence of high traffic volumes, excessive numbers of visitors, and the construction of tourist facilities and roads.

To date, only a negligible proportion of natural park area has been designated as reserves in which human activity is strictly controlled: only five areas totalling 5,631 hectares (0.015 per cent of the total land area of Japan) have been designated as “wilderness areas”—areas where “activities entailing adverse effects on ecosystems are strictly prohibited”. In addition to these, about 95,000 hectares have been designated as national or prefectural “conservation areas”—areas in which human activity is limited but not prohibited outright (Environment Agency 2000: vol.2, 144). Combined, the total area of conservation land in which human activity is controlled makes up 0.27 per cent of Japan’s total land area.⁵ However, even in these areas, inadequate staffing and resourcing levels means that there is not always effective monitoring to ensure that prohibited activities do not take place.

In addition to the failure to protect areas of ecological importance, direct habitat destruction is a major threat to natural habitats. Habitat destruction has taken many forms: deforestation; land reclamation; construction of dams and other riparian works; use of pesticides on agricultural land; development projects; and pollution.



Red-crowned cranes of Hokkaido—the last remaining population in Japan

Deforestation had already taken a toll on Japan's wildlife by the Meiji period (1868–1912), particularly in Honshu, pushing a number of species, such as the Japanese wolf (*Canis lupus hodophylax*) and the Japanese red-crowned crane (*Grus japonensis*), to extinction or to the brink of extinction (Stewart-Smith 1987: 127; Knight 1997).⁶ Extensive logging of indigenous forest and afforestation with single-species tree plantations has destroyed or degraded the forest habitat for many forest dwelling species, particularly in the post-war era. When reforested with commercial plantations, the monocultures of planted trees allow few indigenous plant species to colonise, and have little to offer animals such as the macaque (*Macaca fuscata*), Asiatic black bear (*Ursus thibetanus*), and the Japanese serow (*Capricornis crispus*, an antelope-like ungulate) (Stewart-Smith 1987; Maita 1998: 38–44; Hazumi 1999; NACSJ 2003; Knight 2003: 35–36; 119–120; 160). To adapt to their depleted habitat and food sources, these species have changed their behaviour to include eating shoots of young plantation trees and the raiding of farm crops (Hazumi 1999: 208; Knight 2003: 191–192). This makes them vulnerable to being culled as agricultural and forestry pests.

Land reclamation projects have claimed 60 per cent of Japan's tidal flats, half of Japan's seacoast and about one-third of its wetlands, mainly to reclamation for agricultural, industrial and commercial use (NACSJ 2003; Danaher 1996). Dams have been constructed in every major river in mainland Japan, causing degradation of the river environment and impacting on fish populations by obstructing water and sediment flow, impeding animal movement, fragmenting riverine habitats, and degrading water quality (McCormack 1996: 45–48; McCormack 2007: 448; Niikura & Souter n.d.). By the late 1990s, only 12 of 113 major rivers surveyed were free of river crossing structures or had facilities permitting sufficient fish passage. As a result, species of freshwater fish that need to migrate for breeding purposes have declined significantly (OECD 2002: 136).





Nagara River, the last major river in Japan to be dammed - then and now. Top: As portrayed by Eisen in the 19th century. Bottom: Now - the “estuary barrage” at the mouth of the river ([Wikipedia](#)).

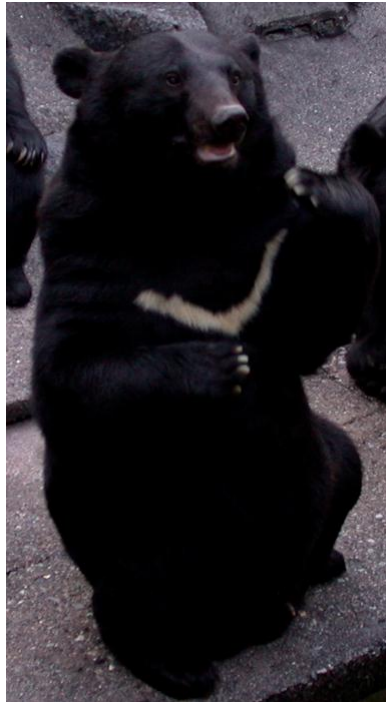
The intensive use of agricultural chemicals since the Second World War has caused contamination of soil and waterways, and has made farmland, marshland and other lowland areas uninhabitable for a number of species, causing the extinction of some, including the Japanese crested ibis (*Nipponia nippon*).⁷ Fertiliser and pesticide application levels in Japan are higher than those in almost all other OECD countries, partly because of the relatively hot, wet climate and intensive cropping, although it has been decreasing in line with overall reduction of crop production over the last decade (OECD 2002: 139).

Development projects, such as roads, airports, resorts and exposition sites, particularly in areas of ecological importance, have destroyed, degraded or fragmented many natural environments.⁸ For example, road infrastructure increased by almost 40 per cent in area and 80 per cent in length in the 1980s and 1990s, causing fragmentation and interference with adjacent ecosystems (OECD 2002: 135). Further, while about five per cent of Japan’s total land area has been designated as national parks, much of this land is affected by extensive development, such as roads, dams and resorts.

In the Ryukyu Islands (a sub-tropical island archipelago south-west of mainland Japan), large expanses of coral reef habitats have been destroyed due to agricultural chemical run-off, river improvement works, and soil erosion from construction sites, mainly for resorts and airports (McGill 1992; NACSJ 2003). For example, 95 per cent of the coral reefs of Okinawa (part of the Ryukyu archipelago) have been reported to be dead or dying as a result of heavy soil runoffs caused by resort development and the clearing of land for agriculture, and in 2002, fewer than ten per cent of coral communities in the waters surrounding the Ryukyu Islands were classified as healthy (McGill 1992; OECD 2002: 136). The situation has subsequently further deteriorated as illustrated by the case of the assault on the Awase Wetlands (Urashima 2009).

The second primary threat to wildlife is poorly regulated or controlled hunting. Animals are hunted (or culled) in Japan for a number of reasons: as agricultural or forestry pests, to protect human safety; as game; and for economic gain (often illegally, as in the case of bears illegally hunted for their gall bladders and other parts). The hunting of larger animals such as the brown bear, Asiatic black bear, wild boar and Japanese macaque has increased over the last decades in response to the increased competition between humans and wildlife for space and food. This

conflict has grown steadily throughout the long twentieth century, particularly during, and in the years following, the Second World War, when vast areas of natural forest were cut down and replaced by monoculture plantation forest, farms, roads, ski resorts and other development (Stewart-Smith 1987: 74–78; Anon. 1994, 30, 3; Hazumi 1999: 208; Maita 1998: 38–44; Knight 2003). In an effort to find food in their rapidly declining habitats, animals increasingly encroach on to farm and forestry land, and rural villages or towns, leading to increased culling.



Asiatic black bear (Photo: Scott Schnell)

The situation of the Asiatic black bear (*Ursus thibetanus (Japonicus)*) illustrates this relationship between habitat destruction and increased culling. In the early 1900s it was widely distributed throughout the three main islands of Japan, particularly in forested areas away from human settlements. However, human disturbance of many bear habitats grew marked from the 1940s, mainly in the form of increased forestry activity (Hazumi 1999: 208). This has forced bears out into plantation forest or farming areas where they cause damage by stripping bark or feeding on fruit and other crops, with the result that they become more vulnerable to being targeted as pests. This leads to culling of “nuisance bears”: on average, more than 2,000 bears are culled annually (of an overall estimated population of between 10,000 and 15,000), though in years of high levels of bear damage, a far greater number are culled. In 2006, for example, 4,500 were culled (*Yomiuri Shinbun* December 19, 2006). Bear “harvest” rates (human-caused fatalities through either hunting or culling) are not regulated according to biological data on the species, and in fact, harvest numbers have been increasing, despite a decreasing overall population (Hazumi 1999: 209).

The brown bear of Hokkaido (*Ursos arctos yesoensis*), one of the few remaining populations of brown bear in Europe and Asia, is under similar pressure. Its population is estimated at about 3,000, and about 250 bears are killed annually (Mano & Moll 1999: 129). The rapid decline of two localised bear populations has led to their designation as endangered subpopulations—

however, the population as a whole remains unlisted, and the bear is considered a game species under the Wildlife Protection and Hunting Law (Mano & Moll 1999: 128). The most urgent threat to the remaining population is excessive control killing—it has been predicted that if the current level of control killing is sustained, the Hokkaido brown bear population will become extinct (Tsuruga, Sato & Mano 2003: 4). Habitat fragmentation, caused particularly by the construction of forestry roads, is an additional pressure on the remaining population.

The law which regulates hunting in Japan is the Wildlife Protection and Hunting Law, which took its current form (revised from the Hunting Law) in 1963 (See Table 1.) The purpose of the law is “to protect birds and mammals, to increase populations of birds and mammals, and to control pests through the implementation of wildlife protection projects and hunting controls”. The law gives the Ministry of the Environment (MOE) the authority to specify game species (which can be subject to hunting), of which there are 29 bird, and 17 mammal species. It also allows for the designation of areas in which hunting is prohibited, hunting periods, harvest limits, and hunting methods. Under the law, hunters must obtain a hunting license and register with the prefecture in which they intend to hunt. However, monitoring compliance is largely the responsibility of volunteers called *chōju hogoin* (wildlife conservators), the majority of whom are selected from local hunting associations (*ryōyūkai*)⁹ (Yoshida 2004: personal communication), a system in which there is obvious potential conflict of interest.

Overhunting is a problem for many species, particularly those which cause crop and forestry damage such as the bear, due to the perception that the populations are increasing and culling is therefore necessary. In fact, it is more likely that populations are decreasing (local and national population figures are only approximate estimates), but the level of contact with humans is increasing due to habitat fragmentation and degradation, and the attendant changes in wildlife behaviour, particularly in feeding habits (Hazumi 1999: 210). In addition, poaching is widespread in Japan, especially for animals such as bears, whose parts command high value, both on national and international markets, largely as medicinal products (Mano & Moll 1999: 129–131; Hazumi 1999: 209). However, authorities have made little attempt to control poaching (Hazumi 1999: 209).

Invasion of natural habitats by alien species is a further factor putting pressure on indigenous species, particularly in unique island environments. Introduced species including raccoon, weasel, marten, common mongoose, black bass and bluegill, disturb ecosystems through predation, occupation of habitats and hybridisation. For example, the black bass, which can grow to 87 centimetres in length and weigh up to 10 kilograms, was introduced in 1925 and has now spread throughout Japan’s waterways. A few bluegill, introduced in 1960, have also spread widely throughout the country. These fish are putting pressure on the populations of native species, such as the southern top-mouthed minnow, deep crucian carp, and the northern and flat bitterling (OECD 2002: 135; Watanabe 2002).

The risk of introduced species significantly changing endemic biota and ecosystems is especially high on islands such as Amami and Okinawa, which are isolated from other regions and are habitat to a large number of endemic species (OECD 2002: 135). Several threatened species are known or expected to be negatively affected by the introduction of predators (primarily for snake control) to these islands. On the Izu Islands, the introduction of the Siberian weasel (*Mustela sibirica*) to Miyake-jima in the 1970s and 1980s appears to have caused significant declines in Japanese night-herons (*Gorsachius goisagi*) and Izu thrushes (*Turdus celanops*). On Okinawa,

feral dogs and cats and the introduced Javan mongoose (*Herpestes javanicus*) and weasel (*Mustela itatsi*) are predators of Okinawa rail (*Gallirallus okinawae*), Ryukyu woodcock (*Scolopax mira*) and Okinawa woodpecker (*Sapheopipo noguchii*), while feral pigs damage potential ground-foraging sites for Okinawa woodpecker (Birdlife International n.d.; McGill 1992).

The role of government and legislation in nature conservation in Japan

There have been few legislative measures for the protection of wildlife and natural habitats until recently, and even today, Japan is criticised for the gap apparent between its stated policy objectives and the general trends over the past two decades—the ongoing destruction of important habitats, particularly natural forests and wetlands, and the continued endangerment of many plants and animals (OECD 2002: 132). Recent decades have also demonstrated that even if a species is recognised as severely threatened, government policy and practice often falls well short of proactive protection of these species and their habitats. Indeed, as will be seen later, government-sponsored development projects frequently act to increase the threat to wildlife and their habitats. There are also tensions between the concerns and needs of (particularly rural) citizens and the interests of nature conservation, as can be seen in development projects aimed at “regional rejuvenation”.

Until recently, there has been only a limited legislative framework for the protection of threatened species or their habitats, and conservationists argue that the current framework remains weak. The first government agency solely concerned with environmental management, the Environment Agency, was established in 1971, and in the following year, the Nature Conservation Law was enacted, which provided a basic framework for subsequent legislative measures and policy relating to nature conservation. Subsequent to the law being enacted, a limited number of areas were designated as “wilderness areas” and “nature conservation areas”, affording more protection than national park areas. However it was not until 1992 that the Law for the Conservation of Endangered Species of Wild Fauna and Flora, Japan’s first domestic law for the protection of endangered and threatened species, was enacted. The law allows for the designation of natural habitat conservation areas, sets limits on the capture and transport of endangered species and establishes guidelines for the rehabilitation of endangered natural habitats (OECD 2002: 58).

Year	Development
1918	Hunting Law (originally enacted in 1895) revised (designates game species, hunting districts managed by government established)
1931	National Parks Law comes into effect
1934	First national parks established
1947	Hunting Law revised (half of bird species, several mammal species removed from game list)
1957	Natural Parks Law comes into effect (regulates national and prefectural natural parks, and establishes a natural park system)
1963	Hunting Law renamed Wildlife Protection and Hunting Law (designates areas in which hunting is prohibited, introduces prefectural hunting license system)
1971	Environment Agency established
1972	Nature Conservation Law enacted (establishes policy and framework for the preservation of natural areas, in conjunction with Natural Parks Law, Wildlife Protection and Hunting Law etc)
1992	Law for the Conservation of Endangered Species of Wild Fauna and Flora enacted
1993	Japan becomes signatory to the United Nations Convention on Biological Diversity
1995	National Biodiversity Strategy adopted (outlines basic principles for conserving biodiversity)
1999	Environmental Impact Assessment Law comes into effect Wildlife Protection and Hunting Law revised and Specific Wildlife Management Planning System introduced
2001	Ministry of the Environment established (restructured from the Environment Agency)

Summary of laws/events relating to nature conservation in Japan

While undoubtedly a positive step for wildlife conservation, the effectiveness of the law is limited by the fact that the MOE lacks sufficient power to designate endangered species as protected species or to designate important habitats as protected areas (Yoshida 2004: personal communication). A further problem inherent in the law is that while reserves may be established to protect entire habitats, only five small reservations have been established to date (as “wilderness areas” as mentioned above), owing to reluctance on the part of land-owners to cooperate with the MOE to protect endangered species on their land (Yoshida 2004: personal communication). In addition, the law has been criticised by conservationists for putting excessive emphasis on protecting individual species rather than ecosystems in general (e.g. Yoshida 2004: personal communication; Domoto 1997). This is reflected clearly in the nature and purpose of the reserves, which focus on the management of one species and its habitat, rather than an ecological system comprised of a complex network of interacting organisms.¹⁰

In 1995, subsequent to Japan becoming a signatory to the Convention on Biological Diversity in 1992, the National Biodiversity Strategy, which outlined the basic principles for conserving biodiversity, was introduced. However this too has been criticised for lacking quantitative targets and not adequately addressing the management of wildlife and their habitats outside protected areas (OECD 2002: 29). In addition, the preservation of biodiversity is not reflected in the management of national parks, in which development and human activity impacting on the natural park environment is poorly controlled and regulated and wildlife and their habitats are not well monitored and protected (Ishikawa 2001: 201).

While recent legislation heightens the profile of nature conservation and its importance, it remains largely ineffective without adequate staff, skills and resources to carry out effective

wildlife management programmes. Central and prefectural (regional) government budgets for wildlife management are limited and wildlife management operations are significantly understaffed. Furthermore, very few of the staff employed by the MOE or prefectural governments are specialists in wildlife conservation or even trained in this field (Miyai Roy 1998; Hazumi 2006). Thus, there is a significant gap between legislation and implementation with regard to the nature conservation function.

The function of national parks in nature conservation

It is generally expected that one of the key purposes of national parks is to protect natural environments of scenic and ecological value and the wildlife within them. However a number of authors (e.g. McGill 1992; Natori 1997; Ishikawa 2001) have suggested that in Japan, the designation of areas of “ecological significance” as a national or natural park, far from affording areas increased protection, often proves detrimental to the conservation of the area, owing to such factors as the development of tourist facilities, road construction, vehicle pollution and over-use.

An overview of the history of national parks in Japan serves to provide context for this apparently paradoxical situation. Japan’s first law establishing national parks was the National Parks law, which came into force in 1931, with the first national parks being established in March 1934. National parks were established with the purpose of promoting recreational activities and aiding the development of tourism, particularly after the Second World War. As a result, the definition of “national park” became ambiguous as national parks included scenic areas, tourist resorts, and suburban recreational areas. To deal with this problem, the National Parks Law was revised in 1949, and national parks were designated according to more rigorous criteria. Any area which did not meet the criteria was designated as a quasi-national park. In 1957, the Natural Parks Law was enacted, establishing regulations for the various national parks, and forming the basis of the current natural park system (see Table 1). From the late 1950s onwards, Japan entered a period of high economic growth, and as income per capita rose, visitors to natural parks increased sharply. Requests from prefectural or local governments to designate scenic areas in their regions as national or quasi-national parks also intensified, and areas designated as new quasi-national parks or incorporated into existing national parks increased. Currently there are 29 national parks, totalling an area of 2.09 million hectares (5.5 per cent of the area of the country) and 56 quasi-national parks, occupying 1.36 million hectares (3.6 per cent of the area of the country) (MOE 2008a). A further characteristic of the national park system which does not lend itself to nature conservation is the system of jurisdiction over parks. Unlike many countries where national parks are comprised of state-owned land designated solely for recreational and conservation purposes, in Japan, a significant proportion of the land in national (or natural) parks is either privately owned or under the jurisdiction of a government body other than the MOE (MOE 2008b).

As noted, the emphasis of the Natural Parks Law is the stimulation of tourism, and it explicitly allows for the development of tourist facilities in areas designated as national or natural parks (Natori 1997: 552). Further exacerbating the lack of protection for natural parks, in 1987 The National Resort Law was enacted, as part of the government’s plan to encourage tourism development. Clause 15 of the law specifically provides for the opening up of state-owned forests as resort areas (Yoshida 2001; McCormack 1996: 87–88). As a result, much of the area designated as natural parks is heavily developed with roads, houses, golf courses and resorts

(McGill 1992; Ishikawa 2001: 67–109). A park demonstrating the impact of this process is Shiga Heights, habitat to the famous snow monkeys. Before it was designated a national park, tourist facilities consisted of one hotel and a few natural ski slopes. By 1987, it had 22 ski resorts and 101 hotels, and attracted many times more visitors than previous to its designation (Stewart-Smith 1987: 68–69).

Furthermore, the Natural Parks Law does not limit visitor numbers to parks: some national parks experience visitor numbers of more than 10,000 per day at popular times of the year (Ishikawa 2001: 198). To facilitate tourism, alpine tourist routes have been developed, beginning with the opening up of the Tateyama-Kurobe Alpine Route in Chūbu Sangaku National Park in 1971. Concomitant with high visitor numbers is the risk of damage to the environment caused by the disposal of large volumes of human waste, trampling of fauna by visitors, littering, and vehicle exhaust emissions. For example, exhaust emissions from the large number of tourist buses which travel the Tateyama-Kurobe Alpine Route in northern Honshu is reported to have caused damage to the beech forest along the route (Ishikawa 2001: 199). In addition, authorities may carry out additional development to improve safety, convenience, or access for tourists. An example is levee works in the Azusa River, at the entrance to Chūbu Sangaku National Park. The Ministry of Transport proceeded with the works—despite their potential impact on the surrounding environment—in order to protect tourists in the event of the river flooding (Ishikawa 2001: 198–199).

It has been suggested that Japan's natural park management policy unduly emphasises the preservation of scenic beauty, with little regard for ecological preservation (Natori 1997: 552; Ishikawa 2001: 196–198; McCormack 1996: 96). A case which exemplifies this emphasis on the preservation of scenic beauty is that of the Shihoro Kōgen road. The local government of Hokkaido first proposed a plan to construct a tourist highway through the Daisetsusan National Park (the largest national park in Japan) in 1965. The construction initially went ahead but was halted in 1973. The project was proposed again during the resort-boom of the 1980s. Opposition temporarily halted the project, but in 1995 the Environment Conservation Council accepted a modified plan which involved digging a massive tunnel through the mountains. The revised plan met the criteria of the Natural Parks Law which prohibits construction that damages the *visual* landscape of a national park, but does not prohibit projects which will cause ecological damage which is “unseen”. Finally, however, in 1999, following vigorous campaigning of national and local environmental organisations, the Governor of Hokkaido announced that the project would be shelved (Yoshida 2002).

A further weakness of the Japanese natural park system is that the Ministry of the Environment (formerly the Environmental Agency) does not have sole jurisdiction over these areas. Twenty-six per cent of national park land and 40 per cent of natural park land is privately owned. In addition, of the 62 per cent of national park land, and 46 per cent of natural park land that is state-owned, much of this is under the primary jurisdiction of the Forestry Agency or other agencies with industrial or economic interests in the land. Conflicts of interest between the Ministry of the Environment and agencies which have an economic interest in a park (for example, through mining and forestry) are not uncommon, further compromising the conservation function of natural parks.¹¹ An example of this is the Shiretoko logging case, where the Forestry Agency's core objective, to generate income from forestry, clashed with the interests of nature conservation.¹²

Another problem relating to the management of national parks is inadequate staffing. In Japan, there is approximately one full-time staff member per 10,000 hectares, in comparison to one staff member per 1,500 in the United States or one per 2,000 hectares in the United Kingdom (Ishikawa 2001: 203). This means that while staff are, in theory, responsible for wildlife management duties such as protection and breeding programmes for designated species and the management of wildlife protection areas in accordance with the Law for the Conservation of Endangered Species of Wild Fauna and Flora (1992), they are actually preoccupied predominantly with administrative duties such as processing permits. With staff overburdened, other duties such as environmental surveys, monitoring activities and conservation education rely predominantly on volunteers (Ishikawa 2001: 199–200).

Exemplifying these problems is Izu national park. Although the Izu archipelago is designated as a national park, with several sites designated as “special protected areas”, there are few rangers, and loss of habitat continues on many islands (Birdlife n.d.). In addition, owing to low staff numbers, staff are rarely able to ensure compliance with the conditions of use in park zones: for example, ensuring that the public does not enter specially protected zones, or that prohibited activities such as hunting, lighting of fires and vehicle use do not occur. Another case exemplifying these issues is an area in the Shirakami mountains in northern Honshu, which encompasses the largest virgin beech forest in Japan and which has been designated a world heritage site by UNESCO owing to its unique flora and fauna. It is one of the ten designated “nature conservation” areas in Japan, of which there are only 21,500 hectares in total (0.05 per cent of Japan’s land area). However, owing to inadequate monitoring or education, visitors leave garbage in the forest, light fires, and enter specially protected areas where entry is prohibited (Kuroiwa 2002). The inability to monitor park use at this fundamental level inevitably undermines the effectiveness of parks as nature conservation areas.

As can be seen, an array of problems undermines the conservation function of national parks in Japan. A key weakness arises from the fact that natural parks from the outset have emphasised tourism development and the preservation of areas for their scenic, rather than ecological, value. Further, the conservation function of parks is undermined by the fact that park lands are not exclusively state-owned, and even in cases where they are under the jurisdiction of the state, this is often under government bodies which have economic or industrial interests in the use of park lands. This leads to conflicts between nature conservation interests and development, forestry, and private interests. Furthermore, until recently there has been no law requiring environmental impact assessments to be carried out before development occurs in national parks (or any other area of ecological significance for that matter).¹³ In the past, attempts have been made by the Environmental Agency (now the MOE) to strengthen the law governing the establishment and management of national parks, but these have been thwarted by the Forestry Agency and the former Ministry of Construction (now part of the Ministry of Land, Infrastructure and Transport), which did not want their powers to manage the parks weakened (Natori 1997: 555).

Conflict between development and conservation

A recurrent theme, particularly during Japan’s high growth period, but still apparent today, is the conflict between development and conservation. Where there is a conflict between habitat protection and development, more often than not, the latter has prevailed. This is due to a multitude of factors: the relative power of pro-development government bodies such as the Ministry of Construction (now the Ministry of Land, Infrastructure and Transport), which have

close ties to financially influential private corporations; the relative weakness of the MOE; a weak legislative framework for the protection of wildlife and their habitats; a relatively small and uninfluential nature conservation lobby; low public awareness of conservation and ecological issues; and a desire for development in order to stimulate regional rejuvenation.

A case which exemplifies this conflict is that of the *miyako tanago* (metropolitan bitterling), a freshwater fish now found only in the waters of the Kanto plain. In the early 1990s it was reported that the freshwater brooks and ponds in which these fish spawn were drying up due to the building of resorts and golf courses—which diminish the land's capacity to store water—and the building of concrete outflows on farmland (Anon. 1994: 14). In addition, due to water pollution, there has been a marked decline in the *matsukasagai*, the shellfish in which the bitterling lays its eggs, employing it as an “incubator” (Kondo 1996: 9). However, farmland improvement and the development of resorts and golf courses were deemed important to local residents, and preserving the unique ecology of the metropolitan bitterling did not attract widespread public support. Finally in December 1994, in accordance with the Law for the Preservation of Endangered Species of Wild Fauna and Flora, the Environment Agency designated the sole remaining bitterling habitat in Otawara as a protected sanctuary (Kondo 1996: 9). While undoubtedly this is a positive development, the striking fact is that measures to protect the bitterling's habitat were only taken when only one habitat remained.

Another instance of the clash of development and conservation is the case of the Amami black rabbit (*Pentalagus furnessi*). The case exemplifies problems which are common to many rural areas in Japan, where human populations are both diminishing and aging, and where the local economy and employment opportunities are in decline. The Amami black rabbit is an endangered species endemic to the southern Amami Islands (there are estimated to be only 1,000 rabbits remaining). In the 1990s, its habitat was threatened by the proposed development of a golf course, which locals hoped would reinvigorate the local economy. Finally, after much protest, an environmental organisation successfully used the media to draw attention to the plight of the rabbit, and the Ministry of Culture subsequently halted the golf course (Domoto 1997).

It is also common for development projects or commercial activity to be pursued in areas of known ecological importance, despite potentially damaging ecological impacts. This is in part due to a lack of effective environmental impact assessment procedures, though perhaps more critically, it stems from the political and economic imbalance between pro-conservation and pro-development forces. One such case is that of the logging of the Shiretoko National Park in Hokkaido. It was well documented that the area is habitat to seriously threatened species such as Blakiston's fish-owl, the White-tailed eagle and the Pryer's woodpecker, as well as being the sole remaining habitat of several other species. Nevertheless, in 1986, the Forestry Agency announced a plan to selectively log 10,000 trees in an area of 1,700 hectares in the park. (Logging and other commercial activities in national parks are permissible under the Natural Park Law.) In spite of nation-wide opposition as a result of an organised and well-publicised campaign opposing the logging, the Forestry Agency proceeded with the plan in 1987.

The Isahaya Bay tidal-land reclamation project in Nagasaki Prefecture is another example of a project in which development objectives were placed ahead of environmental, and perhaps more ironically, economic considerations. It was carried out despite the fact that the original reason for the project had lost all relevance—to reclaim land for farming, at a time when Japan was

experiencing an over-production of rice, and farmers were being paid to keep fields fallow (Lies 2001)—and in the face of widespread national and international opposition.



The mutsugorō became emblematic of all the creatures endangered by the Isahaya reclamation project

Tidal-lands are vital buffers between the land and sea and are habitats supporting high biological diversity. The Isahaya Bay tidal land was also an important stopover point for birds migrating between Siberia and Australasia. It made up six per cent of Japan's remaining tidal-land, and was habitat to about 300 species of marine life, such as the mud-skipper (*mutsugorō*), and approximately 230 different species of birds, including a population of Chinese black-headed gulls, of which only 2000 are estimated to remain worldwide (Umehara 2003).



A section of the 7 km long sluice-gate across Isahaya Bay

The project entailed the construction of a seven kilometre long dyke to cut off the tidal area in order to create flood-pools and 1,500 hectares of farmland. The government refused to review the project, despite repeated petitioning by local fishermen to halt the construction of the dyke and formal protests of over 250 organisations, both international and national. It was estimated that by the time the project was completed, each hectare of reclaimed land would have cost the tax-payer US \$1.3 million. On the other hand, environmentalists claim that the project has resulted in the local extinction of a number of species, including many endangered species, such as the mud-skipper, in addition to destroying Japan's largest remaining tideland habitat (Anon. 2002; Watts 2001; Crowell & Murakami 2001; Fukatsu 1997: 26–30; McCormack 2005).

In spite of the destruction already caused to island and coastal ecologies in Japan, particularly in the Okinawan archipelago, the government has pursued further development projects on other islands. One proposal, promoted for over a decade by the Tokyo Metropolitan Government (which has administrative jurisdiction over the Ogasawara archipelago) was to construct an airport on Anijima, an island in the archipelago. The island is often called the “Asian Galapagos”, and is the home of primeval nature and Ogasawaran biota remaining only on Anijima. The airport was to include an 1800 metre runway to service a burgeoning tourist industry. Finally, after an independent environmental review was completed which clearly showed the extent of the environmental impact of the project, the Tokyo Metropolitan government shelved the plan, instead proposing to build the airport elsewhere on the archipelago (Tomiya & Asami 1998; Guo 2009).

Conclusions

This paper provided an overview of the state of natural environments and wildlife in Japan today, and of the primary threats to these. Habitat destruction represents the greatest single threat to Japan’s wildlife and natural environments, and it continues in various forms, threatening to destroy more of Japan’s last remaining wetlands and natural and primeval forest. In addition, failure to adequately protect or monitor areas of ecological importance such as national parks exacerbates the problem.

The paper examined the key factors contributing to these threats to the natural environment. The first factor noted was the limited and relatively weak legislative framework and the gap between policy and implementation with regard to nature conservation and wildlife management. The second factor was a natural park system which emphasises tourism over the ecological value of parks, and a situation in which parks are not adequately monitored and protected against detrimental environmental impacts—whether as a result of tourism or development. The third, and possibly most critical, factor is the conflict between development and conservation: the imbalance in economic and political power in Japan means that, in general, where forces of development and conservation are at odds, forces for development prevail. Many of these factors exist in other countries facing challenges to the natural environment. The combination of such factors in Japan has nevertheless resulted in a far-reaching assault on the environment.

Given the pervasiveness of these underlying factors, the outlook for Japan’s remaining natural environments appears bleak. However, recent developments, such as an economy which has slowed considerably since the high growth period of the 1980s and early 1990s when development projects were pursued irrespective of the economic and environmental costs; a long-term demographic downturn; a strengthening environmental NGO (non-governmental organisation) sector; a change of government from the long-serving traditionally pro-development Liberal Democratic Party to the Democratic Party of Japan;¹⁴ and an increasing emphasis, both nationally and internationally, on the preservation of the earth’s remaining biodiversity, mean that there should be scope for (albeit restrained) optimism in regard to the prospects for the future of Japan’s natural heritage.

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Notes

¹ The term “natural environment” requires definition. This is an ambiguous and imprecise term, but for the purpose of this discussion, it refers to environments such as wetlands, rivers or forests which support ecological systems of flora and fauna. Some areas may be partially or substantially modified (such as a river with concrete embankments) but still support significant biological diversity.

² For an in-depth discussion of Japan's nature conservation movement, focusing on its post-war history, see "The nature conservation movement in post-war Japan", *Environmental History*, Vol.16 (2010) (forthcoming).

³ The Environment Agency was restructured and renamed the Ministry of the Environment in 2001.

⁴ The distinction between "national park" and "natural park" should be made clear. The latter is a category which includes any type of park provided for under the Natural Parks Law: i.e., national parks, quasi-national parks, or prefectural natural parks. When these other categories of park are included, the percentage of total land covered by such parks is 14 per cent.

⁵ In comparison, in New Zealand, human activity in all national parks (which constitute 14 per cent of total land area) is restricted as is necessary for the preservation of native plants and animals or for the welfare of the parks in general. Limited commercial activity (such as the building or operation of ski facilities) is permitted on a concessionary basis by the administering body, the Department of Conservation.

⁶ Though the extinction of the Honshu wolf was precipitated by a combination of factors, including human eradication and rabies, it was deforestation that brought the wolf into contact, and conflict, with humans and thus led to their persecution as pests.

⁷ Paddy fields in particular are important habitats for fauna and flora, especially insects (over 400 species), fish, amphibians and birds (OECD, 2002).

⁸ In a recent example, the 2005 Aichi Expo, which, somewhat ironically, boasted the theme "Nature's Wisdom", was criticised for the damage it caused to the forests on the site on which it was developed (Yoshimi, 2006: 395–414).

⁹ All hunters must join a local branch of the Hunting Association (*ryōyūkai*), which disseminates information, holds regular meetings, and elects officials who liaise with municipal, prefectural and police authorities (Knight, 2003: 37).

¹⁰ The five reservations are a 60.6 hectare reserve for fresh water fish in Tochigi Prefecture; a 3.1 hectare reserve for salamanders in Hyōgo Prefecture; a 153 hectare reserve for dragonflies in Kagoshima Prefecture; a 600 hectare reserve for snakes in Okinawa Prefecture; a 38.5 hectare reserve for alpine plants in Yamanashi Prefecture; and two reserves for grassland plants in Kumamoto Prefecture (1.3 and 7.05 ha respectively).

¹¹ See, Ishikawa Tetsuya *Nihon no shizen-hogo* [Nature Conservation in Japan], Tokyo, 2001, 58–66; Cath Knight, *Veneration or Destruction? Japanese Ambivalence Towards Nature*, with special reference to Nature Conservation, M.A. thesis, University of Canterbury, 2004, 56–9 for a discussion of this issue.

¹² The Forestry Agency has been a self-funding agency since 1947. Critics suggest that this has meant that the Agency's priority has been profits generated from logging, with little regard for environmental impact (Natori, 1997: 561). For example, at the time of the Shiretoko logging controversy, the Forestry Agency's deficit stood at more than 1.5 trillion yen (Japan Lawyer's Association, 1991 cited in Natori, 1997: 558) and the logging project at Shiretoko was seen as an attempt to reduce this deficit.

¹³ The Environmental Impact Assessment Law enacted in 1997 makes environmental impact assessments compulsory for all large-scale projects carried out by the central government, and provides increased opportunities for public participation in the assessment process (OECD 2002: 58).

¹⁴ Though it is too early to tell what implications this will have for nature conservation policy in Japan, the early signals in terms of the new government's position on environmentally destructive construction projects been positive. In September 2009, on its first day in office, the DPJ announced its decision to halt the Yamba Dam, a highly controversial project that has been promoted by the LDP government since 1952.

Part II – Environmental Degradation: Responses and Resistance

“Minamata at 50: The Tragedy Deepens”

Eric Johnston

<http://www.japanfocus.org/-Eric-Johnston/1994>

May 7, 2006

In the 1950s, residents of the small fishing village of Minamata on the southern island of Kyūshū began to fall ill with a disease (later named Minamata disease) that caused damage to the central nervous system, physical disfigurement, abnormal pregnancies, and death. Investigations revealed what is now one of the most well-known cases of environmental pollution in Japan's, and indeed the world's, modern history—from 1932 to 1968, the Chisso Corporation manufactured the chemical acetaldehyde, used to make plastics, with a mercury catalyst that it had been dumping as industrial waste into Minamata Bay. The chemical company's poisoning of the marine ecosystem of the Shiranui Sea and the residents of its fishing communities is a story not just of industrial pollution, but also of civic activism. The physically damaged victims and their supporters, angered by ongoing evasion of responsibility by both Chisso and the government, pressed for redress and humane treatment in a legal battle that has continued in some form until the present day. In his essay, Eric Johnston outlines the history of this effort and offers thoughts about the legacies and ongoing struggles of Minamata 50 years after the first case of Minamata disease was officially reported in 1956. He also suggests how the unfolding story of Minamata was shaped by the interests and power of various constituencies such as activist citizens, the Ministry of the Environment, and the Chisso Corporation, and how this past has influenced memories of the environmental and humanitarian disaster.

Minamata at 50: The tragedy deepens

By Eric Johnston

"The most dangerous enemy to truth and freedom amongst us is the compact majority." Henrik Ibsen, "An Enemy of the People."

As public spaces in Japan go, Minamata's Eco Park is quite pleasant. Unlike the "Designed by local elders and built by a yakuza-linked construction firm now under indictment" concrete monstrosities that often pass for "parks" in Japan, one can actually relax in Eco Park and enjoy a stroll along the waterfront of Minamata bay and the Shiranui Sea off Kyushu in western Japan.

Although it was not built in order to line the pockets of local politicians and businesses, Eco Park does have a purpose. Two, actually. The first is above ground, and located beside the bay. It's a small stone memorial that reads, "To all life forms of the Shiranui Sea that were victims. This tragedy shall not be repeated. Sleep in peace." Scattered about the memorial are small clay figurines of shellfish. The second purpose is right beneath your feet. For buried underneath the bucolic park is 27 tons of mercury-tainted sludge from Minamata Bay that was dredged and used as landfill.



Minamata Bay

The clay figurines at the memorial serve as a poignant reminder that Minamata Disease, which was first officially reported on May 1st, 1956, has affected all life forms. This year marked the 50th anniversary of that report, and on May 1st, nearly 600 people, including dozens of Minamata victims and their families and friends, gathered to remember the over 900 people who died after ingesting mercury-tainted seafood, and the thousands who continue to suffer from numbness and paralysis. The ceremony was sponsored by Minamata City and the guest of honor was Environment Minister Koike Yuriko, whose agency has consistently fought against further compensation or efforts to certify all those who are suffering from the medically-accepted definition of Minamata Disease but cannot get the government to recognize their plight for political reasons. The city had originally wanted Prime Minister Koizumi Junichiro to put in an appearance as well, but he said no.



Environment Minister Koike Yuriko

Even the chairman of Chisso was present. For the past half-century, Japan's, and the world's, environmentalists have cursed the name of Chisso. This is the company that caused Minamata Disease by dumping organic mercury into the bay, and then denying responsibility when the first victims appeared. This is the company that twisted the arms of the first impoverished victims back in 1959, forcing them to sign an agreement saying they would not sue Chisso even if in the future the company was found to be the cause. In return, they got payments of between 30,000 and 300,000 yen, minuscule sums, yet more money than most had ever seen.



The Chisso Minamata plant

As evidence mounted that the company was, indeed, responsible, Chisso organized a massive public disinformation campaign designed to isolate the victims as greedy rabble-rousers ignorant of science and the doctors who supported them as amateurs or anti-capitalist communist dupes. Corrupt scientists at leading universities, often in Chisso's pocket, were enlisted in the attempt. One tenured stooge in Tokyo trumpeted his "scientific research" that showed the waters of Minamata bay did not have particularly high mercury levels and, therefore, Chisso could not be the cause of the disease. In fact, as it was quickly pointed out, the scientist purposely avoided taking samples from the seabed, where mercury concentrations were highest. Nor was the propaganda campaign limited to academia. Corporate titans allied with Chisso spun fantastic lies

about why the victims were sick, making up stories about old chemical weapons having been dumped into Minamata bay after World War II and now leaking toxins.

Finally, when all attempts at propaganda failed, and the world woke up to the horrors of Minamata from the photographs of noted LIFE magazine photographer Eugene Smith, it was Chisso-hired yakuza thugs who beat up Smith, giving him injuries that affected his eyesight and forcing an end to a brilliant career.

Chisso would not be found guilty for its years of negligence until 1973, four years after a group of victims in Kumamoto Prefecture took the company to court. In 1979, the Supreme Court would, separately, find top Chisso executives guilty of negligent homicide.

By then, the Environment Ministry was faced with thousands of applications from those seeking certification as Minamata Disease victims. (It was indeed strange, even by the Byzantine standards of the Japanese bureaucracy, that the Environment Ministry, not the Health and Welfare Ministry decided what was unquestionably a health and welfare issue). The ministry, fearing the financial implications of having to approve unknown numbers of victims, decided in 1977 to adopt stricter certification standards, effectively denying tens of thousands of sufferers the right to compensation. The decision was condemned by medical experts in Japan and abroad as completely lacking in scientific or medical reasoning.

It also launched another round of lawsuits throughout the 1980s from those suffering from the disease but not officially recognized as such. Finally, when Socialist Prime Minister Murayama Tomiichi came to power in 1994, he declared one of his goals was a final settlement in the Minamata Disease saga. In late December 1995, with the LDP and Environment Ministry no longer opposed to central government compensation if it meant an end to the lawsuits, the Murayama Cabinet awarded 2.6 million each to the uncertified victims on condition that they could show a loss of sensation in all four limbs and would agree to withdraw their lawsuits and not seek further legal action.

Although Murayama apologized to the victims, that did not constitute formal, legal responsibility on the part the government for its complacency in failing to stop the dumping of the mercury. Nevertheless, more than 10,000 victims nationwide, aging and tired of the long court battles, accepted the compensation package. But one small group of victims in the Kansai region refused and fought on to establish the central government's culpability. It would take a nearly a decade, but, in 2004, the Japanese Supreme Court ruled the national government and Kumamoto Prefecture were jointly liable for the cause and spread of Minamata Disease.

"The Supreme Court decision upheld the Osaka High Court ruling of 2001. That ruling said both the national and Kumamoto prefectural governments had responsibility for the cause and spread of Minamata Disease from 1960 onwards, damage that could have been prevented if the government authorities had taken appropriate measures," said Dr. Ekino Shigeo, a professor of medicine at Kumamoto University, whose testimony on behalf of the Kansai plaintiffs played a key role in both the High Court verdict and Supreme Court decision.

What the decision meant was that, because the government was responsible for what happened from 1960 onwards, it was also responsible for those who developed Minamata Disease after 1960 but were not officially certified. Just as important, the Supreme Court decision also laid

down new criteria for who was, officially, a Minamata Disease victim. Such requirements were less strict than the 1977 guidelines the Environment Ministry was still using.

Sadly, if those plaintiffs seeking certification thought the Supreme Court decision would end their waiting, they were wrong. Environment Minister Koike did little more than appoint a panel to study the issue. Then, essentially ignoring the Supreme Court, she said, in effect, that her ministry would stick to the 1977 guidelines. Pressure continued, though, and, finally, just before Golden Week this year, media reports indicated the government would address the Supreme Court ruling by providing a medical allowance of around 20,000 yen a month to people who are not certified as disease victims, but show 'mild symptoms'. (1) But anger over the government's refusal to honor the letter of the Supreme Court decision continues to simmer, and many of the victims are wondering what the next step might be. One possibility might be to appeal to the United Nations to investigate whether the Minamata victims have had their basic human rights, as recognized in U.N. treaties that Japan has signed and ratified, violated by the Japanese government.

At present, nobody knows the true number of Minamata Disease sufferers. Medical experts believe there may be up to 30,000 people who have been affected by the poisoning. So far, though, only about 2,300 people have been certified as having Minamata Disease, while another 10,000 have applied but been rejected. Life for the victims has been a long nightmare of physical suffering and, in the beginning at least, social ostracism. Speaking from his wheelchair at the May 1st ceremony, Hamamoto Tsuginori, head of the Minamata Disease Victims Association, tearfully recalled being bullied and threatened back in the 1950s and 1960s when he attempted to bring Chisso to justice.



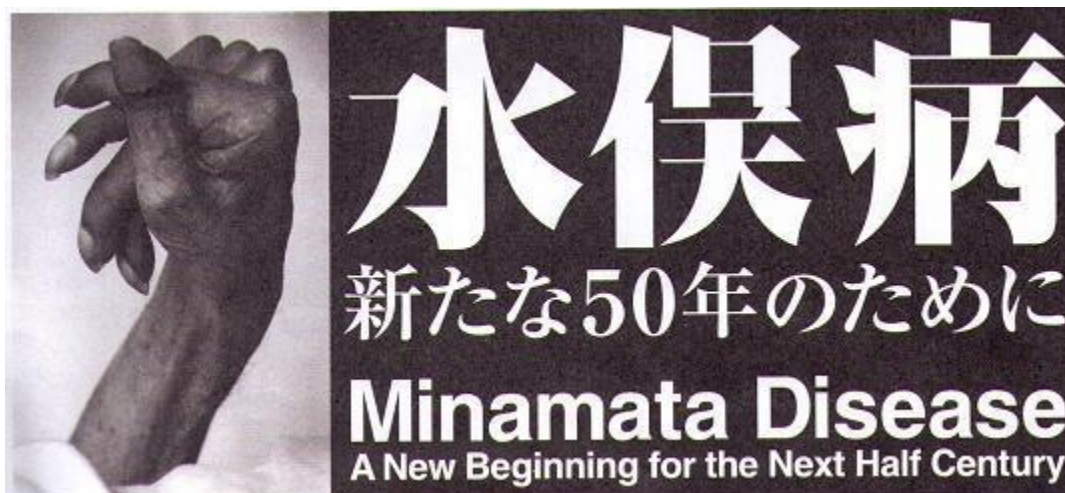
Hamamoto Tsuginori.

Like Dr. Thomas Stockmann in Ibsen's "An Enemy of the People", a play which the young doctors who cared for the earliest Minamata patients took to heart, Hamamoto and the victims, as well as all who helped them, were branded traitors and troublemakers by not only Chisso but also angry relatives, friends and neighbors in the small town, all of whom relied on Chisso for their livelihood. People crossed the street if they saw a Minamata victim or the relative of a victim coming their way. Shopkeepers refused them service. Officials, ranging from lowly ward office officials all the way up to the Environment Ministry suggested, sometimes directly, sometimes obliquely, that the victims themselves bore responsibility for their plight.

Today, within Minamata itself, much of the social stigma surrounding Minamata Disease patients has been replaced by understanding and sympathy for their plight, although some locals claim it's not uncommon for those seeking to get married to check up on the prospective bride or groom's background to ensure there are no Minamata Disease patients.

And many of the elderly Minamata Disease patients who fled the town in shame and fear decades ago kept, and continue to keep, a low profile. For years, Sakamoto Miyoko, a Minamata Disease victim who lives in Osaka, did not tell people she was originally from Minamata. "I would always say I was from Kyushu or Kumamoto, but never Minamata. It was not until the early 1970s, at which point I'd been living in Osaka for some time, that my friends learned I was from Minamata. This was because of my involvement in the court case against Chisso and the fact that my picture appeared in the newspapers. I had to explain to people what the disease was and assure them it was not contagious," she said.

If there has been any good news to the tragedy of Minamata, it is that the struggles of the victims gave rise to an aggressive, nationwide citizens' environmental movement in the 1960s and early 1970s that led to some much needed environmental laws—indeed, to the creation of the Environmental Agency itself. And the momentum from that time continues. Many of today's activists trying to halt the country's nuclear power industry or warning about the dangers of asbestos are veterans of, or have a great interest in, the battles fought by the Minamata victims.



Logo for the commemorative year being used by Minamata Forum, a Tokyo-based NPO.

Photograph by Shisei Kuwabara

Even Minamata officials recognize a connection between their tragedy and nuclear power. At the May 1st ceremonies, among those invited to place flowers at the memorial and offer their prayers were local government officials from Tokaimura, where the country's worst nuclear power accident occurred in 1999.

As ceremonies of this type go, the May 1st event for the Minamata victims had a quiet dignity that was noticeably absent from the tacky, theatrical, forced atmosphere and contrived, maudlin emotions and platitudes one too often sees and hears at the official Hiroshima ceremony each August 6th, or the annual memorial service Hyogo Prefecture holds on January 17th to

remember victims of the Great Hanshin Earthquake. This is, perhaps, due to the fact that the Minamata tragedy is very much ongoing and very much the story of citizens fighting the powers-that-be. The victims, even a half century later, remain visible, and very vocal, deterrents to ever more extravagant productions and, more importantly, historical revisionists in the government and industry who would use such productions in order to rewrite the Minamata story to suit their own ends and silence the truth about what really happened and why.

But for how much longer? Each year, the Minamata victims get older and a few more pass away. In the past, attempts like the one the Ministry of Education made back in 1981 to expunge the name "Chisso" from a high school textbook chapter on Minamata Disease could be easily blocked. Back then, there were enough people who understood the horrors, and the truth, of Minamata to defeat what Ibsen called the "compact majority" of dishonest public officials and business leaders, and the apathetic, or indifferent members of the media and the public who follow them blindly.

But this year, with virtually no opposition or media discussion, both Prime Minister Koizumi Junichiro and Environment Minister Koike Yuriko, dismissed by political pundits as "Koizumi's geisha", relied on the pro forma government explanation for Minamata, the one used in official Japan when all other lies and excuses have failed: *shikata ga nai* (it couldn't be helped). Minamata Disease, both Koizumi and Koike said, occurred at a time when Japan was rapidly recovering from the war and national policy emphasized industrial output above all else. Therefore, they would have us conclude, all subsequent problems were because the government was "unable" to respond as effectively as it should have. *Shikata ga nai*, and now we know better. Let's forget the past and move forward, because arguing over the reasons why Minamata Disease occurred (as if there were some "argument" over the causes of Minamata to begin with) isn't going to bring back the dead.

Such rhetoric forms the basis of a strategy that has often served Japan's historical revisionists in government, industry, the media, and the public at large quite well, whether the history they are rewriting is that of a small town that was once poisoned by mercury, or of an entire nation that was once poisoned by military propaganda.

(1) "New Allowance Planned for Minamata Victims," The Daily Yomiuri, April 9th, 2006.

Eric Johnston is Deputy Editor for The Japan Times' Osaka bureau, and covered the ceremony at Minamata on May 1st. The opinions contained within this article are entirely his own, and not those of The Japan Times.

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“Fukushima in Light of Minamata”

Timothy S. George

[http://www.japanfocus.org/-Timothy S -George/3715](http://www.japanfocus.org/-Timothy_S_-George/3715)

March 12, 2012

Reflecting on the history and current state of Minamata, Timothy S. George considers how that human and natural experience might help us understand what to expect in the recovery from the Fukushima nuclear disaster of March 2011. George's essay, like Johnston's, characterizes citizen, government, and corporate behavior in the Minamata case. Consider George's arguments about the broad parallels between Minamata and Fukushima as disasters that caused irrevocable damage to human societies and the environment. George also raises important questions about what it means to resolve and recover from a major disaster and when, if ever, it can be said to be "over."

Fukushima in Light of Minamata

Timothy S. George

Abstract: The mercury discharged into the sea by the Chisso factory in Minamata, and the radiation released by the Fukushima Daiichi nuclear power plant, are not entirely different “accidents,” although one was the result of a “natural disaster” and one not. Minamata offers hints of future developments as Japan attempts to respond to and recover from Fukushima.

Introduction

Japan is still struggling to deal with the worst nuclear accident since Chernobyl, and will be for a long time. This makes the triple disaster of March 11, 2011 unlike anything Japan, or any other country, has ever experienced. The release of radiation from the Tokyo Electric Power (TEPCO) nuclear power plant in Fukushima, however, is not the first time Japanese people have been exposed over an extended period of time to a poison released into the environment by modern technology. The March 11 earthquake, tsunami, and radiation disaster (a bundle of tragedies referred to as the “Higashi Nihon daishinsai,” or Great East Japan Earthquake Disaster) occurred 55 years after the official discovery of Minamata disease and 79 years after the Chisso chemical plant in Minamata began releasing methyl mercury into the sea.¹ Although the two incidents differ in important ways, Minamata surely offers hints of possible outcomes as Japan attempts to respond to and recover from the nuclear disaster at the Fukushima Daiichi nuclear power plant. Minamata suggests that for decades the disaster will not be “over,” by any reasonable definition, and that human society and the environment will never return to its pre-disaster state. This essay will first survey the many “solutions” to Minamata, and then focus on two aspects of Minamata and the light they might shed on Fukushima: first, the company’s response to the disaster and government-company relations, and second, the environment itself and what human beings have done in response to the poisoning of the sea.

“Solving” Minamata

The mercury poisoning “incident” in Minamata has been grandly pronounced resolved at least four times since the pollution began in 1932 and Minamata disease was officially recognized in 1956.² In 1959 the Chisso Corporation paid compensation to fishing cooperatives and “sympathy payments” to patients that required them to renounce all future claims against the company. It did not accept responsibility for the disease. At the same time, it also installed a “Cyclator” to purify its wastewater, without announcing that the Cyclator did not remove mercury. At a ceremony at the end of 1959, Chisso’s president publicly drank a glass of water from the Cyclator, without announcing that the wastewater from the acetaldehyde plant, which contained mercury, was not being run through the Cyclator. An eerily similar performance took place on March 24, 2011 when Tokyo’s Governor Ishihara Shintarō drank a glass of tap water on national television to “prove” that it was safe from radioactive contamination.



Ishihara's televised tap water performance

The second “solution” to the Minamata disease problem came in 1973 when the largest settlement a Japanese court had ever granted led to an agreement between Chisso and all certified Minamata disease patients, giving them substantial lump-sum and recurring payments. As of 2010, 2,271 patients had been certified and therefore made eligible for these payments, though over half were no longer living. This compensation under the 1973 agreement, however, was only for those certified as “official”

patients, and the court case considered only the responsibility of the corporation, not government.

A third solution put in place in 1995 and 1996 gave one-time payments to some 10,000 more people deemed “affected” by the pollution but not certified as patients—but in return, in an echo of 1959, they had to drop their lawsuits and agree not to apply for certification.

The system was thrown into disarray by a 2004 Supreme Court decision in a case pressed by patients who had refused to drop their lawsuit. The court found the government’s certification standards too strict, and found the prefectural and national governments at fault for allowing the disease to spread after it was discovered. The government refused to relax its certification standards, and thousands more applied for certification or filed lawsuits. In 2010 the government reached agreement on a plan to compensate many more people—possibly bringing the total up to 35,000—but many lawsuits continue.

What does it mean that so many “final and complete” solutions have all turned out to be so incomplete and far from final? Minamata is complex, with medical, legal, political, economic, corporate, social, and environmental aspects. Can Minamata ever be truly “over,” and if so, what would that mean? That all patients had finally died? What would it mean for the environment to be healed? Can any of this help us answer questions about how long it will take Japan to recover from March 11, 2011?

Minamata suggests that for decades the 2011 disaster will not be “over,” by any reasonable definition, and that human society and the environment will never return to their pre-disaster states.



“No more Minamata” protestors during the 2010 court case

Company, Government, Citizens

There were many reports in the wake of the Fukushima disaster of localities having second thoughts about their efforts to solve their problems by attracting nuclear power plants.³ As Japan’s rural population declined and farming and fishing became marginalized, nuclear power plants had seemed to many a reasonable gamble in order to keep their towns alive. In Minamata in the early twentieth century, local leaders concerned with the loss of salt-making and transport jobs courted Noguchi Shitagau and persuaded him to build his new chemical plant in the town.

Responses by Chisso and the national and local governments to the poisoning that the factory later inflicted on the area taught people to assume that corporate and government leaders would hide, deny, or downplay their responsibility, and would attempt to move just in time, and just far enough, to head off serious damage. This should come as no surprise to anyone who has followed other companies in Japan and elsewhere causing pollution, or nicotine addiction, or mine disasters. Chisso did this in 1959 with its *mimaikin* sympathy payments. TEPCO did this with the tiny payments it quickly offered to residents and towns near its Fukushima power plant, and at least one local mayor rejected this money.

Government responses to pollution incidents have probably changed more over time than those of corporations. The central government, particularly the Ministry of International Trade and Industry (whose functions were absorbed into the new Ministry of Economy, Trade and Industry in 2001), may have been more unwaveringly on the side of corporations in the 1950s and early 1960s than now. But the government has continued to have particularly strong connections to the nuclear power industry.



In 1977 Ishihara Shintaro, then Minister of the Environment and now a leading nuclear booster, apologized to Minamata victims after using his position of authority to attempt to discredit their quest for compensation. He said that many Minamata sufferers were “fakes” and that their court petition “looked like it had been written by a moron”

Government policy regarding domestic use of nuclear power in the wake of Fukushima is still in flux. But Japanese companies have continued to aggressively pursue foreign nuclear power contracts with the support of the government. Seven months after the disaster, Prime Minister Noda Yoshihiko said in a speech at the United Nations: “Many countries of the world are seriously exploring the use of nuclear power, and we have assisted them in improving nuclear safety. We will continue to answer to the interest of those countries.”⁴ In Minamata, Chisso attempted to export its mercury waste to Korea but was blocked by union workers.

One common question in both the Minamata and Fukushima cases is what to do if the company is unable to survive if it has to pay all the costs but the government does not want to be seen as abandoning the “Polluter Pays Principle.” In the Minamata case, as the costs of the 1973 agreement burdened a declining Chisso, a deal

was brokered by the late 1970s to have Kumamoto Prefecture sell bonds to finance loans to Chisso, with the understanding that the central government would buy most of the bonds and that Chisso would not repay the loans. In 2010 a bill was passed to split Chisso into two companies, one doing business and one existing only to pay compensation, so that those debts would not drag it down.

It is too early to say what will happen with TEPCO, but in the first months after the disaster the government moved quickly to explore a range of ways to keep the company alive and able to pay compensation. Key differences will include TEPCO's attempt to argue that this was an act of God/nature, the greater extent of the damage and greater number of people involved, the vastly greater national and international coverage, and the fact that TEPCO is not likely to lose as much relevance to the national economy as Chisso did after the early postwar period. In comparison to Minamata, the government moved more quickly to explore ways to help TEPCO pay some of the costs of compensation payments, which will likely total trillions of yen. But as far as possible it has described much of this as assistance to TEPCO that will enable TEPCO to pay the compensation itself, and it seems to have backed away from rumored earlier plans to nationalize the company. So it has been looking for ways to preserve the Polluter Pays Principle, at least on the surface, where it can. But there are limits: it appears that the costs will be so great, and the nuclear power industry has always been so closely intertwined with government and bureaucracy, and citizen demands have been so unceasing, that the government has realized that it will be unable to avoid paying a significant portion of the cleanup and compensation costs directly.



Noda and Vietnamese Premier Tan Dung forge a nuclear technology agreement

Environment (and Bodies)

In the case of the environment there are some great differences as well as some similarities between Minamata and Fukushima. One key difference has been noted above: TEPCO feels more able to blame the disaster on nature rather than on its own negligence. But of course it is also argued that the tsunami should not have been a completely unforeseen event, given what scholars of earthquakes and tsunami know of the history of Japan's northeast coast going back to the ninth century. In Chisso's case, it was argued that the company should have been aware of medical reports of organic mercury poisoning from the 1940s.

Human bodies are part of the environment, and the poisons put into the environment therefore also poison the human body.⁵ In some ways methyl mercury and radiation as poisons are more similar than one might expect. Both organic mercury in seafood, and radiation in air, water, soil, and food are impossible to see, taste, or feel. Of course radiation fades away according to its half-life, but mercury remains in the environment and can only be reduced in concentration by being spread more widely. However, mercury does in fact have what one might call a half-life in the human body, which tends to expel it at a regular rate.

Some six months after March 11, a plan was announced for monitoring the health of several hundred thousand children living in the vicinity of the Fukushima plant throughout their lives for thyroid problems possibly caused by radiation. This plan was launched because thousands of cases of thyroid cancer are believed to have been caused by the 1986 Chernobyl accident in Ukraine. No true comprehensive health study has ever

been done for Minamata and its environs, but Minamata does remind us to pay attention to how much the subjects and others will be told of what is learned about their bodies. Kumamoto prefecture and its neighbor to the south, Kagoshima prefecture, tested mercury levels in human hair in 1960 and 1961 but did not inform the subjects of the results. Ten years later researchers looked for some of those whose hair had had the highest concentrations of mercury, only to find that a number of them had died. A significant number of these people had lived relatively far from the Chisso plant and had likely continued eating fish without realizing how contaminated they were.

Both Minamata and March 11 polluted the sea and took the lives or destroyed the livelihoods of many people who had depended on fishing, often for generations. Those who were still able to fish found themselves unable to sell their tainted catch.

Another similarity is in ways of dealing with polluted water. TEPCO has had to try to store the most radioactive water while finding ways to deal with it in the long term. In Minamata from 1983 to 1990, the sludge from the most polluted parts of the bay was dredged up and used to reclaim the innermost part of the bay. Chisso paid the bulk of the cost of creating this new land, which consisted of a top layer of “clean” dirt over a plastic sheet covering the material dredged from the areas of the bay where the concentration of mercury in the sludge was over 25 parts per million (ppm).



Children measured for radioactivity following the March 11 disaster

This reclaimed land illustrates the effects on the environment of human projects to “clean up” and prevent recurrences of pollution disasters. They can never return the “natural” environment to its pre-disaster state, much less to some sort of “natural” state, partly because virtually all of it had been significantly transformed by human activity for centuries before the disasters.

Fukushima and Minamata

There are better and worse ways to respond to “natural” disasters, and perhaps Minamata does offer some lessons, positive and negative, to those in a position to decide, and some hints to observers of what we should watch for. The two disasters are not completely different, as some might assume because they see the Higashi Nihon daishinsai as a “natural disaster” and Minamata as manmade. Rather it is the mutual influences of human beings and nature on each other that make natural disasters.



In Tohoku, seawalls and tetrapods were overwhelmed

Earthquakes and tsunamis are dramatic natural processes, but not natural disasters, if they do not affect humans and their built environments. There is really no such thing as a “natural” disaster: only human presence, and human choices and actions and responses, make natural processes into “natural” disasters. Human actions, refracted through the environment of Minamata Bay and the Shiranui Sea, caused Minamata disease. Every part of Japan’s March 2011 triple disaster: the earthquake, the tsunami, and the nuclear crisis—faced the consequences it did because of what human beings did before and after the great earthquake. Some of those human actions were failed attempts to protect against disaster, such as the concrete seawalls and

tetrapods that lined so much of the shoreline. Others were planning errors, such as the emergency generators and fuel tanks at Fukushima Daiichi that were not placed out of reach of the tsunami.

Anger over Minamata and other major pollution incidents contributed to the flowering of citizen activism in the late 1960s and early 1970s, and helped force the government and the ruling Liberal Democratic Party to become more responsive. The Environment Agency was created. Laws were passed in a Diet session nicknamed the “Pollution Diet” to require meaningful reduction of at least some types of pollution, particularly air pollution. Japanese companies found ways to profit from the need for pollution controls, and consumers became better informed. By the 1990s Minamata was a national leader in recycling. Whether the disasters of 2011 will be a significant turning point, and the nation will redefine itself (perhaps by phasing out nuclear power and becoming more of a global leader in renewable energy), or whether March 11 will merely accelerate the slide of Japan’s global relevance and the depopulation and economic decline of its rural northeast Pacific coast, is yet to be seen.

To return to the question of when a disaster can be over: even if we wanted to, we cannot recreate or rebuild the past. Life in Minamata can never revert to what it was in 1932 when the mercury pollution began, or 1956 when Minamata disease was discovered. Minamata Bay will never be like it was then either, since so much of it has been dredged, filled in, and walled. Northeastern Japan, too, and to some extent the nation as a whole, will not be recovering their pre-disaster past but will be creating a new environment, society, and economy. That creation is a constant process, so the question is not when the disaster will be over and its problems solved. The disaster marked an end to



Minamata named Japan’s “Environmental Capital” in 2011

many things, but also a beginning. But a beginning to what, we cannot yet say.

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Notes

¹ The company's name was Nihon Chisso Hiryō K.K. from its founding in 1908 to 1950, Shin Nihon Chisso Hiryō K.K. until 1965, and Chisso K.K. from 1965, but for simplicity it will be referred to here simply as Chisso.

² For the details of the Minamata story, see Timothy S. George, *Minamata: Pollution and the Struggle for Democracy in Postwar Japan*, (Cambridge, MA: Harvard University Asia Center, 2001).

³ See Daniel P. Aldrich and Martin Dusenberre (2011), "Hatoko Comes Home: Civil Society and Nuclear Power in Japan." *Journal of Asian Studies* 70(3): 1-23, for a study of such efforts in the 1980s in Kaminoseki, a town on the Japan Sea that is, ironically, relatively close to Hiroshima.

⁴ Quoted in Hiroko Tabuchi (2011), "Japan Courts the Money in Reactors," *New York Times*, October 10, ([link](#)) , accessed October 11, 2011.

⁵ See Brett L. Walker, *Toxic Archipelago: A History of Industrial Disease in Japan* (Seattle: University of Washington Press, 2010).

“U.S. Military Bases and Environmental Problems”

UI Jun, trans. Sabine Frühstück and Yumiko Tokita-Tanabe

May 2003

<http://www.japanfocus.org/-Ui-Jun/2082>

UI Jun (1932-2006) was well known as an environmental activist and scholar. He was working at the University of Tokyo when Minamata came to light and was frustrated by his colleagues' disregard for his findings that methyl mercury caused the disease. He went on to research other forms of water pollution, and in 1986 moved to Okinawa where he became a vocal critic of the environmental degradation caused by the U.S. military bases there. This essay, which was published in Japanese in 2003, should be read as a primary source authored by a citizen activist. Note how Ui not only describes some of the environmental issues relevant to the U.S. military presence, but also criticizes how the Japanese government has handled them.

U.S. Military Bases and Environmental Problems

Ui Jun

Introduction

Sixteen years ago, in 1987, Ui Jun left his post as an assistant in the engineering department at Tokyo University to go to Okinawa, then becoming an important new front in the anti-pollution struggle. With three of Japan's five most polluted rivers, and with the nation's worst water pollution, tropical Okinawa was simultaneously the crucible of American military bases, Japan's poorest prefecture and its most polluted. Ui's report is the summation of his sixteen years of teaching, research and working in the environmental movement on Okinawa.

A lifelong experimenter, Ui began his lifelong commitment to science in the second grade when he observed that adding vinegar to the juice of morning glory turned the blue juice red. After graduating in applied chemistry at Tokyo University, Ui went to work for Nippon Zeon, a company that used mercury as a catalyst in producing fertilizer and other products, disposing of the waste in the river.

Zeon released the effluent secretly into the river at night, Ui recalled. About the time that he returned to Tokyo University after working for three years at Zeon, the news broke about the deadly mercury poisoning that was soon labeled Minamata disease, the product of the Chisso Corporation's polluting the water at its chemical plants.

Ui's research showed that if one put the crystal of methyl mercury, which was the pollutant from the factory disposal water on fish and fed it to cats, the result was Minamata disease. The cause and effect relationship was found within the factory. But, he recalled, "when I discussed it with colleagues in the medical school, no one wanted to listen, perhaps because medical research was funded by the company."

In 1968-69, at the time of the university struggles in Japan, Ui was researching pollution and water purification in Scandinavia. He returned to find that the students he had studied with had scattered: some had been jailed, some were in hospital with injuries incurred in the student struggles, some had joined sects and their whereabouts were unknown. The civil engineering department was in shambles after the administration called in the police to quell student protests.

No one in the engineering school was interested in the study of pollution. So Ui, a lowly assistant, after winning support of Tokyo University President, Kato Ichiro, was granted permission to set up a lecture series, with all classes open to the public. Because the course was offered at night, Ui was able to ignore strictures that he stick closely to technical questions and ignore issues of political economy such as power and profit that he quickly realized were central to the understanding of environmental pollution. Beginning in 1970, Jishu Koza, as the series was called, initiated both the first extended study of pollution in Japanese universities and the citizens movement to publicize and combat pollution. Within a year, eight hundred people, many of them traveling great distances, were attending the lectures and investigating and fighting pollution in their localities. But this open democratic approach, enormously successful in the cultivation of a generation of citizen-scientist civic activists, and the model for the subsequent

anti-nuclear forum established by the late Takagi Jinzaburo, did not impress Ui's employers at Tokyo University. They refused him any promotion, keeping him longer on the lowest level, joshu or assistant, for more than fifteen years, longer than almost anybody in the history of the institution, and shed no tears at his departure for Okinawa.

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The sixteen years since 1986 when I moved to the University of Okinawa from my position as research assistant at the University of Tokyo have gone by in a flash and I have reached retirement from the university. During the time I taught environmental theory in independent courses at the University of Tokyo, I had planned to stay there as an assistant until my retirement and then go to Okinawa. However, I was shamed by my senior colleague, Professor Tamanoi Yoshirō, who said that with my leisurely attitude the island would dissolve before I got there. Indeed, when I came to Okinawa it turned out to be almost too late, and I must admit that time had run out while I had been trying to tackle the problems in front of me one after another. I had absolutely no time to dig and try to figure out why things had come to this state.

The overall picture is quite clear. Okinawa, which makes up just 0.6 per cent of Japan's land, contains more than 70 per cent of the U.S. military bases. If the U.S. bases were spread out evenly, Okinawa would have more or less 0.6 per cent of them, but it has more than one hundred times that share. Since this is clearly an enormous burden, it creates all kinds of frictions. The central government pours huge sums of money on to this little island as compensation for the burden that it places on Okinawa and each unexpected incident that occurs there. Most of the funds are for construction projects, which do not match Okinawa's reality, so they end up being utterly destructive to the coral reefs and primeval forests that symbolize the subtropical environment. For example, after the 1995 incident in which three GIs raped a twelve year-old girl, 5 billion yen were immediately provided. 10 billion yen were provided when the prefectural governor changed from an anti-base reformist to a pro-base conservative. When it was decided that an alternative to Futenma base would be built in Northern Okinawa, twelve cities and towns were promised 10 billion yen per year for a duration of ten years - a total of 100 billion yen - for public-works projects. The sixteen years of my stay in Okinawa have been a continuous and never-ending struggle against these destructive developmental projects. I meekly accept the criticism that things have come to this state because I have been engaged in minor details without fighting against the fundamental problem of the Japan-U.S. security system. However, just as doctors cannot leave sick people to their own devices, technicians cannot help getting engaged in the problems they can handle right in front of them and they worry day and night about how to distribute their abilities. In the case of Okinawa, since examples of excellent research regarding the contradictions of the Japan-U.S. security system and its burden on Okinawa are produced even under difficult circumstances and are available close at hand - for instance that of Arasaki Moriteru - one cannot help but allocate one's own energy and time to address immediate problems. Having reached the end of my work after sixteen years in Okinawa, it is necessary to reevaluate the choices I made. Just as I was beginning to think about this, I was given the opportunity to write about foreign policy through the lens of Okinawa, and so I have tried to take up the matter here.

Right now, what goes on at U.S. military bases today is discussed when waste oil flows outside a

base as a result of accidents, but there is hardly any accumulation of concrete data. Thus the possibility of harmful substances inside bases became an issue only in 1995 after the return of the Onna Communication Base to Japan. There, it was found that the soil left inside the purification tanks, which was considered as fertilizer, turned out to contain high concentrations of harmful substances including mercury, cadmium, arsenic and PCBs, and the idea of using it as fertilizer was abandoned. Until then, I think that the possibility of harmful substances on U.S. military bases had hardly been discussed.

There had been news that could have become a key to understanding the issues at hand if attention had been paid to them. The Fukuchi Dam, which provides most of the water to the main island of Okinawa is used by the U.S. armed forces for river crossing exercises. It was reported numerous times that in the forest surrounding the dam, large amounts of unused munitions had been thrown away. It just so happened that the abandonment of munitions was discovered during biological surveys on the maneuver grounds in the Northern parts of the island. At the time of the Persian Gulf War, the use of depleted uranium munitions became an issue. However, it was only in 1997 that the United States Marines admitted using munitions containing depleted uranium during its exercises from 1995 to 1996 on the islands west of Kume Island, acknowledged that this was a violation of the Law for the Regulation of Nuclear Power in Japan, and notified the Japanese government that most of the munitions had been recovered and removed. However, the Ministry of Foreign Affairs did not pass on this information to the prefectural government of Okinawa and the citizens of Okinawa prefecture only learned about the problem through an article in the Washington Times. This announcement itself was made reluctantly after a Japanese television station had come to report it, and if there had been no television coverage, it probably never would have come to light. The Japanese government subsequently carried out two surveys of the concerned area and reported that – with the exception of the immediate surroundings of the remaining abandoned munitions – high figures indicating pollution were not recorded.

The existence of this kind of pollution cannot be ascertained unless exhaustive tests are conducted. I had the bitter experience of taking and analyzing samples from several places that seemed polluted within Futenma Base without finding anything suspicious. To find this kind of pollution, one must collect samples in broad daylight with a detailed map indicating where the munitions had actually hit. Otherwise, one will be unable to identify the real state of pollution. One also needs high-level experience in sample taking. In any case, we can assume that it is still premature to conclude that pollution from depleted uranium does not exist or that one does not need to worry about it.

When the transfer of the airport away from the Futenma Base and its return to Japan became a political issue as a result of the 1995 rape, apprehensions regarding base contamination came to the fore. The data about the pollution of the soil in the purification tanks at Onna Communication Base were published right after that incident.

However, regarding the return of land that has been polluted, Paragraph 1 of Article 4 of the Status of the United States Armed Forces Agreement clearly states that the responsibility for the reestablishment of status quo ante does not lie with the United States. When we rent a house in our everyday lives, it is common sense to agree to return the house to its previous state when we move out. From this perspective, it seems obvious that if the value of the land has decreased due

to pollution, the renters should return it after removing the pollution at their own cost. Thus this clause seems very one-sided. The Ministry of Foreign Affairs claims, however, that this clause should be seen against Paragraph 2 of Article 4, which provides that the Japanese government does not have to pay for the facilities and buildings constructed by the U.S. armed forces when the land is returned. Thus, considered as a whole, they argue that Article 4 is bilateral and equal. Certainly, the area had probably been wasteland when it was adopted as a base, so returning it with the facilities and buildings on it might have increased the land's value to Japan's advantage. However, as with a rented house, one usually anticipates the problem of diminished value due to wear and tear and dirt. From this commonsense perspective, Article 4 as a whole is utterly unilateral and no doubt disadvantageous for Japan. Was this not considered when the agreement was formulated? Or perhaps there was no other way due to the unequal power relations between the two parties.

JAPAN

In cases where there is pollution, the Japanese government is burdened with the fees for its removal, and it already knows that removing pollution and restoring the land is no easy task from its experience with environmental pollution. If it does not admit the damage or underestimates it, it can save on the measures. The state's post facto relief measures are not suited for such kind of problems in the first place. We in Okinawa, including myself, have not really thought about the fact that the application of Article 4 of the Status Agreement is unsuitable for cases where negative factors, such as pollution, are involved and it only results in bringing about disadvantages for Japan. The truth is that the environmental problem was not included at all in the "Ten Demands" (see box 1) hastily put together by Okinawa prefecture after the 1995 rape, and – with the exception of the Communist Party – hardly anyone had pointed out the absurdities of Article 4. The Communist Party took a leading part in conducting empirical research on the problems of the Japan-U.S. Security Treaty Status Agreement which was published in *A Point by Point Critique of the Japan-U.S. Status Agreement* (Shin Nihon Shuppansha, 1997), but even there, there is little mention of pollution in the analysis of Article 4.

When the Okinawa prefectural government began the task of establishing the Basic Environmental Regulations in 1999, the NGO to which I am affiliated - the Okinawa Environment Network - brought up the problem of U.S. military bases as a major factor determining the environment in Okinawa. We spelled out the responsibilities to be shouldered by the U.S. military bases and submitted our proposal to the prefectural Council for the Environment. The members of the Council, however, caved in to the demand of the Personnel Bureau to delete the proposal because dealing with the U.S. armed forces was really beyond all capacity. Hence, they rejected our proposal and implemented harmless, unobtrusive regulations similar to those of other prefectures. However – as I learned only recently – the governments of Japan and the United States had in fact already published a joint statement regarding "Environmental Principles" by that time (see box 2). That is to say, the regulation of the U.S. military bases could have been integrated into such legislation, but the prefectural Bureau for the Environment, the Council for the Environment and our NGO were unaware of this.

Actually, something else had been hidden from us from much earlier on. I regret that it would have served our case in Okinawa very well if it had come to light. I refer to the document (see box 3) said to have been agreed upon by a Japan-U.S. joint committee. Based on this agreement,

at least it would have been possible to request for inspections and publication of the results, and we could have also obtained samples. When I think of this, I wonder why this document was not published for thirty years. Many things could have been achieved during that time. Concerning the question of why the document was not published sooner, Minister of Foreign Affairs Kawaguchi responded that at least it did not seem to be the case that it was hidden because its content was disadvantageous. However, this kind of lack of sense of responsibility definitely brings about disadvantageous results in Okinawa's current situation. Especially in the case of environmental problems, seemingly small things build up little by little before a large clue is obtained, so this gap of thirty years was indeed a waste.

It was in response to this kind of situation that the Okinawa Environment Network has decided to begin by holding small workshops at Okinawa University from 18 March to discuss the existence of military bases and environmental problems. The aim of the workshop is to find out the content of the U.S. military bases which are in a black box situation by inviting representatives from countries where U.S. military bases have existed in the past or still exist, such as the Philippines, Vietnam and South Korea, and comparing the experiences of the American NGOs which have been involved in the restoration of bases to their original state. It also aims to try to improve matters at least a little by collaborating with South Korea, which is also already suffering under the unequal status agreement. We have not received any positive response to our invitation from the Okinawan government and the Japanese national government, but the United States Marines has offered to report on the fact that they are making some efforts. Some members at our planning committee opposed the idea of devoting time to the United States Marines. Others, however, think it appropriate for such a workshop and we are curious about what we will get to hear. It is regrettable that the Okinawan government is not represented at such meetings as usual and it reflects upon the attitude of the prefectural government, but we intend to report the content of the discussions and so on to the prefectural government as much as possible.

Holding such workshops causes one to truly admire the pioneering foreign policy work of Utsunomiya Tokuma. Even though renegotiation of the unequal and unilateral status agreement was strongly demanded within Japan, among the Foreign Ministers and bureaucrats of the Ministry of Foreign Affairs only former Foreign Minister Tanaka Makiko responded that she would look into the matter. All other responses suggested improvements in the running of the system, which were in fact about the maintenance of the status quo. Prime Minister Hashimoto had suggested that since it would be too much for someone to go from Okinawa and do the rounds at government offices each time some incident occurred, the situation might improve if an ambassador-level bureaucrat from the Ministry of Foreign Affairs were posted at Okinawa to negotiate with the U.S. armed forces. Thus an office for the Okinawa Ambassador was established, but it seemed that the situation did not change very much. In particular, the former Ambassador Hashimoto - who used to argue loudly against explanations of the local municipal assembly members, claiming that the crime rate of members of the United States armed forces was lower than the average crime rate of Okinawa - tended to be criticized by the people wondering which side he was on. He had a reputation of being a relative of Prime Minister Hashimoto and someone who carried his head high. The local people consider that the way in which such people who know nothing about Okinawa are sent here reveals the attitude of the Ministry of Foreign Affairs regarding how to tackle the Okinawan problem.

As can be seen from the fact that the 10 demands lack a perspective on environmental problems and therefore make no allusion to the inequality in Article 4, almost no one anticipated, even on the Okinawan side, that pollution within bases was likely to become a serious problem until the specific dates were set for the return of Futenma. Within everyday prefectural administration, too, policies toward environmental problems had low priority and there was a tendency to prioritize development and industrialization. This was true of the administrations under Governors Nishime and Ôta, and it has become even more so under the Inamine prefectural government, which is controlled by the conservatives. Thus, within the Bureau for the Environment, which tends to be made light of in the first place, the politics of self-protection and safety-first principles of cautiously proceeding in order to be as unobtrusive as possible prevails. The Bureau has lost all power to dig up problems on its own. This is what I strongly felt, having jostled with the prefectural government about many problems beginning with the issue of Shin-ishigaki airport. Given the environmental regulations and the procedures for assessment of environmental problems described above, negotiations on an equal footing with the United States through the Ministry of Foreign Affairs, which has no experience with such problems and lacks the will to take them up, will certainly be difficult unless someone with unusually strong leadership confronts the situation over a considerably long term by accumulating research on past precedents.

Okinawa's only weapon in such negotiation is the fact that the environmental reality has deteriorated. The damage caused by hiding the 1973 agreement is enormous and the Okinawan people must follow up on the huge responsibility of the Ministry of Foreign Affairs, which caused it. It makes one wonder whether the Ministry of Foreign Affairs exists for the United States armed forces or for the Okinawan people.

Thus when we understand the way the problems of military bases and the environment have developed, we can see that the efforts – including my own – to deal with them have come late. My strategy of investing energy in specialization or division of labor seems to have been a mistake. Realizing this at the end of my stay in Okinawa is too late, but fortunately I have high hopes for the Okinawa Environment Network and its central figure, young Ms. Sunagawa Kaori, who has already taken up several tasks starting with the workshop.

Even the central government seems to have noticed the existence of the problem. On 12 March, in the Council for the Reform of the United States Armed Forces Status in Japan within the Kômeitô Party, it was pointed out that various problems had arisen due to the lack of environmental regulations (Ryûkyû Shinpô, 13 March 2003). In addition to the Onna Communication Base incident of 1995 noted above, the article reported on the 1999 hexavalent chromium pollution on the grounds of the Kadena Ammunition Storage area when it was partially returned, the 2002 discovery of waste oil drums on the grounds of the returned Camp Zukeran, and the poisonous lead pollution caused by clay shooting exercises on Camp Courtney. However, we should also be aware of the problem in Okinawa that such kinds of reports often disappear from the news. For instance, when there was an expected increase in tourism to Kume Island by the introduction of direct flights from Tokyo, news regarding the depleted uranium ammunitions in the islands disappeared.

When we think about it, the defoliant Agent Orange containing dioxin that had caused huge

problems during the Vietnam War had been transported from Okinawa and had caused serious injuries to both the Vietnamese people who were sprayed with it and the American soldiers who had carried out the spraying. Depending on where and how the defoliant was stored in Okinawa, there is a possibility of strong dioxin pollution existing today. Unless the way in which the defoliant was handled within the American military bases is made clear, it will be difficult to determine the extent of the damage because that kind of pollution usually affects very small areas. Furthermore, what we are talking about now is the transportation of substances over thirty years ago. How far would it be possible to trace them?

But if we do not carry out such investigations now – as we have seen in the case of the Onna Communication Base – there will be arguments between and within governments regarding responsibility for the polluted areas and the people of Okinawa will bear the brunt of the damage in the end. First, we need to begin by reopening the negotiations on the unilateral status agreement, which allows the United States armed forces to evade responsibility. No matter what the bureaucrats in the Ministry of Foreign Affairs may think, unless they take up this issue, the suffering of Okinawa will not end.

I would like to express my gratitude to Ambassador Numata in the Okinawa Office of the Ministry of Foreign Affairs for instructing and providing me with materials.

Translation by Sabine Frühstück and Yumiko Tokita-Tanabe

BOX 1

Ten Demands of the Okinawan Prefectural Government (1995)

1. Article 2 of the Status of Forces Agreement is to be revised to clearly state that the Japanese government must heed the voices of local governments on the location of institutions and bases. If the location of institutions and bases has a negative impact on the development of local communities, their relocation must be demanded from and granted by the United States government.

2. Article 3 of the Status of Forces Agreement should be revised as follows: state clearly that with respect to the noise caused by air traffic and the protection of the environment, both of which greatly affect local communities, Japanese laws must be applied to the institutions and areas as well. In addition, if local governmental bodies desire to enter the institutions and areas, the U.S. military must promptly grant permission to do so.

In the case of large accidents such as airplane accidents, the cause must be immediately investigated and the local government concerned must be promptly informed.

Establish additional orders concerning maneuvers by the U.S. armed forces, with the restrictions clearly stated. If an incident or accident occurs during a maneuver or exercise, the imposition of penalties - such as the discontinuation of maneuver or exercise and so on - against the unit which caused the incident or accident must be clearly stated.

Prohibit the use by Japanese of golf courses within the institutions and bases.

3. Article 5 of the Status of Forces Agreement should be revised as follows: state clearly that military use of civilian airports is prohibited with exception in emergencies. In addition, the definition of "moving of troops" must be clarified and marching in civilian areas prohibited.
4. Concerning Article 6 of the Status of Forces Agreement, a Japanese-American consultation is necessary regarding the transfer of air control powers to Japan at Naha airport.
5. Article 9 of the Status of Forces Agreement should clearly state that Japanese laws are to be applied to the medical inspection of people, animals and plants and the health and physical hygiene of people.
6. Concerning Article 10 of the Status of Forces Agreement, spell out the criteria for number plates that can easily be recognized as vehicles for military use by the population in the prefecture.
7. Article 13 of the Status of Forces Agreement should be revised as follows: state clearly that car and light vehicle taxes on cars for private use that are owned by United States armed forces personnel are to be taxed in the same manner as those of other civilians living in the prefecture.
8. Article 17 of the Status of Forces Agreement should be revised as follows: state clearly that the Japanese state reserves the right to try and imprison, in any kind of case, members of the United States armed forces and suspects affiliated with them.
9. Article 18 of the Status of Forces Agreement should be revised as follows: state clearly that in cases when members of the United States armed forces, their family members and others affiliated with the United States armed forces cause damage during or outside their official duties, the Japanese state bears the responsibility to compensate the victims.
10. Article 25 of the Status of Forces Agreement should be revised as follows: state clearly that opinions of relevant local governmental bodies must be heard at the Japan-U.S. Joint Council with respect to the running of bases and that the articles on which mutual agreement has been reached by the Japan-U.S. Joint Council be made public promptly.

BOX 2

Joint Publication of Environmental Principles (11 September 2000)

The Japanese national government and the U.S. national government both acknowledge that it is increasingly important to protect the environment. This acknowledgment includes agreement regarding the prevention of pollution in the institutions and areas permitted for use by the United States armed forces according to the Japanese-American Security Treaty and related agreements and in the local communities in the neighborhood of these institutions and areas. The common goal of both governments is to maintain the health and safety of the local communities in the vicinity of these institutions and areas as well as the families and dependents of the members of the United States armed forces in Japan.

Control Standards

The set of regulations that apply to the United States armed forces in Japan for the protection and safety of the environment is the Japan Environmental Government Standard (JEGS). The JEGS

has emerged from the conviction that the Japanese-American regulations had to become stricter. As a result, the environmental standards of the United States armed forces in Japan generally satisfy or exceed the Japanese standard. The Japanese and the United States governments review the JEGS every two years and strengthen their joint efforts to improve it. The American government conforms to all applicable regulations and continues to contribute to the efforts to protect the environment in Japan.

Exchange of Information and Inspection

The national government of Japan and the national government of the United States sufficiently strive to provide adequate information through the framework of the Joint Council on issues that have an impact on the health of the Japanese population and the dependents and families of the United States armed forces in Japan. Furthermore, the national government of Japan and the national government of the United States follow the procedures of the Joint Council and provide adequate access to the institutions and areas. This includes the access necessary for joint environmental surveys and monitoring.

Response to Environmental Pollution

The national government of Japan and the national government of the United States consult each other about every possible dangers of environmental pollution within the institutions and areas as well as in the local communities in the vicinity of these institutions and areas. The United States government reaffirms policies which ensure the immediate cleanup of imminent and substantially threatening instances of pollution - no matter what kind - that clearly affect people's health and are caused by the United States armed forces in Japan. Following relevant regulations, the national government of Japan takes all possible steps to adequately deal with large-scale pollution caused by sources outside the institutions and areas.

Environmental Consultation

The environment division and other related divisions of the Joint Council hold regular meetings to discuss environmental issues within the institutions and areas as well as those concerning the local communities in the vicinity of these institutions and areas in Japan. Working groups are established in order to consult on specific environmental problems as occasion demands.

BOX 3

On the Official Announcement of the 1973 Japanese-American Joint Council Agreement on the Environment

23 January 2003, Status of the U.S. Forces Agreement

1. Following the joint publication on environmental principles that had been put together by our government and the United States government on 11 September, 2000, and also in response to increasing environmental consciousness in our country in recent years and the debates in the parliament at the end of last year, the Japan-U.S. Joint Council decided on the 23rd (Thursday) to publish the 1973 Japan-U.S. Joint Council Agreement on environmental matters.

2. In this Japan-U.S. Joint Council Agreement, procedures are provided for the national

government and the local governmental units to demand from the U.S. armed forces command on site the examination and reports on environmental pollution caused in and around U.S. armed forces institutions and areas that has possible impact on the welfare of the local communities. Procedures are also provided for the national government and the local governmental units to request for entry and inspection of polluted areas and obtain samples.

1973 Joint Council Agreement

"On Cooperation Concerning the Environment" (short version)

In response to the increasing environmental consciousness, and in the acknowledgment of the shared responsibility of the Japanese national government and the United States government, it is to both countries' advantage to pay adequate attention to the pollution that is caused by the United States armed forces through use of the institutions and areas provided to them by the status agreement and to find a solution that is mutually satisfactory. The U.S. armed forces wish to be a member of society where there is no pollution. In this regard, concerning matters of pollution, the regulations below are to be followed in principle drawing on the initiative of local people in order to solve them.

(a) Procedures of municipalities and prefectures (1) If a reasonable case can be made that the pollution of water, oil, chemicals or other substances by [U.S. armed forces] institutions and areas have an impact on the welfare of the local community, municipalities and/or the prefectural government, with the help of the local defense institutions, can demand an on-site survey from the United States armed forces command. The prefectural government and/or the municipalities are to be informed of the results of the survey as promptly as possible.

(2) In cases in which the prefectural government and/or the municipalities, with the support of the local defense institution, consider it necessary to directly inspect the area in question, or take samples from the relevant place, including water and/or soil, soot, smoke, fuel of permanent installations and facilities, the United States armed forces command on site can become the contact point and provide permission for such an inspection and for the taking of samples.

(b) Procedures for the Japanese government If the Japanese national government considers it necessary to directly inspect the polluted area in question or to take samples from the relevant place, including water and/or soil, soot, smoke, fuel of permanent installations and facilities, the method and procedure of inspection and sample collection will go through the Japan-U.S. Joint Council and be dealt with by the appropriate sections of both governments. The municipalities and the prefectural government can participate in such a direct inspection if the Japan-U.S. Joint Council agrees.

(c) In case the municipalities, the prefectural government or the Japanese national government desire a direct inspection outlined in (a) (2) and (b), they are to meet with the adequate unit of the United States armed forces. When the inspections are carried out and the results are determined, appropriate and applicable environmental standards are to be reexamined.

(d) The United States armed forces in Japan takes all measures it considers necessary in order to comply with the regulations outlined in (a) (1) regarding surveys and those outlined in (a) (2) and (b) regarding inspection and notifies the Japanese government of the steps taken.

“Community, Resistance, and Sustainability in an Okinawan Village: Yomitan”

Miyume TANJI

<http://www.japanfocus.org/-Miyume-TANJI/3062>

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Like Ui Jun, Miyume TANJI examines the environmental and economic effects of the disproportionately large U.S. military presence on Okinawa from the bottom up—in this case, through the lens of one village on the west coast of Okinawa. Tanji too is concerned with the various influences of the U.S. military on local communities in Okinawa, but subtly pushes back against a narrative of victimization and is ultimately a bit more hopeful in tone than Ui. This is because she focuses on the village of Yomitan, unique among Okinawan villages in its success at not becoming a base-dependent service economy. Tanji offers Yomitan as a model, because it has attempted since the 1970s to resist both the environmental and economic challenges presented by local dependence on U.S. military bases through sustainable and endogenous community development.

Community, Resistance and Sustainability in an Okinawan Village: Yomitan

Miyume TANJI

Introduction

The presence of some 737 US military outposts around the world imposes great strains, and there is always the possibility of rejection by the inhabitants of adjacent communities. Chalmers Johnson, author of the acclaimed trilogy on US imperial expansion and its costs, highlights the tensions between overseas US bases and the countries where they are deployed, most prominently Okinawa.[1] Nearly one-fifth of the land surface of Okinawa's small, crowded main island is devoted to 38 bases and facilities for the US military (almost 75% of the US forces stationed in Japan). Johnson depicts Okinawa as a hotspot among other US military outposts, where anti-American opposition might undermine the US alliance network in the Asia-Pacific. He draws particular attention to the US forces' exemption from the local criminal justice system, as well as from responsibility to overcome the environmental contamination of local sites caused by US military usage.[2]

Politicians and media commentators often talk of friction between overseas US forces and locals in terms of crimes, accidents, noise and other hazards associated with US military deployment. Yet occasional crimes, risks and hazards barely scratch the surface. From the perspective of local populations living cheek by jowl with the bases, social, economic and cultural well-being is constantly insecure and subject to the priorities of the US military. One key question constantly arises concerning the legitimacy of the bases: Do US military bases protect and advance the well-being of the local populations or undermine it? If the latter is the case, what can local people do about it?

This article considers the relevance of Okinawans' experiences to other societies and communities in the Asia-Pacific that also host, or potentially host, the US military. How have communities in Okinawa converted victimization and discontent into political action? In post-WWII Okinawa, the US military presence has fundamentally upset the social and environmental foundations of local life-sustaining systems. In many cases, base-hosting communities have lost their traditional forms of livelihood – based on fishing, agriculture and manufacturing – to become largely dependent on service industries, base-related rent, aid and compensation from the Japanese government. Yet some local communities, whose experience deserves to be better known, have bucked the trend and dealt with such changes using available resources and knowledge. US military bases in Okinawa spread across 21 of Okinawa's 41 municipalities. Density, size and functions of the bases in these cities, towns and villages vary, as do basic geographic and socio-economic conditions. Local responses to, and relationships with, US forces also differ. Some municipalities, communities or neighbourhoods appear more resilient and capable of exerting influence and control over US military bases than others, in efforts to protect their livelihood.

The experience of Yomitan village merits attention as a successful case of economic and community development alongside a large US military presence. What is special about it, and what can be learned from it? I argue that to represent Yomitan as a model of 'sustainable development' focusing primarily on its economic growth, balanced with efforts to preserve environmental and cultural resources, is to omit a crucial ingredient: resistance to forms of

economic development rooted in militarism inherent in the traumatic trajectory of war and US occupation.

Yomitan community development

A visitor to Okinawa normally passes first through Naha, the capital, a dense, noisy and commercialised city full of cars, trucks, shops and concrete houses right next to winding narrow paved roads. A one-hour drive north along the main road, sandwiched on both sides by long fences and the barbed wire of US bases, brings one to Yomitan Village on the west coast of central Okinawa (see map below). Inside the village, the roads are winding and narrow with concrete houses built close to each other, as in Naha, and the US military presence is prominent, evidenced by the tall, white shrine and US and Japanese flag poles at the military gate of Torii (literally “Shrine”) Station. Yet something here is different from elsewhere in Okinawa. There is a calmer, old-fashioned and dignified feel to the place. There are more earth colours, green farmlands and sugar cane fields, and more natural (unconcreted) beaches. More buildings have antique features such as traditional Okinawan-style red tile roofs, and stone walls and pavements. In Okinawa Main Island, Yomitan is a particularly attractive place for visitors. What makes it special? What are the implications for other communities living with US military bases?



Yomitan Village in Okinawa Main Island

Yomitan villagers have a strong sense of community, not merely of belonging to a municipal unit of administration. Importantly, this sense of community is a product of policies implemented by the village government, supported and carried out by the residents, following Okinawa's reversion to Japan in 1972. This process, commonly known as 'village reconstruction' (*mura okoshi*), was led by Yamauchi Tokushin, who became mayor in 1974 and was re-elected to serve multiple terms until 1998. It is an example of community development, involving multiple programs and policies for building a community. The concept of community is explained in

terms of five defining elements by Ife and Tesoriero: a scale of population small enough to know each other and manage autonomous social structures; a sense of belonging and identity; holistic interactions among villagers in the realm of personal development beyond functional ties (*gemeinschaft* rather than *gesellschaft*); members' active engagement in the community; and existence of a unique local-specific culture that members create, as opposed to consumption of globalised, mass culture.[3]

The population of Yomitan is over 35,000, divided into 23 districts called *aza*. Each *aza* has no more than a few thousand resident members: it is a close-knit self-governing unit of villagers' day-to-day affairs, such as education, health, production, recreation and cultural events. Most *aza* existed before WWII, surviving the Battle of Okinawa, and some date back to the administrative zoning set up when ruled by the Ryukyu Kingdom (1429-1879). On any random visit to an *aza*, one is likely to encounter festivals that promote the local: pottery, music, dance, food etc. On the other hand, communal support comes with responsibilities. Contributions to community events such as funerals and other annual rituals also take up considerable time, making demands on personal life. Thus Yomitan Village is composed of geographically close members who know each other well, at least since their grandparents' generation.



Yomitan village and the sea

Romanticising the *aza* community, however, would overlook the aspects that are at odds with such modern themes as liberation, individualism, mobility and even the welfare state. Emphasis on the social role of the community 'can be used to reinforce traditional conservative understandings of the family, privatisation, government cutbacks, and class and gender inequalities'.[4] Social hierarchy is strictly adhered to, according to the traditional order of male seniority rule. It is said that, to become a member of an *aza* self-governing organization in Yomitan, one has to be from a family resident since the pre-war era. Life in *aza*, in many ways, is tradition-bound and could be repressive of women. As in most societies, numerous responsibilities for maintaining a community have traditionally fallen to women: for example, food preparation, cleaning and administration at communal events that are necessary but not publicly recognised or related to wealth-making activities. Yomitan *aza* require many of those, which is probably why the first women's organisation in Okinawa is said to have been formed in Yomitan 100 years ago.[5]

Despite some conservative qualities seemingly at odds with modern capitalist societies, a sense of pride is generally associated with living in 'Yomitan'. For example, a 15-year-old Yomitan male high school student comments:

I am so lucky to have been born in Yomitan with rich traditional arts and beautiful natural surroundings. I want to become a radio personality and tell everyone how fantastic Yomitan and Okinawa are. I want to contribute to preserving the wonderful arts, culture and nature we inherited. [6]

Such a positive image of Yomitan has been constructed, over the last three decades through the updating and shaping of 'tradition' to suit the needs of late capitalist rural life that only a small 'village' could meet. Beyond *aza*, an overarching 'Yomitan' identity has developed under the 'village reconstruction' program after Okinawa's reversion to Japan. Mayor Yamauchi's comprehensive community development program had four distinctive dimensions:

- 1) economic development driven by agriculture as a core industry and strategic marketing of local products;
- 2) locally controlled environmental resources;
- 3) promotion and positive re-evaluation of traditional local knowledge and culture; and
- 4) recovery of land from US military occupation.

In particular, the first two elements, economic development and environmental protection, have been represented as a successful community-based initiative, one that counters the vulnerability of Okinawan communities' dependence on a base-oriented economy. Sasaki stresses the importance of control and ownership retained by the village over planning and building of tourism-related facilities such as hotels.[7] The village manages private capital effectively through a semi-non-profit corporation, the Yuntanza Village Development Company – owned by the village's public employees and members of the Yomitan Chamber of Commerce. Unlike other resort towns, the village prohibited mainland Japanese capital from buying land to build hotels and private beaches, thus maintaining local land ownership.

This has enabled the village government to protect its environment, for example by compelling large hotel chains to use multiple-stage processes of water purification that can then be used for irrigation. Similarly, golf courses are prohibited from using chemical fertilizers. This 'partnership' system has prevented environmental damage caused by the profit-driven tourist industry – as has happened in other parts of Okinawa. Likewise, the Company and the village have ensured that tourism creates jobs for locals through preferential employment of villagers, including the hiring of cleaners (local people with disabilities). The external tourism industry also entered into an agreement with the Company to use local agricultural products at restaurants, and sell local produce such as fresh fruit and vegetables at hotels – all highly unusual for resorts in Okinawa, which typically provide scant benefit for local workers, manufacturers and farmers.[8]

Additionally, the remarkable growth of beni-imo (red sweet potato) production in Yomitan is an example of community-based economic development. Yomitan has specialised in the production of distinctive beni-imo with strong, purplish red flesh. The Yuntanza Village Development

Company purchases the products of local beni-imo farmers at appropriate prices. The Company and Chamber of Commerce further promote mass processing of beni-imo products that require peeling and pasting, creating further local employment.[9] Beni-imo became a Yomitan brand, used in pies, ice cream, biscuits, bread etc. The Company markets these products widely: they are sold in shops along main tourist streets of Naha, at airports, and in specialty shops in mainland Japan. The beni-imo has been turned into a unique local industry and an economic stimulus by the villagers themselves.[10]



A replica of the 'beni-imo (red sweet potato)'.



Beni-imo tarts

Outside the Yomitan Village Office

This highlights the second dimension of community development: the importance of agriculture as a core industry in Yomitan. Farming, especially sugar cane and sweet potato production, has long been the means of livelihood in Yomitan.[11] In post-reversion 'village reconstruction', the mayor placed a priority on benefiting farmers, and protecting agriculture.

The village also resurrected traditional weaving, characterized by distinctive flower-patterns specific to Yomitan. Yomitan weaving had existed for 600 years, but the industry dwindled with modernization, and was discontinued during the war. Since the 1960s, local elderly women who had witnessed the weaving process have contributed to the recovery of this skill. The village trained weavers and sponsored expositions in major Japanese cities. Both the beni-imo and

weaving industries contribute to Yomitan's image as a 'cultural village' instilling pride and identity in villagers.[12]

Yomitan as a model of sustainable and endogenous development: an alternative to base-dependence

Yomitan is featured in the *International Journal of Environmental Cultural Social and Economic Sustainability* for its sustainable community development strategy, pursuing a distinctive 'bottom-up approach that builds on its identity as a cultural centre'. [13] Sustainable development usually means economic performance combined with measures to prevent ecological damage. However, Yomitan as a model for overcoming the base-dependent economy means much more. Social scientists in Japan often use the term 'endogenous' along with 'sustainable' development, in reference to Yomitan. Endogenous development refers to internally generated social change driven primarily by local people, tradition, culture, corporations and natural resources. It contrasts with development approaches based on approaches imported from outside, the West, or a colonial power.[14]

Japanese economist Sasaki Masayuki describes Yomitan's development as a 'model' of 'endogenous local development' in an essay entitled 'sustainable development in Okinawa for the 21st century'. [15] Miyamoto Ken'ichi views Yomitan as demonstrating the type of economic development that many Okinawan communities living with a heavy military presence aspire to, yet rarely attain. They see Yomitan's economic development as the antithesis of a reliance on the 'economic stimulus policies' of Tokyo, so common in Okinawa.[16]

The nature of such base-related income transfer is to suppress local opposition by compensating locals for Okinawa's disproportionate role in the US-Japan security alliance. The US bases in Okinawa were constructed during and after the 1945 Battle of Okinawa. Okinawa's reversion to Japan in 1972 did not significantly reduce the US military presence. After reversion, Tokyo significantly increased subsidies for developmental projects in Okinawa, as well as rent paid to private landowners and municipal governments whose land was occupied by US bases. The Okinawan economy came to depend on economic aid and subsidies from the central government. This Okinawa-specific economic policy was justified as necessary to provide economic stimulus since Okinawa was excluded from mainland Japan's economic growth between 1945 and 1972. The subsidy-oriented economy following 1972 prioritized short-term projects, especially construction of public buildings and infrastructure facilities, with Japanese companies the main beneficiaries. As a consequence, Okinawa became a mostly 'concrete island', losing much of its natural resources and landscape.[17] Still, Okinawa remained Japan's poorest prefecture in terms of income, unemployment, and other socio-economic standards.

Elsewhere, the Japanese government's heavily interventionist economic policies, sometimes described as the 'developmental state', retreated, giving way to a neo-liberal, market-oriented policy,[18] but in Okinawa government intervention remains in the form of base-centered economic policy. In recent years, the degree of dependence has varied regionally within the Island. Tokyo's economic stimulus policy targeted local governments in the northern region, notably Nago City, where the construction site of a major US Marine's Air Station (to substitute for the one in densely populated Futenma) is planned.[19] Communities in the north – rural and aging – have long experienced economic stagnation. In hopes of regenerating the local economy, most communities have welcomed the government's economic stimulus policy.[20]

Banasick and Sasaki contrast Yomitan's entrepreneurship and self-reliance with Nago City, where Japan's economic stimulus policies have been passively accepted – or, more often, actively induced – on condition of an expanded US military presence.[21] Nago City's eventual acceptance of the planned Futenma Air Station's replacement facility after bitter community struggle has resulted in the 'Northern Districts Development Fund', specially set aside for local municipalities nearby, for which ¥100 million was budgeted.[22] State-sponsored construction projects and various government aid schemes have been introduced in Nago: for example, 'one state, two systems'-type financial and IT special zones. Taking advantage of government subsidies, Nago City built a 'Multimedia Centre' in the Toyohara District – adjacent to Henoko where the Futenma Replacement Facility is planned – in July 2002, at a cost of ¥2.1 billion. In 2008 it housed 25 international and Japanese companies.[23] These special zones are aimed at inviting external financial and high-tech industry investments, with rent and employment benefits subsidized by the state:

The special financial zone designation, the only one of its kind in Japan, includes a 35% reduction of corporate taxes, low-rent office space, an 80% subsidy for communication expenses, and a 30% subsidy for hiring young workers. Given that wages in Okinawa tend to be about 40% lower than the mainland, the 30% subsidy means that firms relocating to the Nago City financial center can achieve a 70% reduction in labor costs.[24]



Nago City map

Increase in base-related revenue since 1998 has generated a number of multi-million-dollar projects including construction of the Multi Media Centre building, Meio University, community centres, a national technical college and the like.

According to a top construction company CEO in Nago, about 80% of the successful bidders on lucrative projects brought to Nago funded by the 'Northern Districts Development Fund' are major mainland Japanese companies, relegating local construction work to subcontractors.[25] The Multi Media Center hired 800 mainly young local employees under 30 to workers at call centres run by mainland Japanese companies since 2004, taking advantage of cheaper Okinawan labour. These projects have brought in workers and students from outside, followed by new convenience stores and one-room apartment blocks, creating a 'town outlook'. [26] Such effects are important, especially in eastern Nago, where local anxiety about depopulation is high given a lack of job opportunities for young people. From the perspective of many locals, any development is better than none.

However, state financial inputs since Nago's acceptance of the Futenma Replacement Facility in December 1999 have not delivered economic health. The share of governmental subsidies linked

to US military presence in the City's revenue kept growing, reaching almost 30% in 2001, endangering the municipality's financial self-sufficiency and threatening the quality of public services should central government subsidies be withdrawn.[27] With the late 2008 global financial crisis, the two biggest construction companies in Nago failed. Taxi drivers and bars were short of customers, the annual Nago summer festival was unlikely to continue because of a funding shortage, and a sense of depression prevailed in the city center.[28] Nago is suffering. Many, therefore, have come to look forward to work starting on the Futenma Replacement Facility—still facing strong opposition—as their last hope.[29]

Base-generated economic stimulation has not led to 'endogenous development' in Nago. It has created only superficial benefits relying on external economic actors, in isolation from sectors rooted in the community. This contrasts with economic change in Yomitan, where growth generated in one area (agriculture, for example) transfers to other local industries such as tourism and manufacturing. Miyagi Yasuhiro, former member of the Nago Assembly, predicts that heavy reliance on major construction projects will give rise to public expenditures for facility maintenance, and is 'likely to far exceed the financial resources of a local government'.[30] (Miyagi and Tanji, 2007). In 2005, Nago's real public debt ratio reached 15.2% and the ratio of current income to expense (the lower the better) of 94.3%, as opposed to 9.8% and 85.4% respectively in Yomitan.[31] Yomitan increased public revenues coming from local produce by 9% in 2008 despite the recession. On the other hand, salaries of Yomitan's public servants were cut by 500 million yen in the years 1998-2008.[32]

Sasaki explains that endogenous development in Yomitan was fuelled by the 'energy' of the local drive to remove US bases.[33] This relates to the fourth feature of Yamauchi's 'village reconstruction', the campaign to recover land occupied by the US military for residents' production and livelihood. At the time of Okinawa's reversion in 1972, more than 70% of the Village was still occupied by US bases. This ratio gradually fell to approximately 36% today. Miyamoto views base removal as a necessary condition for realizing sustainable development in Okinawa, as demonstrated by Yomitan's experience.[34] What then is the connection between Yomitan-style economic development and its resistance to structural dependency on base-related income transfer from Tokyo?

Ratio of US military bases to the total area of Yomitan Village [35]

Year	Total Village area (ha)	Area Occupied by US Military Bases (ha)	Ratio of US military bases (%)
1972	3,448	2,440	70.7
1976	3,448	1,893	54.9
1989	3,517	1,648	46.9
2000	3,517	1,567	44.6
2006	3,517	1,261	35.9

Nishikwa sees endogenous development as of increasing significance in the context of regionalism as a counter force to globalization.[36] Governance at the community level becomes more significant as the role of the nation-state as provider of economic goods and services or co-

ordinator of economic development dwindles. The importance of endogenous development is derived from the increased significance of 'community-based' policies and initiatives globally, especially in the context of a weakened late capitalist welfare state.[37] In this sense, the idea of endogenous or sustainable development exemplified by Yomitan, in principle, fits the state's neo-liberal economic policy with an emphasis on local autonomy.

However, political opposition to the state is not necessarily part of the package. There is a problem with attributing endogenous development in Okinawa to base removal. The contrast with Nago creates the impression that Yomitan's endogenous development, especially economic, gave rise to successful campaign against military bases. Yet endogenous development does not in itself promise resistance to the dependent economic structure predicated on US military bases. There is no inherent reason why base-generated subsidies could not be utilized to promote strategic marketing of local production and employment, while maintaining ownership and control vis-à-vis external capital and the environment, through public non-profit local companies.

Yomitan is a unique case of market-oriented economic development combined with political opposition. Not only has the village substantially reduced the US military presence, it has also, relatively successfully, outgrown base-dependence. What is it that has given Yomitan the resilience in the face of the political economy of base-related compensation? Endogenous development and sustainable development provide only a partial explanation of this highly political aspect of Yomitan's community development.

The trajectory of war, US military occupation and Yomitan's 'resilient' community

The political consensus in Yomitan around non-reliance on military bases as a means to economic development is rare among base-hosting municipalities in Okinawa. Most local governments with a heavy military presence accept military bases as key to economic survival. The concept of 'community resilience' helps explain this resistance. The locally-specific history of collective suffering and trauma related to war and US occupation, specific to Yomitan, is crucial.

The idea of resilience, originally developed in the study of ecology, refers to the ability of an ecological system to adjust to disturbances (such as environmental hazards), and to 'spring back' to a state of equilibrium.[38] Adger defines 'social resilience' as 'the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change'. [39] This definition captures the most basic meaning of the concept of 'resilience' used here.

Nevertheless, social resilience is not limited to the ability to 'spring back' to a basic unchanging social structure. In the face of environmental and social change, an ability to fundamentally transform its social structure and infrastructure in order to adjust to external changes is also important. In defining resilience, therefore, consideration of at least three aspects is necessary:

1. The amount of disturbance a system can absorb and still remain within the same state or domain of attraction;
2. The degree to which the system is capable of self-organisation;

3. The degree to which the system can build and increase the capacity for learning and adaptation. [40]

The concept of resilience thus allows explanations of a range of collective responses a community or a group may make to stresses and shocks.

In the formation of community resilience and in the process of collective decision-making, different views and interests are represented. A community's resilience is heavily related to aspects of governance, or how power is shared in the community. Examining a community's governance requires looking into 'laws, regulations, discursive debates, negotiation, mediation, conflict resolution, elections, public consultations, protests and other decision-making processes.[41] The question then becomes: 'resilience of what, to what' and 'for whom?' [42] (Lebel et al., 2006, p. 20) What are the values, principles and social structure that Yomitan village has chosen to preserve?

As noted above, Yomitan's basic social unit is the *aza*. 22 out of Yomitan's 23 *aza* survived the radical disruption to their communal lives caused by the Battle of Okinawa, a remarkable fact considering that the war destroyed most of the central and southern regions of Okinawa Main Island, and that US forces occupied most of the land immediately after the war.

In April 1945, after 180,000 US soldiers landed on the coast of Yomitan, 3,840 residents died, reducing the population of the village to 14,611 in September 1946.[43] The US military moved all residents to internment camps.[44] In November 1946, when the people of two *aza*, Namihira and Takashiho, were allowed to re-settle, 95% of the Village's total area was under US military enclosure, secured for base construction.[45]

When the villagers eventually returned, most *aza* residents had to re-settle far from their old homes, now taken by the US military. Many were separated from their *aza*. However, they maintained interpersonal ties based on kinship and traditional neighbourhoods. They desired to preserve the *aza* community structure, for which successive mayors persistently appealed to the US military government. *Aza* was the most basic and important social structure of pre-war Yomitan, and its preservation and revival were given high priority.

The survival of the *aza* system indicates social resilience, in particular, the first type of resilience outlined above: the capacity to spring back from chaos to restore an earlier social structure. The Battle of Okinawa and the ensuing US military occupation in Yomitan are primarily remembered as displacement, deprivation, fear and humiliation: disruption to communal life. The history of *aza* restoration informs an understanding of the US military presence primarily as a temporary disturbance that should be – and *can* be – eventually removed. It also explains the consensus among villagers on the importance of resurrecting features inherited from the past prior to the disruption of war.

In the post-reversion period, US forces continued training in Yomitan for the Vietnam and later wars. Among others, the parachute 'drop' training of the Army First Special Group (Green Berets) released soldiers and military equipment from aircrafts flying 4,000 meters above ground, occasionally landing on residential areas and farms. Yamauchi recalls that all kinds of things fell on their living spaces:

a piece of timber penetrated a roof of a resident's home; a few oil drums fell from the sky into the village; soldiers shocked farmers by landing on their fields.

In particular, the death of a 10-year-old girl, squashed underneath a trailer dropped during the training, was tragic.... These incidents continued until last year.[46]

The villagers and mayor succeeded in stopping the construction of an anti-P3C antenna base within the Yomitan Auxiliary Airfield. After three years of villagers' demonstrations and sit-ins, as well as the mayor's persistent negotiations with a US Marine commander and an open letter to then US president Jimmy Carter, the construction was cancelled in 1979. Following a similar struggle, the village regained a site used for to dispose of unexploded bombs, which threatened nearby residents' safety with stray shrapnel. In 1978, a new Yomitan-specific cultural industry was built on this recovered site, with an old-style pottery kiln and 50 workshops.[47] This land formerly occupied by the US military became a cultural and economic point, the Yomitan Home of Pottery. These workshops have trained and employed young artists, and further contributed to tourism, providing an example of 'endogenous' development notable for taking place on former US military sites.



Kiln (above) and products (below) sold at the Yomitan Home of Pottery

The Yomitan struggle to reclaim land from US military bases and to preserve its pre-war *aza* structure, Hara Tomoaki explains,[48] closely reflects contemporary village governance. Specifically, the third aspect of Yomitan's community development, positive re-evaluation of traditional local knowledge, is manifested in the authoritative position given to geomancy, commonly known as *fengshui* (*huu-sui* in Japanese or *hun-shi* in Ryukyuan). A simplified definition of *Fengshui* is 'an ancient science that has its roots in the Chinese way of viewing the Universe, where all things on Earth...take on implications of positive or negative energy (*chi*)'.[49] It is known to have been introduced to the Ryukyu kingdom from southern China 400-500 years ago, and has become embodied in Ryukyuan major architecture (e.g. Shuri Castle) and urban planning. Today, the influence of *fengshui* is seen in people's housing features such as the placement of lion-dog decorations throughout Okinawa and the location and shapes of tombstones.[50] *Fengshui* is alive in the private realm of daily life in Yomitan and elsewhere in Okinawa, but rarely appears in the public context of community development. This is because local-specific knowledge is usually devalued in favour of standardised, top-down professional guidelines.[51]



A Lion-dog statue, or 'Shee sah'

Yomitan Village's re-evaluation of local knowledge as a principle of community development is closely associated with political opposition to US forces and the Japanese government. The introduction was organic: in the 1980s when *aza* and the Yomitan Village government cooperated to create 'ethnological maps' in order to reproduce pre-war topography of *aza* before the US military occupation, both *aza* and village officials re-discovered and re-evaluated *fengshui* as vehicle for understanding how Yomitan residents related to the natural environment. The map of Yomitan Village, drawn by a *fengshui* specialist for the City Master Plan issued in 1997, shows the energy (*qi*) of the place flowing into the central part (see below).

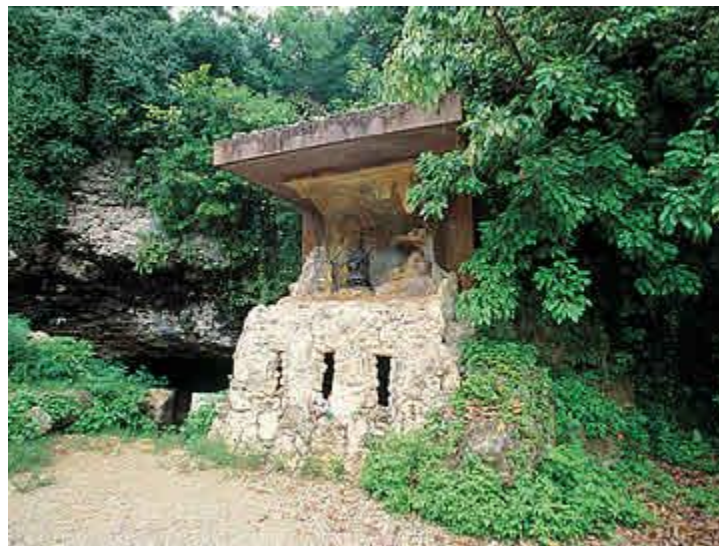


Fengshui Map of Yomitan

This central part corresponds to the location of the US Air Force's Yomitan Auxiliary Airfield. Under Mayor Yamauchi, Yomitan Village demanded of US forces and the US-Japan Joint Committee the right to build a multi-purpose sports stadium and a 'Villagers' District' [52] in the vicinity of the Airfield. The former became the venue of the National Athletic Meet held in Okinawa in 1987. The latter eventuated in 1997, with the completion of the Yomitan Village Office inside the US Airfield. A Yomitan Village official explains that this *fengshui* drawing provided a philosophical basis for arguing that these public facilities needed to be built at this location; solid ground from which to make demands to the US forces (Interview, November 2007). Surrounding the Village Office inside the US Airfield, other public facilities for the villagers were built, collectively constituting a 'Villagers' District'. [53] These facilities were located right next to the parachute and other US military training sites, potentially endangering residents. Yet the choice of this site within the Airfield sent a clear message that the Villagers' needs and preferences came first, and that foreign bases would have to adjust to them.

Fengshui is an antithesis to the logistical and strategic priorities of military bases, which tend to neglect, and destroy, local particularities. [54] This antithesis is well-grounded in local knowledge. Unlike abstract political ideologies, it is something that the villagers can easily relate to. The entire village, both conservative and progressive political party supporters, following the mayor's lead, joined the protest against the US military bases and training. The whole village – the mayor and village officials, public service unions, farmers and fishers co-ops, teachers unions, women's organizations, youth groups, and senior citizens groups – staged protests against US military training, accidents and expansion of military facilities. [55] The proximity between living spaces and military training sites, which directly threatened villagers' lives, also explains why solidarity has been possible. Yomitan's political consensus contrasts with the political divisions in Nago City, for instance, where a majority of the population does not live in close proximity to the planned Futenma Replacement Facility site.

In order to fully grasp the nature of Yomitan Village's resilience in the face of Tokyo's economic pressures, the way villagers dealt with wartime trauma must also be taken into account. During the Battle of Okinawa, mainland Japanese soldiers threatened villagers' lives more immediately than the US soldiers. Japanese soldiers, at the time already without sufficient resources to fight, deprived civilians of food, and killed many, accusing them of being 'spies'. In *Chibichirigama*, a natural limestone cave in Yomitan where residents escaped following the US landing in April 1945, 82 villagers (including 47 children) died of a 'compulsory group suicide'. Many were obliged to kill their family members under pressure from the Japanese military. Self-sacrifice was forced upon civilians as an imperial virtue. For nearly 40 years the survivors' experience was never told or discussed in the village. In the mid-1980s, however, supermarket owner Chibana Shōichi and others interviewed the survivors and recorded their experience. Some villagers condemned this breaking of silence, for hurting the survivors again, revisiting their scar while others saw it as a vehicle for reconstituting the community.



Chibichirigama cave entrance

Norma Field [56] records how a flag-burning incident at the National Athletic Meet in Yomitan – carried out by Chibana – evoked the wartime trauma, stirring an internal debate over the war experience and what it meant to Yomitan residents. The *chibichirigama* story reveals the inseparability of 'the civilian atrocities perpetrated by the Japanese army and the collective suicide committed by the Okinawan civilians'. [57] Field notes, 'The paradoxical phrase "compulsory suicide" is meant to suggest the dark inmixing of coercion and consent, of aggression and victimisation at work in the story of the caves'. [58] That is, the villagers' engagement in an act glorified by mainland Japanese needs to be understood in light of the obsession with 'proving themselves more loyal subjects than other Japanese'. [59] The trauma of war experience, collectively shared by the Yomitan residents, especially, 'what happened in the cave', is remembered as 'in part retribution for the Okinawan role in Japanese aggression in Asia'. [60] Prior to the National Athletic Meet, many in Yomitan opposed the flag-raising ceremony, which the state insisted on, seeing the Rising Sun flag as symbol of Japanese imperialism and of Okinawan catastrophe. Mayor Yamauchi was forced to yield to pressure, to avoid spoiling the important occasion held at the baseball stadium built within the US Airfield, a

result of Yomitan's long struggle. But Chibana felt driven to burn the Rising Sun flag out of 'his sensitivity to the ways in which inattention to the present overlaps with oblivion of the past'.^[61]

The present that overlaps with the past refers to the conformity to the economic 'models of success throughout Japan, the mainland as well as Okinawa, and increasingly, throughout the world in relentlessly familiar though deceptively various forms'.^[62] Twenty years later, Chibana is a respected, elected member of the Village Assembly with responsibility for Yomitan's community development.

The collective reflection on the scar of 'compulsory group suicide' in part explains the Yomitan residents' resilience in the face of the base-oriented economy. Yomitan has resisted the general trend in the post-reversion years of achieving 'parity with mainland Japan'. Most communities adopted that as their predominant goal, resulting in the imposition of mainland Japanese economic models and standards as well as base-oriented subsidies.

Yomitan village is recognized as an exceptionally successful case of 'sustainable' or 'endogenous' economic development that overcame economic dependence on the US military. The success is attributed to programs of local control over the external tourist capital, in regulating pollution, in successful marketing of local agricultural products, and effective co-ordination among various sectors of the local community that enhance employment and further economic activities. Ideological and philosophical aspects are also recognized as conducive to success, and Yomitan Village promotes itself as a 'cultural village'. Recovery of land from US military bases is also counted as crucial. Such accounts are accurate but not sufficient. What is missing is an understanding of political processes underlying the solidarity that enabled successful protest against the US military. The political consensus is partly explained by the immediate threat of military training and operations to which villagers had been daily exposed, but most important are the wartime trauma and major disruption of *aza* life. Yomitan's resistance to state-imposed base dependent economic policy has such roots. This consensus emerged in the course of debate over the meaning of the war experience at the village level. Yomitan's resilience is explained not only by the ability to 'spring back' but also to learn and adapt to new events and stimulation.

The *aza* structure provided stability, continuity and distinctive identity to Yomitan village life. This made it possible to resist pressure to achieve development according to mainland Japanese standards and to accommodate to the US military needs. At the same time, conceptually framing Yomitan's case as a 'sustainable development' or 'endogenous development' model may neglect the political dynamics of its community development.

Okinawa is a diverse community of protest and accommodation, made of many different local identities, each with its own history and legacies, yet also each identifying with, and representing Okinawan-ness. In this sense, each local struggle contributes to the fabric of an 'Okinawan Struggle' against the continuing US military occupation, and other kinds of marginalisation that Okinawans have been historically subjected to.^[63] Yomitan offers one important story, not only to Okinawans but also to other small island economies hosting US military bases, such as Puerto Rico and Guam. Yomitan's experience reveals that that economic dependence on bases and base-related subsidies and aid from the government can be overcome at the community level.

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Notes:

1. Johnson, Chalmers. (2006) *Nemesis: The Last Days of the American Republic*. New York, Metropolitan Books. P.1
2. Johnson criticizes the privileges given to the US forces that disadvantage and humiliate the local population. These are guaranteed by the Status of Forces Agreements (SOFA) between the US and allies that host its foreign military bases. The SOFA essentially warrants special privileges for US forces, exempting them from rights and obligations normally required under the host state's laws and regulations.
3. Jim Ife, & Frank Tesoriero. (2006) *Community Development: Community-based Alternatives in an Age of Globalisation*. French Forest NSW: Pearson Education Australia. p.96-98.
4. Ibid. p.15.
5. *Okinawa Taimusu*, 31 December 2008.
6. Ibid.
7. Sasaki Masayuki. (1999) 'Sustainable development in Okinawa for the 21st century'. In Chalmers Johnson (ed.), *Okinawa: Cold War Island* (p. 247-260). Cardiff, CA: Japan Policy Research Institute. P.55-57
8. Ibid. p. 265-267
9. Sasaki Masayuki. (2000) 'Toshi to Nouson no Jizokuteki Naihatsuteki Hatten' [Sustainable endogenous development in urban and rural regions]. In Miyamoto Ken'ichi & Sasaki Masayuki (eds.), *Okinawa 21 Seiki e no Chousen* [Okinawa's Challenges in the 21st Century] p. 151-173. Tokyo: Iwanami Shoten. P. 158-159
10. Takara Sachika. (2006) 'Kichi no nai mirai o mezashite: chiiki no tokusei o ikashita machizukuri to jiritsu' [Aiming for a future without military bases: town development and independence relying on local characteristics] In Hatakeyama Dai & Kumamoto Hiroyuki (eds.), *Okinawa no datsu gunjika to chiikiteki shutaisei: hukkigo sedai no 'Okinawa'* [De-militarisation and local autonomy in Okinawa for the post-reversion generation]. Tokyo: Nishida Shoten. p.180
11. In 1962, 94.5% of Yomitan's households were engaged in farming. Yomitan Sonshi Henshu Inka. (1995). *Yomitan Sonshi* [Yomitan Village History] Vol.4 No. 3 Part 1. Namihira, Yomitan Son: Yomitan Son Yakuba. P.341
12. T. Yamauchi. (2007) *Okinawa Yomitan Son Kenpouryoku ga tsukuridasu Heiwa to Jichi* [The Constitutional Power of Okinawa's Yomitan Village Creates Peace and Autonomy]. Tokyo: Akashi Shoten. p.108-109

13. Sean Banasick. (2005). 'U.S. Military Bases and Sustainable Development in Okinawa'. *International Journal of Environmental Cultural Social and Economic Sustainability*, 1(1), p.143-150. p.143, 147.
14. Japanese social scientist Tsurumi Kazuko originally developed this notion, inspired by intellectuals in the Meiji period (1868-1912) such as Yanagita Kunio and Minakata Kumagusu. See Tsurumi Kazuko. (1996) *Naihatsuteki Hatten Ron no Tenkai* [The evolution of the endogenous development theory]. Tokyo: Chikuma Shobo.
15. Sasaki, 'Sustainable development in Okinawa for the 21st century'. See note 7 above.
16. Miyamoto Ken'ichi (2000) 'Okinawa no Iji Kanou na Hatten no tame ni' [For Okinawa's Sustainable Development]. In Miyamoto Ken'ichi & Sasaki Masayuki (eds.), *Okinawa 21 Seiki e no Chousen* [Okinawa's Challenges in the 21st Century p.1-30]. Tokyo: Iwanami Shoten. p.25
17. Gavan McCormack (1998) Okinawan Dilemmas: Coral Islands or Concrete Islands. *JPRI Working Paper*, 45, April.
18. Kohno Masaru. (2003) A Changing Ministry of International Trade and Industry In Jennifer Amyx & Peter Drysdale (eds.), *Japan's Governance: Beyond Japan Inc.* London and New York: Routledge.
19. The decision to close Futenma Air Station followed the surge of anti-base protest in Okinawa caused by the 1995 kidnapping and gang-raping of a 12-year-old school girl by U.S. soldiers.
20. See Banasick, 'U.S. Military Bases and Sustainable Development in Okinawa'. See note 12 above; Masamichi Inoue. (2007) *Okinawa and the U.S. Military: Identity Making in the Age of Globalization*; Miyagi Yasuhiro & Miyume Tanji. (2007) '[Okinawa and the Paradox of Public Opinion: Base Politics and Protest in Nago City, 1997-2007](#)'. *The Asia-Pacific Journal: Japan Focus*, (3 August, 2007).
21. Banasick, 'U.S. Military Bases and Sustainable Development in Okinawa'. See note 13 above; Sasaki, 'Toshi to Nousei no Jizokuteki Naihatsuteki Hatten'. See note 9 above.
22. Gavan McCormack. (2007) *Client State: Japan in the American Embrace*. London and New York: Verso. p. 163
23. Nago shi chiiki koyou souzou kyougi kai [Nago City local employment creation committee] (2008) 'Kinyuu/jouhou Tokku'[The special financial and information technology zone]. [Retrieved](#) 20 December, 2008.
24. Nago City. (2003) *Nago City International Information Technology and Financial Centre* Nago City, Okinawa: Nago City Government. Cited in Banasick, 'U.S. Military Bases and Sustainable Development in Okinawa', p. 145
25. Ryukyu Shimpo, 11 November 2008.
26. IT and Finance Special Zone Promotion Section, Nago City Office, Interview, November 2007.

27. Miyagi Yasuhiro, & Miyume Tanji (2007) 'Okinawa and the Paradox of Public Opinion' See note 20 above.
28. Ryukyu Shimpo, 11 November 2008.
29. Ryukyu Shimpo, 12 November 2008.
30. Miyagi Yasuhiro, & Miyume Tanji (2007) 'Okinawa and the Paradox of Public Opinion'. See note 20 above.
31. Okinawa Ken Soumubu Zaisei-ka [Financial Planning Section] (2005) '[Shichouson Zaisei Hikaku Bunseki Hyo](#)' [Municipality public finance comparative chart],
32. Okinawa Taimusu, 31 December 2008.
33. Sasaki, 'Sustainable development in Okinawa for the 21st century'. p.253. See note 7 above.
34. Miyamoto, 'Okinawa no Iji Kanou na Hatten no tame ni' p.25. See note 15 above.
35. [Yomitan Son](#). (2008) 'Yomitan son no jinkou to toukei' [Population and Statistics of Yomitan Village]. Retrieved 31 October, 2008.
36. Nishikawa Jun (2004) Naihatsuteki Hatten no Riron to Seisaku [The theory and policy of endogenous development]. *Waseda Seiji Keizai Gaku Zasshi*, 354, 36-43.
37. Ife & Tesoriero, *Community Development: Community-based Alternatives in an Age of Globalisation*. p. 2-13. See note 3 above.
38. Holling, C. S. (1986) 'The resilience of terrestrial ecosystems: local surprise and global change'. In William C. Clark & R. E. Munn (eds.), *Sustainable Development of the Biosphere* p. 292-320. Cambridge, Cambridge University Press.
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40. Richard Klein, J. T., Nicholls, Robert. J., & Thomalla, Frank. (2003). 'Resilience to natural hazards: How useful is this concept?' *Environmental Hazards*, 5, 35-45. p.38
41. Lebel, Louis. et al. (2006). '[Governance and the Capacity to Manage Resilience in Regional Social-Ecological Systems](#).' *Ecology and Society*, 11(1) Retrieved 23 February 2009.
42. Ibid.
43. Yomitan Sonshi Henshu Inkai. (2002b). *Yomitan Sonshi (Yomitan Village History) Vol.5 Part I*. Zakimi, Yomitan Son: Yomitan Son Yakuba. p.86. 90.
44. Among the estimated 6,390 villagers who evacuated or escaped to the forests in the mountainous northern region of Okinawa, many starved to death or were killed by malaria. Ibid., p.35
45. Yomitan Village. (2008) [Yomitan Vaacharu Shiryoukan](#) [Virtual Archive] Retrieved 25 February.

46. T. Yamauchi & A. Mizushima. (1997). *Okinawa Yomitan Son no Chousen* [The Ventures of Yomitan Village, Okinawa]. Tokyo: Iwanami Shoten. p. 8-10
47. Kinjo Jiro, the most prominent pottery artist in this style, migrated from Naha in 1972 and contributed to the establishment of a distinctively Yomitan pottery industry.
48. T. Hara. (2003). 'Okinawa, Yomitan-son no Toshi Keikaku Masta puran to "huu-sui"' [The City Planning Master Plan of Yomitan, Okinawa and 'Fengshui']. *Toshi Keikaku*, 52(4), p.21-24. p.22-23
49. L. Too. (1997). *Basic Fengshui*. Kuala Lumpur: Konsep Books. p.1
50. R. Warai. (2003). *Shiawase o yobu Ryukyu Huu sui (Ryukyuan fengshui for your happiness)*. Naha, Okinawa: Bohda-inku. p.1
51. Ife & Tesoriero, *Community Development: Community-based Alternatives in an Age of Globalisation*. p. 124. See note 3 above.
52. US-Japan Joint Committee is a key decision-making actor under the US-Japan Mutual Security Pact
53. The facilities include, among others, a concert hall where cultural events are held, the Yomitan Weaving Centre, the Yomitan Welfare Centre, a Democracy Forum, an Agricultural Forum and large parking areas.
54. Hara, 'Okinawa, Yomitan-son no Toshi Keikaku Masta puran to "huu-sui"'. p.23. See note 48 above.
55. Apart from the examples cited here, related struggles included demonstrations and picketing against the expansion of Sobe Beach (exclusively used by the US military), deployment of the Army First Special Group, and the runway reconstruction training in the Yomitan Auxiliery Airfield. Yamauchi & Mizushima, *Okinawa Yomitan Son no Chousen* p.15 See note 46 above.
56. N. Field. (1993) *In the Realm of a Dying Emperor: Japan at Century's End*. (3rd ed.). New York: VIntage Books. p.33-104
57. Ibid, p.66.
58. Ibid.
59. Ibid, p.80.
60. Ibid, p.87
61. Ibid, p.66.
62. Ibid, p.67.
63. M. Tanji, (2006). *Myth, Protest and Struggle in Okinawa*. London: RoutledgeCurzon.

Part III – Nuclear Power after Hiroshima and Nagasaki

“Japan, the Atomic Bomb, and the ‘Peaceful Uses of Nuclear Power’”

A. “‘The Peaceful Use of Nuclear Energy’ and Hiroshima”

B. “Japan’s Nuclear History in Perspective: Eisenhower and Atoms for War and Peace”

A two part article by Yuki TANAKA (A) and Peter Kuznick (B)

<http://www.japanfocus.org/-Yuki-TANAKA/3521>

May 2, 2011

In the aftermath of the nuclear disaster at the Fukushima Daiichi Nuclear Power Plant precipitated by the earthquake and tsunami in March of 2011, the environmental risks of atomic power might seem obvious. Nuclear disasters have caused radiation sicknesses and death, poisoned the natural environment and its inhabitants, and jeopardized food safety. The construction of nuclear power plants has involved forest clearing, sea refilling, and other human alterations of the environment. Nuclear power plants themselves require monitoring of gaseous and liquid radioactive effluents and the contamination of nuclear waste. The assumption that Japan, having experienced first-hand the devastating capabilities of atomic power, should have understood these potential dangers has prompted questions about how the country came to allow the construction of nuclear reactors on its soil. How did the atom come to be viewed as safe and productive, rather than dangerous and destructive?

Yuki Tanaka and Peter J. Kuznick address these questions by focusing on the pivotal decade of the 1950s, when President Eisenhower’s “Atoms for Peace” campaign sought to convince skeptics about the potential of peaceful atomic power. Considered together, these two articles also speak to contradictions and resistance in Japanese attitudes toward nuclear power, ironies in the role of the U.S. in influencing such views, and the dynamics of the U.S.-Japan relationship during this immediate postwar decade. Note the absence of discussions about the environmental impact of nuclear power at a time before the expansion of the industry in the 1970s and the Chernobyl disaster of 1986.

Japan, the Atomic Bomb, and the “Peaceful Uses of Nuclear Power”

Yuki Tanaka and Peter Kuznick

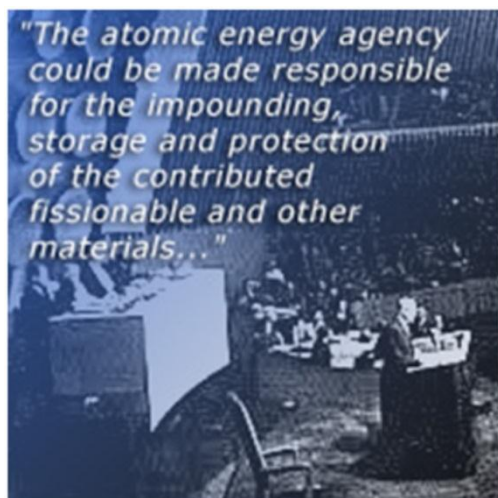
In this two part article Yuki Tanaka and Peter Kuznick explore the relationship between the atomic bombing of Japan and that nation's embrace of nuclear power, a relationship that may be entering a new phase with the 3.11 earthquake, tsunami and nuclear catastrophe at Fukushima.

“The Peaceful Use of Nuclear Energy” and Hiroshima

Yuki Tanaka

The ongoing grave situation at the Fukushima No. 1 Nuclear Power Plant, which continues to contaminate vast areas of surrounding land and sea with high levels of radiation, forces us to reconsider the devastating impact of the so-called “peaceful use of nuclear energy” upon all forms of life, including human beings and nature. The scale of damage to human beings and the environment caused by a major accident at a nuclear power plant, where radiation is emitted either from the nuclear vessel or spent fuel rods, may be comparable to that resulting from nuclear weapons. In this sense, a nuclear power accident can be seen as an “act of indiscriminate mass destruction,” and thus “an unintentionally committed crime against humanity.”

It is well known that the origin of “the peaceful use of nuclear energy” was part of “Atoms for Peace,” a policy that U.S. President Dwight D. Eisenhower launched at the U.N. General Assembly in December 1953.



Eisenhower addresses the UN General Assembly, December 13, 1953

As Peter Kuznick concisely explains in the following article, what the U.S. Government aimed at above all through this policy was to contain the power of the Soviet Union, the nation which carried out the world's first hydrogen bomb test in August that year. Atoms for Peace was devised to assure that Western nations accepted plans by the U.S. government and American capital for the provision of nuclear fuel and technology. Japan was among the most important of these targeted nations, as U.S. government officials recognized that it would be symbolically advantageous to promote “the peaceful use of nuclear energy” in the nation that had been the victim of the world's first atomic bombing. Yet, at the very moment that the U.S. was preparing to introduce this program into Japan, a Japanese fishing boat, the Lucky Dragon #5, was showered with radioactive fallout caused by the U.S. hydrogen bomb

test at Bikini Atoll in March 1954.

This incident stirred Japanese anti-nuclear sentiment, and a campaign against nuclear tests spread throughout Japan. Among the 32 million signers of the anti-nuclear petition were one million from Hiroshima Prefecture. This movement gave rise to the first World Congress Against Atomic and Hydrogen Bombs held in Hiroshima in August in 1955.

At a time of rapidly rising anti-nuclear sentiment in Japan, Shoriki Matsutaro, president of the Yomiuri Newspaper and Japan TV Corporation, emerged to promote the benefits of “the peaceful use of nuclear energy.” Shoriki was elected as a member of the Lower House in the Diet in February 1955, and became the Minister in charge of Nuclear Energy in the Hatoyama cabinet in November. The following year he became the founding Director of the newly established Science and Technology Agency, and vigorously promoted nuclear energy in Japan, collaborating with other pro-nuclear politicians including Nakasone Yasuhiro, then chair of the Nuclear Energy Committee of the Lower House.



Hiroshima was a particular target for promoting nuclear energy, as Peter Kuznick clearly explains. In the eyes of American officials such as AEC Commissioner, Thomas Murray, this could help counter the negative and gloomy images of atomic power. In January 1955, Congressman Sidney Yates proposed building Japan’s first nuclear power plant in Hiroshima. Shoriki, with U.S. government support, organized the traveling exhibition on “The Peaceful Use of Nuclear Energy” in Tokyo in November, and Hiroshima was selected as one of several host cities. For three weeks from the end of May 1956, the exhibition in Hiroshima city attracted 110,000 people from Hiroshima and neighboring prefectures, many of them children on school excursions.



Hiroshima’s Peace Memorial Museum under construction in 1955

Although in other cities the exhibition was sponsored exclusively by the Yomiuri with the assistance of the U.S. Information Service, in Hiroshima co-sponsors also included the Hiroshima City Council, Hiroshima Prefectural Government, Hiroshima University, and the Chugoku Newspaper. Twenty local influential persons, including the Mayor of Hiroshima City, the Governor of Hiroshima Prefecture, the President of Hiroshima University and the President of the Chugoku Newspaper, were on the preparatory committee. All praised the promotion and application of this new powerful energy. By contrast, many A-bomb survivors were skeptical and cautious about this non-military application of nuclear power, claiming that there was still no

solution to the problem of managing radioactive materials produced by operating nuclear power reactors.

Yet, by the time the 2nd World Congress Against A & H Bombs was held in Nagasaki in August in 1956, just two months after the exhibition ended, the A-bomb survivors, too, had been heavily influenced by this nation-wide barrage of “Atoms for Peace.” Even intellectual leaders of the A-bomb victims, such as Moritaki Ichiro, a well-known philosopher and ardent campaigner for the total abolition of nuclear weapons, became supporters of nuclear energy. In his speech at the inaugural meeting of Nippon Hidankyo (the Japan A-bomb Victims Association) during the above-mentioned 2nd World Congress Against A & H Bombs in Nagasaki, Moritaki stated ‘it is our sole wish to direct the use of nuclear energy – an energy source that could bring destruction and annihilation - for the purpose of happiness and prosperity of human beings.’

Two years later, the same exhibition was again presented in Hiroshima by the city council, as part of the Grand Exhibition of the Reconstruction of Hiroshima to celebrate the rebirth of this city that had been totally destroyed by the atomic bombing thirteen years before. This exhibition, which lasted 50 days from April 1, 1958, comprised 31 pavilions including those for Electric Science and Space Exploration. This time, the A-bomb Museum building, completed in August 1955, was used as the pavilion for the Peaceful Use of Nuclear Energy. Thus, in the same building, exhibits related to the devastation caused by the atomic bombing were displayed together with various dream-like applications of nuclear energy. Such things as nuclear powered planes, ships and trains, as well as medical, agricultural and industrial uses of radioactive materials were displayed. In the Electric Science pavilion, the benefits and advantages of electricity generated by nuclear reactors was also propagated. In all, 917,000 people visited the exhibition, and the pavilion of the Peaceful Use of Nuclear Energy was the second most popular after that of Space Exploration.

It appears that most people in Hiroshima, including many A-bomb survivors, now held two implicitly contradictory views: that the campaign against the use of nuclear weapons must continue; but nuclear energy for non-military purposes should be welcomed and promoted. Likewise, at least until recently, many anti-nuclear weapon campaigners in other parts of Japan have shared these views. This explains why A-bomb victim organizations, such as Nippon Hidankyo, still maintain silence concerning the fatal accident at the Fukushima No.1 Nuclear Power Plant, and why none of the post-war mayors of Hiroshima has ever publicly criticized nuclear power. Indeed, some former mayors are widely known as strong supporters of Chugoku Electric Power Company’s plan to build a nuclear power plant at Kaminoseki, about 80 kilometers from Hiroshima City.

It is now time to critically and honestly review the history of the anti-nuclear movement in Hiroshima and to explore ways to unite hitherto divided anti-nuclear and anti-nuclear weapons and energy campaigns.

Japan's nuclear history in perspective: Eisenhower and atoms for war and peace

Peter Kuznick

It is tragic that Japan, the most fiercely antinuclear country on the planet, with its Peace Constitution, three non-nuclear principles, and commitment to nuclear disarmament, is being hit with the most dangerous and prolonged nuclear crisis in the past quarter-century -- one whose damage might still exceed that of Chernobyl 25 years ago. But Japan's antinuclearism has always rested upon a Faustian bargain, marked by dependence on the United States, which has been the most unabashedly pro-nuclear country on the planet for the past 66 years. It is in the strange relationship between these two oddly matched allies that the roots and meaning of the Fukushima crisis lay buried.

Japan embarked on its nuclear energy program during the presidency of Dwight Eisenhower, a man now best remembered, ironically, for warning about the rise of the very military-industrial complex he did so much to create. Eisenhower is also the only US president to have criticized the atomic bombing of Hiroshima and Nagasaki. Fearing the bombings would destroy the prospects for friendly post-war relations with Russia, at one point he advocated international control of atomic energy and turning the existing US stockpile over to the United Nations for destruction.

Yet by the time he took office in 1953, Eisenhower's views on nuclear weapons had changed. Not wanting to see the United States "[choke itself to death piling up military expenditures](#)" and assuming that any war with the Soviet Union would quickly turn nuclear, he shifted emphasis from costly conventional military capabilities to massive nuclear retaliation by a fortified Strategic Air Command. Whereas President Harry Truman had considered nuclear arms to be weapons of last resort, Eisenhower's "New Look" made them the foundation of US defense strategy.

Just like a bullet? On occasion, Eisenhower spoke almost cavalierly about using nuclear weapons. In 1955, [he told](#) a reporter: "Yes of course they would be used. In any combat where these things can be used on strictly military targets and for strictly military purposes, I see no reason why they shouldn't be used just exactly as you would use a bullet or anything else." When Eisenhower [suggested](#) to Winston Churchill's emissary Jock Colville that "there was no distinction between 'conventional' weapons and atomic weapons: all weapons in due course become conventional," Colville recalled, horrified, "I could hardly believe my ears."

Eisenhower began transferring control of the atomic stockpile from the Atomic Energy Commission (AEC) to the military. Europeans were terrified that the United States would start a nuclear war, which Eisenhower threatened to do over Korea, over the Suez Canal, and twice over the Taiwan Strait islands of Quemoy and Matsu. European allies begged Eisenhower to show restraint.

Public revulsion at the normalization of nuclear war threatened to derail the Eisenhower administration's plans. The minutes of a March 1953 meeting of the National Security Council (NSC) [stated](#): "the President and Secretary [John Foster] Dulles were in complete agreement that somehow or other the tabu [sic] which surrounds the use of atomic weapons would have to be destroyed. While Secretary Dulles admitted that in the present state of world opinion we could not use an A-bomb, we should make every effort now to dissipate this feeling."

Atoms for Peace buried in radioactive ash. Eisenhower decided that the best way to destroy that taboo was to shift the focus from military uses of nuclear energy to socially beneficial applications. Stefan Possony, Defense Department consultant to the Psychological Strategy Board, had [argued](#): "the atomic bomb will be accepted far more readily if at the same time

atomic energy is being used for constructive ends" (p. 156). On December 8, 1953, Eisenhower delivered his "Atoms for Peace" speech at the United Nations. He [promised](#) that the United States would devote "its entire heart and mind to find the way by which the miraculous inventiveness of man shall not be dedicated to his death, but consecrated to his life." He pledged to spread the benefits of peaceful atomic power at home and abroad.

But the subsequent March 1954 Bravo test almost derailed those plans. Fallout from the US hydrogen-bomb test contaminated 236 Marshall Islanders and 23 Japanese fishermen aboard the *Daigo Fukuryu Maru* ("Lucky Dragon no. 5"), which was 85 miles away from the detonation and outside the designated danger zone. A panic ensued when irradiated tuna was sold in Japanese cities and eaten by scores of people.



Bravo test at Bikini

The international community was appalled by the bomb test. Belgian diplomat Paul-Henri Spaak warned, "If something is not done to revive the idea of the President's speech -- the idea that America wants to use atomic energy for peaceful purposes -- America is going to be synonymous in Europe with barbarism and horror." Indian Prime Minister Jawaharlal Nehru [declared](#) that US leaders were "dangerous self-centered lunatics" who would "blow up any

people or country who came in the way of their policy."

Eisenhower [told](#) the NSC in May 1954, "Everybody seems to think that we are skunks, saber-rattlers, and warmongers." Dulles [complained](#), "Comparisons are now being made between ours and Hitler's military machine."

Criticism was fiercest in Japan. In Tokyo's Sugunami ward, housewives began circulating petitions to ban hydrogen bombs. The movement caught on across the country. By the next year, an astounding 32 million people, or one-third of Japan's population, had signed petitions against hydrogen bombs.

Long-suppressed rage over the 1945 atomic bombings, squelched by US occupation authorities' total ban on discussion of the bombings, had finally erupted. The Operations Coordinating Board of the NSC [recommended](#) that the United States contain the damage by waging a "vigorous offensive on the non-war uses of atomic energy" and even offer to build Japan an experimental nuclear reactor. AEC Commissioner Thomas Murray concurred, [proclaiming](#), "Now, while the memory of Hiroshima and Nagasaki remain so vivid, construction of such a power plant in a country like Japan would be a dramatic and Christian gesture which could lift all of us far above the recollection of the carnage of those cities."

Selling the peaceful atom in Japan. The *Washington Post* [applauded](#) Murray's idea as a way to "divert the mind of man from his present obsession with the armaments race." "Many Americans are now aware ... that the dropping of the atomic bombs on Japan was not necessary. ... How better to make a contribution to amends than by offering Japan the means for the peaceful utilization of atomic energy. How better, indeed, to dispel the impression in Asia that the United States regards Orientals merely as nuclear cannon fodder!"

Murray and Rep. Sidney Yates (Democrat of Illinois) suggested locating the first electricity-producing nuclear power plant in Hiroshima. In early 1955, Yates [introduced legislation](#) to build a 60,000-kilowatt generating plant there that would "make the atom an instrument for kilowatts rather than killing." By June, the United States and Japan had signed an agreement to work together on research and development of atomic energy.

But selling this idea to the Japanese people would not be so easy. When the US Embassy, US Information Service (USIS), and CIA launched their vigorous campaign to promote nuclear energy in Japan, they turned to Shoriki Matsutaro, the father of Japanese baseball, who ran the *Yomiuri Shimbun* newspaper and the Nippon Television Network. After two years' imprisonment as a Class-A war criminal, Shoriki had been released without trial; his virulent anti-communism helped redeem him in American eyes (see Tetsuo Arima, "Shoriki's Campaign to Promote Nuclear Power in Japan and CIA Psychological Warfare," unpublished paper presented at Tokyo University of Economics, November 25, 2006). Shoriki's newspaper agreed to co-sponsor the much-hyped US exhibit welcoming the atom back to Japan on November 1, 1955 with a Shinto purification ceremony in Tokyo. The US ambassador read a [message from Eisenhower declaring](#) the exhibit "a symbol of our countries' mutual determination that the great power of the atom shall henceforward be dedicated to the arts of peace."

After six weeks in Tokyo, the exhibit traveled to Hiroshima and six other cities. It highlighted the peaceful applications of nuclear energy for generating electricity, treating cancer, preserving food, controlling insects, and advancing scientific research. Military applications were scrupulously avoided. The nuclear future looked safe, abundant, exciting, and peaceful. The turnout exceeded expectations. In Kyoto, the USIS [reported](#), 155,000 people braved snow and rain to attend (p. 176).

The steady spate of films, lectures, and articles proved enormously successful. Officials [reported](#), "The change in opinion on atomic energy from 1954 to 1955 was spectacular ... atom hysteria was almost eliminated and by the beginning of 1956, Japanese opinion was brought to popular acceptance of the peaceful uses of atomic energy" (p. 179).

Such exultation proved premature. Antinuclear organizing by left-wing political parties and trade unions resonated with the public. An [April 1956 USIS survey](#) found that 60 percent of Japanese believed nuclear energy would prove "more of a curse than a boon to mankind" and only 25 percent thought the United States was "making sincere efforts" at nuclear disarmament. The *Mainichi* newspaper [blasted](#) the campaign: "First, baptism with radioactive rain, then a surge of shrewd commercialism in the guise of 'atoms for peace' from abroad." The newspaper called on the Japanese people to "calmly scrutinize what is behind the atomic energy race now being staged by the 'white hands' in Japan."

But intensified USIS activities over the coming years began to bear fruit. A classified report on the US propaganda campaign [showed](#) that in 1956, 70 percent of Japanese equated "atom" with

"harmful," but by 1958, the number had dropped to 30 percent. Wanting their country to be a modern scientific-industrial power and knowing Japan lacked energy resources, the public allowed itself to be convinced that nuclear power was safe and clean. It had forgotten the lessons of Hiroshima and Nagasaki.

In 1954, the Japanese government began funding a nuclear research program. In December 1955, it passed the Atomic Energy Basic Law, establishing the Japan Atomic Energy Commission (JAEC). Shoriki became minister of state for atomic energy and first chair of the JAEC. Japan purchased its first commercial reactor from Britain but quickly switched to US-designed light water reactors. By mid-1957, the government had contracted to buy 20 additional reactors.

In the United States, the AEC aggressively marketed nuclear power as a magic elixir that would power vehicles, feed the hungry, light the cities, heal the sick, and excavate the planet. Eisenhower unveiled plans for an atomic-powered merchant ship and an atomic airplane. In July 1955, the United States generated its first commercial nuclear power. In October 1956, Eisenhower informed the United Nations that the United States had agreements with 37 nations to build atomic reactors and was negotiating with 14 more.

By 1958, the United States was becoming almost giddy with the prospect of planetary excavation under the AEC's Project Plowshare, which proposed to use peaceful nuclear blasts to build harbors, free inaccessible oil deposits, create huge underground reservoirs, and construct a bigger and better Panama Canal. Some wanted to alter weather patterns by exploding a 20-megaton bomb alongside the eye of a hurricane. One Weather Bureau scientist proposed a plan to accelerate melting of the polar icecaps by detonating 10-megaton bombs. Only Eisenhower's reluctance to unilaterally break a Soviet-initiated nuclear test moratorium halted this sheer folly.

Still, Project Plowshare achieved its goals. Lewis Strauss, chairman of the AEC, [admitted](#) that Plowshare was intended to "highlight the peaceful applications of nuclear explosive devices and thereby create a climate of world opinion that is more favorable to weapons development and tests."

Atoms for Peace masks nuclear weapons buildup. Under the cover of the peaceful atom, Eisenhower pursued the most rapid and reckless nuclear escalation in history. The US arsenal went from a little more than 1,000 nuclear weapons when he took office to approximately 22,000 when he left. But even that figure is misleading. Procurements authorized by Eisenhower [continued](#) into the 1960s, making him responsible for the levels reached during the Kennedy administration -- more than 30,000 nuclear weapons. In terms of pure megatonnage, the United States [amassed](#) the equivalent of 1,360,000 Hiroshima bombs in 1961.

Few know that Eisenhower had delegated to theater commanders and other specified commanders the authority to launch a nuclear attack if they believed it mandated by circumstances and were out of communication with the president or if the president had been incapacitated. With Eisenhower's approval, some of these theater commanders had in turn delegated similar authority to lower commanders (I am grateful to Dan Ellsberg for this information). And given the fact that there were then no locks on nuclear weapons, many more people had the actual power, if not the authority, to launch a nuclear attack, including pilots, squadron leaders, base commanders, and carrier commanders.

In 1960, Eisenhower approved the first Single Integrated Operational Plan, which stipulated deploying US strategic nuclear forces in a simultaneous strike against the Sino-Soviet bloc within the first 24 hours of a war. The Joint Chiefs were subsequently asked to estimate the death toll from such an attack. The [numbers](#) were shocking: 325 million dead in the Soviet Union and China, another 100 million in Eastern Europe, 100 million from fallout in Western Europe, and up to another 100 million from fallout in countries bordering the Soviet Union -- more than 600 million in total.

The price of denial. While Americans were preparing for nuclear annihilation, the Japanese were living in their own form of denial. From its shaky beginnings in the 1950s, the Japanese nuclear power industry flourished in the 1960s and 1970s and continued to grow thereafter. Prior to the tsunami-precipitated Fukushima accident last month, Japan had 54 functioning nuclear power reactors that generated 30 percent of its electricity; some projected it would not be long before Japan reached 50 percent. But the terrible nuclear catastrophe in Fukushima has forced the Japanese to deal for a third time with the nightmarish side of the nuclear age and the fact that their nuclear program was born not only in the fantasy of clean, safe power, but also in the willful forgetting of Hiroshima and Nagasaki and the buildup of the US nuclear arsenal.

A reckoning with Japan's nuclear legacy is now taking place. Hopefully, the Japanese will move forward from this tragedy to set a path toward both green energy and repudiation of deterrence under the US nuclear umbrella, much as they blazed a path with their Peace Constitution and antinuclearism following the horrors of World War II.

Peter Kuznick wrote this article for *The Bulletin of Atomic Scientists*, April 13, 2011.

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Yuki Tanaka is Research Professor, Hiroshima Peace Institute, and a coordinator of *The Asia-Pacific Journal*. He is the author most recently of *Yuki Tanaka and Marilyn Young, eds., Bombing Civilians: A Twentieth Century History* as well as of [Japan's Comfort Women](#) and *Hidden Horrors: Japanese War Crimes in World War II*.

“Whole Earth or No Earth: The Origin of the Whole Earth Icon in the Ashes of Hiroshima and Nagasaki”

Robert Jacobs

<http://www.japanfocus.org/-Robert-Jacobs/3505>

March 28, 2011

In the aftermath of the atomic bombings of Hiroshima and Nagasaki, a majority of Japanese people came to see nuclear power as safe and productive even as there were misgivings about nuclear weapons. President Eisenhower's attempts in the 1950s to convince people about the potential of peaceful nuclear power were quite successful and, especially compared to carbon fuels, nuclear energy was considered a relatively inexpensive and environmentally friendly way for Japan to achieve energy self-sufficiency. Robert Jacobs' essay reminds us of the important distinction between responses to nuclear energy, and to nuclear weapons, in the wake of Hiroshima and Nagasaki. The atomic bombings left room for optimism about the future of nuclear energy, but they also reinforced pessimism about the future of nuclear weapons. Jacobs examines how Western editorial cartoons from the 1940s and 1950s that responded to the atomic bombings of Hiroshima and Nagasaki gave birth to the visual icon of the whole earth. Well before photographs of the whole earth became a part of the cultural lexicon in the late 1960s, these cartoon renderings shaped how the earth came to be viewed and understood as a target and victim of nuclear weapons and war. Jacobs stresses the importance of the visual in environmental history, and underscores themes interwoven through many of these essays including the interconnectedness between present debates and battles over the past, and the multi-national or transnational nature of many environmental issues.

Whole Earth or No Earth: The Origin of the Whole Earth Icon in the Ashes of Hiroshima and Nagasaki

Robert Jacobs

*"Once a photograph of the Earth, taken from outside, is available - once the sheer isolation of the Earth becomes known - a new idea as powerful as any in history will be let loose."
--Fred Hoyle, 1950¹*



The Whole Earth, taken by Apollo 17, Dec. 7, 1972²

Introduction

The image of the Whole Earth is one of the most ubiquitous visual icons of the late twentieth century. It is everywhere, on books, posters, advertisements, packaging, and all over the world-wide-web. It is the descendent of such essential early tools of human imagining as the map and the globe, but the Whole Earth is a radical reformulation of those older tools. It is a tool that opens humans to a new perspective about the relationship of the individual to the planet, and to the other creatures living on the planet, especially the other people.

The history of the modern visual image of the Whole Earth derives from photographs taken of the Earth from space. Much as the ability to see deeply into space has completely revised our ideas about the nature of the universe around us, the ability to see our home planet from space, has fundamentally revised our concepts of the nature of the planet on which we live.

Photographs of the Whole Earth entered culture in the late 1960s as a result of the development of satellites and manned space travel. But in this article I will argue that the visual content of the icon of the Whole Earth actually emerged several decades earlier. Before there were color photographs of the Earth from space, the visual image of the Earth as whole was first expressed in a manner we would come to associate with this icon by editorial cartoonists in direct and immediate response to the use of atomic bombs on the Japanese cities of Hiroshima and Nagasaki in 1945.

These cartoonists grasped, as did others, that the threat posed to human civilization by the invention and manufacture of nuclear weapons threatened the people of the Earth in a *holistic* way—it threatened the very existence of life on Earth.

It was instantly clear to people who heard the news of the nuclear destruction of Hiroshima and Nagasaki that something fundamental had changed in human warfare.³ Wars had long taken the lives of the soldiers that fought them, and over time the tactics and weaponry of war had evolved leading to the destruction of cities and various scorched earth tactics. Throughout World War Two, people had fled cities to avoid the destruction being wrought by aerial bombing and crude rockets. But in the atomic age, there was nowhere to flee to; as David Bradley put it, there was "no place to hide."⁴ International law had established a distinction between combatants and noncombatants. Often that line had blurred as cities were attacked by invading armies, and as technology made cities themselves targets. In the atomic age no one was away from the battlefield: the battlefield was the Earth itself. The Cold War threat of a global thermonuclear war involving thousands of weapons detonating in a brief window of time was envisioned as the mechanism that could bring "the end of the world." Nuclear weapons were imagined to hold the collective fate of the world in their hands.

Against this backdrop a new vision of the Earth emerged: the Earth as target, the Earth as victim. In imaginings of a nuclear war, what would be killed was the planet as a whole, and all of its living creatures. While apocalyptic mythologies worldwide had spoken of the potential for global species death, this was hitherto at the discretion of divine forces. With the advent of nuclear weaponry, this power was now in the hands of mundane and flawed human leaders. The future not only looked grim, it looked apocalyptic.

Many people immediately grasped this narrative after the news from Hiroshima and Nagasaki. This study will examine the work of Western editorial cartoonists who not only grasped this idea, but were able to put it into visual form and communicate it to a wide audience, amazingly even in the first week of the atomic age. Their work depicted this Target Earth and examined its dilemma at the hands of the new nuclear weaponry. I would argue that the work of these cartoonists was the very first place where we can begin to see the emergence of the visual icon that would be called the Whole Earth once it was rendered into photographic form. The image of the Whole Earth is the photographic opposite of the image of Target Earth: Target Earth depicted what would die—the Whole Earth depicted what was alive. They are negative images of each other, and in that way, in the dark imaginings of the days, weeks and months after the news from Hiroshima and Nagasaki, we discern primal awareness of the threat of nuclear war that gave

birth to the most life affirming visual icon of the twentieth century. While the image of the Whole Earth had to wait for cameras to be sent up into space on rockets, the content of the icon blew in on the wind along with the fallout from Hiroshima and Nagasaki.

Whole Earth Image Content

As a visual icon, the image of the Whole Earth as seen from space communicates a very complicated set of ideas in a very simple image. This iconography centers on the way in which the image simplifies many of the complexities of human society through the idea of wholeness. Let's examine the most important of these iconographic statements.

The image of the Whole Earth presents a world without the political borders that have for so long defined the way most people envision the world. This old model is of a world of divisions: divisions between countries, religions, races and ethnicity, economic philosophies, and political systems. In the image of the Whole Earth there are no visible borders on the landmasses. The only real division visible on the Earth's surface is between land and sea. It reinforces the idea that the borders we have envisioned between our societies are largely artificial and of human construction. It tells a story about us all being from the same place and living in a common space.

The other border that comes into sharp relief in this image is the separation between the beautiful blue planet and the cold darkness of space. This aspect of the image emphasizes the fragility of life on Earth. The Earth is seen as a small outpost, a delicate planet enveloped by a thin atmosphere in which all of life exists; this is cast against the immensity and emptiness of space. It almost seems as if the iciness of space could swallow the Earth up if we are not lucky, and careful. Rather than an eternal sense of timelessness, the Earth appears to be precarious when cast against such emptiness, giving it a sense of vulnerability. The maintenance of life on this planet would appear to take constant vigilance against powerful forces. It suggests the need for the careful balancing of complex factors to assure continued life here.



A long view of the Earth against the emptiness of space

What these other values combine to ultimately suggest is that all of the creatures alive on Earth share a single common destiny. Apart from our individual destinies, when one considers the long-term welfare of this fragile planet in the darkness of space, either the planet will survive, along with its inhabitants, or it will perish. This is perhaps the most powerful and profound aspect of the iconography of the Whole Earth. If a nuclear war were to break out, the borders so important to humans, between the conflicting parties, and between combatant and non-combatants, would be illusory. The contamination of radioactive fallout would not stop at the borders that humans draw on maps: the planet as a whole would be affected. And in this sense, the victims of nuclear war would be all of the inhabitants of Earth. The *victim* of a nuclear war would be the Earth itself and all its

inhabitants.

Another significant thing to emerge out of such a perspective is the sense of the Earth as a single ecosystem. Whereas previously people may have thought of themselves as living in the mountains, or on an island, or on the plains, consideration of the Whole Earth makes one realize that the problems that affect one segment of the ecosystem may affect all the others. An enlargement of the sense of self accompanies this realization-whereas previously one might identify as a citizen of a certain country, tribe or religion, looking at the image of the Whole Earth can work to change one's social calibration to a more global perspective. Such a perspective is at the root of the debate about global warming. People are aware that their efforts to make changes will not succeed if some countries work against those changes. The solutions must be holistic, systemic, and not restricted by the artificial borders of human map making, war making or voting.

History of the Whole Earth as a Visual Icon

The image of the Whole Earth is taken from photographs of the Earth as seen from space. Before that, our depictions of the Earth were in the form of globes and maps. Topographical globes would show the world without political borders, but much more common have always been the political globes which emphasized the divisions between nations, and presumably, people. These globes have different colors for nations that border each other so that the borders stand more dramatically. There were always bold black lines to define those borders, and in the case of globes made in the United States, thinner lines to divide the nation into states, so that even minor political boundaries are highlighted.

This model of the Earth began to change with the advent of rocket technology in the late 1950s (the first crude rockets were created by the Nazis in the mid-1940s). Not long after humans launched rockets into space, they began to attach cameras to them in order to photograph the Earth. This was done primarily to study weather patterns on Earth, and assist weather prediction and military reconnaissance.

Some of the earlier manned and unmanned space rockets took photographs of the Earth that were published in popular magazines. Typically these were taken too close to the Earth to show the whole blue ball that is familiar to us now. Often these early pictures would show the curvature of the Earth in grainy black and white photographs. The image below shows a still photograph from the very first television pictures taken in space on April 1, 1960 by a satellite for TIROS-1 (Television Infrared Observation Satellite Program), an early NASA effort to gauge the usefulness of satellite observations of the Earth.

Photography was an afterthought on the early manned space missions. John Glenn was the first American astronaut to bring a camera into space on his historic first orbit of the Earth on Mercury-6 (February 20, 1962). This was an Ansco Autoaset 35mm camera (made by Minolta) that was purchased at a drug store near the launch site at Cape Canaveral in Florida not long before take off.⁶

Subsequent to this, photos of the Earth from space became more common, yet tended to focus on showing familiar landmasses from space. Such photographs might show the horn of Africa, or the Florida peninsula; features familiar to readers from a lifetime of seeing maps and globes, now seen as actual photographs from above. This perspective tended to reinforce previously held images about the nature of the Earth rather than to challenge them, as Fred Hoyle's 1950 statement in the opening quote encouraged.



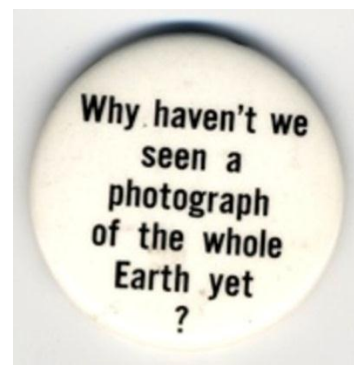
TIROS-1 (April 1, 1960)⁵

Hoyle's idea sprouted one day in the mind of a counterculture visionary (though the Hoyle quote was unknown to him at the time). Stewart Brand had been a member of the legendary sixties crew the Merry Pranksters led by Ken Kesey and Ken Babbs. An organizer of the Trips Festivals, held in 1965-6. Brand recounts that in February of 1966, he was doing LSD sitting on the roof of his apartment building in San Francisco's North Beach and looking at the San Francisco skyline. Dwelling on a point made at a Buckminster Fuller lecture that he had recently attended in Santa Fe, New Mexico, Brand noticed that the buildings were not parallel, because the Earth beneath them was curved. Brand remembered that Fuller claimed that, "people perceived the Earth as flat and infinite, and that that was the root of all their misbehavior. Now, from my altitude of three stories and one hundred miles I could *see* that it was curved, think it, and finally feel it."⁷ Brand expanded his initial vision from that seed-point, realizing that "the more altitude I got, the more I would see that curvature until the curvature closed and you saw the whole thing."⁸

Still tripping, Brand conceived of making buttons to promote this vision. At first he phrased his statement, "Take a photograph of the entire Earth." But this didn't feel right. He didn't like the word "entire." Then the phrase came to him, "Why haven't we seen a photograph of the whole Earth yet?" Thus coining the term that would have almost as much cultural clout as the image it described. Brand had several hundred of the buttons manufactured and he put them on a sandwich board and began to sell them at Sather Gate of the University of California at Berkeley. He sent them to NASA administrators, members of Congress, Soviet scientists and diplomats, Buckminster Fuller, Marshall McLuhan and UN officials. He eventually brought his sandwich board to other college campuses, selling his buttons at Stanford, Harvard, Columbia and MIT.

The very first photographs that show the Whole Earth as we now recognize it were taken during the historic Apollo 8 mission in December of 1968. This was the first rocket that circled the Moon and returned to Earth. When it passed behind the Moon, it was cut off from radio contact with the Earth for four minutes, a tense time for NASA scientists and for the huge television audience watching at home.

After the third revolution, a historic moment occurred. It was early evening on Christmas Eve. The astronauts showed the television audience what they could see from their window, a half Earth rising above the lunar surface. Then the three astronauts offered a memorable reading. "For all the people on Earth," stated astronaut William A. Anders, "the crew of Apollo 8 has a message we would like to send you." The three astronauts then took turns reading the first eight verses of the book of Genesis, and when they had finished, crew commander Frank Borman concluded, "And from the crew of Apollo 8, we close with good night, good luck, a Merry Christmas, and God bless all of you - all of you on the good Earth."¹⁰



Stewart Brand's Whole Earth Button, 1966⁹

Poet Archibald MacLeish wrote about the color images coming back from Apollo 8 on the front page of the *New York Times* the next day, Christmas 1968, "To see the earth as it truly is: small and blue and beautiful in that eternal silence where it floats, is to see ourselves as riders on the earth together, brothers on that bright loveliness in the eternal cold. Brothers who know they are truly brothers."¹¹

Among the most widely reprinted photographs from that historic space mission was one known as the "Earthrise" photograph taken with the Moon in the foreground. This was important, according to Brand, because it showed the "clearly living Earth over the edge of a clearly dead planet."¹²



"Earthrise" photo from Apollo 8, December 1969

to this powerful visual icon.

This image was virtually omnipresent for Americans in the next few years as it was reprinted on a US postage stamp, and for several years CBS news anchor Walter Cronkite used it as the backdrop to his show.

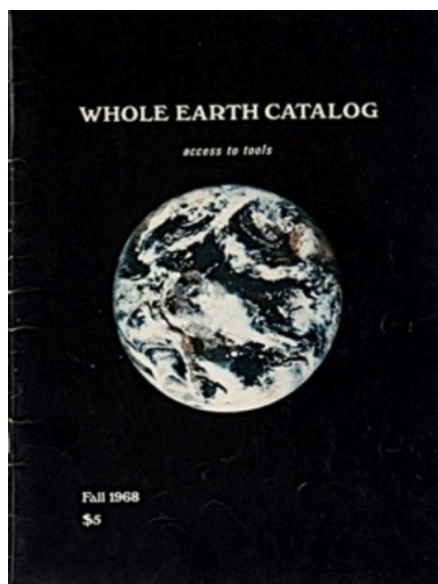
Among the first artists to use the image of the Whole Earth as a powerful visual iconic tool was Stanley Kubrick in his 1968 masterpiece, *2001: A Space Odyssey*.¹³ This film, among the most philosophically speculative and visually striking movies ever made, has several scenes that feature the partial images of the Whole Earth that were available to Kubrick at the time of production. For many of the viewers who saw *2001* in the theaters, this was their first exposure



The Star Child encounters the Whole Earth in *2001: A Space Odyssey*

Kubrick uses the image of the Whole Earth as a backdrop to scenes set on the Moon early in the movie, but the most dramatic use of the icon was in the film's conclusion.¹⁴ In this scene, astronaut Dave Bowman has gone through the abstract series of moments that follow his attempts to land on the "monolith" which is orbiting Jupiter, and sending radio signals to some unknown distant destination. Bowman's journey into the monolith takes him through a series of time and space distorting changes, including a journey through his own life from infancy to old age and death. Bowman is then reborn as the Star Child, which appears to be the next step in the evolution of human consciousness. The Star Child is depicted as a fetus floating in space in an amniotic sack. The Star Child turns to consider the Whole Earth floating in front of it, both glowing a bright blue-white. The two appear as newborn versions of Man and Earth, face-to-face, ready to be born into a future of unthinkable possibilities.¹⁵

2001 was widely heralded as a film about "the future of humanity," and among the visual tools that informed viewers that they were looking at the future was the image of the Whole Earth as seen from space.



***The Whole Earth Catalog* (1968)**

Also in 1968, Stewart Brand would publish his counterculture classic, *The Whole Earth Catalog*.¹⁶ This virtual guide to the counterculture lifestyle of the 1960s would go through several editions (eventually selling 2.5 million copies), and win the National Book Award for its 1972 edition. In his 2005 commencement speech at Stanford University, Apple Computer co-founder Steve Jobs said of the *Whole Earth Catalog*, "It was sort of like Google in paperback form, 35 years before Google came along."¹⁷ The *Whole Earth Catalog* put a photograph taken by a satellite in 1967 on its cover, and also put the phrase "Whole Earth" into public discourse. It began with the statement, "We are as gods and might as well get used to it."¹⁸

One of the immediate impacts of the entry of the image and concept of the Whole Earth into popular culture was Earth Day. The first Earth Day was celebrated on April 22, 1970 in many different cities in the United States and several other

countries. This was a day intended to heighten awareness of environmental issues in the public mind, and also to "celebrate the Earth." Twenty million Americans took part in the first Earth Day, on hundreds of college campuses, high schools and in city parks.¹⁹

Stewart Brand had gotten many of his ideas, and much of his inspiration for the *Whole Earth Catalog* from the work of Buckminster Fuller. Fuller was a technologist, and a visionary who held many patents, had invented the geodesic dome, and had a knack for reframing traditional concepts. Fuller had spoken for years of what he called "Spaceship Earth." British economist Barbara Ward paraphrased Fuller's ideas in her presentation at the sixth series of the George B. Pegram Lectures at Columbia University in 1965. Ward titled her lecture series "Spaceship Earth," after Fuller's phrase, and explained his perspective that:

The most rational way of considering the whole human race today is to see it as a ship's crew of a single spaceship on which all of us, with a remarkable combination of security and vulnerability, are making our pilgrimage through infinity. Our planet is not much more than the capsule within which we have to live as human beings if we are to survive the vast space voyage upon which we have been engaged for hundreds of millennia - but without yet noticing our condition.²⁰

Fuller added another critical perspective to the spaceship concept, "Spaceship Earth was so extraordinarily well invented and designed that to our knowledge humans have been on board it for two million years not even knowing that they were on board a ship. And our spaceship is so superbly designed as to be able to keep life regenerating on board despite the phenomenon, entropy, by which all local physical systems lose energy."²¹

Here Fuller was foreshadowing the theory that would come to provide much of the intellectual framework for the ideas encoded in the content of the Whole Earth icon; the "Gaia hypothesis" of James Lovelock. A consultant at the Jet Propulsion Laboratories of the California Institute of Technology in Pasadena during the early and mid 1960s, Lovelock was working on the problem of formulating methods to determine if there was life on Mars. The method that Lovelock and others designed involved the use of atmospheric analysis as a means of life-detection. This theory was based on the idea that a key outward sign of the presence of life on a planet would be a local reduction of entropy:

The design of a universal life-detection experiment based on entropy reduction seemed at this time to be a somewhat unpromising exercise. However, assuming that life on any planet would be bound to use fluid media - oceans, atmosphere, or both - as conveyor belts for raw materials and waste products, it occurred to me that some of the activity associated with concentrated entropy reduction within a living system might spill over into the conveyor belt regions and alter their composition. The atmosphere of a life-bearing planet would thus become recognizably different from that of a dead planet.²²

Lovelock and his colleague Dian Hitchcock then proceeded to use the Earth as a model to test the theory. "Our results convinced us that the only feasible explanation of the Earth's highly improbable atmosphere was that it was being manipulated on a day-to-day basis from the surface, and the manipulator was life itself."²³

Turning this technique to an analysis of Mars, it was easy to conclude from a simple atmospheric analysis performed from Earth, that there was no life currently on Mars. But what interested

Lovelock was no longer Mars, but the Earth. Lovelock began to focus on this problem in 1966 while on a grant from Shell Research Limited. Lovelock's work led him to the:

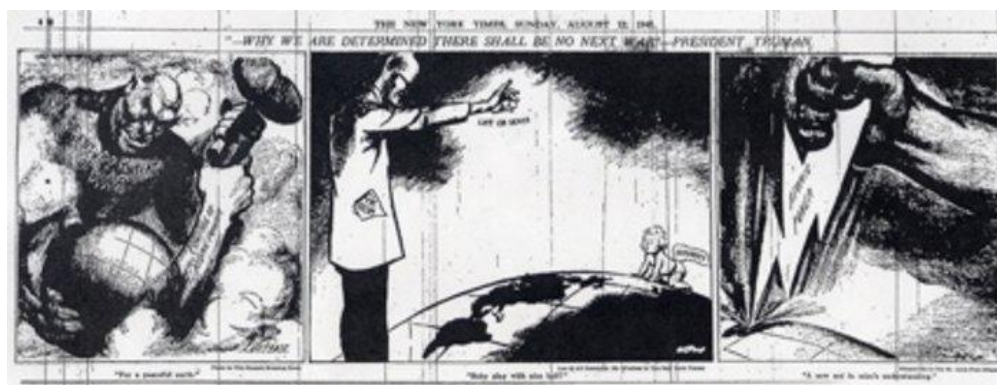
development of the hypothesis that the entire range of living matter on Earth, from whales to viruses, and from oaks to algae, could be regarded as constituting a single living entity, capable of manipulating the Earth's atmosphere to suit its overall needs and endowed with faculties and powers far beyond those of its constituent parts....that the Earth's atmosphere is actively maintained and regulated by life on the surface, that is, by the biosphere.²⁴

Lovelock felt that this single entity (life, the biosphere) needed a name. His neighbor in Wiltshire the Nobel Prize winning novelist William Golding, "recommended that the creature be called Gaia, after the Greek Earth goddess also known as Ge, from which root the sciences of geography and geology derive their names....By now a planet-sized entity, albeit hypothetical, had been born."²⁵

Lovelock's Gaia hypothesis caught the fascination of the public during the 1980s, and by the 1990s it had become a common name in the American environmental movement for the Earth. While few could cite the basis for the theory, many could sum up its implications as describing "mother Earth," or the "Earth goddess." The implications of the Gaia hypothesis gave seeming scientific grounding to the wholeness many had perceived in looking at the image of the Whole Earth. Certainly, of the many books published each year with the word "Gaia" in the title, few do not have the image of the Whole Earth on their cover (although Lovelock's book did not).

The Cartoons

On Sunday August 12, 1945, the *New York Times* published the following three editorial cartoons together, just as they are reprinted below.



New York Times, Sunday August 12, 1945²⁶

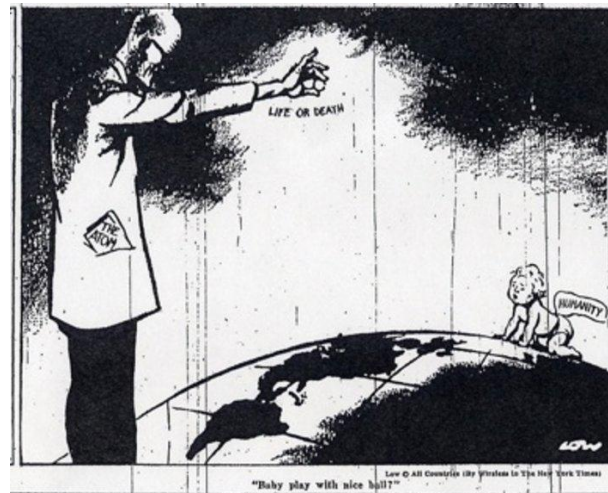


New York Times, Sunday August 12, 1945²⁷

All three cartoons, by three different cartoonists, offer visions of the impact of the new atomic bomb on human civilization. The first is by Lute Pease, who would win the Pulitzer Prize for editorial cartoons in 1949. Showing a devilish character named "Future Threat of War" being restrained from hammering the Earth by a hand named "Control of Atomic Power," the caption reads, "For a perfect earth." The point is that the future of war in the atomic era threatens the Earth as a whole, and only control of atomic power can keep that threat in check.

The second is by Sir David Cecil Low, originally of New Zealand, who worked in England. His cartoons were reprinted in the *New York Times* for almost a decade during the 1940s. This cartoon shows a man dressed as a scientist standing astride the Earth. A paper in his pocket is titled "The Atom," and he is addressing a baby named "Humanity," and offering the baby a ball named "Life or Death." He tempts the baby with the

question, "Baby play with nice ball?" The implication of this cartoon is clear; playing with "the atom" is a life or death game for immature humanity.



New York Times, Sunday August 12, 1945²⁸

In the third cartoon, a heavenly hand is striking the Earth with a lightning bolt named "Atomic Power." The caption reads, "A new era in man's understanding." The cartoonist, Daniel Fitzpatrick had won the Pulitzer Prize for editorial cartoons in 1926 and would win it again the year that this cartoon was printed, 1945.



New York Times, Sunday August 12, 1945²⁹



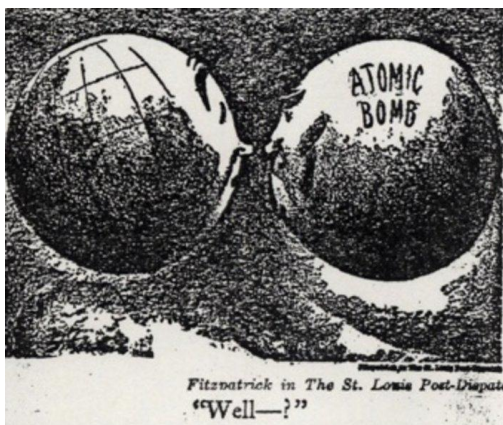
New York Times, August 12, 1945³¹

Two pages further into that Sunday's *New York Times*, the first Sunday issue after the bombings of Hiroshima and Nagasaki, is another cartoon reprinted from *The Philadelphia Record*, drawn by cartoonist Jerry Doyle, among the most prolific cartoonists of the New Deal era. Here we see the giant hand named "Science" holding the Earth, which is named "The Future of Civilization." The caption reads, "In the palm of his hand." Much as in the iconography of the Whole Earth, the fate of human civilization appears to be a collective one and here, science is the God that will determine the future of humanity.

While the specific focus of the cartoons differs, a striking common feature is their depiction of the Earth in all four cartoons. All of the cartoons show the Earth exhibiting visual content that perfectly foreshadows, albeit in black and white, the later icon of the Whole Earth. The emphasis on the Earth as a place of separate nations is gone. In each cartoon, the Earth is present as a single entity that is forced to deal with the advent of atomic weapons. It is clear that in each, the destiny of all the people in the world is a common destiny. Even in the one cartoon in which landforms are depicted, "Baby play with nice ball," the baby is not located in one specific country and there are no political borders, only the division between land and sea. In all of the cartoons, the Earth is a whole planet with a grid, a traditional means of establishing three-dimensionality in a two-dimensional image, but one that also emphasizes the continuity and equality of the different locations.

In early October of 1945 the *St. Louis Post-Dispatch* printed another cartoon by Daniel Fitzpatrick, in which the Earth hangs in space facing an equally large, and menacing sphere named "Atomic Bomb," each in the form of a human face. The worried Earth looks at the Atomic Bomb and asks, "Well__?" The Earth is

seeking to determine its destiny at the hands of this new threat, which is as large and powerful as the whole planet itself. Again the planet is shown as having a grid, no individual nations, and in this case, it is depicted as a single being.



St. Louis Post-Dispatch, October 10, 1945³²



The Saturday Review of Literature,
March 30, 1946³³

As the world moved into the Atomic Age, such depictions became more common. This cartoon by Roy Justus, originally printed in the *Minneapolis Star Journal*, and reprinted here from a March 1946 review of the booklet *One World or None* in *The Saturday Review of Literature*, depicts the world as a dog under stress. This dog/world is named "World Politics" and seems helplessly under the control of its tail, named "Atomic Bomb." The caption advises that, "The tail does wag the dog."

Again the world has a grid and no borders between nations. It is a single being and the fate of world politics is clearly a collective one.

Perhaps no Cold War cartoonist went further with this new visual construct of the world than did Herbert Block, better known as Herblock of the *Washington Post*. In a cartoon from 1949, a bomb-shaped character that Block would use repeatedly (*Atom*), is seen as far bigger and more powerful than the puny Earth. Atom is holding the Earth, which has four birthday candles on it to symbolize the number of years since the bombing of Hiroshima and is speaking to an Everyman who hangs his head while holding a newspaper that reports that the UN has given up on atomic control. Atom has a downright menacing look on his face as he asks the human, "Want to see me blow out everything with one puff?"³⁴

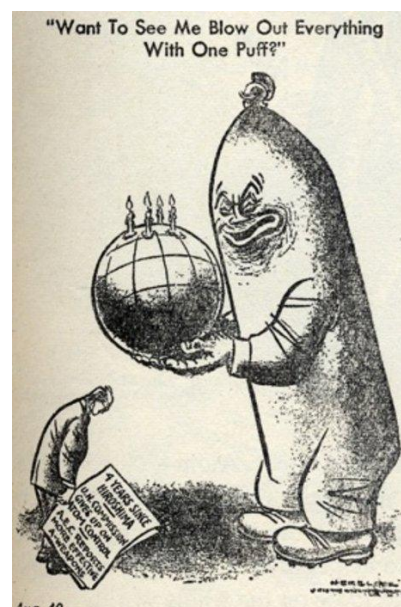
The theme of nuclear weapons holding the world's collective fate in its hands was a continual theme in Herblock's work. A 1953 cartoon shows a hand, far bigger than the Earth, and far bigger than Atom's hands, named "H-bomb." This hand is tossing the world up and down in its hand like a ball. Again, the Earth is a globe with a grid rather than nations, and it would be hard to imagine that the fate of any part of it would be different than the fate of any other part in the face of such a threat.³⁶

There were political movements contemporary to these cartoons that helped to inform and give substance to their iconography. Not long after the bombing of Hiroshima and Nagasaki, the World Government movement emerged as a direct response to the new weapons. Many social leaders, and especially scientific leaders believed that a single world government was the only way to avoid an arms race and eventual nuclear war between two or more competing nations. The United Nations Atomic Energy Commission began its first session ever being lectured that its mission was to choose between "the quick and the dead."

An example of this advocacy can be seen in the 1946 booklet, *One World or None*. This booklet, published through the Federation of American Scientists, includes contributions from Harold Shapley, Einstein, Leo Szilard and many others who had become well known following the atomic bombing of Hiroshima and Nagasaki. Part of the piece written by the "Father of the Atomic Bomb," J. Robert Oppenheimer, amply illustrates the arguments of the book:

The vastly increased powers of destruction that atomic weapons give us have brought with them a profound change in the balance between national and international interests. The common interest of all in the prevention of atomic warfare would seem immensely to overshadow any purely national interest, whether of welfare or of security. At the same time it would seem of most doubtful value in any long term to rely on purely national methods of defense for insuring security,...The true security of this nation, as of any other will be found, if at all, only in the collective efforts of all.³⁷

However, having completed their work on the atomic bomb, the US government was not particularly interested in the political opinions of Oppenheimer and the other Manhattan Project scientists. The United States pursued a security policy of national rather than international welfare and embraced nuclear weaponry as a key to American empire and dominance. They adhered to the traditional globe-based view of the world as divided by thick black lines drawn along national borders. The only scientists who were to be continually welcomed into the world of political advising were those (like Lawrence and Teller) who advocated conceptions of national security based in the Cold War logic of increased armaments and an expansive military rather than one based in considering the welfare of the "collective" planet and global society.



Washington Post, August 1949³⁵



Washington Post, August 11, 1953

Conclusions: Target Earth

I have collected dozens of such editorial cartoons printed between August of 1945 and 1963, all of them predating even the oldest of the photographs of the Earth from space. In these cartoons, the Earth is depicted, not as the Whole Earth we would recognize, with all of its attributes of life: the "blue bubble of air" that Archibald MacLeish spoke of on the front page of the *New York Times* on Christmas Day of 1968, the mythical goddess Gaia that would come to be associated with the stunning photographs of the Whole Earth from space. What we see in these political cartoons is *Target Earth*, the Earth as the target of nuclear war. Here lies the true origin of the icon we have come to know as the Whole Earth as the feared victim of nuclear weapons. The threat of nuclear war created a narrative of global death, of collective death, of a death that would encircle the globe, oblivious to the political borders we humans had imagined as so real, indeed, for which we had fought and died.

Considering the challenges of the new Atomic Age, Albert Einstein advised in 1945 that, "The situation calls for a courageous effort, for a radical change in our whole attitude, in the entire political concept...Otherwise human civilization will be doomed."³⁸ The second half of the twentieth century, dominated by the logics and funding demands of the Cold War seemed to reinforce Einstein's warning that only doom lay ahead. But a counter-narrative also was born in 1945—a narrative of the Earth as a single being, whose destiny was inseparable from those of all its inhabitants. This icon, soon to be seen in photographs and given a name, articulated the idea of one world in a visual image that could be embraced by people of any culture.

This icon had no strength by itself to counter the brutal destructiveness of nationalist-driven war, only people do. Relocating our sense of identity from that of members of a nation to that of beings of a single planet, however, is a necessary step that can empower us to continue to take more steps.

This is a revised, expanded and fully illustrated version of a chapter that appeared in, Robert Jacobs, ed. [Filling the Hole in the Nuclear Future: Art and Popular Culture Respond to the Bomb](#) (Lanham, MD: Lexington Books, 2010).

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Notes

¹ Fred Hoyle, *The Nature of the Universe* (Oxford: Blackwell, 1950).

² [Nasa website](#).

³ See, Robert Jacobs, "Dodging Dystopia: The Role of Nuclear Narratives in Averting Global Thermonuclear Warfare," in, Antony Adolf, ed., [Nonkilling History: Shaping Policy with Lessons from the Past](#) (Honolulu: The Center for Global Nonviolence, 2010) 219-236.

⁴ David Bradley, *No Place to Hide* (Boston: Little, Brown and Company, 1948).

⁵ [Nasa website](#).

⁶ Gary H. Kitmacher, "Astronaut Still Photography During Apollo," August 2004. See also, Neil Maher, "Shooting the Moon," *Environmental History* 9:3 (July 2004): 526-31.

⁷ Stewart Brand, "'Why Haven't We Seen the Whole Earth Yet?'" in, Lynda Obst, ed., *The Sixties: The Decade Remembered Now, By the People Who Lived It Then* (New York: Random House/Rolling Stone Press, 1977), 168.

⁸ Author interview, Stewart Brand, Sausalito, California, March 2006.

⁹ From ["Whole Earth Button," on Stewart Brand's website.](#)

¹⁰ ["Orbiting the Moon Christmas Eve,"](#) *Apollo Expeditions to the Moon.*

¹¹ Archibald MacLeish, "Bubble of Blue Air," *New York Times*, December 25, 1968, 1.

¹² Author interview, Stewart Brand, Sausalito, California, March 2006.

¹³ Stanley Kubrick, director, *2001: A Space Odyssey*, 1968 (MGM). The film premiered in Washington D.C. on April 2, 1968, two days before the assassination of Martin Luther King, Jr.

¹⁴ Kubrick obtained photographs of the partial Earth from the Air Force Cambridge Research Laboratories. See, Jerome Agel, ed., *The Making of Kubrick's 2001* (New York: New American Library, 1970), 321.

¹⁵ In the novelized version of the film, Arthur Clarke includes a sequence at this point in which nuclear weapons are launched from the Earth, but the Star Child simply eliminates them, thus presenting the new human as able to transcend the nuclear dilemma. See, *Arthur C. Clarke, 2001: A Space Odyssey* (New York: New American Library, 1968).

¹⁶ Stewart Brand, ed., *Whole Earth Catalog* (Menlo Park: The Portola Institute, 1968). See, also, Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopia* (Chicago: University of Chicago Press, 2006).

¹⁷ [Steve Jobs, "You've Got to Find What You Love,"](#) Stanford University Commencement Speech, June 15, 2005.

¹⁸ *Whole Earth Catalog*, 1.

¹⁹ Jack Lewis, "The Birth of the EPA," originally printed in the EPA Journal in November 1985, reprinted at [EPA.gov](#).

²⁰ Barbara Ward, *Spaceship Earth* (New York: Columbia University Press, 1966), 15. See also, Barbara Ward and Rene Dubos, *Only One Earth: The Care and Maintenance of a Small Planet* (New York: W.W. Norton and Co., 1972).

²¹ Buckminster Fuller, *Operating Manual for Spaceship Earth* (Carbondale: Southern Illinois University Press, 1969), 50.

²² James Lovelock, *Gaia: A New Look at Life on Earth* (Oxford: Oxford University Press, 1979), 6

²³ *Ibid.*, 6.

²⁴ *Ibid.*, 9.

²⁵ *Ibid.*, 10. Golding would win the Nobel Prize in 1983.

²⁶ *New York Times*, August 12, 1945, Sec. 4, 4E. They are reprinted by the *Times* from three different newspapers, the first from *The Newark Evening News*, the second from the *New York Times* itself, and the third from the *St. Louis Post-Dispatch*.

²⁷ *New York Times*, August 12, 1945, Sec. 4, 4E.

²⁸ *New York Times*, August 12, 1945, Sec. 4, 4E. They are reprinted there from three different newspapers, the first from *The Newark Evening News*, the second from the *New York Times* itself, and the third from the *St. Louis Post-Dispatch*.

²⁹ *New York Times*, August 12, 1945, Sec. 4, 4E.

³⁰ *New York Times*, August 12, 1945, Sec. 4, 6E.

³¹ *New York Times*, August 12, 1945, Sec. 4, 6E.

³² *St. Louis Post-Dispatch*, Oct. 10, 1945, 2C.

³³ *The Saturday Review of Literature*, March 30, 1946, 8.

³⁴ Reprinted in, Herbert Block, *The Herblock Book* (Boston: Beacon Press, 1952), 33.

³⁵ *Washington Post*, August 1945.

³⁶ Reprinted in, Herbert Block, *Herblock's Here and Now* (New York: Simon and Schuster, 1955), 193.

³⁷ Dexter Masters and Katharine Way, eds., *One World or None* (New York: Whittlesey House/McGraw Hill Book Co., 1946), 25.

³⁸ Albert Einstein, "The War Is Won But Peace Is Not," *Essays in Humanism* (New York: Philosophical Library, 1950), 65-8. This is reprinted from an address originally presented at the Fifth Nobel Anniversary Dinner at the Astor Hotel, New York City, December 10, 1945.

“Science with a Skew: The Nuclear Power Industry After Chernobyl and Fukushima”

Gayle Greene

<http://www.japanfocus.org/-Gayle-Greene/3672>

January 2, 2012

One might expect that the nuclear disasters at Chernobyl in 1986 and Fukushima in 2011 would have fundamentally shifted conversations about the environmental safety and desirability of nuclear power; claims made in the immediate aftermath of Hiroshima and Nagasaki about the harmless and peaceful atom would have had to evolve to account for the environmental and human devastation caused by these two events. Yet there has been a striking degree of consistency in the scientific arguments made by proponents of nuclear power, as Gayle Greene reveals in this essay. Greene takes aim at the science marshaled by advocates of nuclear power and at media coverage that she suggests has allowed misunderstandings about the safety of nuclear power to endure. Reading this essay alongside the newspaper articles it discusses will illuminate the contours of the scientific debate about the health effects of both nuclear disasters and the kind of low-dose, radiation exposure over time that comes from working in the industry, living close to a reactor, or coming into contact with winds, groundwater, or food contaminated by nuclear waste. Greene reminds us about the historical and contemporary disagreements about the dangers to the environment and people posed by nuclear power, and takes a side in this debate with her plea to appreciate fully the human costs at stake.

Science with a Skew: The Nuclear Power Industry After Chernobyl and Fukushima

Gayle Greene

It is one of the marvels of our time that the nuclear industry managed to resurrect itself from its ruins at the end of the last century, when it crumbled under its costs, inefficiencies, and mega-accidents. Chernobyl released hundreds of times the radioactivity of the Hiroshima and Nagasaki bombs combined, contaminating more than 40% of Europe and the entire Northern Hemisphere.¹ But along came the nuclear lobby to breathe new life into the industry, passing off as “clean” this energy source that polluted half the globe. The “fresh look at nuclear”—in the words of a New York Times makeover piece (May 13, 2006)²—paved the way to a “nuclear Renaissance” in the United States that Fukushima has by no means brought to a halt.

That mainstream media have been powerful advocates for nuclear power comes as no surprise. “The media are saturated with a skilled, intensive, and effective advocacy campaign by the nuclear industry, resulting in disinformation” and “wholly counterfactual accounts...widely believed by otherwise sensible people,” states the 2010-2011 World Nuclear Industry Status Report by Worldwatch Institute.³ What is less well understood is the nature of the “evidence” that gives the nuclear industry its mandate, Cold War science which, with its reassurances about low-dose radiation risk, is being used to quiet alarms about Fukushima and to stonewall new evidence that would call a halt to the industry.

Consider these damage control pieces from major media:

- The “miniscule quantities” of radiation in the radioactive plume spreading across the U.S. pose “no health hazard,” assures the Department of Energy (William Broad, “Radiation over U.S. is Harmless, Officials Say,” NYT, March 22, 2011).
- “The risk of cancer is quite low, lower than what the public might expect,” explains Evan Douple, head of the Radiation Effects Research Foundation (RERF), which has studied the A-bomb survivors and found that “at very low doses, the risk was also very low” (Denise Grady, “Radiation is everywhere, but how to rate harm?” NYT, April 5, 2011).
- An NPR story a few days after the Daiichi reactors destabilized quotes this same Evan Douple saying that radiation levels around the plant “should be reassuring. At these levels so far I don’t think a study would be able to measure that there would be any health effects, even in the future.” (“Early radiation data from near plant ease health fears,” Richard Knox and Andrew Prince, March 18, 2011) The NPR story, like Grady’s piece (above), stresses that the Radiation Effects Research Foundation has had six decades experience studying the health effects of radiation, so it ought to know.
- British journalist George Monbiot, environmentalist turned nuclear advocate, in a much publicized debate with Helen Caldicott on television and in the *Guardian*, refers to the RERF data as “scientific consensus,” citing, again, their reassurances that low dose radiation incurs low cancer risk.⁴

Everyone knows that radiation at high dose is harmful, but the Hiroshima studies reassure that risk diminishes as dose diminishes until it becomes negligible. This is a necessary belief if the nuclear industry is to exist, because reactors release radioactive emissions not only in accidents, but in their routine, day-to-day operations and in the waste they produce. If low-dose radiation is

not negligible, workers in the industry are at risk, as are people who live in the vicinity of reactors or accidents—as is all life on this planet. The waste produced by reactors does not “dilute and disperse” and disappear, as industry advocates would have us believe, but is blown by the winds, carried by the tides, seeps into earth and groundwater, and makes its way into the food chain and into us, adding to the sum total of cancers and birth defects throughout the world. Its legacy is for longer than civilization has existed; plutonium, with its half life of 24,000 years, is, in human terms, forever.

What is this Radiation Effects Research Foundation, and on what “science” does it base its reassuring claims?

The Atomic Bomb Casualty Commission (ABCC), as it was originally called, began its studies of the survivors five years after the bombings. (It was renamed the Radiation Effects Research Foundation in the mid seventies, to get the “atomic bomb” out, at around the same time the Atomic Energy Commission (AEC) was renamed the Department of Energy (DOE). Japan, which has the distinction of being twice nuked, first as our wartime enemy then in 2011 as our ally and the recipient of our GE reactors, has also been the population most closely studied for radiation-related effects, for the Hiroshima and Nagasaki bombings created a large, ready-made population of radiation-exposed humans. “Ah, but the *Americans*—they are wonderful,” exclaimed Japan’s radiation expert Tsuzuki Masao, who lamented that he’d had only rabbits to work on: “It has remained for them to conduct the *human* experiment!”⁵

The ABCC studied but did not treat radiation effects, and many survivors were reluctant to identify themselves as survivors, having no wish to bare their health problems to US investigators and become mired in bureaucracy and social stigma. But sufficient numbers did voluntarily come forth to make this the largest—and longest—study of radiation-related health effects ever. No medical study has had such resources lavished on it, teams of scientists, state of the art equipment: this was Atomic Energy Commission (AEC) funding. Since it is assumed in epidemiology that the larger the sample, the greater the statistical accuracy, there has been a tendency to accept these data as the gold standard of radiation risk.

The Japanese physicians and scientists who’d been on the scene told horrific stories of people who’d seemed unharmed, but then began bleeding from ears, nose, and throat, hair falling out by the handful, bluish spots appearing on the skin, muscles contracting, leaving limbs and hands deformed. When they tried to publish their observations, they were ordered to hand over their reports to US authorities. Throughout the occupation years (1945-52) Japanese medical journals were heavily censored on nuclear matters. In late 1945, US Army surgeons issued a statement that all



ABCC examination of Hiroshima victim

people expected to die from the radiation effects of the bomb had already died and no further physiological effects due to radiation were expected.⁶ When Tokyo radio announced that even people who entered the cities after the bombings were dying of mysterious causes and decried the weapons as “illegal” and “inhumane,” American officials dismissed these allegations as Japanese propaganda.⁷

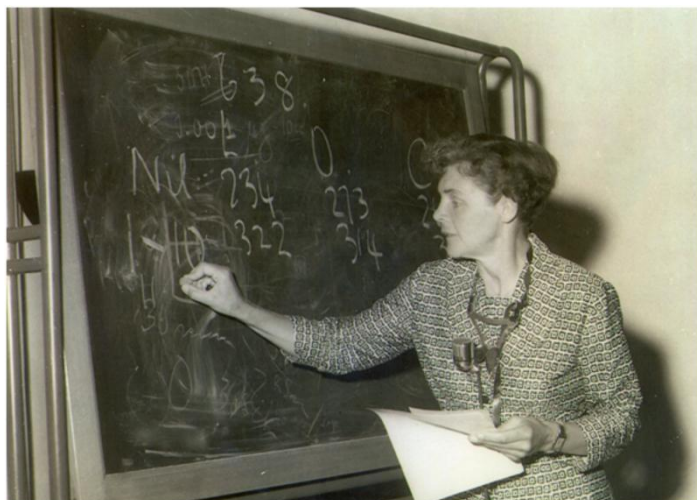
The issue of radiation poisoning was particularly sensitive, since it carried a taint of banned weaponry, like poison gas. The A-bomb was not “an inhumane weapon,” declared General Leslie Groves, who had headed the Manhattan project.⁸ The first western scientists allowed in to the devastated cities were under military escort, ordered in by Groves. The first western journalists allowed in were similarly under military escort. Australian journalist Wilfred Burchett, who managed to get in to Hiroshima on his own, got a story out to a British paper, describing people who were dying “mysteriously and horribly” from “an unknown something which I can only describe as the atomic plague... dying at the rate of 100 a day,” General MacArthur ordered him out of Japan; his camera, with film shot in Hiroshima, mysteriously disappeared.⁹

“No Radioactivity in Hiroshima Ruin,” proclaimed a New York Times headline, Sept 13, 1945. “Survey Rules out Nagasaki Dangers,” stated another headline: “Radioactivity after atomic bomb is only 1000th of that from luminous dial watch,” Oct 7, 1945.¹⁰ There were powerful political incentives to downplay radiation risk. As State Department Attorney William H. Taft asserted, the “mistaken impression” that low-level radiation is hazardous has the “potential to be seriously damaging to every aspect of the Department of Defense’s nuclear weapons and nuclear propulsion programs... it could impact the civilian nuclear industry... and it could raise questions regarding the use of radioactive substances in medical diagnosis and treatment.”¹¹ A pamphlet issued by the Atomic Energy Commission in 1953 “insisted that low-level exposure to radiation ‘can be continued indefinitely without any detectable bodily change.’”¹² The AEC was paying the salaries of the ABCC scientists and monitoring them “closely—some felt too closely,” writes Susan Lindee in *Suffering Made Real*, which documents the political pressures that shaped radiation science.¹³ (Other good sources on the making of this science are Sue Rabbit Roff’s *Hotspots*, Monica Braw’s *The Atomic Bomb Suppressed*, and Robert Lifton and Greg Mitchell’s, *Hiroshima in America*). The New York Times “joined the government in suppressing information on the radiation sickness of survivors” and consistently downplayed or omitted radioactivity from its reportage, as Beverly Ann Deepe Keever demonstrates in *The New York Times and the Bomb*.¹⁴ Keever, a veteran journalist herself, writes that “from the dawn of the atomic-bomb age,... the Times almost single-handedly shaped the news of this epoch and helped birth the acceptance of the most destructive force ever created,” aiding the “Cold War cover-up” in minimizing and denying the health and environmental consequences of the a-bomb and its testing.

The Atomic Bomb Casualty Commission scientists calculated that by 1950, when the commission began its investigations, the death rate from all causes except cancer had returned to “normal” and the cancer deaths were too few to cause alarm.¹⁵

“It’s nonsense, it’s rubbish!” protested epidemiologist Dr. Alice Stewart, an early critic—and victim—of the Hiroshima studies.¹⁶ Stewart discovered, in 1956, that x-raying pregnant women doubled the chance of a childhood cancer: this put her on a collision course with ABCC/RERF

data, which found no excess of cancer in children exposed *in utero* to the blasts. Nobody in the 1950s wanted to hear that a fraction of the radiation dose “known” to be safe could kill a child. During the Cold War, officials were assuring us we could survive all-out nuclear war by ducking and covering under desks and the U.S. and U.K. governments were pouring lavish subsidies into “the friendly atom.” Stewart was defunded and defamed.



Alice Stewart

She persisted in her criticisms of the Hiroshima data which were repeatedly invoked to discredit her findings, pointing out that there was no way the survivors could have returned to “normal” a mere five years after the atomic blasts. This was not a normal or representative population: it was a population of healthy survivors, since the weakest had died off. Her studies of childhood cancer had found that children incubating cancer became 300 times more infection sensitive than normal children. Children so immune-compromised would not have survived the harsh winters that followed the

bombings, when food and water were contaminated, medical services ground to a halt, and antibiotics were scarce—but their deaths would not have been recorded as radiation-related cancer deaths. Nor would the numerous stillbirths, spontaneous abortions, and miscarriages (known effects of radiation exposure) have been so recorded. Stewart maintained that were many more deaths from radiation exposure than official figures indicated.

Besides, the survivors had been exposed to a single, external blast of radiation, often at very high dose (depending on their distance from the bombs), rather than the long, slow, low-dose exposure that is experienced by people living near reactors or workers in the nuclear industry. Stewart’s studies of the Hanford nuclear workers were turning up cancer at doses “known to be too low” to produce cancer, too low as defined by the Hiroshima data: “This is the population you ought to be studying to find out the effects of low-dose radiation,” she maintained, not only because the workers have been subjected to the kind of exposure more likely to be experienced by downwinders to reactors and accidents, but also because records were kept of their exposures (the nuclear industry requires such records).

In the Hiroshima and Nagasaki studies, by contrast radiation exposure was estimated on the flimsiest of guesswork. The radiation emitted by the bombs was calculated according to tests done in the Nevada desert and was recalculated several times in subsequent decades. Researchers asked such questions as, where were you standing in relation to the blast, what was between you and it, what had you had for breakfast that morning, assuming that the survivors would give



Worker with radioactive waste at Hanford

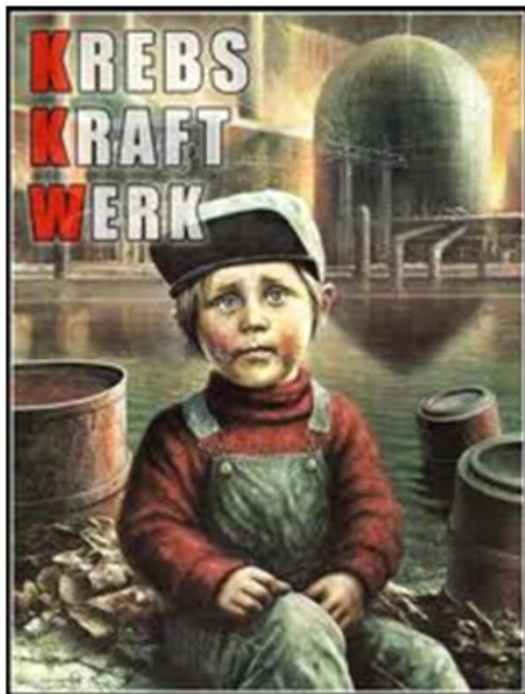
reliable accounts five years after the event.

“Bible arithmetic!” Stewart called the Hiroshima data: “it has skewed subsequent calculations about the cancer effect of radiation, and not only the cancer effect, but many other effects – immune system damage, lowered resistance to disease, infection, heart disease, genetic damage. These are serious misrepresentations because they suggest it’s safe to increase levels of background radiation.” In fact, as the Hiroshima studies went on, they turned up numerous radiation effects besides cancer¹⁷—cardiovascular and gastrointestinal damage, eye diseases, and other health problems—which bore out her prediction. Stewart was also proved right on the issue of fetal X-rays, though it took her two decades to convince official bodies to recommend against the practice, during which time doctors went right on X-raying pregnant women. It took her another two decades to build a case strong enough to persuade the US government, in 1999, to grant compensation to nuclear workers for cancer incurred on the job.¹⁸ (It helps, in this area, to be long-lived, as she commented wryly).

Twice, she has demonstrated that radiation exposures assumed “too low” to be dangerous carry high risk—two major blows at the Hiroshima data. Yet this 60-year old RERF data set continues to be invoked to dismiss new evidence—evidence of cancer clusters in the vicinity of nuclear reactors and findings from Chernobyl.

More than 40 studies have turned up clusters of childhood leukemia in the vicinity of nuclear facilities, reckons Ian Fairlie, an independent consultant on radioactivity in the environment and a former member of the Committee Examining Radiation Risks of Internal Emitters (an investigatory commission established by the U.K. government but disbanded in 2004). Fairlie describes this as a “mass of evidence difficult to contradict”¹⁹—yet it continues to be contradicted, on the basis of the Hiroshima studies. Generally when a cancer cluster is detected in the neighborhood of a reactor, the matter gets referred to a government committee that dismisses the findings on the grounds that radioactive emissions from facilities are “too low” to produce a cancer effect—“too low, according to RERF risk estimates.”²⁰

But in 2007, something extraordinary happened, when a government-appointed committee formed in response to the pressure of concerned citizens turned up increased rates of childhood leukemia in the vicinity of all 16 nuclear power plants in Germany. The *Kinderkrebs in der Umgebung von Kernkraftwerken* study, known by its acronym KiKK, was a large, well-designed study with a case-control format (1592 cancer cases and 4735 controls). The investigators—who were not opposed to nuclear power—anticipated they’d find “no effect... on the basis of the usual models for the effects of low levels of radiation.”²¹ But they found, to their surprise, that children who lived less than 5 km from a plant were *more than twice as likely* to develop leukemia as children who lived more than 5 km away. This was inexplicable within current models of estimating radiation risk:²² emissions would have had to have been orders of magnitude higher than those released by the power stations to account for the rise in leukemia. So the investigators concluded that the rise in leukemia couldn’t have been caused by radiation.



The findings are not inexplicable, explains Fairlie, when you understand that the data on which risk is calculated, the Hiroshima studies, are “unsatisfactory.”²³ Fairlie’s criticism of these data echoes Stewart’s: “risk estimates from an instantaneous external blast of high energy neutrons and gamma rays are not really applicable to the chronic, slow, *internal* exposures from the low-range alpha and beta radiation from most environmental releases.”²⁴ (my emphasis) Fairlie points out a further problem with the Hiroshima data: its failure to take into account the dangers of internal radiation. As Sawada Shoji, emeritus professor of physics at Nagoya University and a Hiroshima survivor, confirms, the Hiroshima studies never looked at fallout: they looked at “gamma rays and neutrons emitted within a minute of the explosion,” but did not consider the effects of residual radiation over time, effects from inhalation or ingestion that “are more severe.”²⁵ The distinction between external and internal radiation is important to keep clear. A bomb

blast gives off radiation in the form of high-energy subatomic particles and materials that remain as fallout in the form of radioactive elements such as strontium 90 and cesium. Most of this is likely to remain on the ground, where it will radiate the body from without, but some may be ingested or inhaled and lodge in a lung or other organ, where it will continue to emit radioactivity at close range. Nuclear proponents cite background radiation to argue that low-dose radiation is relatively harmless, asserting (as Monbiot argued against Caldicott) that we’re daily exposed to background radiation and survive. But this argument misses the fact that background radiation is from an external source and so is a more finite exposure than radioactive substances ingested or inhaled, which go on irradiating tissues, “giving very high doses to small volumes of cells,” as Helen Caldicott says. (Caldicott explains, when physicists talk about “permissible doses,” “[t]hey consistently ignore internal emitters — radioactive elements from nuclear power plants or weapons tests that are ingested or inhaled into the body,... They focus instead on generally less harmful external radiation from sources outside the body.”²⁶)

The KiKK study “commands attention,” Fairlie insists.²⁷ But it got no mention in mainstream media in the U.S. or the U.K.—until *The Guardian*, in early May of 2011, gave this spin to it: “Plants have been cleared of causing childhood cancers,” declared the headline.²⁸ “Government’s advisory committee says it is time to look elsewhere for causes of leukaemia clusters.” What “elsewhere,” what other causes are cited for cancer clusters in the vicinity of reactors? Infection, a virus, a mosquito, socioeconomics, chance say the experts quoted in *The Guardian*. The U.K. government is now moving ahead with plans to build eight new reactors.

When new evidence comes into conflict with old models, reinvokethe old models rather than looking at the new evidence. The world is flat. So is it flat in Chernobyl.

“There is no evidence of a major public health impact attributable to radiation exposure two decades after the accident at Chernobyl,” announced the New York Times, a few days after the Fukushima reactors began to destabilize (Denise Grady, “Precautions should limit health problems from nuclear plant’s radiation,” March 15, 2011) The Times bases this claim on a 2005 World Health Organization (WHO) study that found “minimal health effects” and estimated that only 4000 deaths “will probably be attributable to the accident ultimately.” The worst effect of the accident is a “paralyzing fatalism,” an expert tells the Times, which leads people to “drug and alcohol use, and unprotected sex and unemployment” (Elisabeth Rosenthal, “Experts find reduced effects of Chernobyl,” Sept 6, 2005). “Radiophobia,” this is called—an attitude problem.

The Times did not mention that the International Atomic Energy Agency (IAEA), which is mandated with the promotion of nuclear energy, has an agreement with WHO that gives it final say over what it reports, an entangling alliance much decried by independent scientists.²⁹ Nor did it mention two other studies that came out in 2006, “The Other Report on Chernobyl” and “The Chernobyl Catastrophe” by Greenpeace, both of which gave much higher casualty estimates than the widely publicized WHO/IAEA report.³⁰ Nor did it breathe a word about *Chernobyl: Consequences of the Catastrophe for People and the Environment*, by Alexey Yablokov et al., translated into English and published by the New York Academy of Sciences in 2009—which estimates casualties at 985,000, orders of magnitude more than the WHO/IAEA report.³¹

Yablokov et al. draw on “data generated by many thousands of scientists, doctors, and other experts who directly observed the suffering of millions affected by radioactive fallout in Belarus, Ukraine, and Russia,” and incorporate more than 5000 studies, mostly in Slavic languages (compared with the 350 mentioned in the 2005 report, most of which were in English). The authors are impeccably credentialed: Dr. Alexey Yablokov was environmental advisor to Yeltsin and Gorbachev; Dr. Vassily Nesterenko was former director of the Institute of Nuclear Energy in Belarus. Nesterenko, together with Andrei Sakharov, founded the independent Belarusian Institute of Radiation Safety BELRAD, which studies *—as well as treats—*the Chernobyl children. When he died in 2008 as a result of radiation exposure incurred flying over the burning reactor (which gave us the only measurement of radionuclides released by the accident), his son Dr. Alexey Nesterenko, third author of this study, took over as director and senior scientist at BELRAD. Dr. Janette Sherman, consulting editor, is a physician and toxicologist.

Comparing contaminated areas of Belarus, Ukraine, and Russia with the so-called “clean areas,” the studies document significant increases in morbidity and mortality in contaminated regions: not only more cancer, especially thyroid cancer, but a wide array of noncancer effects — ulcers, chronic pulmonary diseases, diabetes mellitus, eye problems, severe mental retardation in children, and a higher incidence and greater severity of infectious and viral diseases. Every system in the body is adversely affected: cardiovascular, reproductive, neurological, hormonal, respiratory, gastrointestinal, musculoskeletal, and immune systems. The children are not thriving: “Prior to 1985 more than 80% of children in the Chernobyl territories of Belarus, Ukraine, and European Russia were healthy; today fewer than 20% are well.” In animals, too, there are “significant increases in morbidity and mortality... increased occurrence of tumor and immunodeficiencies, decreased life expectancy, early aging, changes in blood and the circulatory system, malformations.”

Parallels between Chernobyl and Hiroshima are striking: data collection was delayed, information withheld, reports of on-the-spot observers were discounted, independent scientists were denied access “The USSR authorities officially forbade doctors from connecting diseases with radiation and, like the Japanese experience, all data were classified.” With the “liquidators,” as they’re called, the 830,000 men and women conscripted from all over the Soviet Union to put out the fire, deactivate the reactor, and clean up the sites, “It was officially forbidden to associate the diseases they were suffering from with radiation.” “The official secrecy that the USSR imposed on Chernobyl’s public health data the first days after the meltdown... continued for more than three years,” during which time “secrecy was the norm not only in the USSR, but in other countries as well.”



After Chernobyl. Photo by Paul Fusco

But the parallels are political, not biological, for the Hiroshima data have proven to be an “outdated” and useless model, as Stewart said, for predicting health effects from low-dose, chronic radiation exposure over time. The Hiroshima studies find little genetic damage in the survivors, yet Yablokov et al. document that “Wherever there was Chernobyl radioactive contamination, there was an increase in the number of children with hereditary anomalies and congenital malformations. These included previously rare multiple structural impairments of the limbs, head, and body,” devastating birth defects, especially in the children of the liquidators. The correlation with radioactive exposure is so pronounced as to be “no longer an assumption, but... proven,” write the authors. As in humans, so in every species studied, “gene pools of living creatures are actively transforming, with unpredictable consequences”: “It appears that [Chernobyl’s irradiation] has awakened genes that have been silent over a long evolutionary time.” The damage will play out for generations — “at least seven generations.”



Chernobyl legacy. Photo by Paul Fusco

Such findings have provided radiation experts a chance to reexamine their hypotheses and theories about radiation effects, observes Mikhail Malko, a researcher at the Joint Institute of Power and Nuclear Research in Belarus.³² But rather than using new evidence to enlarge their understanding, experts have found ways of dismissing these studies as “unscientific”: they are said to be observational rather than properly controlled, “Eastern European” and not up to Western scientific protocols, and

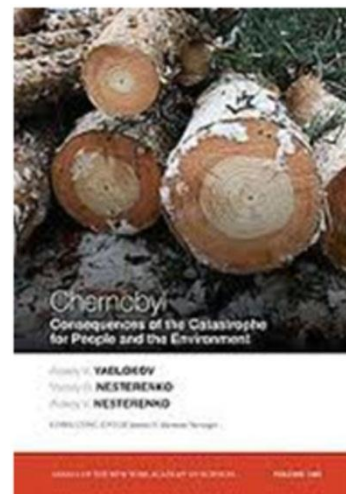
inconsistent with the hallowed Hiroshima data. Radiation scientists denied that the thyroid cancer that increased exponentially after the accident could be a consequence of radiation: it manifested in only three years, whereas it had taken ten years to appear in Hiroshima, and it took a more aggressive form. They explained the increase in terms of improved screening, iodine substances used to treat the children, or pesticides—even though epidemiological studies kept turning up a link with radiation contamination. Finally in 2005, a case-control study headed by Elisabeth Cardis confirmed a dose-response relationship between radiation and thyroid cancer in children in terms that had to be acknowledged.³³

Chernobyl does not usually provide the kind of neat laboratory conditions that allow such precise dose-response calculations. *But neither did Hiroshima*, where radiation exposure was guesstimated years after the fact and recalculated several times according to new findings. Yet scientists have accepted the Hiroshima uncertainties—all too readily—and have allowed this data to shape policy affecting all life on this planet, while citing the less-than-ideal conditions for studying Chernobyl as an excuse to ignore or discredit these findings, dismissing them according to a model more questionable than the data they're discounting. The Chernobyl effects demonstrate that "Even the smallest excess of radiation over that of natural background will statistically... affect the health of exposed individuals or their descendants, sooner or later." But as with Stewart's findings about fetal x-rays and nuclear workers, as with the studies that turn up cancer clusters around reactors, so with Chernobyl—it can't be radiation that's producing these effects because the Hiroshima studies say it can't. As independent scientist Rudi Nussbaum points out, the "dissonance between evidence and existing assumptions about... radiation risk," the gap between new information and the "widely adopted presuppositions about radiation health effects," has become insupportable.³⁴

Chernobyl is a better predictor of the Fukushima consequences than Hiroshima, but we wouldn't know that from mainstream media. Perhaps we would rather not know that 57% of Chernobyl contamination went outside the former USSR; that people as far away as Oregon were warned not to drink rainwater "for some time"; that thyroid cancer doubled in Connecticut in the six years following the accident; that 369 farms in Great Britain remained contaminated 23 years after the catastrophe; that the German government compensates hunters for wild boar meat too contaminated to be eaten³⁵—and it paid four times *more* in compensation in 2009 than in 2007. Perhaps we'd rather not consider the possibility that "the Chernobyl cancer toll is one of the soundest reasons for the 'cancer epidemic' that has been afflicting humankind since the end of the 20th century."

"This information must be made available to the world," write Yablokov et al. But their book has met "mostly with silence," as he said in a press conference in Washington DC, March 15, 2011.³⁶ The silence of mainstream media has stonewalled information about Chernobyl's health effects as effectively as the Soviets' blackout concealed the accident itself, and as the Allies' censorship hid the health effects of the Hiroshima and Nagasaki bombings.

“We need to quash any stories trying to compare this [Fukushima] to Chernobyl,” “otherwise it could have adverse consequences on the market.” “This has the potential to set the nuclear industry back globally... We really need to show the safety of nuclear,” that “it’s not as bad as it looks.” These statements were made in a few of the more than 80 emails which the *Guardian* got access to, which were not intended for the public eye. “British government officials approached nuclear companies to draw up a co-ordinated public relations strategy to play down the Fukushima nuclear accident just two days after the earthquake and tsunami,” reports the *Guardian*, “to try to ensure the accident did not derail their plans for a new generation of nuclear stations in the UK.”³⁷



Comparisons with Chernobyl have been conspicuously absent from mainstream media, even when Fukushima was upgraded, in early June, to a level on a par with Chernobyl, level 7, the highest. Even when Arnold Gundersen, a nuclear engineer turned whistleblower who has been monitoring Fukushima from the start, asserted that this accident may actually be *more* dire than Chernobyl. Gundersen, an informed, level-headed commentator who inspires confidence, points out that there are four damaged reactors leaking into the atmosphere, ocean, and ground in an area more populated than the Ukraine: “You probably have the equivalent of 20 nuclear reactor cores... that is 20 times the potential to be released than Chernobyl.” (Fairewinds, June 16’ 2011). But apart from the damage control piece it published March 15 (cited above) and Helen Caldicott’s passing reference to “research by scientists in Eastern Europe” (op-ed, “After Fukushima: Enough is enough,” December 2)—the Times has barely mentioned Chernobyl (and even Caldicott did not mention the Yablokov study by name). What Chernobyl has wrought, which has been documented so clearly by Yablokov et al., is simply too dangerous to give press to, undercutting as it does the nuclear industry’s claims to safety and viability.

The New York Times has done good reporting on Japanese blunders and corruption. It has described the way plant operators and government officials minimized the severity of the meltdown, the corporate and government cover-ups and irresponsibility (Norimitsu Onishi and Martin Fackler, “Japan held nuclear data, leaving evacuees in peril,” August 8, 2011). It has pointed out complicity between industry and regulators (Norimitsu Onishi and Ken Belson, “Culture of Complicity Tied to Stricken Nuclear Plant,” April 27, 2011). It has done pieces on citizens’ opposition (Onishi and Fackler, “Japan ignored or long hid nuclear risks,” May 17, 2011; Ken Belson, “Two voices are heard after years of futility,” August 19, 2011) and on grass-roots initiatives to gather data where bureaucrats failed (Hiroko Tabuchi, “Citizens’ testing finds 20 radioactive hot spots around Tokyo,” Aug 1, 2011). Tabuchi even takes a swipe at the “tamelessness of Japanese mainstream media,” which is commendable, though her statement is a model of “tamelessness” compared to Nicola Liscutin’s denunciation of Japanese mass media as “little more than the mouthpiece of the government and TEPCO.”³⁸ Human interest stories abound in the Times, as in other major media, stories of workers sent in to quiet the reactors, of people living in the vicinity of the reactors. In one such piece, “Life in limbo for Japanese near damage nuclear plant,” May 2, 2011, Fackler and Matthew Wald refer to “a lack of hard data

about the health effects of lower radiation doses delivered over extended periods” – a “lack” that’s assured, as we’ve seen, by the stonewalling of evidence endemic in the media.

As laudable as some of the Times coverage has been, what it targets is the ineptitude and corruption of the Japanese, what happened *over there* as opposed to what goes on here, where our own dirty linen remains unwashed, as it were, and out of sight. How much easier to criticize the lax regulatory mechanisms and lack of transparency of the Japanese than to shine a light on ourselves, on the insidious but largely invisible working of the nuclear lobby and lobbyists in this country, on the complicity of our own government and media with the nuclear industry.

A fascinating expose by Norimitsu Onishi, “Safety myth left Japan ripe for nuclear crisis” (June 25, 2011), invites comment along these lines. Onishi investigates the “elaborate advertising campaigns” led by Tepco and the Ministry of Economy to convince the public of the safety of nuclear power. Hundreds of millions of dollars were spent to rally support: “Over several decades, Japan’s nuclear establishment has devoted vast resources to persuade the Japanese public of the safety and necessity of nuclear power. Plant operators built lavish, fantasy-filled public relations buildings that became tourist attractions.” In one of these, “Alice discovers the wonders of nuclear power. The Caterpillar reassures Alice about radiation and the Cheshire Cat helps her learn about the energy source”.

Lest we feel smug, recall the promotion of “the friendly atom” by Walt Disney’s book and film, *Our Friend the Atom*, read and viewed by millions of schoolchildren (when they weren’t doing “duck and cover” drills).

What Onishi describes as happening in Japan happened in the U.S. as well— perhaps Onishi means to evoke such resonances— where a powerful propaganda campaign was launched, with hundreds of millions of dollars behind it, to promote “Atoms for Peace,” the new energy source “too cheap to meter” (though there was nothing “cheap” about it: it required enormous government subsidies, and still does). This propaganda machine is described in the 1982 study *Nukespeak: The Selling of Nuclear Technology in America*: “Beginning in the mid-1950s, the AEC conducted a huge public relations operation to promote the vision of Atoms for Peace,” using “a wide range of PR techniques, including films, brochures, TV, radio, nuclear science fairs, public speakers, traveling exhibits, and classroom demonstrations” (traveling AEC exhibits with names like “Power Unlimited,” “Fallout in Perspective,” and “The Useful Atom”).³⁹



“Millions of kits of atomic energy information literature were distributed to elementary, high school, and college students.” The public relations departments of reactor manufacturers such as Westinghouse and General Electric were also mobilized to prepare communities for nuclear facilities coming soon to their neighborhoods and to prime the general population to welcome the new technology. The connection with mainstream media could hardly be more direct, since “Westinghouse owned CBS for many years, and General Electric, NBC,” as Karl

Grossman points out.⁴⁰ This same PR apparatus has been busy, in recent decades, conjuring the “nuclear renaissance” from the ashes of Chernobyl, selling nuclear power as “clean, green, and safe.”

The Times coverage of Fukushima has raised hopes in some quarters that this current disaster may have opened a space for public debate in mainstream media about nuclear power. But how real is this debate, when so many fundamental issues remain hidden? How open a discussion can this be, when Chernobyl and the German reactor study go unmentioned, when we have to turn to alternative media to learn that the Yablokov study even exists—or to learn that, as Alexander Cockburn reports,⁴¹ Obama was the recipient of generous campaign contributions from the nuclear industry (which may cast some light on his enthusiastic support of nuclear power)? How open a discussion is this, when the ABCC/RERF radiation risk assessments that enable the industry to exist remain unaddressed? A serious consideration of the Yablokov study and the German reactor study would reveal them to be “skewed” and useless, as we’ve seen; but rather than go this route, the Times calls on RERF experts to do damage control for the industry. So RERF reassurances about radiation risk remain unchallenged and in place as the invisible buttressing of the nuclear industry, as the basis of radiation safety standards throughout the world.

Contrast the response of U.S. media to the response of the German press: “Fukushima marks the end of the nuclear era” (Spiegel, March 14, 2011); “Germany can no longer pretend nuclear power is safe... it is over. Done. Finished.” (March 14, 2011) To Spiegel, Fukushima is a warning that cries out for an end to nuclear power; to the Times, Fukushima is a warning that we should build our reactors more efficiently and regulate them more carefully, rather than cease building them at all (Editorial, “In the wake of Fukushima,” July 23, 2011). In the months after Fukushima, “Spiegel’s most popular online feature as the drama unfolded was an evolving digital map of the ‘radiation plume,’” observes Ralph Martin;⁴² “the German electorate made nuclear power their top concern—they made Fukushima theirs,” whereas “the reaction of American media...[was to] regard the events as yet another story, without any larger social ramifications,” without much relevance to ourselves. And so nuclear power marches on: “Alabama nuclear reactor, partly built, to be finished,” Matthew Wald, August 19, 2011; “Two utilities win approval for nuclear power plants,” Matthew Wald, December 23, 2011 (neither of these is a particularly long or noticeable article, and neither is front page).

There has been precious little mention in U.S. mainstream media of the plume Spiegel was tracing, except to whisk it away as presenting “no health hazard” (Broad, cited above), though the worldwide fallout from Fukushima has occasioned much discussion on the Web. Gundersen⁴³ cites evidence that the early releases, which were revealed to be more than double what we were initially informed, contained “hot particles” of cesium, strontium, uranium, plutonium, cobalt 60 that have turned up in automobile engine filters, and according to what’s been detected in air filters, a person in Tokyo was breathing about ten hot particles a day through the month of April. A person in Seattle was breathing about five, that same month.

Not to worry: “The effects of radiation do not come to people that are happy and laughing. They come to people that are weak-spirited, that brood and fret.” So says Dr. Yamashita Shunichi,⁴⁴ who has been assigned to head the official study of radiation health effects in the Fukushima population. Yamashita was sent by the Japanese government from Nagasaki University, where

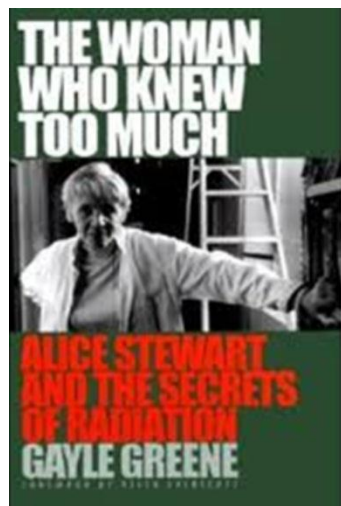
he was part of the RERF studies, revered for their long experience with the A-Bomb survivors. Mandated with addressing the concerns of the citizens and correcting their misconceptions, Yamashita rallies the population with stirring words: “The name Fukushima will be widely known throughout the world... This is great! Fukushima has beaten Hiroshima and Nagasaki. From now on, Fukushima will become the world number 1 name. A crisis is an opportunity. This is the biggest opportunity. Hey, Fukushima, you’ve become famous without any efforts.”

We’re in good hands.

Gayle Greene is Professor of English at Scripps College. She is the author of *The Woman Who Knew Too Much: Alice Stewart and the Secrets of Radiation*, a biography of pioneering British radiation epidemiologist and anti-nuclear guru Alice Stewart, and “Alice Stewart and Richard Doll: Reputation and the Shaping of Scientific ‘Truth’,” *Perspectives in Biology and Medicine*, autumn 2011, 504-31.



Alice Stewart (right) and the author



Her work has been published in scholarly

journals such as *Signs*, *Contemporary Literature*, and *Renaissance Drama*, and in popular venues such as *Ms Magazine*, *The Nation*, *The Women's Review of Books*, and *In These Times*.

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and Nagasaki all those fatally ill had already died and no one was suffering from atomic radiation.” His exact words: “In Hiroshima and Nagasaki, at present, the beginning of September [1945], anyone liable to die has already died and no one is suffering from atomic radiation.”

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“Mismanaging Risk and the Fukushima Nuclear Crisis”

Jeff Kingston

<http://www.japanfocus.org/-Jeff-Kingston/3724>

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As discussed in Greene’s essay, the belief in the safety of nuclear power has historically been quite strong. Jeff Kingston picks up this idea in his piece, characterizing the faith in absolute safety a “myth” that blinded the Tokyo Electric Power Company (TEPCO) and the Japanese government to the potential dangers of nuclear power. The story that Kingston tells is about how environmental events in the form of an earthquake and tsunami together with human error caused a disaster with grave environmental and human consequences. He argues that the power of an idea, the inadequate knowledge of politicians, and the vested interests of bureaucrats and businessmen resulted in a lack of attention to environmental risks and shortcomings in emergency procedures. Or to put it more pointedly, TEPCO and government regulators failed for a variety of reasons to take seriously the risks of a tsunami or earthquake and to respond adequately to the dangers of radiation. Kingston’s essay also prompts us to remember the privileged position from which historians think and write about the past, with the benefit of hindsight, when convincing ideas have been revealed as myth and human failings have been exposed by catastrophe.

Mismanaging Risk and the Fukushima Nuclear Crisis¹

Jeff Kingston

Introduction

“Though global safety standards kept on improving, we wasted our time coming up with excuses for why Japan didn’t need to bother meeting them.” Madarame Haruki, Chairman, Nuclear Safety Commission, Diet testimony, 2/15/12

The nuclear accident at Fukushima was precipitated by natural disaster, but poor risk management, including a failure to comprehend tectonic risk in the most earthquake prone country in the world, and an institutionalized complacency about risk, were major factors increasing the likelihood of a major accident and fumbling crisis response. Tokyo Electric Power Company (TEPCO), the utility operating the Fukushima Daiichi Plant, and the Nuclear and Industrial Safety Agency (NISA), the government regulatory authority, mismanaged a range of risks – siting, seismic, tsunami, emergency preparedness and radiation – and it is this mismanagement that made Fukushima into Japan’s Chernobyl. Investigations into the accident have established that the crisis response was improvised and inadequate because of lack of preparation, institutional flaws in emergency procedures, and poor communication within the government and between officials and TEPCO.

A private panel investigating the nuclear disaster concludes that TEPCO’s systematic negligence contributed to the nuclear disaster and criticized its “make-believe” disaster emergency arrangements.² The myth that nuclear reactors could be operated with absolute, 100% safety embraced and promoted by what the Japanese call their “nuclear village” of pro-nuclear power advocates made it taboo to question safety standards and militated against sober risk assessment and robust disaster emergency preparedness. Those responsible for operating or regulating nuclear reactors bought into a myth of 100% safety and this collective failure left them unprepared to deal with an accident or worst-case scenario. Paradoxically, this safety myth explains why TEPCO lacked a culture of safety and why its crisis response was so deficient.

Politicians dealing with the accident lacked knowledge about nuclear issues and crisis management, and did not get sufficient support or information from bureaucrats or TEPCO to cope with the crisis. In addition, the failure to share information bred mistrust between key actors that impaired their ability to coordinate an effective response. One interviewee cited by the private panel compared the premier’s crisis management team to children playing soccer, preoccupied by the cascading disaster in front of them (chasing the ball) rather than strategizing accident response.³

This paper examines how TEPCO minimized risk assessments and preparations prior to 3/11, how it tried to shirk and shift blame since then, and is trying to mitigate risks to its operations involving nationalization and the sudden onset of nuclear allergy among Japanese.⁴ This paper also explores how citizens are responding to the fallout of Fukushima, a bottom-up approach to managing risk. Elsewhere I have examined TEPCO’s efforts to blame PM Kan Naoto for its own miscues and failure to prepare adequately for the evident risks.⁵ As we explore below, the nuclear village of pro-nuclear advocates had much to gain by shifting blame to Kan and diverting attention from the institutional problems that are at the heart of the crisis.⁶

A record magnitude 9 earthquake and subsequent 15-meter tsunami devastated the Tohoku coastline on March 11, 2011, claiming some 20,000 lives and inundating the Fukushima Daiichi nuclear plant. These extreme seismic events were the proximate causes that led to the loss of electricity and the failure of backup generators. The ensuing cessation of the cooling systems caused three meltdowns within the first 80 hours and the hydrogen explosions that released plumes of radiation, spreading radioactive contamination in surrounding areas but also further afield due to strong spring winds. The long-term health effects are uncertain, but the costs of the nuclear crisis have been enormous and are mounting. The reckoning includes displacement of some 80,000 residents within the 20 km evacuation zone around the crippled reactors, many of whom will probably never return to their homes, loss of livelihoods suffered by local farmers, fishermen, and various businesses in Fukushima, together with anxiety about radiation and even the stigma of radiation that confronts the people of the prefecture. This stigma follows those who leave to restart lives elsewhere and raises concerns among young people concerning marriage prospects and raising families. In addition, there has been a wider economic fallout as bans on Japanese products were imposed overseas and overall in-bound tourism declined by 25% in 2011. Moreover, the nuclear crisis tarnished the Japan-brand, eroding the nation's reputation for technological prowess. Restoring what people and the nation lost will be costly and take considerable time. Compensation for losses are mounting while the costs of decontamination, disposal of tainted debris and decommissioning nuclear reactors will boost the final reckoning immensely. The Japanese will be paying for the folly of Fukushima for generations to come.

It is important to learn lessons from the poor risk management in the nuclear industry because Japan will probably continue to rely on nuclear energy for years to come despite the Fukushima debacle. All but 2 of the nation's 54 reactors are currently idled, and all will be offline by May.



Status of Nuclear Power Plants, Feb 2012

METI Minister Edano Yukio predicts that Japan will not be relying on any nuclear energy this summer and favors minimizing reliance on nuclear energy and replacing it with renewable energy.⁷ Perhaps, but there are ongoing efforts to restart some reactors based on stress tests that are based on computer simulations meant to determine whether it is safe to resume operations. Polls show that from two-thirds to three quarters of the public wants to eliminate or reduce nuclear energy, but the utilities have invested vast sums in this option, one made possible only by vast government subsidies, and the powerful nuclear village opposes pulling the plug.

Moreover, it will take time to ramp up renewable

energy generating capacity. While renewable energy may have a promising future in Japan, in the meantime it is important that regulators and operators minimize the inherent risks of operating nuclear plants in a seismically active nation by learning the lessons of Fukushima and implementing more stringent safety measures and improved crisis response procedures.

Embracing Risk

Fukushima was preceded by a series of mishaps, cover-ups, irresponsible practices, close calls and ignored warnings. In that sense, it was an accident waiting to happen. Charles Perrow has written extensively on the inevitability of accidents in organizations predicated on complex technologies and the problem of unexpected interactions that may cause a cascading disaster such as occurred at Fukushima. He writes,

“...some complex organizations such as chemical plants, nuclear power plants, nuclear weapons systems...have so many nonlinear system properties that eventually the unanticipated interaction of multiple failures may create an accident that no designer could have anticipated and no operator can understand. Everything is subject to failure—designs, procedures, supplies and equipment, operators, and the environment. The government and businesses know this and design safety devices with multiple redundancies and all kinds of bells and whistles. But nonlinear, unexpected interactions of even small failures can defeat these safety systems. If the system is also tightly coupled, no intervention can prevent a cascade of failures that brings it down.”⁸

Given this apparent inevitability of accidents, and the fact that Japan suffers 20% of the world's >6 magnitude earthquakes and invented the word tsunami, it may seem surprising that the government decided to place such a big bet on nuclear energy and decided to construct clusters of multiple reactors that amplifies the risks. Certainly the oil embargoes and price hikes of the 1970s reinforced perceptions that Japan had no choice. The nuclear fuel cycle was pursued because it offered the hope of eliminating Japan's dependence on energy imports. And as more money was invested in expanding Japan's network of nuclear power plants it created vested interests in the government and utilities committed to further expansion. This nuclear village is disinclined to reexamine underlying assumptions about whether it is possible to operate nuclear reactors safely in such a seismically active area. And, as time passed and no major mishaps occurred, nuclear advocates became increasingly blasé about the risks and focused narrowly on the benefits of a reliable, relatively inexpensive energy source. Moreover, as concerns about global warming grew towards the end of the 20th century, advocates discovered a new reason to promote expansion of nuclear energy: it contributes to the goal of reducing carbon emissions. Given the clear environmental costs associated with reliance on carbon fuels, ranging from extraction, processing, transporting and emissions, nuclear energy has many advantages. So over the decades, nuclear power developed an accumulating and appealing logic that relied on disregarding the problems related to disposing of radioactive waste and the potential for accidents due to human error, natural disaster or a combination thereof.

As Daniel Aldrich argues in *Site Fights* regarding government and utility efforts to convince communities to host nuclear power plants, there is a keen appreciation among advocates that the public needs convincing precisely because there is trepidation about the risks.⁹ Aldrich explains that communities with low levels of social capital are specifically chosen in order to reduce the risk of local opposition and because their marginal socio-economic situation makes them more inclined to accept financial inducements. Hiroshi Onitsuka shows that the deep pockets of the central government and the utilities lavish benefits on hosting communities prior to construction, creating a subsidy addiction.¹⁰ Jobs, tax income, various subsidies and extravagant public facilities are combined with reassuring public information campaigns to assuage concerns and build support for nuclear power projects. In Japan's declining remote coastal towns and villages, it is understandable that the risk of poverty and bleak futures have until now outweighed the potential risk of nuclear energy. Deferential views toward the central government together with a

pragmatic assessment that such projects will be built somewhere and someone will benefit, also help explain why hosting *seemed* a reasonable option.

Although the central government and utilities promoted a nuclear consensus—nuclear energy is safe, reliable and cheap—some civil society groups and many individual Japanese contested this effort to little avail.¹¹ Nevertheless, the nuclear village of pro-nuclear advocates in the utilities, government, the Diet, mass media and academia has dominated the conversation. These advocates are not given to doubts or inclined to reconsider their assumptions and have relied on their power network to prevail. Prior to Fukushima there have been 14 lawsuits challenging nuclear power plants on the grounds that seismic dangers were hidden or downplayed, but the utilities prevailed in each case.¹²

The utilities, government and associated scientists tout the high tech, fail-safe features of nuclear reactors, but as Perrow reminds us, accidents happen. Immediately after the March 11 disaster, TEPCO was quick to claim that the tsunami and chain of multiple failures had been inconceivable, but the record suggests otherwise. In 1975, nuclear chemist Takagi Jinzaburō and others established the Citizens Nuclear Information Center (CNIC) and since then issued regular reports on nuclear power plant safety issues. This activism targeted the regulatory and technical problems with nuclear power and the vulnerabilities specific to seismically active Japan. Fukushima was the nightmare scenario that CNIC had long predicted. In a 1995 interview, Takagi spoke about the risks of a meltdown in the event of multiple failures. He raised the possibility of large radioactive releases from a meltdown resulting from a breakdown in the emergency core cooling system and the failure of back-up diesel generators, exactly what happened at Fukushima sixteen years later.¹³

Warnings by the CNIC and other anti-nuclear activists and experts were not taken seriously by the nuclear village since it would have required abandoning their quest for nuclear power under Japan's seismically fraught conditions. As Perrow argues, "There is the problem that warnings are often seen as mere obstructionism. This was the view of a representative for a Japanese utility who brushed away the possibility that two backup electrical generators would fail simultaneously."¹⁴ This expert witness testified at the Shizuoka District Court in February 2007 on behalf of Chubu Electric Power Co., the utility that owns and operates the Hamaoka nuclear power plant.¹⁵ Exasperated by questioning from the plaintiff's lawyers concerning what would happen in the event of a station blackout and loss of all backup electricity (as happened at Fukushima four years later), this irritated witness blurted out, "If we took all these possibilities into account, we could never build anything." This witness was Madarame Haruki who was subsequently named chairman of the government's five-member Nuclear Safety Commission in April 2010. Repeta writes,

"I do not know how this performance figured into Madarame's selection to lead the nation's most senior office charged with maintaining nuclear power safety. We do know the result of the suit: As in nearly every other case challenging Japan's nuclear power plants, the court ruled in favor of the power company. In one of many great ironies surrounding the Tohoku disaster, Prime Minister Naoto Kan effectively overruled the court by requesting that Chubu Electric close the Hamaoka facility on May 6 (2011). The company board responded quickly and the shutdown was accomplished eight days later."¹⁶

As we discuss below, however, Madarame has changed his tune.

In Japan, cozy and collusive ties between regulators and industry embodied in the amakudari system and the nuclear village have compromised nuclear safety.¹⁷ This situation has led to widespread regulatory capture, explaining the lack of a culture of safety at TEPCO and the averted eyes approach to monitoring the nuclear industry evident at NISA.¹⁸ Workers at Fukushima report being routinely warned in advance of inspections and inspectors did not seem eager to uncover violations.

PM Noda Yoshihiko once stated that he does not support building any new reactors, does not favor extending the operating licenses of aging plants beyond their original design life spans and supports a gradual phasing out of nuclear energy. However, he has backtracked from this position. In particular, he appears much more favorably inclined towards nuclear energy than his predecessor Kan Naoto, calling for reopening of the closed plants. Kan stunned the nation on July 13, 2011 when he called for the gradual phasing out of nuclear energy, stating that he believes it is not possible to operate nuclear reactors safely in Japan. In contrast, Noda stresses the importance of nuclear energy to Japan's economy, favors restarting reactors following stress tests and wants to complete reactors already under construction, while his Cabinet introduced legislation allowing extension of operating licenses for aging reactors (> 40 years).¹⁹

This new Japanese law requires the decommissioning of aging plants, but features a critical loophole designed to permit their continued operation at the discretion of regulators. Given the track record of regulators in Japan (and the US), what is supposed to happen only in exceptional cases (continued operations of old reactors), may become the norm. Given that so many of Japan's reactors are aging (3 are over 40 years old and another 16 are over 30 years old) with the attendant risk of metal fatigue and dated technology, safety issues are becoming ever more urgent; the three meltdowns at Fukushima occurred in reactors commissioned in 1971, 1974 and 1976. Policymakers, however, under the pretext of mandating decommissioning such aging reactors have actually ensured that the government retains discretionary powers to extend operating licenses and have even lengthened time in between inspections in an effort to improve the lifetime profitability of all reactors.²⁰ These initiatives are increasing risks.

Whistleblower revelations of systematic falsification of repair and maintenance records in 2002 at all of TEPCO's nuclear plants indicate that more robust inspections, transparency and accountability are crucial to nurture a culture of safety.²¹ It is important to remember that in February 2011, shortly before the meltdowns, NISA extended the operating license of Fukushima Daiichi despite expressing reservations about a dubious maintenance record and eerily prescient concerns about stress cracks in the back-up diesel generators that left them vulnerable to inundation.

Shifting Blame

So who is to blame for the three meltdowns at Fukushima? The nuclear village tried to shift blame onto PM Kan, spreading erroneous information about his visit to Fukushima Daiichi to the effect that he forced TEPCO to stop venting and subsequently alleging that he ordered the halt of pumping of seawater to cool the reactors and spent fuel rods stored in adjacent pools.²² The failure to vent did in fact lead to hydrogen explosions in three secondary containment buildings, but this was TEPCO's responsibility and had nothing to do with Kan's visit on March 12.²³ Similarly, PM Kan never ordered the cessation of seawater pumping and the plant manager actually ignored instructions from the TEPCO president to do so because under international protocols it was his call.²⁴ TEPCO retracted its allegations against Kan, but not before damaging

Kan's reputation and sowing suspicions about his responsibility for the nuclear crisis. Scapegoating Kan served many purposes, especially diverting attention away from TEPCO's, NISA's and METI's responsibility for the accident and woeful crisis response. The LDP also needed political cover since it was the party in power that had promoted nuclear energy and was complicit in the lax oversight that undermined plant safety. Personalizing the problem was an effort to downplay the fundamental institutional flaws that lay at the heart of the crisis. Discrediting Kan also served to discredit his anti-nuclear, pro-renewable energy initiatives.

To his credit, PM Kan in dealing with the disaster did not trust the bureaucrats advising him, knowing from past experience that their ingrained inclination to first establish a consensus and then act was inconsistent with crisis management. Kan also distrusted TEPCO since it was acting to protect its assets and interests and was not providing him with accurate and timely information. But Kan's justified suspicions also left him isolated and unable to call on people and institutions with relevant expertise. According to the *New York Times*, "At the drama's heart was an outsider prime minister who saw the need for quick action but whose well-founded mistrust of a system of alliances between powerful plant operators, compliant bureaucrats and sympathetic politicians deprived Prime Minister Kan of resources he could have used to make better-informed decisions."²⁵ As a result, those without expertise were making crucial decisions while experts such as NSC Chairman Madarama were giving misleading advice, inevitably leading to mistakes and zigzagging.

NISA was responsible for instituting government crisis procedures, and TEPCO was responsible for safe operations of its plants, but both were unprepared when it counted most. On February 17, 2012 former PM Kan asserted that Fukushima was a manmade disaster and that authorities were woefully unprepared to deal with it.²⁶ There were no systems or procedures in place to respond effectively to Fukushima and officials had to improvise as they went along. "Before 3/11, we were totally unprepared," he said. "Not only in terms of the hardware, but our system and the organization were not prepared. That was the biggest problem." He added,

"If they had thought about it, they wouldn't have intentionally built it at such a low location. The plant was built on the assumption that there was no need to anticipate a major tsunami, and that was the actual start of the problem. We should have taken more adequate safety steps, and we failed to do so. It was a big mistake and I must admit that (the accident) was due to human error."

He also acknowledged information dissemination was slow and sometimes inaccurate, blaming it on a lack of reliable data. In his view the disaster exposes a wide range of vulnerabilities and risks and the need to overhaul safety guidelines and improve crisis management.

At the end of February 2012 an investigation conducted by the non-governmental Rebuild Japan Initiative Foundation (RJIF) criticized Kan for micromanaging and meddling in the crisis response at the nuclear plant and for closeting himself with a small coterie of trusted advisors,



Scapegoat: Former Prime Minister Kan Naoto

but praised him for refusing TEPCO's requests on March 15th to abandon Fukushima Daiichi and ordering the utility not to withdraw its staff from the stricken plant.²⁷ The RJIF interviewed all the people in the room with the premier, including those who were critical of his crisis management, when TEPCO made its request to evacuate personnel from Fukushima Daiichi and they all corroborated Kan's charge that TEPCO had proposed a total evacuation and repudiated TEPCO's subsequent assertions that it was not proposing to totally abandon the nuclear plant.²⁸

TEPCO and its defenders also blamed GE for the accident because it supplied the plant design right down to the placement of the backup generators and refused to modify it despite concerns expressed by local contractors at the time about the need to protect against tsunamis. TEPCO also conducted an in-house investigation into the nuclear crisis and issued a report in December 2011 that shirked all corporate responsibility for the accident, instead blaming the massive tsunami, calling it a rare natural event that could not have been anticipated (*sotegai*), a claim that has been effectively refuted.

Crisis Assessment

The third party panel that investigated the nuclear crisis at the behest of the government issued an interim report at the end of 2011 that was harshly critical of TEPCO and the government, pointing out that the utility was ill-prepared for a crisis and that its workers made critical errors in shutting off automated emergency cooling systems and wrongly assumed part of the cooling system was working when it was not.²⁹ The report of the RJIF non-government investigation cited above released at the end of February 2012 reached similar conclusions. These workers and their managers were inadequately trained to cope with an emergency situation and according to the panel lacked basic knowledge concerning the emergency reactor cooling system. Their mishandling of emergency procedures contributed to the crisis. Moreover, TEPCO and its regulators, as we discuss below, failed to act on fresh and compelling evidence about tsunami risk, a blind spot that left the plant needlessly vulnerable. Because the possibility of a tsunami inundating the plant was ignored, TEPCO made no preparations for simultaneous and multiple losses of power. The station blackout halted cooling systems, caused the meltdowns and disrupted communications among emergency workers and between the plant and the government. Workers were largely dependent on mobile phones that could not be recharged while carrying out emergency work by flashlight. Meanwhile the government was kept in the dark about critical developments and officials delayed in giving advice to the prime minister and his advisors on how to respond to the nuclear crisis.³⁰

Investigators concluded that TEPCO failed to provide information to the government in a timely manner because it was inadequately prepared for an emergency. The crisis management center for Fukushima Daiichi was only 5 km from the plant, and when plant workers arrived they found it wrecked, with no power or functioning communications and unusable because there was no air filtration system to filter out radiation. This poor emergency preparedness delayed the flow of information to the prime minister's office, slowing the government response.

NISA was widely criticized for not having done more over the years to force TEPCO to improve its preventive and emergency measures. It was also revealed that NISA staff abandoned the Fukushima plant after the earthquake on March 11 and thus could not collect and disseminate real-time information as the crisis worsened; after being ordered to return, they did little to help manage the crisis.

The investigations also pilloried TEPCO and the government's mishandling of the evacuation of residents living near the plant, in many instances evacuating people to places where levels of radiation were higher than those where they had left. This reflected the general problem of information bottlenecks; PM Kan and his cabinet were not given data on radiation contamination that could have led to a more sensible evacuation order. The third party panel faulted the government's order for residents within 20 km of the plant to leave the area because state agencies had data showing that radiation contamination did not spread concentrically and that some designated evacuation sites were actually hot zones. The panel confirmed that data generated by the System for Prediction of Environmental Emergency Dose Information (SPEEDI) on radiation dispersal was available and could have been used to evacuate residents at greatest risk to safer areas, but this information was not provided to the Prime Minister's crisis management center until March 23, eleven days after the first hydrogen explosion released plumes of radioactive substances into the air. Finally, one month after the original evacuation, the government used this SPEEDI data to move evacuees out of harms way, meaning that many had been subjected to substantial doses of avoidable radiation exposure. One advisor actually informed PM Kan about the SPEEDI data on March 13, but the chairman of the Nuclear Safety Commission Madarame Haruki misinformed the premier that SPEEDI was not available. When officials responsible for SPEEDI were asked why they did not make this crucial data available to crisis managers sooner, they replied lamely that nobody asked them for it.³¹ Kaieda Banri, METI Minister during the crisis, and the top official responsible for the nuclear energy industry, admitted he had never even heard of the SPEEDI system before the accident.

Tsunami Risk

"It's inexcusable that a nuclear accident couldn't be managed because a major event such as the tsunami exceeded expectations." Hatamura Yotaro, Chairman, Third Party Panel Investigation Committee (Dec. 26, 2011)

Hatamura Yotaro chaired an investigation into the Fukushima accident and is a well-known authority on accidents and author of a respected book, *Learning From Failure* (2003). He has analyzed data on over 1,100 industrial accidents focusing on design flaws, system failures and human error. For Hatamura, managing risk at a nuclear power plant is about foreseeing the unforeseen and preparing accordingly. His committee refuted TEPCO's in-house, self-exonerating report released in early December 2011 that blamed the accident entirely on an unanticipated, rare natural disaster. In fact, TEPCO ignored several warnings, including internal research, about the possibility of a monster tsunami. It looked into building a larger tsunami seawall, but decided the cost was prohibitive and took no additional preventive measures. On March 7, 2011, only four days before the tsunami, TEPCO presented the Nuclear and Industrial Safety Agency (NISA), the government's nuclear watchdog authority, with results from simulations conducted in 2008 by its own researchers showing that a tsunami as high as 15.7 meters could hit the area, a finding it ignored.

Telltale warnings began accumulating over the decade prior to 3/11. In 2001, researchers cited geological evidence that the Jogan tsunami of 869 slammed the Fukushima coastline and the wave height was strikingly similar to the 3/11 event. Their research on ancient gigantic tsunami noted that such uncommon disasters occur every 800-1,100 years and specifically warned that the region was overdue for another. In February 2002 the Japan Society of Civil Engineers using new simulation techniques determined that there was a risk of a 5.7 meter tsunami and a month

later TEPCO increased its estimates accordingly from the original assumption of a 3.1 meter tsunami when the reactor was being built in the early 1970s. In July 2002 the government's Headquarters for Earthquake Research Promotion warned that an even larger tsunami was possible based on historical evidence. In 2006 the government revised its anti-seismic guidelines, specifically calling on utilities to prepare for rare events. In 2009 NISA and TEPCO discussed the possibility of a 9.2 meter tsunami based on new simulations and archaeological evidence, but NISA did not press TEPCO to take countermeasures.

Clearly, there is no basis to TEPCO's claim that the scale of the 3/11 tsunami was inconceivable; the utility chose to ignore centuries of geological evidence and repeated 21st century warnings from modern scientists, including in-house researchers. In terms of tsunami-related risk management, it turns out that TEPCO and two other utilities actually lobbied the government's Earthquake Research Committee on March 3, 2011 to water down wording in a report warning that a massive tsunami could hit the Tohoku coast. Apparently the committee agreed to modify the report in accord with concerns expressed by the utilities that a stark warning about the possibility of a colossal tsunami might cause "misunderstanding" among the public.³²

Aside from this dubious intervention, TEPCO ignored ominous developments in the subduction zone off the coast of Honshu island. Subduction zones, where tectonic plates slip under one another, are prone to ruptures that trigger tsunami. The wider the area of tectonic plate overlap, the greater the potential for a mega tsunami. Seismic sensors on the ocean floor indicated growing pressures and risk of rupture along the fault line that runs North-South off the coast of Tohoku. The 2010 subduction zone quake off the coast of Chile and that in 2004 off Sumatra that wreaked havoc in Aceh, Thailand, India and Sri Lanka are recent examples that should have undermined institutionalized complacency about tsunami risk. But TEPCO did not approach risk assessment from the basis of a worst-case scenario, and relied on unduly optimistic assumptions that wished away a cataclysm in a region with a history of killer waves. This unjustified insouciance cost Japan dearly.

Culture of Safety?

Inexcusably, TEPCO did not make safety its ethos while lax oversight by the government allowed this culture of complacency to persist long after it was obvious that TEPCO was cutting corners to cut costs. METI did shutdown all 17 of TEPCO's reactors in 2002, but only because the media reported a whistleblower's revelations about systematic falsification of repair and maintenance records, and exposed the government's initial failure to act on this information. The 2011 third party panel found that safety precautions were based on unrealistic assumptions that left the utility poorly prepared to deal with a crisis, a finding that came too late for the people evacuated from their homes in Fukushima and thousands of farmers and fishermen who lost their livelihoods.

Given the risks associated with operating nuclear power plants in a seismically active, densely populated country it is extraordinary that Japan's utilities did not practice evacuation procedures in reactor- hosting communities. The utilities justify this oversight by arguing that they did not want to alarm local residents by practicing for an unlikely event and thereby undermine repeated assurances that nuclear energy is completely safe. Thus, the utilities and many communities did not prepare to help local residents escape from the radioactive contamination that has blighted Fukushima prefecture. The lack of procedures and guidelines proved a major hole in disaster preparedness. In retrospect, this policy of preserving the myth of 100% safety at the expense of

actually safeguarding residents represents an institutionalized inclination to collectively bury heads in the sand, and irresponsibly minimize risk in ways that endangered local residents.

Transparency

In August 2011 a Diet committee investigating the nuclear disaster requested that TEPCO provide it with an operations manual for the Fukushima Daiichi plant. TEPCO initially refused the request, prompting a public uproar. One month later, TEPCO provided a heavily redacted version of the manual and justified blacking out key passages related to emergency procedures, arguing that this information constituted intellectual property it wished to protect and also raised security concerns. These spurious grounds highlighted TEPCO efforts to prevent the Diet from exercising oversight and attempting to cover-up shortcomings in its crisis response. It took six months for TEPCO to release the entire manual. Committee members complained about this stonewalling and stated that, “It was important that we saw the manual to learn why the company had switched part of the emergency core-cooling system off and on again after the earthquake (and before the tsunami) — to find out when the emergency systems were destroyed.”³³ Former premier Hatoyama Yukio concluded that it is imperative to nationalize TEPCO in order to promote transparency and learn the lessons of Fukushima precisely because the utility has tried to obfuscate rather than clarify what happened and why. But it is not only TEPCO that is attempting to cover its tracks.

In January 2012 the media reported that various government panels dealing with the Fukushima crisis failed to keep minutes of the proceedings, including the task force set up by the Prime Minister’s office. Keeping minutes is standard procedure for government panels, one usually carried out by bureaucratic officials. The failure to keep minutes is a critical oversight because it prevents learning more lessons about the crisis response to avoid repeating the same mistakes in the future. The Asahi termed this absence of minutes a, “monumental level of government ineptitude”, fuming that,

“It would be hard for the officials involved to disprove the charge that they deliberately neglected to keep a record of the meetings so that their blunders and missteps would not come to light later. Now, the oft-repeated pledge by top government officials to share lessons learned by the accident with the international community sounds hollow. Technically, the responsibility for this fiasco lies with the Nuclear and Industrial Safety Agency of the Ministry of Economy, Trade and Industry, which served as the secretariat for the headquarters. But even more to blame are the politicians who failed to ensure that a record of the meetings would be kept.”³⁴

In February 2012 the RJIF investigation highlighted the lack of transparency, noting that the government withheld information about the full danger of the nuclear disaster from the public and the international community.³⁵ This conclusion was confirmed on March 9, 2012 when the government released a 76 page summary of the 23 meetings of the Prime Minister’s crisis management team that was reconstructed from interviews conducted in early 2012 of officials attending the 2011 meetings and unofficial notes kept by NISA officials. NHK contrasted this post-facto summary, one short on details, with the recent release of the 3,200 page transcript of the U.S. Nuclear Regulatory Commission crisis deliberations about Fukushima. The summary is vague on important issues such as the decision to declare a nuclear emergency, discussions about a meltdown within hours of the earthquake, the decisions to expand the evacuation zone and criticism about the lack of a chain of command in managing the crisis.³⁶ This belated attempt to quell public concerns about the lack of transparency actually amplified them because it has

clarified how much information the government withheld from the public and how little it has divulged about its deliberations during the crisis.

Apparently, managing risk was more a matter of concealing chaotic and inconsistent decision-making by the government and inadequate crisis response procedures by TEPCO than gleaning useful lessons about how to improve crisis response mechanisms. This lack of transparency reflects a “circling of the wagons” mindset that prevents robust risk management, raising serious doubts about operating nuclear reactors in Japan.

Whistleblower

In Diet testimony on Feb. 15, 2012, Madarame Haruki, Chairman of the Nuclear Safety Commission, pulled back the curtain on the nuclear village, drawing attention to cozy and collusive relations between regulators and the utilities, and lax safety standards. He spoke of officials ignoring nuclear risks and admitted, “We ended up wasting our time looking for excuses that these measures are not needed in Japan.”³⁷ He asserted that Japan’s safety monitoring technology is three decades out of date, while acknowledging that he and his colleagues had, “...succumbed to a blind belief in the country’s technical prowess and failed to thoroughly assess the risks of building nuclear reactors in an earthquake-prone country.”³⁸ He said that regulators and the utilities missed many opportunities to improve operating safety and warned that safety regulations are minimally enforced and fundamentally flawed. Furthermore, he asserted, regulators were toothless and overly solicitous of utility interests. He acknowledged that officials did not prepare for a simultaneous station blackout and failure of backup generators and ignored a series of warnings about the dangers of a large tsunami affecting the Fukushima plant. His testimony confirmed the findings of the two investigations, Third Party Panel and RJIF, cited above that were released at the end of December 2011 and February 2012 respectively.

In Madarame’s view, nuclear reactor safety is compromised because of institutional complacency and perfunctory enforcement of safety regulations and guidelines. He accused utilities of slipshod practices, stating, “Power companies have the fundamental responsibility of securing safety and they need to set their standards much higher than what the government suggests. . . . It is extremely outrageous if power firms are using the NSC’s safety standards as an excuse not to raise them.”³⁹

It is unnerving to have one of the nation’s leading nuclear energy experts, the man in charge of the NSC, one who has long been a stalwart advocate of nuclear energy and who defended the nuclear crisis response in the months following 3/11, suddenly voice many of the same objections that anti-nuclear activists have expressed over the years. Madarame as apostate may not be convincing, but his withering indictment of the nuclear power industry and government regulators is an astonishing development in the post-Fukushima discourse. Of course some of it can be attributed to his desire to restore a battered reputation and to shift responsibility.⁴⁰ Indeed, in his testimony he explained that he had been trying to reform the NSC and impose stricter monitoring, but having only taken his position in April 2010, he had not had sufficient time prior to 3/11 to overcome an entrenched institutional culture. Now Madarame has exposed the shadowy practices of the nuclear village, including collective heedlessness about safety and poor risk management. In the one sector where a culture of safety should have been foremost, the nuclear safety czar revealed a culture of deceit.

Shortly after his Diet testimony, Madarame dropped another bombshell when he announced that he does not think that the first round of stress tests conducted on Japan's nuclear reactors are sufficient to ensure safe operation.⁴¹ Speaking on behalf of the NSC, Madarame said, "With only the first round (of stress tests), the level of safety confirmation that the commission seeks would not be met. Whether to reactivate (reactors) is the government's decision and we, as the safety commission, won't say anything about it." This high profile indictment of the stress tests comes at an inconvenient time for the government because NISA has already endorsed first stage stress tests conducted for Kansai Electric's Oi power plant. In response to Madarame, the Chief Cabinet Secretary Osamu Fujimura stated that regardless of the NSC, the government will decide on whether or not to resume operations of nuclear reactors based on the initial stress tests and local sentiments in nuclear plant hosting communities.

The Noda cabinet's desire to restore public confidence in nuclear energy through the stress tests, and restart idled reactors, has been undercut by Madarame's statement. Public anxieties about nuclear energy are already widespread and the stress tests have been dismissed all along as empty PR gestures by prominent politicians such as the governors of Niigata, Ishikawa and Fukui, along with experts and citizen's groups. Nothing, however, could be quite as damning as the NSC chairman, one of the nuclear village's headmen, pointedly refusing to endorse the stress tests.

The stress tests were first announced by PM Kan in July 2011, stirring considerable controversy because he did not consult with his cabinet beforehand.⁴² Kan's insistence on EU style 2-stage stress tests derailed METI's plans to quickly restart idled reactors last summer and infuriated METI Minister Kaieda. METI had engaged in a PR campaign to reassure hosting communities that reactors were safe, and on June 18 Kaieda announced that METI had confirmed it was safe to resume operation of the nation's reactors. But this haste to resume business as usual in the nuclear industry only three months after the three meltdowns, and not quite one month after TEPCO finally admitted to the meltdowns, backfired. The media exposed how NISA and Kyushu Electric, at the suggestion of the governor of Saga, had orchestrated an Internet "town hall" meeting on June 26, planting questions and opinions among participating "netizens" in favor of nuclear energy and restarting the Genkai reactors in Saga Prefecture. METI's plans suddenly came under fire and Kan seized the opportunity to introduce stress tests and handed responsibility for overseeing the process to NISA and the NSC.

At the time it looked like little more than a delaying measure because the utilities would conduct the computer simulations about the safety of restarting their own idled reactors. Adding to the conflict of interest, key institutions in the nuclear village, NISA and the NSC, would assess the results and presumably endorse them. But the NSC has now upset these plans and in doing so stoked public skepticism about the effectiveness of stress tests based solely on computer simulations. Experts have pointed out numerous flaws in the stress tests and note that they do not measure metal fatigue, an important issue for aging plants, don't examine multiple failures as occurred at Fukushima, and lack hands-on testing of components.⁴³ Stress tests have not been used anywhere in the world to determine if a plant should be operating. People have good reasons not to trust the utilities to report inconvenient findings from the stress tests since they are known to have falsified repair and maintenance records in the recent past. Moreover, TEPCO conducted computer simulations in 2008 on tsunami risk that it did not share with NISA until four days before 3/11. Critics also point out that much depends on what assumptions are used in

the simulations and doubt that utilities, with so much investment in nuclear energy at stake, will uncover the need for expensive retrofitting or decommissioning.

Madarama has undermined the credibility of the stress tests and indicated that more sweeping reforms are needed to upgrade safety and monitoring in the nuclear industry. Will this ‘betrayal’ of the nuclear village have any impact? Yes, in terms of public sentiments, but his remonstrations notwithstanding, the government appears determined to restart idled reactors. Apart from considering results of the stress tests in deciding whether or not to restart reactors, the government vaguely referred to taking into account the feelings of local residents while rejecting calls for a national referendum. Rather, the government seeks to consult residents of towns that are given lavish subsidies to host nuclear power plants that also generate well paid jobs. So by basing the government’s restart decisions on the sentiments of those who have the most to gain from resuming operations, and on tests conducted by those with the most to gain from going back online, officials appear to be limiting the risk posed by anti-nuclear public opinion. The media is full of reports about how much hosting communities gain from hosting and how much they stand to lose in terms of subsidies, taxes and jobs if reactors remain idled. So if only these local people’s views count, the fix seems to be in. But Fukushima has changed perceptions about nuclear energy safety throughout Japan.

An NHK poll in October 2011 indicated that 80% of the mayors of hosting communities oppose restarting reactors until safety can be verified. The governor of Niigata which hosts the massive Kashiwazaki nuclear plant, closed in 2007 following a magnitude 6.8 earthquake that exceeded reactor design specifications, has repeatedly stated that he would oppose resumption of operations until the Fukushima crisis is resolved and dismisses the value of the stress tests. So it may well be true that local people can be induced or bribed into restarting idled reactors, but they are also keenly aware of how little has been done for the residents of Fukushima and how much they lost.

In Fukushima evacuation centers there is a degree of tension between evacuees from hosting villages and those from neighboring villages that never received any subsidies or benefits, but have experienced the same level of personal loss and dislocation.⁴⁴ The politics of cherry picking public opinion are uncertain, but the government does seem to be courting risk by ignoring the voices of many other local residents who have just as much at risk as hosting community residents and nothing to gain.

More worrisome for the nuclear village is the March 8, 2012 NHK poll conducted in 142 communities in the vicinity of Japan’s nuclear power plants. NHK found that only 14% of respondents favor restarting idled reactors now or in the near future while 79% opposed or had strong reservations about doing so.⁴⁵ Clearly the government faces a steep uphill battle in gaining the understanding of Japanese living near nuclear reactors about plans for restarting reactors.

Nationalization

The government has injected vast sums of money into TEPCO so that it can honor its liabilities and continue operating, but the utility is resisting ceding management control to the government. Decommissioning the four crippled reactors at Fukushima will cost at least US \$15.5 bn over the next three to four decades while compensation payments may reach some US\$30 bn in the first two years alone. Dealing with the cleanup, from schoolyards and parks to fruit orchards and residential areas, and disposing of radioactive debris will boost the bill significantly. In August

2011 the government adopted legislation that provides guarantees for TEPCO's liabilities and established a 5 trillion yen credit line for a Nuclear Damage Liability Facilitation Fund (NDLFF) funded by special compensation bonds that will be used to lend money to TEPCO.

Compensation will cover about 75% of Fukushima's residents, or 1.5 million people. However, in one of many disastrous PR moves, TEPCO initially required individuals seeking compensation to fill out a complicated 62-page form. The ire over this red tape forced the company to create a simplified form, although the new one still runs to 34 pages and requires applicants, many of whom lost homes and all records, to fill in over 1,000 fields. This onerous compensation hurdle and associated delays have angered victims and left many in difficult financial straits. By early 2012 less than one half of the 70,000 eligible households had filed the necessary paperwork. As of March 2012, only one quarter of the 1.7 trillion yen of financial aid the government provided TEPCO for compensation has been disbursed. TEPCO has postponed settlement of real estate related claims in the no-entry area and designated as hot zones.⁴⁶ The government's expected reclassification of such areas in April 2012 will reduce the restricted areas and presumably lower TEPCO's payouts. In addition, since an arbitration board was established in Sept 2011, TEPCO has stonewalled compensation, only settling 18 out of 1,243 cases. Cumbersome procedures and paperwork are part of TEPCO's strategy for managing risk and minimizing payments to those whose lives have been turned upside down by Fukushima.⁴⁷

TEPCO's liabilities exceed its assets, and so technically it is insolvent, but with more than 30 million customers in the Kanto region, including Tokyo, it is too big to fail. This explains the government's decision to rescue the utility despite public misgivings about management miscues. Banks will not lend it any more money or refinance loans in the absence of government guarantees. The government and TEPCO have been sparring over nationalization of the utility with METI Minister Edano arguing that the government should exercise management control because the \$12.4 billion injection of public funds is equivalent to a 2/3 stake in the company. While this is what happened to the banks during the Koizumi era (2001-06), TEPCO has powerful backers to help resist a government takeover. PM Noda is much more favorably inclined toward the nuclear industry than his predecessor while the Ministry of Finance along with the business federation Keidanren is also lobbying against full-scale nationalization. In early March it was announced tentatively that the government will obtain 51% of voting rights in TEPCO, but the remaining 15% of its stake will be non-voting shares.⁴⁸ According to Japanese law this means that the government can choose board members for TEPCO, but because it doesn't control 2/3 of voting rights it can't force through major management reforms such as mergers and spin-offs. Perhaps this quasi-nationalization will improve corporate governance, but because the utility retains significant management autonomy this agreement marks a major setback for those like Edano who believe that TEPCO requires more fundamental reforms. Edano has lead a chorus of criticism that TEPCO has not gone far enough in streamlining operations, cost-cutting and taking responsibility for its negligence.⁴⁹ Since it appears that TEPCO will need further injections to stay afloat, the agreement facilitates access to more public funding. In addition, making TEPCO a ward of the state will help it obtain some 900 billion yen in bank loans from July 2012, but the financial sector is also insisting on assurances of higher electricity rates and restarting some reactors. Yet again, this loan plan reaches deep into taxpayers' pockets as the government's Development Bank of Japan will provide about 500 billion yen of the total while commercial banks, trust banks and insurance companies will provide 400 billion yen and refinance 170 billion in outstanding loans.

The bailout and sham nationalization mean that taxpayers will be paying off the Fukushima tab for decades to come and as ratepayers face higher electricity prices while many of the people who mismanaged risks at TEPCO remain in charge. The estimated 10% rate increase for households that will be introduced from the summer of 2012 has drawn considerable criticism as it follows revelations that TEPCO systematically overcharged customers over the past decade.

Backlash

Over the past five decades the government and utilities have educated Japanese citizens to believe in the safety, reliability and necessity of nuclear energy. Indeed this myth blinded regulators and operators to the risks and rendering adequate crisis management procedures taboo.⁵⁰ Thus the Fukushima debacle came as a shock to most Japanese, one that thoroughly undermined the assiduously propagated myths of nuclear energy safety. As the crisis lingered throughout 2011 and it became clear that the nation would be dealing with the consequences for decades rather than months, shock gave way to a backlash, jolting many citizens out of resignation to varying degrees of anti-nuclear activism.⁵¹

The top-down consensus promoting nuclear energy is now being challenged by a growing bottom-up backlash. Certainly there was anti-nuclear activism prior to Fukushima, but it has become far more widespread since 3/11 due to a lack of trust in official information and reassurances. This activism is evident in social media where websites post radiation readings taken by “citizen scientists” armed with their own Geiger counters that map the spread and extent of contamination, painting a far more grisly situation than official assessments. As it became evident that the government was not ensuring food safety, producers, retailers and consumers have taken matters into their own hands, a do it yourself approach that speaks volumes about public perceptions of official failings. In addition, there is also a citizen’s campaign led by Nobel Literature laureate Oe Kenzaburo, among others, to collect ten million signatures for an anti-nuclear energy petition; currently they have 4 million. In the present state of siege, the moat surrounding the nuclear village may have been breached, but the ramparts remain well defended.

Activists have sought a national referendum on nuclear energy and various local referenda are being mooted. The central government, however, will work to prevent public sentiment from dictating national energy policy.⁵² The popular mayor of Osaka, Hashimoto Toru, has been very critical of the utilities and when he was governor of Osaka he spoke out against nuclear energy on which the Kansai region previously relied for 50% of its electricity. At present, the three major cities in the Kansai heartland—Osaka, Kyoto and Kobe—are lobbying KEPCO to phase out nuclear energy and disclose information about energy supply and demand, and lower rates. The three cities control nearly 13% of Kansai Electric shares (Osaka 9%, Kobe 3% and Kyoto 0.45%) and plan to table a motion on phasing out nuclear power at the June 2012 shareholders’ meeting.



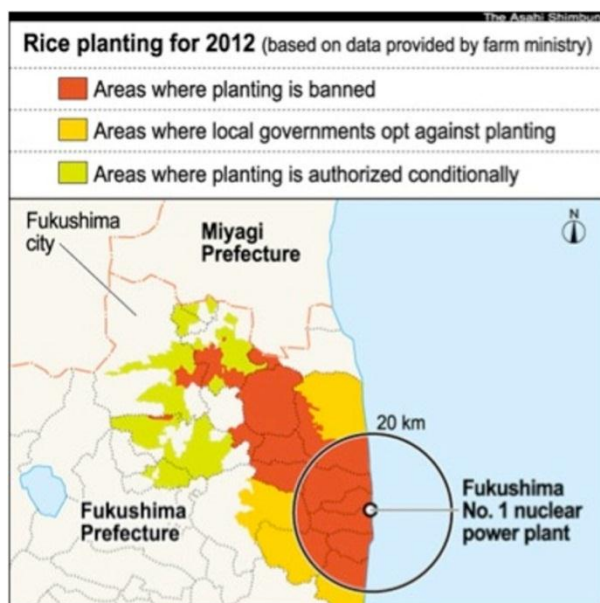
Checking for Radiation with dosimeter

Citizens are also responding to the nuclear crisis through voluntary conservation efforts. In the summer of 2011 there were expectations of rolling blackouts as reactors went offline for regular inspections so the government mandated conservation for large commercial users and urged the public to reduce electricity consumption by 15%. Through lifestyle changes and innovative measures, the public exceeded this target and registered an overall 20% decrease in electricity consumption. Surveys indicate that some 60% of the public practiced conservation since 3/11 and it seems to be a new commonsense norm, one that will be reinforced by higher electricity prices.

Polls also indicate strong public support for renewable energy and key business leaders such as Son Masayoshi, Japan's Bill Gates, along with others, are tapping into this shift in sentiments and the new Feed-In Tariff legislation to invest in expansion of renewables.⁵³ A Yomiuri poll taken in November 2011 asked respondents what source of energy Japan should rely on in the future and 71% chose solar energy while only 6% chose nuclear energy. Smart innovative capital is driving a green revolution, but also encountering resistance from the nuclear village in terms of transmission access and pricing while also facing technological hurdles that raise questions about how quickly such a shift can happen. But because renewable energy now generates only 1% of Japan's electricity supply, there is lots of low hanging fruit that could lead to fairly rapid increases over the next decade if the government gets policy and pricing right.

Food and Fuel Risk

In post-Fukushima Japan, risk management includes protecting the public from the radiation that has been spewed from the crippled reactors. In the area of food safety the government continues to underwhelm. The public has grown increasingly skeptical about government pronouncements because one month they are told that Fukushima rice is safe and free from radiation and the next that it is not.

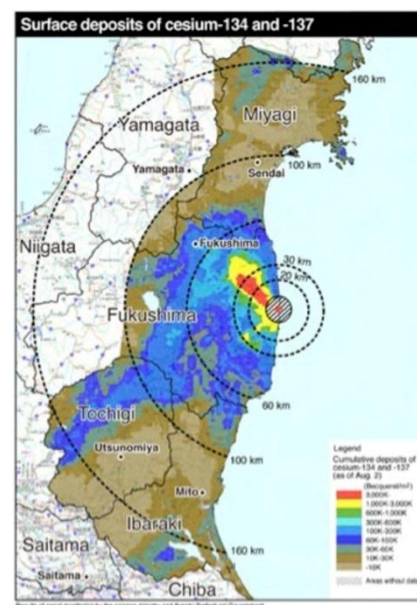


Rice Planting Ban

One of the more puzzling policy decisions involves the government announcing stricter food safety radiation standards soon after it announced a cold shutdown at the stricken nuclear complex in December 2011. The new top limit for cesium is 100 becquerels per kg of rice, meat, vegetables and fish, one-fifth the limit set shortly after the nuclear accident, while the safe level for drinking water was slashed from 200 to 10 becquerels. This drastic reduction in "safe" levels is unnerving for people who have been paying attention to the previous guidelines and believing that they were eating safe food and drinking safe water; now they are not so sure. There is also bafflement as to why the stricter limits only take effect in April 2012 with a further six-nine month "grace period" for beef and rice to meet the new standards.

Grace period? Understandably consumers wonder why stricter standards for what they ingest are delayed. It is also puzzling that at the end of February 2012 the Ministry of Agriculture announced that it would permit rice farming in hot zones where cesium contamination of soil was found to exceed maximum safety levels and tasked local authorities with preventing distribution of any harvested produce exceeding safety guidelines even though there is no system in place to coordinate and conduct such safety checks.⁵⁴

The government has also failed to deal with the immense risk of spent fuel rods that are currently stored in pools located in buildings that house nuclear reactors. After the station blackout on March 11, cooling systems for the spent fuel rod pools ceased functioning meaning the water would evaporate and the fuel rods would overheat, causing a massive release of radioactive substances. This would have rendered Fukushima Daiichi inaccessible, halting nuclear accident crisis operations there. In addition, the scale of the Fukushima accident would have been far worse as the Reactor 4 pool contained recently removed fuel rods that remained “hot” and altogether the pool held the amount of fuel rods typically used to power two reactors. It was “sheer luck” that a catastrophic accident was averted.⁵⁵ Reactor 4 was shutdown at the time and was undergoing major upgrading work involving replacement of the core shroud. As part of this work, part of the reactor structure was filled temporarily with a large amount of water. The schedule called for draining the water prior to 3/11, but there were delays due to glitches in the work and by chance, a separator gate was open, so that after the hydrogen explosion, an estimated 1,000 tons of water flowed into the spent fuel storage pool, serendipitously preventing a cataclysm.⁵⁶



Cesium Dispersal Map



The face of sheer luck: Reactors 3 and 4 at Fukushima Daiichi

These spent fuel rods are supposed to be stored and reprocessed at the Rokkasho facility, but there have been significant delays and problems in completing this project and its capacity is insufficient anyway.⁵⁷ The storage pool at Rokkasho is already 95% full while the cooling pools at reactors are nearly full and all remain vulnerable to seismic events. There are no large dry-cask storage facilities in Japan for more secure, interim storage as is the case in Europe and the US. The US faces similar problems in dealing with nuclear waste disposal and has also not moved ahead with a permanent storage solution. At the end of February 2012 the Japan

Atomic Energy Agency, now revising Japan's basic nuclear energy policy, suggested the option of direct fuel disposal by burial. This signals a possible move away from the nuclear fuel cycle and reprocessing, but currently there is no disposal site.⁵⁸

Conclusion

“...they allowed their enthusiasm for nuclear power to shelter weak regulation, safety systems that failed to work and a culpable ignorance of the tectonic risks the reactors faced, all the while blithely promulgating a myth of nuclear safety.”

The Dream That Failed⁵⁹

It is extraordinary that *The Economist*, a conservative, pro-business, mainstream weekly, has reversed its longstanding support for nuclear energy, describing it as a failed dream. In Japan, however, the battle lines are drawn between nuclear advocates who cling to this failed dream and opponents who favor a shift towards renewable energy. The nuclear village enjoys many advantages since it is easier to maintain or modestly tweak the national energy status quo than to promote a green revolution. Institutional inertia may constrain reforms, causing changes to be more incremental than dramatic. The trump card of the nuclear village is the need to maintain stable electricity supply and its advocates maintain that nuclear energy cannot be replaced by renewable energy and note that shifting to carbon fuels is costly in terms of the trade deficit and global warming. The strategy is to transform this politicized debate into a “pragmatic” decision, dictated by a dispassionate assessment of energy, economic and environmental realities.⁶⁰

But the realities that spewed from Fukushima, and revelations about TEPCO’s inept safety precautions and crisis response, along with institutional failures in regulatory agencies, lead other actors to draw different conclusions about the safety, reliability and cost of nuclear energy. This pragmatic reassessment by nuclear critics, now including *The Economist*, also draws on the fact that nuclear energy developed because of significant government subsidies and incentives over several decades because it was deemed a pressing national priority. Renewable energy advocates argue that similar government commitment and investments in renewable energy would make it a sustainable alternative, yield less toxic dividends and boost Japan’s prospects in global markets for green technologies.

It does seem likely that Japan will continue to rely to some degree on nuclear energy, but there are powerful actors in government and business, supported by public opinion, that favor METI Minister Edano’s call for a phased reduction and minimal reliance on nuclear energy based on expansion of renewable energy. PM Noda and other Cabinet ministers, however, side with the nuclear village and one wonders how long Edano will remain in his position and who might replace him. Clearly it has been a bad year for the nuclear village with a surge of anti-nuclear sentiment, but it is too soon to predict the outcome of the ongoing battles over national energy strategy given the nuclear village’s networks of power and influence.

The nuclear village has been battered over the past year because there are fundamental questions about safely operating nuclear reactors in such a seismically disadvantaged nation. *The Economist* points out that, “nuclear safety can never be a technological given, only an operational achievement.”⁶¹ It also notes that the new generation of supposedly far safer reactors is also vulnerable to unanticipated malfunctions as occurred in Hamaoka.⁶²

The nuclear crisis at Fukushima was triggered by natural disaster, but human error played a critical role. A systemic failure in risk management, institutionalized complacency about tsunami risk and incompetence in operating emergency cooling systems were crucial factors in this catastrophe. TEPCO lacked a culture of safety that explains its lapses before, during and after 3/11. Fukushima was an accident waiting to happen and nuclear industry regulatory authorities are complicit because they failed to pressure TEPCO to heed numerous warning signs. Because

risks were downplayed, TEPCO and the government were ill-prepared to deal with the meltdowns and respond effectively to the consequences of the accident. Kitazawa Koichi, former chairman of the Japan Science and Technology Agency, stresses that Japan was very lucky that the three-meltdown disaster was not significantly worse.⁶³ It is equally alarming to know that the scientific community did little to challenge, and in the end perpetuated, the absolute safety myth that enshrouded nuclear energy. Experts occasionally raised red flags but did not follow through when their warnings were ignored and scientists in a position to influence nuclear safety regulations and disaster preparedness averted their eyes from the evident risks and kept silent while nuclear advocates made half-baked claims and cut corners on safety.

The mishandling of the evacuation subjected many Fukushima residents needlessly to radioactive contamination, highlighting how poorly prepared authorities were for a nuclear crisis. Other communities hosting nuclear plants have taken note of lax disaster preparedness and how little has been done for the Fukushima evacuees. As a result, restarting reactors shutdown for inspections and stress tests will prove politically divisive. As of November 2011, an NHK opinion survey showed that 90% of those polled are anxious about nuclear accidents and 70% do not trust the government's safety preparations.⁶⁴ In addition, two-thirds of the public expresses misgivings about nuclear energy, with 42% favoring reduction of the number of plants and 24% favoring abolishing them. A March 2012 poll by NHK found that residents of local communities in the vicinity of nuclear power plants have serious reservations about restarting idled plants despite all the subsidies and other financial inducements; only 14% are in favor of restarting or are inclined to agree, while 79% oppose or express strong reservations. Decontamination, decommissioning and disposing of contaminated waste over the coming decades will keep nuclear energy under sustained, critical scrutiny.

TEPCO's risk management prior to and during the crisis may have been woeful, but in the aftermath it has been relatively successful in managing risks to its institutional interests and avoiding accountability. While its reputation may be in tatters, TEPCO has stonewalled ceding management power to the government while obtaining vast sums of public money to cover the utility's enormous costs for clean-up, disposal, decontamination, decommissioning and compensation. It is also lobbying to sideline plans to separate power generation from transmission and distribution, maintaining advantages that may impede the expansion of renewable energy capacity. Bondholders and shareholders stand to gain from averting nationalization, with taxpayers and ratepayers picking up the tab. TEPCO has also resisted government demands for more cost-cutting and it has also muddied the waters of responsibility by maintaining its tsunami defense and diverting attention from the role of the earthquake in damaging cooling system piping.⁶⁵ If the quake is implicated in the meltdowns the implications would be enormous, requiring extensive and expensive retrofitting at all of Japan's remaining nuclear reactors because they are all vulnerable to seismic events. This is not the sort of risk management that instills confidence in a company that seeks permission to restart its' idled reactors.

At the end of Feb 2012, the Rebuild Japan Initiative Foundation (RJIF) released a report based on its investigation of the nuclear accident.⁶⁶ It is a scathing indictment of Japan's nuclear risk management and crisis response. The report emphasizes the disarray, dysfunction, miscommunication, meddling and vertical sectionalism that prevailed and how these problems exacerbated poor disaster preparedness. The RJIF criticizes leaders who played down the risks of reactor meltdowns in public while privately conducting discussions about a worst-case scenario

involving the evacuation of Tokyo. The crisis also exposed the vulnerabilities of the electrical and cooling systems, and lax security rules, raising concerns about a potential terrorist attack. In highlighting these sweeping problems the report underscores the major risks associated with Japan's nuclear industry and raises serious doubts about whether it is possible to manage these risks.

The Fukushima Daiichi reactors remain vulnerable to earthquakes and rely on jury-rigged cooling and electrical systems that are "shockingly feeble-looking"; plastic water hoses critical to the cooling systems have cracked in the cold weather and are mended with tape.⁶⁷ In addition, vast amounts of contaminated water used in cooling the stricken reactors is accumulating and, as with accumulating spent fuel rods, there is no waste disposal solution at hand. Utilities are now increasing the safety of back-up energy generating capacity, and in Hamaoka they are finally building a seawall to protect against a predicted tsunami, but these are belated and small steps towards complying with a wide array of previously ignored international guidelines and addressing the nuclear energy risks that Japanese now know all too well.

The great risk in Japan today and well into the future is that the lessons of Fukushima may be skewed, ignored or marginalized in a nation where nuclear energy represents a significant and abiding risk. The coming months will provide a critical barometer as Japan resets its national energy strategy and institutes new nuclear safety and crisis response measures.

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Notes:

¹ I would like to thank two anonymous reviewers, Mark Selden and Rodney Armstrong for their helpful suggestions.

² Asahi 2/28/2012

³ NHK News 2/28/2012

⁴ In assessing TEPCO's approach to safety it is important to bear in mind it's track record of cover-ups and falsification of repair and maintenance records. Jeff Kingston, *Contemporary Japan*. Wiley, 2011. 149-155

⁵ Jeff Kingston, 'Ousting Kan Naoto: The Politics of Nuclear Crisis and Renewable Energy in Japan,' *The Asia-Pacific Journal* Vol 9, Issue 39 No 5, September 26, 2011.

⁶ The nuclear village includes utilities, vendors, bureaucrats, regulators, politicians, academics and journalists who promote and defend nuclear energy.

⁷ NHK News 9 Interview 3/8/2012.

⁸ Charles Perrow (2011) "Fukushima and the Inevitability of Accidents", *Bulletin of the Atomic Scientists* 67(6) 44-52.

⁹ Daniel Aldrich, *Site Fights: Divisive Facilities and Civil Society in Japan and the West*, Cornell University Press: Ithaca, NY, 2008.

¹⁰ Hiroshi ONITSUKA, 'Hooked on Nuclear Power: Japanese State-Local Relations and the Vicious Cycle of Nuclear Dependence,' *The Asia-Pacific Journal* Vol 10, Issue 3 No 1, January 16, 2012

¹¹ There was no national anti-nuclear energy movement pre-3/11 and the anti-nuclear bomb activists did not embrace this issue. See Simon Avenell, "From Fearsome Pollution to Fukushima: Environmental Activism and the Nuclear Blind Spot in Contemporary Japan" *Environmental History* (online Feb 22, 2012; print forthcoming) *Environmental History* 2012; doi: 10.1093/envhis/emr154

¹² Some lower court decisions went against the utilities and/or government, but these were reversed on appeal. Lawrence Repeta, "Could the Meltdown Have Been Avoided?", in Jeff Kingston (ed), *Tsunami: Japan's Post-Fukushima Future*. Foreign Policy: Washington, DC, 2011. Pp. 183-194. This ebook is available on the Foreign Policy website or from Amazon, [here](#). For a broader discussion about how the judicial system has been manipulated to protect conservative interests and stifle civic activism see Lawrence Repeta, "Reserved Seats on Japan's Supreme Court", *Washington University Law Review*, vol. 88 (2011), 1713-1744.

¹³ Takagi Jinzaburō, "Kakushisetsu to Hijōjitai: Jishin Taisaku no Kenshō o chūshin ni," *Nihonbutsuri Gakkaishi* 50 (1995): 821.

¹⁴ Perrow, op. cit., 48.

¹⁵ Repeta, op.cit., p. 191

¹⁶ *ibid*.

¹⁷ NYT, 4/26/2011

¹⁸ Amakudari literally refers to descent from heaven, but in practice means officials securing post-retirement sinecures in the industry they previously supervised in their official capacity. This system, creates a government-wide conflict of interest; officials are loathe to alienate potential future employers by zealous enforcement of regulations and standards.

¹⁹ For a summary of Noda's views on nuclear energy see Watanabe Chisaki, Bloomberg 9/5/2011.

²⁰ For a discussion of the new law on decommissioning see Sawa Takamitsu, "Tradeoff in Nuclear Power", *Japan Times*, 2/27/2012

²¹ On the nuclear reactor whistleblower scandal see Jeff Kingston, *Contemporary Japan: History, Politics and Social Change Since the 1980s*. Wiley 2011, pp. 151-152.

²² This section draws on Jeff Kingston, *The Politics of Disaster, Nuclear Crisis and Recovery*, in Jeff Kingston (ed.), *Natural Disaster and Nuclear Crisis in Japan: Response and Recovery after Japan's 3/11*. Routledge 2012, pp. 188-206.

²³ Chief Cabinet Secretary Edano Yukio told Kan before he flew to Fukushima that his visit would trigger criticism and Kan responded by asking if it was more important to avoid criticism or try to deal with the crisis. NHK News 2/28/2012

²⁴ When the TEPCO president called the plant manager and insisted on cessation of saltwater pumping, the manager agreed in a loud voice to do so while quietly telling his staff to ignore the order. Funabashi Yoichi presenting findings of the non-government investigation into the Fukushima accident at the Foreign Correspondent's Club of Japan, 3/1/2012.

²⁵ NYT, 6/12/2012

²⁶ Japan Times 2/18/12

²⁷ AP 2/28/2012. The RJIF report focuses on the fact that the institutions that should have been prepared to manage the crisis—TEPCO, METI, NISA and the NSC- were totally unprepared and thus did not respond effectively. Kan very quickly sensed this vacuum in the crisis response and was trying to compensate for the shortcomings of the responsible institutions. Thus to blame him for meddling seems to overlook the context of inaction and what was at stake if he shied from intervening.

²⁸ Funabashi Yoichi responding to question about the RJIF report at the Foreign Correspondents' Club of Japan 3/1/2012

²⁹ Asahi Shimbun 12/27/2011

³⁰ NHK News 2/28/2012

³¹ Apparently, former Science Minister Takaki Yoshiaki and other top officials in MEXT, the ministry responsible for SPEEDI, decided on March 15, 2011 to withhold data about the dispersal of radiation from the public. Vice Minister Suzuki Kan argues that releasing information about the spread of radioactive substances would have caused public pandemonium. Japan Times 3/4/2012.

³² Japan Times, 2/27/2012

³³ Taira Tomoyuki and Hatoyama Yukio, "Nuclear Energy: Nationalize the Fukushima Daiichi Atomic Plant", *Nature* (480) Dec. 14, 2011, pp. 313–314, 15 December 2011.

³⁴ Asahi 1/26/2012

³⁵ AP 2/28/2012

³⁶ NHK News 3/9/2012. AP 3/10/2012

³⁷ AP 2/15/12

³⁸ NYT 2/15/2012; AP 2/16/2012, Bloomberg 2/16/2012

³⁹ *Japan Times* 2/16/2012

⁴⁰ Indeed, the RJIF report on the Fukushima accident pointed out that as they flew to inspect the Fukushima plant on March 12, 2011, Madarame responded to PM Kan's query by assuring him that hydrogen explosions at the plant would not occur. Later that afternoon the first of three hydrogen explosions happened, destroying trust between Kan and his advisor. Madarame told the committee that later he found himself unable to acknowledge that it was a hydrogen explosion because he had previously told Kan that such a scenario was impossible. *NHK News* 2/28/2012.

⁴¹ *Mainichi* 2/21/2012

⁴² Jeff Kingston, "The Politics of Disaster, Nuclear Crisis and Recovery", in Jeff Kingston (ed.), *Natural Disaster and Nuclear Crisis in Japan: Response and Recovery after Japan's 3/11*. Routledge 2012, pp. 194-96.

⁴³ *Wall Street Journal* 3/2/2012. Stage two tests are supposed to assess whether utilities are better able to cope with any new accident, but will not be completed before the end of 2012 at earliest. It is not clear what will be tested and how safety will be measured in the second stage of stress tests.

⁴⁴ Personal communication, Nils Horner, Swedish Broadcasting Corporation, 2/25/2012

⁴⁵ NHK News 3/8/12

⁴⁶ AP 3/12/2012

⁴⁷ For more on compensation issues see David McNeill, 'Crippled Fukushima Nuclear Power Plant at One Year: Back in the Disaster Zone,' *The Asia Pacific Journal*, Vol 10, Issue 9, No 4, February 27, 2012.

⁴⁸ Reuters 3/3/12

⁴⁹ Interview NHK News 9, 3/9/2012.

⁵⁰ Yoichi Funabashi presenting findings of the RJIF investigation at the Foreign Correspondent's Club Japan, 3/1/2012.

⁵¹ Nicola Liscutin, 'Indignez-Vous! 'Fukushima,' New Media and Anti-Nuclear Activism in Japan,' *The Asia-Pacific Journal* Vol 9, Issue 47 No 1, November 21, 2011; Satoko Oka Norimatsu, 'Fukushima and Okinawa – the "Abandoned People," and Civic Empowerment,' *The Asia-Pacific Journal* Vol 9, Issue 47 No 3, November 21, 2011

⁵² The number of referenda has been increasing since the 1970s because citizens believe that it is an important method for expressing their views on important policy issues and it is a way for local governments to challenge national policies imposed by the central government. Numata Chieko, "Checking the Center: Popular Referenda in Japan", *Social Science Japan Journal*, vol 9, (1) April 2006, pp. 19-31.

⁵³ For an assessment of the prospects of renewable energy see Andrew DeWit, 'Fallout From the Fukushima Shock: Japan's Emerging Energy Policy,' *The Asia-Pacific Journal* Vol 9, Issue 45 No 5, November 7, 2011.

⁵⁴ NHK News 2/28/2012. Asahi 3/10/2012. The Farm Ministry and local governments ban farming in 1/8 of Fukushima's paddies, including the no-entry zone in a 20 km radius around Fukushima Daiichi, but guidelines issued on February 28, 2012 allows rice cultivation in other areas where contamination levels exceed official standards. Municipal governments are supposed to monitor rice cultivation from planting to harvesting and inspect all bags of rice to ensure they don't exceed the new maximum 100 becquerel cesium standard before distribution. The Farm Ministry requires that local authorities submit rice inspection plans by June, but this will be after the planting and such capacity does not currently exist.

⁵⁵ Interview with Yoichi Funabashi, Chairman of the Rebuild Japan Initiative Foundation, Asahi 2/29/2012. Remarks by Kitazawa Koichi, former chairman of the Japan Science and Technology

Agency, at the Foreign Correspondent's Club of Japan, 3/1/2012. Kitazawa explained that it was sheer luck that the hydrogen explosion pushed water into the spent fuel rod storage pool at reactor 4; this was not a fail-safe mechanism.

⁵⁶ Asahi 3/8/2012.

⁵⁷ Masa Takubo, "Nuclear or Not? The Complex and Uncertain Politics of Japan's Post-Fukushima Energy Policy", *Bulletin of the Atomic Scientists*, 67(5) 2011, 19-26. For recent further details on Rokkasho see Reuters 2/ 24,/2012.

⁵⁸ Mainichi 2/29/2012

⁵⁹ Special Report on Nuclear Energy, *The Economist* March 10, 2012. Quote from leader on p. 15.

⁶⁰ With no sense of irony about the wrecked lives and huge costs piling up in the aftermath of the Fukushima disaster, nuclear advocates slyly remind us that windmills kill birds.

⁶¹ Special Report on Nuclear Energy, *The Economist* March 10, 2012, p. 11.

⁶² Ibid., p. 12

⁶³ Kitazawa remarks drawing on RJIF non-government investigation report on the Fukushima accident at the Foreign Correspondents' Club Japan, 3/1/2012.

⁶⁴ Matthew Penney, Nuclear Power and Shifts in Japanese Public Opinion, *The Asia-Pacific Journal*, Feb. 13, 2012.

⁶⁵ Earthquake damage is reported by Jake Adelstein and David McNeill, "Meltdown: What Really Happened at Fukushima?" *Atlantic Wire*, July 2, 2011. Accessed Dec. 12, 2011. [here](#)

⁶⁶ Japan Times, 2/28/2012; Wall Street Journal (Asia) 2/29/2012

⁶⁷ AP 2/28/2012

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