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Evolutionary theory and the limits of humanity at the southern reaches of Japan's empire:
Reading *Earth's Belly* by Nishimura Makoto

Nishimura Makoto (1883-1956) is perhaps best known as the creator of Japan's first humanoid robot, the Gakutensoku. Created in 1928, the Gakutensoku was intended to counter bleak characterisations of synthetic humans as 'slaves' (*robota*, coined by the Czech playwright Karel Čapek, meant 'forced labour').¹ Nishimura aimed to present a more optimistic alternative. Meaning 'learning from nature', the Gakutensoku was meant to focus, not on labour, but on human embeddedness in nature. The 'friendly robot' is said to encapsulate Nishimura's views about evolutionary theory. For Nishimura, what made humans human was their intelligence. Because of this they worked together, and it was this collaboration that ensured their survival. Human civilization, he argued, was a collaborative achievement.

Nishimura's approach to evolutionary theory drew inspiration from theories of 'mutual aid' espoused, most notably, by the Russian biologist Peter Kropotkin. Nishimura's view of evolution reflects, perhaps more than anything, the era in which he came of age. At the turn of the twentieth century, one of the most widely embraced understandings of evolutionary theory in Japan was one promoted by anarchists. It emphasized 'symbiosis, cooperation, and altruism.'² It was a vision diametrically opposed to the social Darwinist notion of 'survival of the fittest' that found favour among elites of earlier generations in Japan. However, as his 1930 work *Daichi no harawata (Earth's Belly)* shows, Nishimura eventually found it difficult to hold firm to this progressive understanding of evolutionary theory.

Earth's Belly was a work of scientific philosophy aimed at a Japanese reading public that had considerable appetite for books on philosophy of science. Writing for a general public did not mean that Nishimura was not a bona-fide scientist. Nishimura had impeccable scientific credentials. He graduated from Hiroshima Higher Normal School in 1908, later becoming a primary school head teacher in Manchuria. Thereafter, he travelled to the United States to study botany at Columbia University, obtaining a doctorate from the university in 1920. After conducting research in Scandinavia, he took up a post in marine biology at Hokkaido Imperial University on Japan's northernmost island. There he focused his

¹ Y. Frumer, 'The Short Strange Life of the First Friendly Robot', *IEEE Spectrum*, vol.57, no. 6 (June 2020), pp.42-48.

² S. Konishi, *Anarchist Modernity: Cooperatism and Japanese-Russian Intellectual Relations in Modern Japan* (Cambridge, 2016), p. 311.

research on *marimo*, a rare type of spherical algae found in the cold, pristine waters of Lake Akan.

Nishimura's creation of the Gakutensoku might be surprising in light of his area of expertise. However, just as Nishimura did not confine himself to writing for those in the academy, he refused to be hemmed in by disciplinary boundaries. While a professor at Hokkaido Imperial University he became editor of the literary magazine, *Satoporo*. With his appetite for writing whetted, Nishimura left his academic post in 1926 to become an editorial advisor at Osaka Mainichi Newspaper. There, he published prolifically. In addition to his many articles in the newspaper, he published no fewer than six books in the decade after leaving academia. Among these was *Earth's Belly*, perhaps his most representative work. As his creation of the Gakutensoku suggests, Nishimura was keen to use a variety of media to engage the public. Early to recognize the potential of film for science communication, in his later years he produced a short film on *marimo*, his original area of research.

The years when Nishimura was most prolific coincided with Japanese imperial expansion. It was therefore inevitable that Nishimura's outlook would be influenced by this geopolitical context. Though scientists of the era rarely acknowledged it, their identity and agenda were shaped by this imperial reality. For Nishimura, empire tested the limits of his socialist-inspired scientific outlook. This tension is evident in *Earth's Belly*. In the very work where Nishimura expounded his beliefs in cooperative principles, humans' innate intelligence, and their ability to learn from nature, we see him struggle to extend this understanding to the peoples at the southern reaches of Japan's vast empire.

In *Earth's Belly* Nishimura describes his travels to the Pacific Island of Saipan. At the time of Nishimura's visit, Saipan was among the newest of Japan's territories. In 1919, the Treaty of Versailles recognized Japan's ownership of Germany's north-Pacific possessions, islands that Japan had occupied during the First World War.³ In Japanese parlance, these islands were part of *Nan'yō*, the South Seas. This was a nebulous category, as much imaginary as geographical. Its shifting boundaries sometimes encompassed Micronesia, Melanesia, the South China Sea, and much of Southeast Asia. Since the premodern period, *Nan'yō* had been imagined in Japan as an area beyond the civilized world.⁴ In the Meiji

³ M. R. Peattie, *Nan'yō: The rise and Fall of the Japanese in Micronesia, 1885-1945*, (Honolulu, 1992).

⁴ M. A. Ombrello, *Monstrous Projections and Paradisal Visions: Japanese Conceptualizations of the South Seas as a Supernatural Space from Ancient times to the Contemporary Period*, PhD dissertation, University of Hawai'i at Manoa (2014).

period (1868-1912), inspired by social Darwinist visions, the *Nan'yō* became for ideologues a target for imperial expansion. Japanese attempts to acquire a foothold in the Pacific were, however, repeatedly foiled, generating frustration among politicians, journalists and entrepreneurs. But these failures only fired them up. Eventually, *Nan'yō* came to represent the holy grail. So much so that one politician claimed, 'whoever controls the tropics controls the world.'⁵

By 1930 Japan already had a substantial empire: it had acquired Taiwan in 1895 after victory in the First Sino-Japanese War, and in 1905, as spoils of the Russo-Japanese War, Japan gained the southern half of Sakhalin and took control of Russian possessions in Manchuria. Although Japan never formally absorbed Manchuria into its empire, it became an important target for migration from Japan. In 1910, after decades of jockeying for influence in Korea, Japan formally annexed the country. With this territorial expansion in northeast Asia, human scientists were co-opted by Meiji ideologues to provide scientific support for their vision of Pan-Asianism, the idea of a brotherhood of peoples led by Japan. Anthropologists and ethnologists willingly supplied the scientific justification for this ideological vision by, positing a common racial origin for all continental peoples under Japan's control through the construction of the so-called 'Tungusic' race.⁶

Japan's advance south into the Pacific saw a radically different approach. Instead of fraternity, what was stressed was hierarchy. Drawing on pre-modern constructions of the Pacific as savage lands, Pacific Islanders were used to affirm the status of Japanese superiority. In the Japanese imagination, the Pacific was an area rich in resources, but inhabited by primitive peoples. As Nishimura notes in *Earth's Belly*, 'for us Japanese', the South Seas conjure 'lands of flourishing tropical vegetation and savage natives.'⁷ Here there was no attempt to posit shared origins. For a people who were in an arrested state of development 'from the earliest times of civilization,' the need for Japanese stewardship was clear.

In *Earth's Belly*, Nishimura describes Japanese like himself as *bunmeijin* (civilized persons). The native Chamorro people are referred to as *mikai* (savage or primitive). For Nishimura they are a terrifying presence: 'the first thing that struck me when I landed was

⁵ Peattie, *Nanyō*, p. 37.

⁶ Miriam Kingsberg Kadia, *Into the Field: Human Scientists of Transwar Japan* (Stanford, 2020), p. 32.

⁷ All quotations are from Nishimura Makoto, *Daichi no harawata* (Tokyo, 1930).

the ferocious appearance of the natives', he writes. He is gripped by fear for hours after his arrival: 'I felt that they could jump out at me and spear me at any moment.' He remarks frequently about the searing heat which, compounded by the presence of the islanders, creates an oppressive atmosphere: 'In the South Seas the sunlight is so strong that one cannot open one's eyes properly.' The climate has a decivilizing effect. Looking at himself in a mirror after he arrives at his hotel, he remarks that he, 'a civilized person,' had ended up looking 'like a native.'

Now, all that separates him from the islanders are his clothes, he remarks. A native wearing clothes. He finds the juxtaposition comedic. Nishimura remarks frequently – obsessively, even – about the nakedness of the islanders. Eventually he accepts that clothes are unnecessary in this tropical setting. After all, he muses, it allows the islanders 'to escape the heat by going into the sea.' But he remains unsettled by the lack of clothing. The proximity to nature – to the animal world – is disconcerting. In the sea, he notes, the islanders look like '*kappa*', reptilian half-human water goblins of Japanese supernatural tales. Watching as the islanders climb trees to fetch fruit, he remarks that 'they look like monkeys.'

Though he describes the Chamorro people as menacing, he simultaneously treats them as infantile. 'They are meek and simple', he writes. 'They laugh easily. They are surprised easily. In short, they are big children.' 'Even now', he writes of one encounter, 'I can recall the beautiful scene of a man eating a coconut, smiling as the juice drips from his mouth.' Their facial expressions, he notes, are 'completely different' from those 'in interactions between civilized people.'

The botanist in Nishimura is intrigued by the pharmacological knowledge of the indigenous peoples. In *Earth's Belly*, Nishimura notes how the islanders have identified plants to treat all manner of ailments, including venereal diseases, lung disease, headaches, and diarrhoea. But beyond this botanical knowledge, he finds little to praise. He is disparaging of their culture. The islanders, he declares 'have produced nothing worth reporting about.' He opines that this is because 'the natives do not require much ingenuity for their livelihood.' As for aesthetic productions: 'it is extremely rare to see works that one can introduce as *native art*.'

For Nishimura the islanders on Saipan are losers in an evolutionary battle. Their ingenuity in 'learning from nature', as indicated by their remarkable botanical knowledge, does not constitute evidence of their humanity. Anything from the island worth writing about is, he writes, derived from contact with 'civilized' outsiders. 'Simply put,' Nishimura notes, 'there is a marked difference, both intellectually and psychologically' between the

indigenous peoples who have come into contact with the Dutch: ‘the natives of the Dutch East Indies are far more advanced’ than the other indigenous peoples of the South Seas. As to the cause of this difference, Nishimura points to ‘competition for survival between humans.’ The inhabitants of the richer Dutch occupied islands, he argues, have ‘developed under the stimulation of contact with peoples from advanced civilizations.’

Here Nishimura advances a description that accorded with the Japanese public’s imagination of much of the South Seas as an untouched tropical paradise. Yet, all around there are signs – many of them glaring – that the society he has encountered has been profoundly shaped by contact with outsiders. This contact started in late 13th century as the Spanish and Portuguese jostled for control of the islands. After Miguel López de Legazpi (1510-1572) declared the islands the possessions of the Spanish monarchy, the Chamorro people learned Spanish and Filipino to communicate with the outsiders. Then, the arrival of Diego Luis de San Vitores (1627-1672) saw attempts to convert the islanders to Christianity.⁸ Nishimura opines that Pacific Islanders lost their political and economic independence because they did not resist. Ironically, however, it was resistance that resulted in their demise. Spanish retaliation against the resisting Chamorro resulted in the population declining from 40,000 to under 4,000 in less than one century.⁹

Other evidence of contact is more conspicuous. Nishimura notes that the ship he arrived on had ‘over two thousand Ryūkyūans onboard.’ These were migrant labourers from Japan’s newest prefecture of Okinawa, which had been absorbed into the Japanese nation-state in 1879. They were coming to Saipan to escape poverty in Okinawa by working on sugar plantations established by the South Seas Development Company, the commercial arm of the Japanese colonial administration. Land for these sugar plantations were made available by previous German control. After the Germans acquired the Marianas, the group of islands to which Saipan belonged, they instituted a land registration system which brought most of the land under state control. These lands were transferred to the South Seas Development Company when Japan gained control of the islands. This meant that by the 1930s, four-fifths of the land was available for Japanese agricultural and commercial ventures.¹⁰ Sparsely

⁸ A. Mori, ‘A History of the Excluded: Rethinking the Sugar Industry in the Northern Mariana Islands under Japanese Rule’, *Historische Anthropologies*, vol. 27, no. 3 (December 2019), pp. 321-443.

⁹ Mori, ‘A History of the Excluded’, p. 416.

¹⁰ Mori, ‘A History of the Excluded’, p. 420.

populated because of Spanish genocide, these islands served in the early 20th century as an outlet for surplus Japanese population.

Today, the Gakutensoku is on display at Osaka Science Museum. The original – lost, it is said, in transit to Germany in the 1930s – has never been recovered, so this new version has been constructed from scratch.¹¹ The construction and display of this new Gakutensoku was hailed as an opportunity to ‘to nurture the next generation of engineers.’¹² The robot is part of a forward-looking display; an opportunity to imagine a new technologically-oriented future that will be on display at Osaka’s International Expo in 2025. Conversely, *Earth’s Belly* provides an opportunity for reflection. The imperial period has been a long-closed chapter for many scientists. However, Nishimura’s writing highlights the dehumanizing impacts of empire, even for scientists. Though perceived as paragons of objectivity, scientists can, like anyone, succumb to the discriminatory imperatives of the day.

¹¹ Frumer, ‘The Short Strange Life of the Friendly Robot’, p. 48.

¹² Morohoshi Kōichi, ‘Nihon hatsu no robotto ‘Gakutensoku’ fukugen e, rainen shinsō, Ōsaka shiritsu kagakukan no medama ni’ (Recreated Gakutensoku, Japan’s first robot, to become centrepiece of Osaka Science Museum), *Asahi Shimbun* (8 February 2007), p. 12.