CHAPTER THREE

The Dharma after Darwin

Meiji Buddhism and the Embrace of Evolution

> "The sound of the Gion shōja bells echoes the impermanence of all things. The color of the sala flowers reveals the truth that the prosperous must decline. The proud do not endure, they are like a dream on a spring night; the mighty fall at last, they are as dust before the wind."
>
> —*The Tale of the Heike*

In 1903, a Japanese Buddhist philosopher who was travelling around the world, visited the grave of Charles Darwin. Moved by the experience, he wrote a eulogy:

> You preached "evolution" for thirty years; your one voice woke up countless minds from their sleep.
> The selection of poultry may show man's power, but imagine that like this, the origins of all living beings go back to nature.
> The bones of the venerable Darwin are buried in the ground right before the royal mausoleum, his name enshrined in the history of the academy.
> I hope you will rest here forever. Who can doubt your grand accomplishments will be passed down for a thousand years?[1]

When we think of the relations between evolution and religion in the nineteenth century, the image of evolutionists in conflict with religious figures usually emerges, not that of practicing Buddhists making a pilgrimage to Darwin's grave. The poem above was written by Inoue Enryō (1858–1919), one of the most well-known intellectuals of Meiji-period Japan, and a major figure who is representative of this period's modernizing Buddhists, a group that enthusiastically embraced evolutionary theory.

In late-nineteenth-century Japan, which was an era of rapid modernization, Westernization, and promotion of science, Buddhists had a huge incentive to embrace modernization and science, including evolutionary theory. How Meiji Buddhist intellectuals interpreted evolutionary theory matters: several of the Meiji Buddhists were best-selling writers and influential think-

ers; they also influenced how evolution would fare in the first half of the twentieth century. Meiji Buddhists played a key role in promoting pantheist interpretations of evolution that would return in various forms throughout the twentieth century.

While largely accepting the fact of evolution, many Buddhists nevertheless felt that the implications of evolutionary theory were threatening. Indeed, although Buddhism does not have a theory of creation[2], evolutionary theory challenged some of the very fundamentals of Buddhist ideas. Buddhists therefore struggled with and debated the materialism, progressivism, and individualism that evolutionary theory seemed to imply. And these debates were wired into a complex setting of external social pressures on Buddhism and competition with Christians during an uncertain time of transition to the modern nation-state. In short, Buddhists' engagement with evolution reveals another layer of controversy in the relationship between evolutionary theory and religion in Japan.

Highlighting the desire of Buddhist reformers to align their religion with the ideology of progress of the Japanese state, historians of modern Buddhism have tended to view the Buddhists' talk of Buddhism's compatibility with science primarily as rhetoric.[3] While this rhetorical dimension was certainly operative, as James Ketelaar and others have pointed out, rhetoric alone does not capture the full complexity and critical engagement of the Buddhists with evolutionary theory.[4] The Meiji period was, largely speaking, still a period of immense openness to theories from the West. Starting in the 1880s, however, many intellectuals began to question what they saw as an unbridled embrace of everything Western and modern under the banner of progress. Many were also concerned about a seeming absence of moral principles guiding society, and the effects of interpretations of evolutionary theory that promoted materialism and moral relativism.

Buddhist interpretations and appropriations of evolution involved a deep questioning of the progressivist implications of evolution and, in fact, formed part of a larger countercurrent against those Meiji thinkers, exemplified by public intellectuals such as Katō Hiroyuki and Fukuzawa Yukichi who equated evolution with progress. In other words, while committed to modernization, many reforming Buddhists were not completely taken up by the drive to fit into the modern nation-state. On the contrary, Meiji Buddhists promoted evolution while questioning and rethinking some very fundamental concepts and categories associated with evolutionary theory and usually taken as inherent in modernity, including not only progress but also reductionism, materialism, individualism, competition, linearity, and rationality. Many Buddhists reacted against the early Meiji-era atheist and

materialist interpretations of evolutionary theory, as they sought ways to resacralize nature.

Underestimated, and therefore largely unexamined, is the degree to which evolutionary theory influenced modern Buddhist thought in Japan. By engaging with the challenges of evolutionary theory, Buddhist thinkers struggled to formulate new Buddhist thought. Evolutionary theory not only provoked but also positively stimulated innovation in religious thought. Buddhists did not just passively react to the modernization of Japan, however; they actively negotiated the course of modernization and also contributed to it. Through their engagement with evolutionary theory, Buddhists ensured the intellectual respectability and modernity of their religion. In turn, Buddhism also subtly influenced the reception of evolutionary biology in Japan. Like Christian missionaries, Buddhists also became transmitters and disseminators of evolutionary theory to Japan. In the late nineteenth century, a fertile interaction—one that would reverberate well into the twentieth century, ensued.

THE BUDDHIST EMBRACE OF EVOLUTIONARY THEORY

Crucial to understanding the Buddhist engagement with evolutionary theory in the Meiji period is the fact that, unlike Christianity in most Western countries, Buddhism did not have a dominant, or state-backed position, either institutionally or intellectually. On the contrary, Buddhists were in a difficult position. In the drive to modernize the country, Buddhism came to be seen as riddled with superstition and as an obstacle to progress. Originally an Indian religion, nativist Shintō scholars deemed it a foreign anomaly. Others saw it as decadent and corrupt, and believed it wasted resources. Indeed, the Meiji Restoration saw a short period of persecution of Buddhism: temples were abolished, lands were confiscated, priests were forced to return to lay life, and texts and statues were burned. Some Buddhist priests even feared the end of Buddhism. While this persecution quickly ended, criticisms would regularly flare up over the next three decades. Moreover, with foreign missionaries allowed into the country, Meiji Buddhists were also deeply concerned about the comeback of Christianity, which they saw as a major competitor.[5]

In the wake of this persecution, many Buddhists struggled to situate Buddhism within a rapidly modernizing society. Meiji Buddhists critically reexamined their history, and travelled not only to the West but also to India and Tibet. Others attempted to transcend the sectarian rifts and form a unified Buddhism, engaged in Buddhist welfare work, or became Buddhist

chaplains for the armed forces.[6] At the same time, the Japanese intellectual point of reference shifted its outlook to Western science and technology, which entailed an immense change in the intellectual environment. Although Buddhist thinkers during the Tokugawa period could still afford to ignore scientific ideas coming from the West, during the Meiji, this was no longer an option.[7] The globalization of science made it increasingly difficult for Buddhists to express themselves on their own terms. Not only did Western science become the criterion of knowledge about nature but the very architecture of thinking changed. Buddhist language now had to operate within large and foreign categories such as "science," "philosophy," and "religion."[8]

Today, Buddhism has something of a reputation for being more easily compatible with modern science than Christianity does. It is easy to forget that this position was not so obvious for Buddhists in the nineteenth century. In addition to Japanese nativist scholars, Christian missionaries and modernizing intellectuals criticized Buddhism for its unscientific character. The Spencerian journalist Tokutomi Sohō (1863–1957) wrote in his best-selling book of 1886, *The Future Japan,* that Buddhism was "an inconsiderate and cruel, empty theory."[9] In what is one of the first histories on religion of the Meiji period, the Buddhist scholar Shimaji Daitō (1875–1927), looking back in 1911, wrote: "After the Meiji Restoration, the new ideas from the West had a tremendous impact on Buddhism. The first clash began with the controversy concerning astronomy, heliocentrism, and Mount Sumeru. After that, there were the clashes concerning materialist atheism and scientific knowledge based on the theory of evolution, and it was not only the Christians who were troubled by this."[10]

To a large degree, the Buddhist embrace of evolutionary theory should be understood not only within the larger atmosphere of Japan's drive to modernize but also in the context of competition with the Christians. Important in this context as well was the initial association of the category of "religion" (*shūkyō*) with "unscientific" after the lectures of Morse and Katō Hiroyuki, which made it critical for Buddhists to demonstrate that Buddhism, in contrast to Christianity, was compatible with science. Important also is that in the 1880s, Christian church membership saw such a dramatic increase that Protestant leaders were confident Japan would soon become a Christian nation. The embrace of evolution by missionaries such as Gulick and several Japanese Christian thinkers, such as Uemura Masahisa (1858–1925), and Kozaki Hiromichi (1856–1938) added a sense of urgency for the Buddhists to engage with evolutionary theory. Without this dimension of competition, the Buddhists would probably not have advocated evolutionary theory to the degree that they did. Both Christians and Buddhists

accused each other of holding beliefs that were unscientific, which resulted in stimulating both to engage with evolutionary theory, and even to adopt similar theological positions.

Before explaining in more detail the Buddhist approaches to evolution, it is illuminating to look at the arguments of one of the young Japanese Christians. Uemura Masahisa, who translated the Old Testament into Japanese and founded the Tokyo Shingakusha in 1904, which later grew into the Tokyo Union Theological Seminary, was one of the most important Japanese Christian intellectuals of the Meiji period. In his popular *A Particle of the Truth* (*Shinri ippan*) of 1884, Uemura argued for Christianity's value to modern Japan, and for the reconciliation of evolution with Christianity.[11]

Uemura's strategy was to deflect criticisms, such as those by Morse and Katō, of Christianity's incompatibility with evolution by digging one level deeper and arguing that Christianity was the very foundation and spiritual condition for making science possible. During this period, Uemura was capitalizing on doubts about whether Japan's modernization would succeed. His message was that a Christian basis was necessary to pursue science and therefore also modernization. After all, many great scientists such as Newton were deeply religious. Uemura's argument was that modernization should not be equated with secularization. Uemura argued that in Europe, theology's insistence on God's absolute transcendence had liberated the human mind to inquire about all natural phenomena, thus giving rise to science. Uemura also threw the ball back into the court of Buddhist and Shintō critics of Christianity by retorting that "polytheism" (an obvious reference to Shintō and Buddhism), in contrast to the "scientific" Christianity, saw the holy in too many places, and therefore "numbs the mind." Seeing Christianity as the most advanced religion, it is not surprising that Uemura rejected evolutionary accounts, such as those supported by Spencer and Fenollosa, of the origins of Christianity in polytheism and ancestor worship.[12]

Uemura absolutely rejected the criticism that Christianity was incompatible with evolution: "Scientists who side with Darwin feel it only makes them realize more the glory of God."[13] He blamed Haeckel (and by extension, Katō Hiroyuki) for equating evolution with materialism and atheism, and argued that evolution and materialism were incompatible. There had to be an external transcendent cause (God) that inserted movement into matter and set evolution going. Furthermore, the higher phenomena in the evolutionary process, such as life, and especially consciousness, could not be reduced to matter. Hence, for Uemura, "in the space [between atoms] there is a conscious mind."[14] Faced with arguments such as these that Christianity was the spiritual background for modern science, Buddhists were

forced to respond, and had to demonstrate that Buddhism could be a paradigm for modern science.

The most important Buddhist advocate of evolutionary theory was Inoue Enryō. Born as the son of a Buddhist priest of a small temple in Niigata Province on the coast of the Sea of Japan, Enryō (following here the custom of identifying Buddhists by their Buddhist rather than family name) was, as part of the True Pure Land (Jōdō Shinshū) Buddhist church's modernization efforts, selected to study Western studies in Tokyo, and to serve as a priest after graduation. In Tokyo, Enryō studied with Ernest Fenollosa. For a while he was drawn to Christianity, but this exploration ended in frustration one day, when he threw his copy of the Bible across his room. After graduating from the Philosophy Department at the University of Tokyo, Enryō negotiated his way out of his agreement with the True Pure Land church and went his own way, seeking to promote a new kind of Buddhism as the spiritual foundation of a modern Japan.

In 1887, in Tokyo, Enryō founded his own "Philosophy Hall" (Tetsugakkan), a private academy that had one of the first distance learning programs in philosophy, especially aimed at those who were interested in learning but had limited financial means. The Philosophy Hall had a mixed curriculum of Western philosophy, Buddhism, Confucianism, literature, and sciences. A great number of leading Meiji-era philosophers lectured for some period of time at the hall, including Katō Hiroyuki, Inoue Tetsujirō, philosophers Anesaki Masaharu (1873–1949) and Miyake Setsurei (1860–1945), and the Buddhist Kiyozawa Manshi. Ishikawa Chiyomatsu taught evolutionary biology there after his return from Germany in 1889. Later, he fondly remembered how Enryō attended his lectures and often consulted him on topics in evolution.[15] Enryō was also a philosopher who was almost constantly on the move. He travelled around the world three times. To educate ordinary people and raise money for the Philosophy Hall, he toured Japan, giving about three thousand lectures, even in very remote villages, and lectured in the new colonies of Taiwan, and later in Manchuria. Through the Philosophy Hall, his lectures, and his best-selling books, Inoue Enryō reached a large audience and created a nationwide network.

Enryō became famous with his *Introduction to the Vital Theory of Buddhism* (*Bukkyō katsuron joron*) of 1887, which became a best-seller, and in which he recounted his intellectual struggles, his disappointments with Christianity, and ultimately, his finding philosophical truth in Buddhism.[16] In the subsequent *The Vital Theory of Buddhism,* which was his magnum opus, Enryō ambitiously reconstructed Buddhism with Western philosophical ideas and concepts, rewriting it in terms of a dialectical history, from materialism (early Buddhism) to idealism (*Hossō*), into the reconciliation of the

two in a form of monism (*Tendai* and *Kegon*).[17] Enryō argued that mind and matter were like two sides of the same entity, and were "neither one nor two." This highest truth was expressed in the concept of *Shinnyo* (*Tathātā*), often translated as "thusness," the ultimate nature of reality. In Enryō's works, *Shinnyo* became a form of pantheism—a sacred reality pervading everything—and would inform his views on evolution.

Enryō went to great lengths to prove that Buddhism matched, and even anticipated, modern science. It is significant that Enryō's reconstructions of Buddhism were replete with discussions on evolutionary theory, and especially Herbert Spencer. This religious dimension of Spencer's global impact has gone largely unnoticed. Inoue Enryō appropriated Spencer's concept of the Unknowable and equated it with *Shinnyo,* the Buddhist ineffable concept of the Absolute, a move that became common among modernizing Buddhists of the Meiji period. Concomitantly with these efforts, Enryō embarked on a large project of the study of ghosts, monsters, and other supernatural phenomena (earning him the nickname "Dr. Ghost"), in the process demonstrating that these were "superstitions" (*meishin*), and not true "religion" (*shūkyō*), which had as its object the unknowable and "true monster" or "mystery" (*shinkai*).[18] In Tokyo, he also created a "Temple of Philosophy" (Tetsugakudō), complete with a pantheon of philosophers (Socrates, Kant, Confucius, and Buddha) and ritual prayers to the absolute, and which he hoped would become a nationwide network.

To a large extent, Enryō and other Meiji Buddhists committed themselves to evolutionary theory to overcome the crisis of Buddhism; by aligning with science and the modernization project of the nation-state, they could use evolution to counter the Christians with whom they felt they were competing. Buddhists could draw strength from Morse's and Fenollosa's presentation of evolutionary theory as an anti-Christian theory, a message continued by Japan's foremost biologists such as Yatabe Ryōkichi and Ishikawa Chiyomatsu, and from European polemics themselves.[19]

Even before the introduction of evolutionary theory, many Japanese Buddhists expressed a fundamental antipathy towards creationism. For example, the (in)famous anti-Christian tract *Deus Destroyed* (*Ha Deus*), from the time of the bloody suppression of Christianity in the early seventeenth century, had already criticized the Christian idea of creation by a single omnipotent creator and contrasted it with Buddhism, Shintō, and the Taoist idea of the emergence of all phenomena from the original formless and inexpressible "Way."[20] Also, in 1873, Shimaji Mokurai (1838–1911), one of the most important Buddhists of the early Meiji period, and one of the fiercest critics of Christianity, attacked Christian creationism but still did so *without* recourse to evolutionary theory. Shimaji argued that the Christian

notion of the separate creation of humans and animals did not explain the reasons for who or what would develop into an animal or man, or why, something that Buddhist reincarnation did explain.[21] At the time, Shimaji was trying to influence the Meiji state's religious policy to officially rehabilitate Shin Buddhism and restrict Christianity. Hence, the stakes were high. But to a large degree, these Buddhists spoke for many who thought that Christian creationism was irrational, unscientific, and culturally bounded to the West, and therefore unacceptable.

Beginning in the 1880s, however, and partly in response to the rise of Christians such as Uemura Masahisa, young Buddhist reformers such as Inoue Enryō, Murakami Senshō, and others started to more actively deploy evolutionary theory against Christianity, and to defend the compatibility of Buddhism and evolutionary theory.[22] A telling example is that of the Buddhist Inaba Masamaru (1865–1944), who recalled entering the zoology department in 1884 because "The quickest way to crush [Christianity] is by means of the theory of evolution."[23] Enryō launched one of the most aggressive assaults on Christianity with his *Golden Needle of the Truth* (*Shinri kinshin*) of 1886. While the objective of anti-Christian texts such as this one was, of course, to undermine Christianity, by explaining and defending evolutionary theory, they also became important avenues for the transmission and dissemination of evolutionary theory.

Following Morse and Fennollosa, Enryō presented the relation between Christianity and evolution (and science in general) as a zero-sum game. Creationism was not only opposed to evolutionary theory but by positing an effect without a cause, it contradicted the laws of the conservation of energy and the indestructibility of matter. All the evidence from geology, chemistry, biology, physiology, and sociology, Enryō argued, pointed to a single origin of the inorganic, organic, plants, animals, and humans, and a gradual and natural evolution between these, not a separate creation by a supernatural power. Christianity's elevation of man above nature was incompatible with evolutionary theory. "Looking at it from the perspective of evolutionary theory, there is no reason to believe that man is the master of creation. Physiologically and psychologically, originally, man and animals are no different in their functions and processes. There is only a difference in one being more completed in their development . . . Animals are organisms, so are humans."[24]

Another new problem for Meiji Buddhists were the evolutionary approaches to the phenomenon of "religion" itself, such as positivist accounts that viewed religion as an imperfect stage of human thought, inevitably to be replaced by science. Or they came in the form of Western and Japanese Christian theologians who saw other religions, such as Buddhism, as

imperfect stages in an evolutionary trajectory towards Christianity.[25] Again, probably inspired by Fenollosa, Enryō and other Buddhists turned the table on those arguments. On the contrary, it was Christian creationism that was a vestige of the belief of primitive peoples, facing inevitable extinction while being replaced by evolutionary theory. The belief in creation itself, Enryō argued, could easily be explained in the light of evolution. Religion had evolved from feelings of respect and fear, which came about as the weaker had to be deferent to the strong to survive, and were thus "a product of evolution and selection." As humans searched for the causes of natural phenomena, they imagined a larger creating force, and felt the same feelings of deference towards it, thus giving rise to worship and religion.[26] Thus, not only did evolutionary theory show the absurdity of Christian beliefs; it also relegated Christianity to a primitive stage of human development.

Enryō's anti-Christian texts also played a more positive role, however, by introducing several of the more difficult problems and questions concerning evolution, such as the causes for speciation, and the relation between ontogeny and phylogeny.[27] Buddhists such as Inoue Enryō also introduced other scientific ideas related to evolution, such as the uniformity of nature, naturalism, and the conceptualization of the "organic." For example, by emphasizing that nature evolved on its own accord and that all of nature was subject to the same laws, something that Enryō argued was nothing other than the Buddhist theory of "all things as one principle of Thusness" (*manbutsu ichi shinnyo no ri*), the Buddhists helped disseminate the idea of the uniformity of nature, one of the fundaments of modern science.[28]

Crucially, Buddhists thinkers promoted several larger philosophical conclusions that they saw as naturally following from the acceptance of an evolutionary worldview, such as the rejection of the notions of human exceptionalism, essentialism, and the idea of perfection in nature. Several other Buddhists such as Murakami Senshō, it must be mentioned, emphasized unbridgeable gaps between humans and animals, such as a sense for religion. Rejecting these notions, Enryō drove home the point that evolutionary theory taught us that the world was not made for humans, and that humans species were at home in nature only as the result of a long struggle for survival.[29] These conclusions challenged not only Christianity but, inadvertently, long-held Confucian notions of morality and social order as well.

Similarly, to undercut creationism, Enryō rejected the idea of "perfection" in nature, which was a classical argument for creationism. Enryō argued that God did not create perfect organisms and organs. As products of natural selection and adaptation, organisms and organs were only as good as was necessary in the struggle for survival. For example, the capacity of

the human eye was not perfect; rather, it was still evolving and was only good in comparison to the eyes of some other animals.[30] Enryō's treatment of evolution also introduced the problem of essentialism. In contrast to Christian dogma, he argued, from an evolutionary perspective there was only a *gradual* difference between, for example, plants, animals, and humans, not an *essential* one. He even argued that as nature showed no clear borders, "there is no objective difference between plants, animals, and humans, only a subjective one."[31] These were bold positions to take, and parted with traditional and commonsense Japanese notions of the natural world.

It is hard to imagine that Buddhists such as Enryō would have embraced evolutionary theory so enthusiastically, and would have drawn such radical conclusions from it, in the absence of competition with Christianity. To a large degree, Christianity's presence and competition, rather than the presence of evolutionary theory itself, propelled Buddhists to embrace, defend, and propagate evolutionary theory.

Materialism: "Worse than Cholera"

While endorsing evolutionary theory, Meiji Buddhists also ran into problems that challenged traditional Japanese and Buddhist beliefs about the world. Late-nineteenth-century Buddhist thinkers went to great lengths to explain that Buddhism was completely in accord with modern science, or had even anticipated it. They often selected and emphasized elements of Buddhist theory that were in accord with scientific thought, arguing that this gave intellectual credibility to Buddhism, and vice versa, in a kind of legitimizing loop. In the process, other elements of Buddhist thought, such as older superstitions and practices, were ignored or willfully relegated to the dustbin. These attempts at "adaptation" to modern science were only part of the story, however. Buddhist thinkers also criticized aspects of evolutionary theory, and constructed their own metaphysical interpretations of evolution, as well as original, though speculative, theories of evolution.

In accepting evolutionary theory, Buddhists still faced the question of what evolution meant for understanding the world. Evolutionary theory had been associated with a materialist and mechanist worldview, which clashed with Buddhist conceptions of reality. All Japanese Buddhism was part of the Mahayana current, and according to the Mahayana Buddhist affirmation of reality, all sentient and nonsentient beings, such as mountains and rivers, possess (or partake in) the Buddha-nature (*busshō*). To a lesser degree, Shintō ideas of nature as being inhabited by manifold *kami* were alive and well in the Meiji period as well. Hence, while Buddhist theorists had few problems with accepting a view of nature as evolving, they deemed the materialist evolutionism that Katō Hiroyuki espoused threatening and

wrong, that is, the specter that life, mind, and morality had ultimately all emerged through a random process from material building blocks, and were therefore lifeless, mindless, and pointless. For many Buddhists, accepting evolution went hand in hand with an embrace of naturalism, but not with scientism or materialism. While nature could be perfectly explained in terms of science, at the core nature remained an unknowable mystery, and nature had a mind-like quality that could not be reduced to matter. The problem was how to formulate this in a world after Darwin. How could the world be reenchanted after Darwin?

Inoue Enryō's answer to this question was that the Buddhist view of nature was one in which the organic had evolved from inorganic matter—indeed, that evolution was "nothing more than the differentiation of one body of matter"[32]—but that in contrast to "Western materialism," which "takes matter to be blind and ignorant . . . Buddhism *takes it [matter] to be alive*."[33] Even elementary particles were "almost the same as living things."[34] Enryō argued that "the world is one active entity and possesses in itself the energy for action, and comes about through a natural process of growth and development." "Buddhism," Enryō said, "shows that not only animals, plants, and trees, but also the land, mountains, and rivers are all organic and active beings, and that all things are endowed with the Buddha-nature." Hence, "the universe as a whole is also one living entity."[35] In short, the answer to the materialist threat of evolutionary theory was a form of monist pantheism. Enryō neatly embedded evolutionary theory within a larger nonmaterialist and Buddhist worldview. Partly under Fenollosa's influence, Meiji Buddhist visions of nature as alive in all aspects was confirmed by the pantheist tendencies of the German romantics. In fact, Meiji Buddhist responses to evolutionary theory were heavily mediated by German philosophy. Many Buddhists indeed saw Darwin and Spencer as part of a larger current of evolutionary theories starting with Goethe and Schelling.[36]

Enryō argued that there was scientific proof for the idea that, given that mind was a sort of "energy," Buddha-nature was also inherent in inorganic matter:

> While only the human species has mind (*shinsei*), one cannot say that animals and plants do not have it at all. Not only animals have it; water, fire, soil, and rocks must have it to some degree as well. The only way this is different from animals, plants, and humans is that in the latter it is developed, while in the rest it is undeveloped. Therefore, it is not without proof when Buddhism holds that animals, plants, and inorganic matter are all endowed with the Buddha-nature.[37]

Like the German romantics, many Buddhists rejected a mechanistic Newtonian universe and instead envisioned complex systems of causality within an organic cosmos. And for Inoue Enryō and the German romantics alike, seeing beauty in nature was nothing less than a meeting between the deep recesses of the individual mind and the Mind of Nature, or *Shinnyo.* In sharp contrast to Katō's materialist interpretation of monism, what Robert Richards has pointed out regarding the monism of Ernst Haeckel holds true for the Meiji Buddhists: "Such a conception does not denigrate the wonders of life, but ennobles the properties of matter."[38] In sum, Buddhists such as Inoue Enryō could accept a gradual evolution of all things from matter, as long as matter was ennobled with the qualities of a divine Mind.

These antimaterialist interpretations of evolutionary theory put the Buddhist reformers on a collision course with Katō Hiroyuki. In the 1890s, during what came to be known as the "materialism controversy," there were intense clashes concerning the meaning and implications of evolutionary theory. In 1895, Katō Hiroyuki published an article in which he argued that Buddhist ethics was incompatible with evolutionary theory. Katō argued that good and evil were neither eternal nor natural, but had evolved together with the evolution of group life. "Good" was what is good for the group, and "evil," what is bad; they have a function in the struggle for survival. This analysis, Katō argued, was confirmed by the fact that notions of good and evil differ over cultures and change over time. Katō's article immediately drew criticism by Buddhists Sakaino Yōkō and others, who defended the idea of good and evil as universal, and argued that humans could not construct morality out of nothing. Katō, in turn, criticized the Buddhists for turning human temporal, contingent, and constructed ideas into natural laws, and contended that these responses showed clearly that the Buddhists did not know evolutionary theory or "that mankind was a product of natural evolution."[39] At this point, Inoue Enryō, despite having received support from Katō in building his Philosophy Hall, stepped in and wrote a book titled *Against Materialism* in 1897, which was an all-out assault on Katō's philosophy.[40] What seemed initially like an abstract discussion had, it seemed to the protagonists, serious repercussions. Inoue Enryō even warned that materialism was "worse than cholera," a remark that was not to be taken lightly after a series of cholera epidemics had claimed thousands of lives.[41]

Enryō's *Against Materialism* is a good example of how Buddhists attempted to reformulate the theory of evolution. Like most of his contemporaries, Enryō embraced the general law that was the core of all of Spencer's theories of evolution: "an integration of matter and concomitant dissipation

of motion, during which the matter passes from an indefinite, incoherent homogeneity to a definite, coherent heterogeneity."[42] Spencer thought this principle of differentiation underlay cosmological, biological, psychological, and social evolution. Enryō placed heavy emphasis on Spencer's theory of cosmic evolution, which was based on the nebular hypothesis[43] and argued that if evolutionary theory held that the universe had developed from the nebular, it must be the case that intelligence, life, and morality were latently present in it. If not, they could not have developed from it. Influenced by the idea of organic development in German *Naturphilosophie,* Enryō compared evolution with the development from a seed to a full plant; just as the branches and flowers must somehow be present in the seed, so must life, consciousness, intelligence, and morality have been present in a primordial form in the beginning to be able to develop.

In the second part of *Against Materialism,* Enryō constructed what was in effect an alternative view of evolution. Enryō argued there were two ways to understand evolution. From the "objective" point of view, both the organic and inorganic had developed from a primordial "stuff" that did not consist of matter but of "pure energy," which latently contained all forms of the world as we know it, including consciousness, life, and intelligence. The "subjective view," showed the universe and humans consisting of a core of pure thought-energy, and gradually moving away in concentric circles to sensational energy, life-energy, and inorganic energy, or what we usually call "matter" (or the body). From this perspective, evolution emerges as a purposeful movement: it starts from an original undifferentiated state in a centrifugal movement that moves towards the infinite, or the absolute, in order to maximize pure freedom, pure life, and pure consciousness. Enryō compared this movement to a river in which the center moves faster than the sides, and the loss of momentum on the sides causes this pure energy to solidify and become matter. Matter resists against the movement towards the absolute. The resistance stands for the determined aspects of nature, while the movement towards the absolute stands for pure freedom. For Enryō, this also explained why in man there is an inner core of pure reason and free will that tends towards the absolute, while it also solidifies into practical thinking, sensation (the borderline between matter and mind), organic life, and matter (the body), which tends to attach to the limited world. Philosophy and religion both spring from this tendency in man towards the absolute. Man, as a product of natural evolution, was thus "a religious animal and a philosophical animal."[44] In other words, Enryō reinterpreted evolutionary theory to argue for a non-materialist view of nature and man, while also giving religion a place in the process of evolution.

Enryō, who was also a nationalist, sensed a purpose beyond the defense of Buddhism, and began to defend Shintō and Confucianism as supportive of his view of evolution. Enryō said that in contrast to creation ex nihilo by an omnipotent Christian Creator, the "three teachings" (Buddhism, Confucianism, and Shintō), which together formed Japan's spiritual heritage, had a common view of evolution as unfolding from a primordial and undifferentiated but mindful origin. The three teachings were therefore superior to Christianity and current Western theories of evolution. Echoing the vision of Kamada Ryūō, Enryō argued that Confucianism had expressed the idea of evolution in the idea of the Great Ultimate (*taikyoku*), and the development of the universe from pure *ri* (principle) into pure *ki* and impure *ki* (material energy). In Shintō the same idea was expressed as the "primordial chaos" (*konton*) of the *Nihonshoki.* In his 1893 *Chūkōkatsuron* (The Vital Theory of Loyalty and Filial Piety), Enryō, not unlike Aoikawa Nobuchiku twenty years earlier, argued that the Shintō creation myths were entirely different from Christian creationism, and were therefore not threatened by evolutionary theory.[45] Hence, Buddhism, Shintō, and Confucianism were three similar "theories of development" or "theories of opening" (*kaibyaku-ron*) from the original substance, which contained both mind and matter, and were therefore also superior to the evolutionary theory of Herbert Spencer, which was "materialist" and therefore "incomplete."[46]

Defending Confucianism and Shintō as sharing in the same theory of evolution as Buddhism was a strategy not only to gather and then separate these traditions in their scientificity from Christianity but also to embed Buddhism in the emerging *kokutai* ideology. It also was an attempt to overturn the global hierarchical relationships of Western science and Christianity as superior to non-Western ideas, arguing instead that Japanese evolutionary theory surpassed what the West had to offer.

Enryō presented his version of evolution as a new philosophical explanation of Buddhist metaphysics. The universe had evolved from the unknowable absolute or *Shinnyo* into the manifold dharma, and would eventually turn back to it. *Shinnyo* (like the nebula) was characterized by "non-differentiation" and the dharma by "differentiation" (the world of manifold phenomena). Enryō explained the relation between the two in logical terms as "not one, not two" (*fuitsu-funi*). Man was therefore intimately connected with *Shinnyo,* which was expressed in the concept of Buddha nature (*busshō*). For Buddhists such as Inoue Enryō, Spencer's philosophy of evolution confirmed the Mahayana Buddhist notion of the unity-in-difference of the absolute and phenomenal worlds. Enryō's theories on evolutionary theory might sometimes seem far removed from what we expect

from "evolutionary theory," but he received praise from the biologist Ishikawa Chiyomatsu, who wrote upon Inoue's death in 1919: "What I most admired in you is that, different from those other philosophers, you based yourself on facts."[47]

The materialism controversy of the 1890s is very revealing for understanding Meiji attitudes to evolutionary theory, and its arguments would be repeated in the decades ahead. Essentially, this was a debate in which all sides accepted evolution as a *fact,* but clashed over its scope and metaphysical and ethical *implications.* This seemingly abstract debate in fact concerned the soul of evolutionary theory. What made this debate so pressing for the Buddhists was that despite their efforts to prove the modernity and scientific character of Buddhism, Katō's argument that Buddhism was incompatible with evolution had pushed Buddhism in the same corner of "religion" with Christianity, a sphere that was associated with the unmodern and the irrational in Japan's early Meiji period. In addition to saving a Buddhist conception of nature from the threat of materialist evolutionism, what was at stake politically in these metaphysical discussions concerning evolution was the viability of Buddhism in modern Japanese society.

Progress and Retrogression

Another major challenge for the Buddhists was the intimate connection between evolutionary theory and the ideology of progress and modernization. Inoue Enryō linked the philosophy of materialism to the country's unbridled embrace of progress and capitalism, which he feared would bring a "materialist" rather than a spiritual lifestyle. He argued that a materialist evolutionary theory would bring rampant egoism and a struggle for survival within society, resulting in a widening gap between rich and poor. While most Meiji Buddhists, like Enryō, supported the modernizing efforts of the Meiji state, a number among them also began to throw a skeptical light on the very idea of progress itself.

Also looming in the background was the traditional Buddhist conception of history as one of inevitable decline (*mappō shisō*), an idea that did not immediately fit with ideals of progress and "civilization and enlightenment." In this view, after the Buddha's death, an inevitable decline would bring the world into the last of three ages: the age of *mappō* (the end of the [Buddhist] Law), an age of darkness and destruction in which the Dharma would not be able to spread, before a new world would be born. Because of this theory, not a few Western observers viewed Mahayana Buddhism as fatalistic and pessimistic. Japanese Buddhists often found themselves defending Buddhism against charges of pessimism. Nevertheless, around the turn of the century, Buddhist thinkers were criticizing the idea of

progressive evolution, emphasizing alternative versions of evolution that included inevitable decline. The idea took hold that retrogression—such as when fish, having adapted to the darkness of caves, lost eyesight—was just as prevalent as evolution's progressive change, an idea that could be reconciled with Buddhist *mappō* theory. Starting with Inoue Enryō, many leading Meiji intellectuals and Buddhist thinkers, including Kiyozawa Manshi, Miyake Setsurei, and Minakata Kumagusu, but also the Christian Uemura Masahisa and the biologist Oka Asajirō, began to emphasize that "evolution" had to be thought of in conjunction with "retrogression" or "devolution" (*taika*).

Buddhists also drew on Herbert Spencer's thesis that, after the universe reached a state of equilibrium, dissolution would draw the universe back into a state of homogeneity from which it had originated. Enryō, in what he described as the "vertical (evolutionary) dimension" of the cosmos (distinguished from the "horizontal" dimension, which shows the monism of mind and matter), argued that the cosmos evolved from the nebula and returned to it.

> I called this the "great change" of the world, but since it submits to a cycle of evolution and degeneration, I also refer to it as "recurring change." . . . Prior to the world as we know it today, there must have been previous worlds coursing through the process of evolution and deterioration, of opening and merging. There was a world before this one and another before that, just as there will be a world after this one, and then another and another. Coming from the past, but without a beginning, moving into the future without an end, a never-ending cycle.[48]

Thus, in contrast to linear progressivism, Enryō and other Buddhists argued that the continued expansion and contraction of the universe confirmed the Buddhist view of evolution and time as *circular.*

Enryō also saw limits to social evolution: "I believe that there is a limit to the progress of society . . . and that there is necessarily a limit to the progress of Buddhism."[49] It is interesting to note that the concern about the social implications of evolutionary theory and the defense of a circular view of evolution led Enryō to critique the idea of evolution as "progressive evolution," implied in the translation of "evolution" as *shinka.* Instead, he argued, since the evolutionary process involved both "progressive change" or "evolution" (*shinka*) and "retrogression" or "devolution" (*taika*), "evolution" should really be called "great change" (*taika*), or "theory of circular change " (*junkanron*).

Enryō's idea became influential among many Buddhists and turn-of-the-century intellectuals, even beyond Buddhism. Murakami Senshō outlined an idea of circular evolution almost identical to Inoue's in his *The Consistency*

of Japanese Buddhism (*Nihon Bukkyō ikkanron*) of 1890.[50] And the Buddhist philosopher Kiyozawa Manshi criticized "evolutionists" such as Katō Hiroyuki for being "infatuated with progressive evolution, not realizing that the flip side of progressive evolution is dissolution." To counter the excessive focus on progress, Kiyozawa Manshi advocated the use of the term "becoming," or "change" (*tenka*), which encompassed both "evolution" (*shinka*), which is progressive, and "devolution" (*taika*), as did the Nichirenist thinker and leader Tanaka Chigaku (1861–1939).[51] The Confucian Nishimura Shigeki, for example, wrote: "The movement of the original ether is not evolution (*shinka*) but circulation (*junkan*). What in the short run looks like evolution, is, in the long run, a circular change."[52] And Natsume Sōseki (1867–1916), arguably the greatest writer of modern Japan, who had a strong interest in Buddhism and who was one of the sharpest critics of the country's course of modernization, warned readers against confusing evolution (*shinka*) with progress, since it always contained retrogression (*taika*).[53] While these alternative translations ultimately did not prevail, the tug-of-war over the translation of "evolution" shows how unstable and contested the conceptual architecture of Japan still was, and that the association between evolution and progress was a key religious concern.

This ambivalence towards the ideology of progress in evolutionary theory manifested itself most clearly when applied to Buddhism itself. One of the most fundamental and pernicious criticisms of Buddhism in nineteenth-century Japan was that Mahayana Buddhism (which included all schools of Japanese Buddhism) was a perversion of an "original" Buddhism, and hence not "Buddhism" at all (*daijō hibussetsu ron*). To counter this critique, Buddhist theorists in Japan began using arguments from evolutionary theory to present Japanese Mahayana as true, or a further "evolved," Buddhism. In addition, proponents of the idea of going beyond the sectarian divisions in favor of a "unified Buddhism" (*tsū Bukkyō*)—an idea that had currency during the early Meiji period—used the tree-model of evolution, arguing that all Buddhist sects had differentiated and adaptated to time and place, but shared the same origin. Similarly, Buddhism should progress and adapt to the new environment of modern Japan.[54]

Enryō applied his organic idea of evolution to Buddhism as an evolution from the original "seed" that contained all Buddhist varieties from the beginning, in combination with Hegel's law of the dialectical development of thought. In this view, Japanese Buddhism was a "living entity" that had earned its right of existence after a long evolutionary trajectory, whereby it had "adapted" itself to its geographical and sociocultural environments in China and Japan. In short, evolutionary theory applied to Buddhism killed three birds with one stone: Japanese Buddhism was the mature and complete

development of original Buddhism; it was an essential component of Japanese culture; and its evolving differentiation was, just like the division of labor, a mark of its modernity.

On the other hand, the problem with embracing an evolutionary account of the development of Buddhism was that it implied a kind of imperfection in its origins, which ran counter to Buddhism's fundamental conception of history, the idea of *mappō.* This contradiction turned out to be a conundrum that would plague not a few Buddhist thinkers. Seen in this light, the Buddhist critique of the translation of the term "evolution" as *shinka* (progressive change), was both a continuation of the older Buddhist *mappō* theory, as well as a criticism of the ideology of progress, one of the pillars of the Meiji state's great project.

Transmigration

In the late nineteenth century, the idea arose that transmigration theory confirmed the Buddhist commitment to the continuity between human and other species, and thus to evolutionary theory.[55] This idea was not as obvious as it sounds. Strictly speaking, transmigration had nothing to do with species change, and if anything, depended on a strict and permanent separation of higher human and lower nonhuman species, lest rebirth in a higher stage become impossible. However, some Japanese biologists supported the idea that the notion of transmigration facilitated the understanding of evolutionary theory. Ishikawa Chiyomatsu, for example, argued that in Japan, transmigration theory had rendered the idea that one's ancestors were other animals common sense, but that "in Christianity, only humans were thought to be different from animals."[56] The Buddhist biologist Minakata Kumagusu argued that reincarnation was scientifically sound and that "nothing could be more fortunate for the Buddhists" than the ascent of evolutionary theory.[57] On the other hand, transmigration also held the promise of a future higher spiritual existence, something that several Buddhists felt was lacking in current evolutionary theory. Hence, Shimaji Mokurai spoke for many when he argued that Spencer "only talked about how the nonsentient change into sentient, and not how the ordinary become Buddhas," and that therefore evolution theory was "incomplete."[58] Hence, Meiji Buddhists began the search to find a spiritual journey in the process of evolution.

Inoue Enryō argued that "the theory of evolution and retrogression that is now put forward in Western studies came from biology, and we call it evolutionary theory (*shinkaron*). Buddhism is also based on evolutionary theory. The theory of the six paths [of transmigration] is nothing other than the application of the theory of heredity within evolutionary theory, and the

theory of becoming a Buddha is also based on the law of evolution."[59] Enryō argued that the theory of karma, interpreted as the habits of energy, was nothing other than a "Buddhist theory of heredity," and therefore a "Buddhist theory of evolution."[60] This theory, Enryō argued, focused on an intangible energy that emerged from *Shinnyo,* and the accumulation of tendencies and habits of this energy through its interaction with the environment resulted in the formation of species and organisms. This energy, Enryō thought, persisted after death, which explained phenomena such as spiders being able to form webs from birth, and the growth of plants after having died from frost. This Buddhist theory of evolution, Enryō argued, was not identical but complementary to the modern biological theory of evolution: "In other words, the evolutionary theory of the sciences is objective evolutionary theory, while Buddhism is a subjective evolutionary theory."[61]

Enryō attempted to reinvent the idea of karma in terms of the accumulation of moral merit and demerit as intangible energy that behaved according to scientific principles. In his 1899 *The Indestructibility of the Spirit,* based on his earlier ideas of evolution as the self-generated transformation of a living origin, Enryō argued that the human spirit was like a particle of this origin, to which it would return.[62] The spirit had a certain power and momentum that would continue across the borders of life and death of individual organisms. It was this spirit that was expressed in the theory of reincarnation. But Enryō also argued that the power of the spirit, according to its habits and interaction with external factors, shaped the structure of individual organisms.[63] Through the cycles of cosmic evolution, the spiritual powers would continue to accumulate effects, gradually bringing about a higher world. Evolution thus became like a progressive spiral, moving towards a religious ideal.

Buddhist Evolutionary Ethics

Both Christian and Confucian traditions have interpreted mind and morality as uniquely human. Hence, explaining mind and morality with evolutionary theory has been one of the most contentious points in the theory, as Darwin himself feared. In Meiji Japan, too, evolutionary conceptions of morality and ethics became very controversial. Enryō, however, embraced and propagated evolutionary ethics. Intimately related to evolutionary ethics was evolutionary psychology, and Inoue Enryō also became one of the pioneers in the import and dissemination of evolutionary theories of psychology.[64] Enryō's story illustrates how evolutionary theory could stimulate innovations in religious thought. But something larger was also at

stake: the question of whether nature was inherently moral or inherently a place of pure egoism and struggle.

Enryō's interest in psychology provides another interesting example of how religious concerns were decisive for certain avenues of the introduction of scientific thought. One of the aims of Enryō's studies in psychology was to debunk scientifically all forms of "superstition" as explainable psychological phenomena, to make way for a modern, rational, and scientific religion, which was, of course, Buddhism.

Enryō first had to convince a larger audience that the mind was a product of evolution: "Isn't it that according to the theory of the evolution of humanity, humans have developed gradually from animals? If this theory is true, then the origins of the mind must exist in animals. However, animals, except for sensation and movement, do not have anything that can be called functions of the mind. Reasoning from this, man's sensations, intellect, and will must have evolved from these undeveloped sensations and movements. This is called the evolution of the mind."[65] Enryō asserted that the intellect had developed from simple sensations through perception, gradually increasing in complexity towards the human faculty of logical inference. Hence, the mental functions, including consciousness, were not features dividing humans from animals, but demonstrated instead a subtle evolutionary continuum from the nonsentient animals to the more complex functions of the human mind.[66]

Before evolutionary theory, morality, even more than the mind, was seen as uniquely human. In the Confucian tradition, too, morality was what separated humans from animals. One of the oldest discussions in Confucianism had been whether humans were naturally good (as Mencius held), or naturally evil (Xunzi). The classic example of Mencius to prove humans were inherently moral was that anyone who sees a child about to fall into a well would rush to help without thinking. The debate also had policy implications, dividing opinion into those who favored nurturing the inborn seeds of conscience through education, or keeping the people in check with hard punishment. When Meiji philosophers, who in their youth had all been educated in the Confucian classics, tried to understand the implications of evolutionary theory for morality, this opposition still loomed large in their minds. The idea of a "struggle for survival" and Katō Hiroyuki's hard-nosed conception of morality as a more highly evolved version of egoism had upset many intellectuals. It is not surprising that the Meiji period saw an intense focus on the question of the origins of morality.

In contrast to those who hoped for an outright revival of Confucian ethics, or to Nishimura Shigeki, whose belief in innate human goodness caused

him to rejected evolutionary theory, Enryō argued that ethics should be based entirely on natural science, and especially evolutionary theories of psychology: "The evolution of behavior and action is, in other words, the evolution of morality."[67] While the "theories of the East" had "believed that morality was universal and unchanging," Enryō argued that morality was a product of our evolutionary history and that normative lessons could be learned from it. While indeed only humans had morality, it was not a defining characteristic that set man apart from the animal world, as the Christians held, since "the origins of the morality unique to the higher human races must exist in the animal world."[68] Free will, too, was an evolved form of the animal power to make simple decisions.[69]

Enryō believed that evolutionary theory had the solution to the problem of whether morality was a result of nature (psychological nativism, or *tenpusetsu*), or was acquired as nurture (psychological empiricism, or *keikensetsu*), which was a modern way of explaining the old Confucian question of man's nature. Enryō's solution, based largely on Spencer, but also on Darwin's *Descent of Man,* incorporating both natural selection and the inheritance of acquired characteristics, was that morality was neither completely nature or nurture: morality was the result of experience, but had become inherited and developed over generations, adapting to the environment, and resulting in individual humans being born with a moral sense. Hence, for the human species as a whole, morality was the result of an accumulation of experiences in the course of evolution. For the individual born today, however, morality had become hard-wired and was inborn. While humans were thus born good, Enryō argued, education, as a form of "adaptation," had an evolutionary function necessary to make this morality flourish.[70]

Enryō thought that this evolutionary theory of ethics provided a new answer to the old Confucian debate. Mencius had argued that humans were naturally good, because everyone was naturally endowed with four universally shared feelings: commiseration, shame and dislike, deference and compliance, and a feeling of right and wrong. These dispositions, like "seeds" or "sprouts," required cultivation to fully develop into the four Confucian ethical principles: *ren* (benevolence, humanity), *li* (observance of rites, righteousness), *yi* (propriety), and *zhi* (wisdom, knowledge of good and evil). Enryō directly recognized the similarities between Mencius and Darwin's *Descent:* "Darwin thought that morality is when a person once acts selfishly and later remembers the public sentiment, and necessarily has an unpleasant feeling. In other words, morality is what Mencius called [the four beginnings of morality]: commiseration, the sense of shame, the sense of right and wrong, and a reverential attitude toward others."[71]

Enryō thus reinterpreted Mencius in the light of Darwin: the "four sprouts" of morality were products of evolution. For example, the feeling of commiseration had evolved from the arousal of feelings of pain and fear when seeing another organism in pain or fear, which moved one to act to alleviate this feeling. The four sprouts, Enryō argued, had all evolved and were differentiated from less complex feelings of pain and pleasure, which in turn had developed as mechanisms for self-preservation. The altruism of the moral mind, Enryō argued, had its origins in self-love, altruistic action had evolved from egoistic action, and the distinction between good and evil has differentiated from the sense of pain and pleasure. All were entirely the result of an evolutionary trajectory from primitive organisms to humanity.[72]

Enryō (and several others after him) thus employed evolutionary biology to solve the age-old Confucian philosophical question: Were humans naturally good or evil? And was nature at heart good or evil? Enryō's answer was that evolutionary theory had proven scientifically that morality had its first origins in animal, and later in human, behavior adapted to survival, and was thus a product of self-preservation and egoism. With the evolution of society, however, the "four sprouts" of human goodness had gradually become hard-wired in human nature, making humans naturally altruistic, proving Mencius right. An evolutionary view of man and morality did not necessarily imply a deterministic struggle between amoral individuals. Darwin's argument of the *Descent,* that morality had evolved together with language, memory, and intelligence as functions of group selection, had breathed new life into the Confucian ethics of Mencius.[73]

As can be seen from these examples, evolutionary theory profoundly affected Buddhist theory in the Meiji period. In best-selling works and public roles, Buddhists further disseminated the theory of evolution to a wider audience. And through their critical engagement with evolution, Buddhists also put their stamp on how evolution should be seen, countering the early Meiji assumption that evolutionary theory necessarily implied struggle, materialism, and progress, and instead promoting alternative visions of evolution as harboring morality, life, and mind, but also retrogression.

BUDDHISM IN BIOLOGY

While evolutionary theory played overt but complex roles in Buddhist thought and strategies, Buddhist influences on evolutionary thought and its reception were often less explicit. One of the hallmarks of Buddhist thought is that of the impermanence of all things (*mujō*). This concept, prevalent in

Japanese culture, certainly played a mediating role in the acceptance of evolutionary theory. For some biologists, Buddhism actually influenced their interpretations of evolution, or evolutionary biology confirmed or stimulated Buddhist ideas. In this section, I will discuss how Buddhism and evolutionary theory intersected in the work and thought of two Japanese biologists active in early twentieth-century Japan: Minakata Kumagusu and Oka Asajirō. Minakata and Oka were both well known at the time: Minakata was known as somewhat of an eccentric. After travelling to the United States and Britain, for the most part he remained in his home province of Wakayama. But he also became more widely known as someone who had published in English and had lectured the Shōwa emperor. Oka became the single most important popularizer of evolutionary theory in Japan. While Oka later sunk into oblivion, since the 1980s, Minakata has attracted much academic and popular interest. Minakata was devoutly Buddhist, whereas Oka had a more ambivalent and subtle relationship to Buddhist thought. In both cases, however, the notion of Buddhist impermanence influenced their theories of biological evolution, and evolutionary theory led them to confirm elements of Buddhist thought. Both Minakata and Oka were also concerned about the influence of Christianity in Japan, and both clashed with *kokutai* ideology.

The Buddhist Ecology of Minakata Kumagusu

Minakata Kumagusu (1867–1941; see figure 2) was a biologist, folklorist, sexologist, and Buddhist. He rejected eurocentrism in science and hoped that the meeting of science and Buddhism would push back the European domination of modernity. Going one step further than the reformist Buddhists such as Enryō who hoped to reinvigorate Buddhism with modern science, Minakata attempted to produce a new paradigm for scientific thought that was based on Buddhism.

Minakata wrote his most speculative and philosophical ideas in private letters; his most important ideas did not become widely known until the 1970s. He is now a well-known figure in Japan, and there are dozens of books written on him. Since the last decades of the twentieth century, Minakata has been rediscovered by a number of high-profile intellectuals in Japan, who have heralded his thought as a precursor to such realms as modern anthropology, postmodern thought, and the philosophy of biology.[74] Minakata is alluring because he was one of the first Japanese to publish in prominent international scientific journals such as *Nature,* but never took up a position in Japanese academic life, being drawn into the woods of his home province of Wakayama. He was a maverick and freethinker, but

Figure 2. Minakata Kumagusu. Minakata Kumagusu Archives, Tanabe City, Japan.

also a careful scientist, a systematic collector of specimens and artifacts, as well as an ambitious religious thinker. As one of the first environmental activists in Japan, he appeals to the sensibilities of our time.

After dropping out of University of Tokyo at age nineteen, Minakata moved to study in the United States. He studied at Michigan State School of Agriculture, but left after trouble involving a heavy-drinking incident. He travelled around Cuba and South America, and for a short time was involved in a circus company. In London, he studied at the British Museum, where he punched a man after suffering the latter's insults. In London, he met Doki Hōryū (1854–1923), a Buddhist priest who had attended the World Parliament of Religions, which was part of the Chicago World Fair in 1893, and who was on his way to Paris. At the World Parliament, Doki had just defended Buddhism as compatible with science. The two Japanese men walked the streets of London together and talked for days. This meeting was the beginning of a long letter correspondence, one of the most fascinating intellectual exchanges of the Meiji period, and through which Minakata

developed some of his most daring ideas.[75] Both men were seriously committed to the spread of Buddhism in the West. Perhaps most crucially, Doki Hōryū was a priest of the Shingon sect, which had its base in Wakayama Province, Minakata's home province.

Minakata believed in Shingon Buddhism, and did not believe that science was globalizing and Buddhism adapting. On the contrary, he wrote to Doki, "science, as far as I am concerned, is only a small part of Shingon Buddhism."[76] He wrote to Doki Hōryū that "from childhood, I was attached to Shingon, and always prayed to the Dainichi nyorai [the Mahāvairocana, or cosmic Buddha], and I wanted [. . .] to help the philosophy of Shingon flourish in Japan, so that one day people of the world will come to Japan like a new Alexandria."[77] Minakata thus saw Shingon Buddhism as superior to other forms of Buddhism, and he hoped for its global spread.

Minakata first came into contact with evolutionary theory when reading Spencer in the United States, and it immediately enthralled him. He later read most of Darwin's works, as well as Wallace and Haeckel; in Japan, he read Morse/Ishikawa's *The Evolution of Animals* (*Seibutsu no shinka*). Both Spencer's *First Principles* and the idea of evolution as a grand unified theory had prompted Minakata to rethink Buddhism. In 1885, as he was reading Darwin, Spencer, and Wallace, Minakata began to deepen his knowledge of Buddhism. In 1898, he even introduced himself in a letter as "a Buddhist monk and student of Herbert Spencer."[78]

Like other Buddhists, however, Minakata came to reject the idea of progress as integral to evolution and instead emphasized evolution and devolution as two aspects of one single process, suggesting that the appropriate term would not be *"shinkaron"* (theory of progressive change), but rather *"shin-tai-ka ron"* (theory of progressive and retrogressive change). His conclusion, motivated by his Buddhist belief, also involved a sharp rejection of the notions of anthropocentrism and Western superiority, which he had encountered in Europe. Man, he argued, was not the "master of creation," since "there are not a few cases where animals are further evolved than man," and Europeans should not think that "because they had produced science, other peoples are inferior to them."[79] Similarly, in his folklore studies, Minakata's positive appreciation of myths and folk tales set him apart from influential scholars such as James George Frazer (1854–1941), who believed in a necessary evolutionary progress from magic to religion to science.

Minakata was drawn to biology from a young age. Already in primary school, Minakata had hand-copied large sections of the classics of botanical texts such as the *Honzō kōmoku,* which he would continue to use and praise throughout his life. He spent a period of almost two years in the

woods of Kumano Province, searching for specimens for his biological studies, especially slime molds and fungi. This was his most intense period of scientific research and spiritual revelation. Minakata's research on slime molds was a case where Buddhist theory influenced biological studies, and his observations of slime molds in turn fueled his speculations on a Buddhist epistemology and metaphysics.

Minakata was almost obsessed with slime molds, creatures that had mystified biologists for decades. Because of the similarity in shape in the spore bodies they produce, slime molds used to be classified as fungi. Questions concerning the taxonomy of slime molds were particularly vexing. The slime mold's peculiar life cycle seems to show plant-like as well as animal-like stages; hence, also the name "Mycetozoa," a combination of *mykes* (fungi) and *zoon* (animal). The life cycle of a typical slime mold is, roughly explained, as follows. When the spore bodies burst open, spores are scattered. These spores form amoeba-like organisms that move, and behave like individuals. They are flagellated cells, that is, one-celled organisms with a small tail, and they are haploid, with a single set of unpaired chromosomes. Remarkably, in the next stage, these amoeba-like cells seem to coordinate, fuse, and grow into a plasmodium. It is interesting to note that the plasmodium is, depending on one's perspective, one gigantic cell with multiple nuclei, or multiple cells without membranes in between. This body moves, leaving behind a slime; hence, the name "slime mold." At this stage, it eats other organisms such as bacteria, which was the reason why Minakata believed they should be classified as animals. The plasmodium converts into fruiting bodies, often in the shape of tiny balls on a stem not more than about two to three millimeters high, and which show an immense variety in shapes and colors, often displaying a delicate beauty. Minakata noted that while this flowering was the most beautiful stage of the slime mold, at this stage it is actually dead, yet harboring new life within. The fruiting bodies burst, and the spores are scattered, thus starting the process anew.

These creatures' primitiveness attracted Minakata, as did their ambiguous state of classification, which seemed to him to possibly provide keys to the evolutionary origins of plants and animals. Minakata probably saw these creatures as "model organisms" for the study of biological evolution, and it is here that Buddhist theory actually seemed to have influenced his observations. When wondering about whether or not evolution was still occurring, Minakata wrote that he had observed the evolution of slime molds in the garden of his house in Tanabe: "Even in this small space in Tanabe, the change of things is boundless. When I placed the seeds of the new species [of slime molds] that I mentioned earlier in the grounds of my house, within two years it had changed completely into another normal

species."[80] After that, Minakata relocated the organism to the garden of his new house, where it "returned to an identical state of its ancestor." In other words, the slime mold had devolved, or retrogressed.

> I have patiently observed for ten to twenty years, and when thus observing the same [organism] in the same place, even in a small place like [my garden] in Tanabe, [one can see that] in this way, today, too, without human help, organisms naturally change into new species, or are changing and unstable. In my old house, they become new species, while in my new house, they return in the opposite direction to their original stock and so on; hence, one can see that in this wide universe, without the help of human intervention, there are constantly innumerable changes occurring.[81]

Minakata believed he had observed the process of retrogression (*taika*) in slime molds. Minakata never published any substantial articles on slime molds, and he has been criticized for being "not much of a biologist" by Makino Tomitarō (1862–1957), one of the fathers of Japanese plant biology. Now, however, some biologists and other commentators hail his work as remarkable prescient, although they have not noted the direct impact of Buddhism on Minakata's biological research.[82] Both Inoue Enryō and Minakata Kumagusu linked the idea of evolution and devolution/retrogression to Buddhist theory, but whereas Enryō had speculated with theories of cosmic evolution in mind, Minakata thought he had observed it occurring in nature. Minakata thought that Western scholars had not yet actually observed evolution at work in nature because they did not engage enough in long-term observation. "No surprise," he wrote, "that normally Western scientists believe that God created the world, and finally, also a pair of humans, Adam and Eve, and after that not a single new entity in nature has been made."[83]

Minakata drew some radical conclusions from his biological research. Researching the evolution of slime molds made it clear to him that "the morphology of plants and animals is in no way fixed," and in a constantly evolving nature, taxonomy had limited value.[84] Since species were constantly evolving and going extinct, " whether something is a species, or a variety, or an aberration, it all causes much confusion. Therefore the more one looks, in nature there is nothing that we can definitely label as a 'species.' This is the most important insight of study."[85] Minakata took to heart one of the radical implications of evolutionary theory: since the order of nature is not fixed, it is inhospitable to essentialist approaches. The order of nature, Minakata thought, required from biologists a different epistemology, something that Western scholars, despite having produced Darwin and Wallace, had not yet realized. Biology should study the phenomena of life itself and focus on the fluid and changing identities within complex net-

works of causalities. Hence, the study of slime molds also reflected back on his ideas of epistemology and the very basis of science. It was not surprising that it would again be Buddhism that provided a guiding light.

During Minakata's immersion in the woods in the Nachi area and his search for slime molds and fungi, one of the few books he brought with him was the Buddhist text *The Flower Garland Sutra* (*Kegon sutra*), which has, among its themes, the unity of the physical and the spiritual worlds, and the complexity of the interrelatedness of all things. The latter idea was expressed most famously in the metaphor of "Indra's net," which consisted of multifaceted jewels at each vertex, resulting in each being reflected in all of the other jewels, and in each jewel, all other jewels were reflected. The idea that one could see the infinite universe in the smallest particle seemed to have come back to Minakata during his observations using the microscope, which he said led him to see the Cosmic Buddha (Dainichi) and "the Great Universe that encompasses the endless Great Universe's Great Universe's Great Universe."[86] The microscope had become an instrument to gain not only scientific but also religious knowledge. Minakata's biological research and his Buddhist epistemology seemed to have developed hand in hand.

After studying the slime molds, Minakata thought that the ideas regarding the unity of the Buddha reality and that of the phenomenal world, along with his evolutionary view of the interrelatedness of all beings, were the core ideas for a new Buddhist paradigm for science and other knowledge. Minakata constructed a modern version of an old Buddhist device, the mandala: religious representations of the universe. In Japan, use of the mandala was characteristic of Shingon Buddhism. Indirectly, these mandala also tell us how Minakata envisioned the place of evolution within his larger Buddho-scientific worldview.

In his letters to Doki Hōryū, Minakata sketched several mandala. The first sketch (see figure 3), drawn in 1903, later became the most well known; it was meant to illustrate Minakata's epistemology. The intersecting lines stand for the infinite number of relations of *koto* (literally "thing," but Minakata used it to express intersections between mind and matter) and principles that make up the universe. Knowledge of one thing is achieved by ascertaining two other points and on the same line. Hence knowledge is that of a shifting focal point within a complex network or relations. Much has been written about this particular sketch, but suffice it to say that one intention was to express the multiple threads of reason and causality, since the complex network of reality stretches out into an unknown infinity. The upper lines reflect the limits of the perceptible and knowable universe, thus expressing Minakata's belief in the limitations of scientific knowledge.

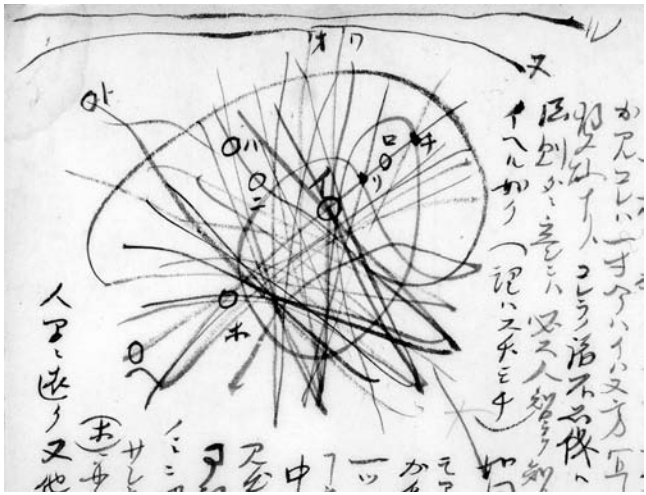

Figure 3. "Minakata Mandala (1)." Minakata Kumagusu Archives, Tanabe City, Japan.

Beyond it, or encompassing it, is the "grand mystery of the Mahāvairocana Buddha" (*dainichi nyorai no daifushigi*).[87] The complex interrelatedness of things—of everything with everything—rejected a mechanistic worldview, and instead expressed a more complex and organic "cosmos." The complex interrelatedness of all things, as also expressed in the vision of Indra's net, was not hard to connect to the Darwinian idea of adaptation or to the notion that an organism's properties made sense only in terms of all its relations with the totality of the environment, and in a sense, were reflections of it.

In another sketch (see figure 4), Minakata stayed closer to the traditional Shingon forms of two separate mandalas: the "Womb" and "Diamond" world mandalas. Minakata, combining these two into one mandala sketch, noted in the larger circle the character of the "Womb" of "Womb world" (*taizōkai*), and in the smaller circle, the character for "Gold" or "precious metal" signifying the "Diamond World" (*kongōkai*). The Diamond Mandala, when approached from the center (the Mahavairocana Buddha), follows the way energy emanates from the center, the cosmic Buddha, to the phenomenal world. Similarly, Minakata's mandala shows how a process of causes and effects emerge from the "mind of the cosmic Buddha." The larger circle expresses reality as a whole, equated with the Dainichi (Mahavairocana), or cosmic Buddha, and the process of cause, effect, circumstances, and matter and mind as emerging from the "mind of the Dainichi." Hence, the

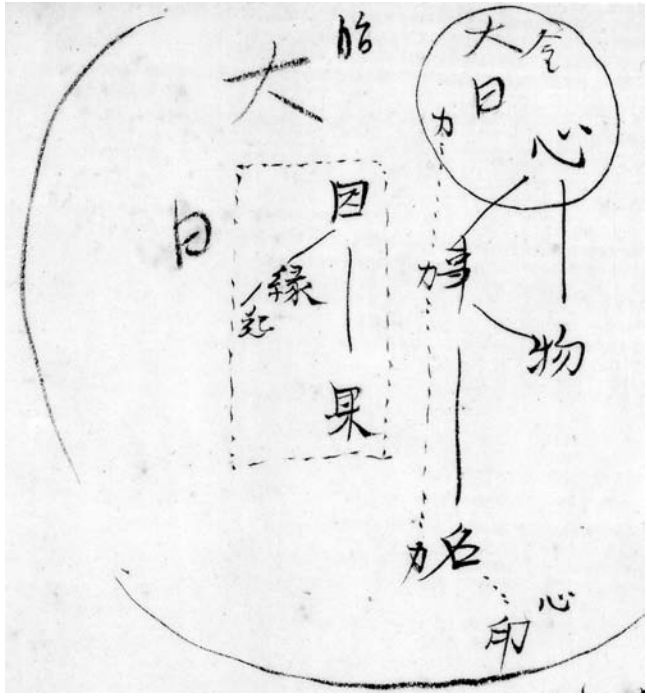

Figure 4. "Minakata Mandala (2)." Minakata Kumagusu Archives, Tanabe City, Japan.

process of the self-formation of the world, in other words, evolution, was the process of how reality unfolds from the incomprehensible "Mahāvairocana Buddha mind." At the core of reality sits a mysterious Buddha mind; evolution is how the cosmic Buddha realizes itself.

The mandala illustrates concretely what Minakata meant by science being "a small part of Shingon." Science for Minakata meant the study of the complex relations of causes, effects, and circumstances of a divine world. What the mandala also shows is a unity (or unity-in-difference) of a divine mind-reality with the physical world; hence, a rejection of reductionist materialism. Minakata's metaphysics is similar to other turn-of-the-century monism, which revived Spinoza's *Deus dive natura,* and to some Protestant theological attempts to harmonize evolutionary theory with God, except that here nature was equated to the Mahāvairocana Buddha. Perhaps Minakata's idea echoed more closely his Western sources than he admitted. In effect, just as Enryō did for his *Shinnyo,* Minakata replaced Herbert Spencer's "Unknowable" with the Mahāvairocana Buddha. Herbert Spencer's

concept of the Unknowable was new, abstract, and empty, and it was hard to imagine it commanding any deistic religious devotion to it (how would one pray to Spencer's Unknowable?). The Mahāvairocana already had a long and rich history and was full of meaning.

In short, Minakata embraced evolutionary theory, while trying to preserve a mysterious core at the heart of a Nature now reenchanted with the light of the cosmic Buddha. Minakata's scientific and theological model also decentered the gravity point of science away from the West, and potentially to Japan. It was also a strong rejection of the idea that scientific progress necessarily involved secularization. Several other Meiji Buddhists, such as Kiyozawa Manshi, when thinking about evolution, similarly revived Buddhist ideas of causality and complex interrelatedness as an alternative to a mechanical or linear view of evolution, and argued that everything was related to everything else in the universe, as in one organic body. These interpretations also helped to envision the individual as having a moral connection to the whole universe (and not just the nation).

Minakata is also rightly remembered as one of Japan's earliest environmental activists and for his role in the introduction of ecology (*seitaigaku*).[88] Minakata's ecological thought was based on scientific arguments, including his readings of Spencer and Darwin, but it was also, more than has been appreciated, motivated and inspired by his support of and belief in Shingon Buddhism.

Minakata's ecological studies, as has been described by others, was part of his activism against a program by the Meiji state to merge and abolish thousands of Shintō shrines.[89] With the Shrine Merging Ordinance (*Jinjagōshirei*) of 1906, as part of the construction of State Shintō, the Meiji government moved to establish a nationwide hierarchy of shrines, with the Ise shrine (where Amaterasu was worshipped) at the pinnacle. This was part of a larger attempt to spread State Shintō among the people and to unify the nation under the emperor. The new policy called for a ration system resulting in "one shrine per village," which meant many (usually smaller and poorer) shrines were to be abolished. Wakayama Prefecture was one of the provinces hardest hit by the new policy: by 1913, Wakayama's shrines had been decreased from fifty-eight hundred to four hundred.[90] It is also worth noting that it was in 1906 that Minakata married the daughter of a priest of a local Shintō shrine in Tanabe. Minakata was first inspired to oppose the shrine merging when one shrine, Sarugami no yashiro, located on the grounds of a local Shingon Buddhist temple, Kōsanji, was targeted. Minakata had been going there to conduct research and gather slime molds and fungi. Despite the fact that the woods around the shrine were considered sacred, the shrine was abolished and its woods were cut down and

sold. Minakata came to cooperate closely with Kōsanji's abbot, one of Japan's few socialist Buddhists, Mōri Saian (1871–1938).[91]

Minakata argued that despite the government's stated aims, amalgamation would not bring people closer to the gods and would actually diminish people's patriotism, breaking the bonds of local communities, which would result in social problems.[92] It was in this context that Minakata applied ecology to analyze and prescribe the effects of the shrine abolishment. Local Shintō shrines were often surrounded by woods that would be lost if the shrines were abolished. Minakata accused corrupt officials who supported the shrine-merging policy of raking in the profits from selling the timber from these woods. Minakata had observed that the loss of woods led to the loss of habitat for birds, which in turn led to an increase in the termites and vermin that damaged temples and buildings. Modern ecology had its roots in evolutionary theory (of both Darwin and Spencer), and Minakata's ecological arguments, showing the disturbance of the balance between species were reminiscent of Darwin's famous example in the *Origin* regarding the interrelations between clover, bees, field mice, and cats. In Darwin's own words, "plants and animals are bound together by a complex web of relations," which later became known as the ecosystem.[93] Minakata's innovation was to add human culture, artifacts, history, and religion to this complex web of relations.

In the biological and cultural web that he sketched regarding the shrines, one can see the interrelatedness of all things and the complex causalities of Minakata's Buddhist-inspired epistemology. More important, his motivation to save the local shrines was part of an effort to protect a kind of local religious structure and defend Shingon Buddhism.

As mentioned earlier, Minakata decided to act when a shrine located within the grounds of Kōsanji, a Shingon temple, was targeted. Shingon was intimately connected to the region of the Kii peninsula. It is also significant that some of the areas in which Minakata was active, such as Kumano, had been considered sacred for centuries and were important pilgrimage sites. It is important to emphasize that Minakata's "nature" in the Kii peninsula was not a nature that he tried to protect from the activity of man or modernity, but an environment heavily endowed with cultural, and especially, religious meaning.

Minakata argued that for ordinary people, the landscape represented something sacred, and destruction of the landscape removed this unique opportunity for a religious experience:

> The amalgamation will destroy the natural landscape and natural monuments. . . . I think that our country's natural landscape is the mandala

> of our country. As I said earlier, the highest Truth cannot necessarily be explained by writing or in speech. For those people, without a good heart, knowledge of many things or elucidating theories will do little good. Hence, apart from people with a high level of wisdom—for ordinary people, looking at the landscape—they will be touched by certain places, or find them interesting, and through that, they will, without them understanding it themselves, vaguely feel the highest Truth [*Shinnyo*].[94]

Minakata formulated his criticism of (Shintō) shrine amalgamation in Buddhist terms: the landscape, including the shrines, was a "mandala" and was the access point for a religious experience of the Buddhist absolute reality, or *Shinnyo* (Thusness). This comment should also be seen in the light of Minakata's Shingon pantheism and a belief in the divine being present everywhere. In addition, his distinction between the highly educated and the ordinary folk is recognizable as a legitimation of *hōben* (expedient means, or the guiding of the unenlightened by pedagogically revealing imperfect representations of the truth, adjusted to the audience and the situation) in Buddhist proselytizing. In effect, he wanted to protect a religious ecology that was essential for ordinary people to maintain a connection with the Buddhist absolute, and also enabled them to see the Buddhist absolute through a unique heritage, the way their ancestors did.

Minakata's eco-religious activism also revealed a more combative edge. Minakata believed that the destruction of shrines would result in spiritual vacuums, vacuums that would be filled by Christianity and new religions such as Tenrikyō, both of which he rejected. His commitment to Shingon Buddhism involved a rejection of other religions, and, as we will see in the next chapter, a critical attitude towards State Shintō and worship of the divine Emperor, which he saw as a kind of "taboo" system and rejected with arguments from evolutionary theory.[95] Minakata did not reject nationalism, or even the monarchy, but he did reject the state's prerogative to formulate and control one's relation with the absolute, something he believed should be experienced through contact with the sacred in one's natural and historical, local environment.

Minakata opposed the influence of Christianity in Japan, and later wrote that he "hated Christianity."[96] His close allies and Shingon priests, Doki Hōryū and Mōri Saian, were of the same opinion. Minakata was keenly aware of the cultural dominance of the West in the world of science, but believed modernity should not be equated with Western domination. While Minakata kept contacts with British scientists and wrote for *Nature,* he also believed Western scientists to be burdened by, and their research compromised by, the weight of Christianity. Minakata argued not just for the

compatibility of Buddhism with science, but for the superiority of Buddhism; indeed, he contended that Buddhism provided a more advanced source for scientific reason.[97] His long hope was that someday Japan, blessed with the more rational legacy of Shingon Buddhism, could be a new kind of metropole in the future. The region of Wakayama, therefore, had to be protected from Christianity.

Minakata's ideas, stimulated and conditioned by the ideological and religious controversies of the Meiji period, were a cross-fertilization of evolutionary biology and Buddhism, and rejected materialism, progressivism, and essentialism. Minakata developed a plan for a Buddhist science and a view of biological evolution of a nature that was divine.

Oka Asajirō: Impermanence and Paradox in Evolution

In 1907, the biologist Oka Asajirō (1868–1944) reflected on the research he had conducted on moss animals (bryozoans; J.: *kokemushi*). Moss animals are tiny water creatures that can form colonies, and while often landing on hard surfaces such as rocks or sediment, they can also drift freely. As is most famously captured in Ernst Haeckel's illustrations (see figure 5), they come in a dazzling variety of forms. Most commonly, they have a tube-like shape, and a crown of tentacles surrounding the mouth, which are used to prey on microorganisms. Moss animals had fascinated biologists for generations, and they would become catalysts for Oka's ideas about biology, philosophy, and society. Oka described his observations as follows:

> I have been observing moss animals for over twenty years. I have repeatedly done experiments of sucking small algae into glass pipettes and then positioning them between two moss animals [two zooids of one colony], in order to find out if there is strife or not between moss animals. But both organisms took only the food that came within the range of their tentacles stretched out, and the food that came in between the two was gently taken in by the individual that touched it first. There was no sign of strife between the two organisms. The same blood circulates through the whole nation [of moss animals]; thus, whichever takes the food, the nutrients will be divided equally. Hence, there is not the slightest reason to compete.[98]

The moss animals seemed to divide their resources equally, unlike in modern human society. While philosophers were speculating about the relations between ethics and nature, Oka was searching for the existence of morality at the deepest levels of nature. But Oka was no idealist; he noted that when they formed colonies, moss animals were perfectly capable of

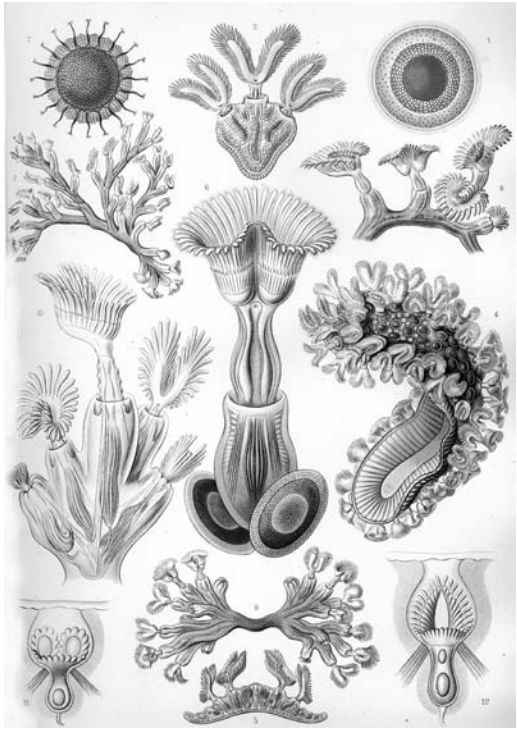

Figure 5. Ernst Haeckel's illustrations of Bryozoa. *Kunstformen der Natur* (1904).

ruthless warfare, just like humans. Oka was writing his main works in the wake of the cataclysmic Russo-Japanese war of 1904–1905. It was a period that seemed to vindicate the modernization program of the Japanese state, and ushered in a wave of nationalism. For many intellectuals, however—Oka among them—it was a period of reflection on the costs and true nature of evolution in society, and in nature.

Oka's ideas would be strongly influenced by his research on the tiny moss animals, even venturing into philosophy. His ideas were also colored by Buddhism. Oka became one of the most important and widely read spokesmen for evolutionary theory in Japan. Unwittingly, he would also change the course of evolutionary theory in Japan. A wide array of figures would later express their indebtedness to Oka: the Marxist philosopher Miki Kiyoshi (1897–1945), the leading liberal political scientist Tsurumi Shunsuke (1922–), and the archeologist Yamanouchi Sugao (1902–1970), and abroad, Lu Xun (1881–1936), modern China's most important writer.[99] But Oka's thought would become the most enduring among Japan's radical and left-wing intellectuals and biologists who embraced

evolutionary theory, such as the anarchist Ōsugi Sakae, the labor activist and biologist Yamamoto Senji, and the radical utopianist Kita Ikki. (see chapter 4).

For these reasons alone, Oka's thought should have received serious attention from historians of evolutionary theory and of Japan. Unfortunately, Oka has either been treated as a not very interesting biologist and mentioned in one breath as a "social Darwinist" ideologue with Katō Hiroyuki, or he is described in terms of Japanese exceptionalism, as in the work of historian of science Watanabe Masao, who described Oka as an evolutionary theorist whose Buddhist sense of impermanence and closeness to nature helped him formulate the first genuine "Japanese" theory of evolution, expressive of unique Japanese psychological qualities.[100] I believe, however, that Oka Asajirō was an important biologist, transmitter, and interpreter of evolutionary theory in Japan, as well as a pioneer of the philosophy of biology in Japan. And while his thought is indeed permeated with Buddhist thought, his work needs to be unpacked and contextualized without falling into the trap of Japanese exceptionalism.

Oka regarded his own biographical information as unimportant, and unfortunately, threw what records he had in a river.[101] But his personal life strongly colored his ideas about biology. When Oka was sixteen, tragedy struck. First, he witnessed his younger sister's kimono catch on fire, and by the time the fire could be extinguished, she had burned to death. Shortly afterwards, within a short time span, his father, mother, and brother died of diseases. At sixteen, the young Asajirō was an orphan. In his writings, we can feel that a sense of tragedy inflected his views on nature and biology. In 1886, Oka began his studies at the University of Tokyo. In 1891, he went to study in Germany, first with August Weismann, but after one year, Oka left dissatisfied, and continued his studies with Rudolph Leuckart (1822–1898) in Leipzig, whom he would always remember as his "only teacher." After his return to Japan, in 1897 Oka became a professor at the Tokyo Higher Normal School (Tokyo kōtō shihan gakkō). This school, while important, was a rather low-key place in the intellectual world of Japan, but it was here, from the margins, that Oka would continue to work for thirty years.

Oka was propelled to fame by his best-selling 1904 *Lectures on Evolutionary Theory,* reprinted eleven times within ten years, and which became one of the most influential sources for evolutionary theory in Japan for decades to come.[102] The book was thus a very important work in the global dissemination of evolutionary theory. Although *Lectures* was not the first Japanese introduction to evolutionary theory, Ishikawa Chiyomatsu's *New Theory of Evolution* (*Shinkashinron*) having been published in 1891, it was much more

readable while still of high quality. Oka thought that a new popular introduction to evolutionary theory was necessary because there were still many people in Japan who believed in the fixity of species, hinting at the limitations to the spread of the idea of evolution in Meiji society.

Lectures consisted of a short history of evolutionary theory, the first of its kind in Japan, followed by concise explanations of natural selection, sexual selection, the main sources of proof for evolution, Oka's opinions on contemporary discussions on evolutionary biology, and the relevance of evolutionary theory for other branches of knowledge. Similar to Enryō and Minakata, he rejected the common notion that evolution necessarily implied progress. While division of labor was favored by natural selection, and evolution therefore tended to develop in the direction towards more complexity, Oka pointed out that this was not necessarily "progress." Human concepts such as "higher" and "lower" were all relative, depending on the environment. Organisms adapt to their environment, and only evolve to more complexity when necessary for survival.

In the *Lectures,* Oka advocated Darwin's view that natural selection was the main mechanism for evolution and the inheritance of acquired characteristics was a secondary one.[103] While elsewhere the theory of natural selection did not have many supporters, in the early twentieth century it had strong support among several Japanese biologists. In contrast to strict selectionists such as Ishikawa Chiyomatsu and Nagai Hisomu (1876–1957), Oka was very critical of August Weismann (1834–1914). Oka's criticisms are important not only because they would be used by later generations of Japanese biologists such as Yasugi Ryūichi in their rejection of neo-Darwinism, but also because they would intersect with Buddhist ideas. Based on his theory that there was a strict separation between what he called the "germ plasm" (the germ cells such as sperm and ova that flow from generation to generation) and the "somatoplasm" (the cells that build up the body anew with every generation), and that the latter could have no influence on the former, Weismann had argued that the inheritance of acquired characteristics could not be possible. Oka argued that Weismann's theory could not explain certain phenomena, such as the full restoration of a cutoff tail among lizards. More important, Oka also rejected the absolute distinction between germ plasm and somatoplasm, which he saw as nothing more than the division of labor between cells, and stated that, in short, "The whole body is an integrated whole."[104] Objections to the theory of the inheritance of acquired characteristics, Oka argued, were based on this false distinction between the body as container and germ plasm as contents.[105]

After the success of the *Lectures,* Oka wrote a series of essays in which he developed the implications of evolutionary theory for philosophy, ethics,

and society. Through these works, Oka Asajirō would emerge as a philosopher who integrated Buddhism and evolutionary conceptions of nature.

Oka began one lecture with the unfortunate case of the "Kegon Waterfall suicide." In 1902, a student committed suicide by jumping from the ninety-seven-meters-high Kegon Waterfall near Nikkō. The student had written a suicide note, commenting on the evanescence of life. The incident attracted national attention, praise, and even copycat suicides. It was a sign of a new Zeitgeist for a new generation, in what later Japanese scholars have described as the "turning inwards" among a tormented section of young intellectuals. Many of the new generation turned their attention from the fortunes of the nation to the individual and his psychological life. Oka had a different take. In *Evolution and Human Life,* he wrote about the "youngster who had committed suicide because he could not grasp the Truth of the universe":

> I feel sorry for that person and his family. But if one looks at his behavior cool-headedly, it is not different from the reasoning of a small child, who, while on the back of his mother, tries to grasp at the far-off moon with its short arms of only thirty centimeters, fails in this, and then starts crying. The child starts crying, because he doesn't think about the fact that his arms are only thirty centimeters, while the moon is hundreds of thousands of miles away, and he assumes that as long as he stretches his arms, his hands will eventually reach the moon. Philosophers are the same. They forget the vastness of the universe and their own smallness—that the brain is only halfway in its evolution, and they assume that as long as they keep on thinking, they will completely decipher the universe. But no matter how hard they think, they still have not reached this understanding, and therefore worry themselves sick.[106]

The analogy of a child grasping for the moon echoes a Zen Buddhist analogy of a monkey trying to catch the moon, but is grasping the moon's reflection in a pool of water. The moon stands for absolute truth and enlightenment, and this Buddhist image warns against searching for the truth in the wrong place, that is, in the world of phenomena.

Oka modified the Buddhist meaning of the image, and based on arguments from evolutionary biology, argued that absolute truth would completely be out of reach altogether. Oka was not just pointing to the obvious limitations of human understanding; he contended that our thinking as such, with its categories and rules, was a product of evolutionary processes. The idea that human thinking (let alone conscience or morality) was a result of evolution had opponents ever since Darwin, even among those who otherwise accepted evolution, starting with Alfred Russel Wallace.[107]

Oka pointed out that human thought was simply a feature—a tool in the struggle for survival—and has therefore only developed insofar as necessary to cope with the environment and its threats. Human intelligence had evolved due to selection pressure in competition among human groups. The idea was that a feature or organ only evolved when it, so to speak, pays off, and crucially, when the costs are not too high, and should be seen as relative to the capabilities of competitors. From this, Oka went one step further and concluded that absolute perfection in nature did not exist. After Darwin, Oka reasoned, "perfection" could only mean "slightly better than one's competitors."

The human brain and its intelligence had only evolved to such a degree as was necessary to survive in the struggle with competitors. For Oka, the human mind and its contents were, in essence, a toolbox to cope with very specific problems in the natural and social environment. Oka drew from this a larger epistemological conclusion: "acknowledging this means to stop believing in an unchanging truth."[108] For Oka, it was not just that the mind has a limited capacity to grasp the truth, but that truth was relative to evolution and the evolutionary stage of the nervous system. This idea was an evolutionary Copernican turn.

Based on his research on moss animals, Oka Asajirō would draw some further radical philosophical conclusions. While observing these small creatures, Oka hit on a problem. When moss animals formed a colony, a division of labor took place: some took on the function of taking in food (and because they are connected, the nutrients are transmitted to other members), some, of movement, some, of cleaning, and so on, similar to the division of labor in an organism. The integration was so complete that he found it impossible to ascertain the boundaries between the individuals, and to say if he was dealing with a group or with a single organism. Oka's moss animals could live independently in colonies, but at the same time, the colony showed characteristics of a single organism. Oka had hit on the problem of the individual in biology. He found an interesting, albeit unorthodox, solution to this problem.

Oka found inspiration from an unlikely source: his contemporary, the French philosopher Henri Bergson (1859–1941). In his *Creative Evolution* of 1909, Bergson proposed an alternative version of evolutionary theory.[109] Although Bergson does not usually figure large in histories of evolutionary theory, he was so popular among Japanese philosophers that one can speak of a "Bergson boom" during the 1910s. While Bergson is known as one of the main philosophers of "vitalism," he presented *Creative Evolution* as a way out of the split between vitalist (which he equated with teleological) and mechanist theories of evolution. Bergson criticized Darwin as well as

Spencer and the neo-Lamarckists. Natural selection theory, Bergson argued, was "mechanistic" and was inadequate to explain evolution. Natural selection could only be a negative factor, by weeding out unfit elements, but could never build or create anything new, or produce new species. As an alternative to both natural selection theory and Lamarckism, Bergson conceived a different power, which he termed the *élan vital.* He described it variously as "pure duration," a "tendency," "Life itself," "a push," and "pure freedom." The élan vital was distinct from matter and inserted "indetermination" into matter. It uses matter and clings to it, but is not reducible to it. Looking closely at evolution, Bergson argued, you could always see a drive that creates irreducible newness. The products of evolution could not be predicted by looking at the material (chemical and physical) conditions that came before it. The results were more than the combined causes. Therefore, Bergson reasoned, mechanistic explanations were inadequate to explain evolution.

Apart from these metaphors and analogies, Bergson said little concrete about what the élan vital actually was. Near the end of the book, however, it becomes clear that the élan vital, as a creating force, is God.[110] He also argued that man was different *in essence,* and not in degree, from animals.[111] Bergson's reconciling religion and human exceptionalism with evolution contributed to his popularity among the Catholic elite in France; in Japan, too, the élan vital would later become influential as a mysterious cosmic life force, and would acquire a religious dimension of its own (see chapters 4 and 5).

Oka mainly focused on Bergson's ideas on intelligence.[112] Bergson argued that the intellect was a tool for action and was a result of adaptation to the environment. Due to the necessity of handling objects in the environment, the intellect naturally came to operate primarily in terms of matter and solid entities. The intellect, Bergson argued, was therefore well equipped to deal with problems in our daily lives, and it also resulted in the world of physics, geometry, and mathematics. This disposition, however, made the intellect incapable of understanding Life, which, Bergson argued, was "pure duration." Our intellect gives us a mosaic frame, where in reality there is the continuity of a painting.[113] However, Bergson said that with a form of intuition, which would be the basis of a new philosophy, the continuity of life could be grasped.

Oka adopted Bergson's criticism of "the logic of fixed objects" (*la logique des solides*), and applied it to biology and philosophy:

> The moment when human logic is applied to nature, stumbling blocks appear. This is because things in nature evolve incessantly and never stop.

> Whatever we see in nature is all a continuum of change, and wherever you search, you will not find anything fixed or still. . . . Thus, I found Bergson's idea of "the logic of solids" so appealing because it expresses this [idea] most concisely and to the point.[114]

And further:

> Human logic, based on solid objects, would work well in geometry, but runs into trouble in the world of biology. One or many, cause and effect, and such things that should be the basis of all our thinking, do not fit living beings very well. In organisms, the boundaries of the individuals are often indistinct, and it is often difficult to say if we are dealing with one or many. Also, even if you see directly that the bodies of organisms are made up of cells, whether the cells grouped together and formed the body or the body broke up into different cells is difficult to say.[115]

Oka found in Bergson a solution to what he intuitively knew about the problem of the individual in biology: the solution could not be found in observing nature but in the observer: the human intellect had evolved as a device for solving practical problems of daily life and came to think in terms of fixed objects, cause and effect, yes or no, and either one or many; hence, its inability to put into words or make definitions when it encountered, for example, the problem of individual versus colony in moss animals. Oka generalized from the phenomenon of the impossibility to determine the individual in moss animals and called it "distinction without division" (*kyōkai naki sabetsu*).[116] This was a sort of maxim, which recognized that the human intellect could not help making distinctions in nature, but must be warned that real gaps or divisions do not exist.

Oka then applied this idea to some problems in biology. First, in taxonomy, Oka argued that the difference between species and variants was one of (phenomenal) "distinctions," but there were no objective boundaries between them. All species are part of one continuous process in evolution. A similar solution worked for the search for the definition of life itself: "If one would follow the course of one particle of oxygen or nitrogen, at one point it is [part of] a living being, the next, it is [part of] a nonliving entity, and this continually circulates. Hence, from a living being to a nonliving being, or from a nonliving being to a living being, there is no abrupt change. There is only an endless succession of small stages, so it is impossible to establish a clear boundary showing the point at which something is not alive versus when it is alive."[117] Crucially, Oka also denounced Weismann's rigid distinction between germ plasm and somatoplasm as an example of a mistaken application of the "logic of fixed objects" to biology. Oka saw this thinking in

terms of continuity as a new philosophical basis for biology as distinct from the other sciences, and also as a criticism of reductionism (i.e., the idea that ultimately all phenomena in biology could be explained in terms of physics).

Oka would go one step further, however, arguing, "distinctions exist but divisions do not is the truth of the universe."[118] The whole of nature is continuously evolving; hence, "whatever we see in nature is all a continuum of change, and wherever you search, you will not find anything fixed or still. If something looks solid or fixed, it just means it is changing slowly, and it is like a small part of a circle looking like a straight line."[119] Oka was turning the tables; biology, not physics or mathematics, was the most fundamental science: "Nature does not have numbers, or additions or subtractions."[120] Oka argued that the logic of fixed objects was also intimately connected with the development of language; definitions and distinctions between words gave the illusion of divisions in reality.[121] Through the use of language and definitions, the intellect tends to see divisions in nature where there is, in fact, only evolutionary continuity. Oka therefore prescribed that we should give up our quest for definitions and "free ourselves from the bonds of language." It is remarkable that Oka struck on one of the most important consequences that several twentieth-century philosophers and evolutionary biologists only much later attributed to Darwinian thinking: the blow that Darwin gave to essentialism. Naturalists before Darwin worried about the different varieties and species that should have essences (the background was that these were ideas in the building plan of God). But for Darwin, this did not matter: varieties are incipient species, and the different species came from shared ancestors. Nature shows no essences, only common descent.[122] Thus, Oka Asajirō came to a critique of essentialism through his research on moss animals, evolutionary theory, and his encounter with Bergson.[123] In addition, an older Buddhist critique of essentialism, connected to the notion of impermanence and the nonego or nonsubstantiality of all beings, nurtured Oka's thinking. To understand Oka's conception of impermanence, we will first turn to his ideas on social evolution.

Similarly to Darwin, Oka argued that society was based on cooperation, which was a product of evolution. The combination of the development of large brains, intelligence, memory, and language made advanced cooperation among humans possible. Altruism was favored by natural selection in the group, and hence had evolved originally from egoism.[124] In a 1907 article titled "The Ideal Group Life," Oka, in a mix of seriousness and irony, compared the social life of moss animals with human society.[125] Most negative aspects of human society—strife, crime, joblessness, divisions between rich and poor—are nonexistent among moss animals. In the absence of these

problems, he said, there was also no need for religion or ethics: "The religions of today are trying to climb the mountain from different sides and along different paths. But the moss animals are already at the top of the mountain, quietly looking at the moon above the high peak. There is a saying, 'preaching to the Buddha,' but the moss animals need the preaching even less [than the Buddha]."[126] Moss animals had reached the ideal state of all religions and ethics. Hence, Oka argued, "At every school, instead of having the pupils listen to those stale lectures on ethics for one or two hours every week, wouldn't it be much more effective to show them colonies of moss animals through a microscope and explain their group life in detail?"[127] One can appreciate the sharp irony and critical meaning of this piece when realizing that the "ethics" classes Oka refers to were the main conduit for the state's dissemination of Confucian ethics and State Shintō—in short, the *kokutai* ideology.

Here, Oka was also critical of Buddhism: "Instead of erecting statues of the founder of one's sect or the Buddha, it would be more reasonable to erect magnified images of moss animals." This, "in order that humans become bigger than their smaller selves."[128] The humor in the piece takes a cynical turn, however, when Oka comments, "When it comes to competition between nations, moss animals are no less fierce than humans."[129] Oka concludes the piece by noting that because of human evolutionary history, humans can never be as cohesive as the moss animals. It is, of course, hard not to see the Russo-Japanese war and the nationalist rhetoric, as well as Katō Hiroyuki, in the background. Oka's investigation of the relation between the group and the individual in biology was indeed colored by the times, and suggested that struggle between nations was natural. Thus far, Oka's ideas on the primacy of individualism and the naturalness of conflict were indeed similar to those of Katō Hiroyuki, but his analysis of social evolution was no rallying call for war and contained a strong element of pessimism. It is here that Oka's Buddhist sense of impermanence comes into play.

At the heart of Oka's evolutionary theory was a profound skepticism regarding the ideology of progress. His ideas about human and social evolution are dominated by an idea that I call "Oka's law." According to Oka, all animals that at one point had enjoyed a dominant position, such as the dinosaurs, had all suddenly declined, decreasing in body size, numbers, and area of distribution, and then went extinct. Oka thought that once these animals ruled the world, most natural enemies had disappeared, which led to a dramatic increase in numbers. This in turn led to competition over resources within the species. The problem, according to Oka, was that competition and strife within the species relied on the same features that allowed the species to become dominant. Then, through natural selection,

these features would continue to increase in size. But the increase in size of these features at one point ceased to be of utility, and grew to a point at which they became disadvantageous. Oka's law expresses the paradox of evolution: the conditions that make a species succeed also ensure its inevitable extinction.[130]

When applied to contemporary society, Oka's law became a tool for sharp criticism. Oka thought that the distinctive and winning features of humans were the use of tools, property and its inheritance, and the accumulation of knowledge. But the features that made the human species successful would also bring its downfall. Humans are the only animals that have tools, inherit them, and also lend them in return for a share, which could again be invested in making new tools. This practice, Oka argued, in turn led to the accumulation of wealth by those who possessed tools and those who did not. Oka argued that this was the basic principle that eventually led to the wealth gap of the time, which looked like "a richly decorated and heavy cart, on which a small number of people ride, while thousands of people, instead of a horse, pull it and push it up a hill."[131] For Oka, this was all biology, but it started to sound close to Marxist critiques of capitalism.

Oka was no revolutionary, but he thought that a struggle between classes was inevitable. Opposite to Katō's theory of power, Oka thought the elites ruled not because of superior strength or intelligence, but because of inheritance. At the same time, social units had increased dramatically in size, culminating in nation-states. As they competed with each other, they improved education. But while this competition resulted in increased brainpower, it made the masses more able to question their conditions and demand more equality, or bring about revolution. Oka would later argue that the Russian Revolution was an inevitable result of this sociobiological process.

Hence, Oka Asajirō looked at the modern age and saw the beginning of the inevitable decline of the human race. Class struggle, crime, individualism, and socialism were all signs of the deterioration of social life and group cohesion. Oka's interpretation of biological theory was not "social Darwinism" in support of the state's ideology; quite the opposite, biology explained injustice and predicted disintegration, revolution, followed by downfall.

There was also an ecological message to Oka's critique of modernity. Civilization had made the conquest of nature possible, but in modern times, this resulted in what he called "the revenge of nature." Modern medicine had made the less fit survive and reproduce. Based on the inheritance of acquired characteristics, Oka reasoned that material comfort had weakened the human body. Increased brainpower and education had increased

intelligence, but also sensitivity, and led to more tendencies towards irrationality and mental diseases, as could be seen in the increase in suicides. Oka saw "nature's revenge" as inevitable. A return to a more natural life was impossible, as the struggle for survival between nations made it difficult for nations to lag behind in technological progress. Oka saw humankind as being on a slope heading downwards, and contrary to what Darwin contended, he believed that the most developed nations would go down first. In the end, the struggle for survival between groups and nations made technological and scientific progress inevitable, and this progress would ensure the demise of humanity.

This picture of decline fits with Oka's larger conception of nature. Oka rejected romantic ideals of love of nature as a source of goodness and beauty. Love of family or nation could be natural forms of altruism and favored by natural selection, but to love the cosmos was a mix-up and extrapolation of instincts.[132] Oka summarized his view of nature with the following image:

> If you go to the country outside the city in order to observe nature, you will find in the withered grass next to the scattered bones of a horse or cow, a rotting body of a cat lying sideways, its skin ripped and the guts rolling out, everything giving an awful smell. Right next to it, we find a beautiful violet in bloom. And next to that, a fresh pile of dog waste. Taken together, this is a microcosm of nature.[133]

Oka advocated a sober and hard view of nature. Nature was stronger than human intentions and ideals, as these were eventually the products of nature. Nature was all-encompassing: the distinction between culture and nature, he contended, was a false one. Everything was nature, and our culture, and even modernity, were products of our peculiar evolution of the hands and the brain. In Oka's nature, strife and war were inevitable, and the very nature of evolution, unfortunately, stifles hope for world peace, economic equality, and endless progress. His conception of nature was filled with death, struggle, and deceit. Nature was also vengeful: human efforts at controlling nature through technology, or human nature by means of thought control, result in unforeseen detrimental consequences. Oka's nature was also paradoxical: what brings about progress also brings about its decline.

Yet despite this dark view of "nature, red in tooth and claw," at rare points, there are glimmers of a different sentiment in Oka's writings, which might illuminate another dimension of this thought. Oka studied moss animals for decades, and we saw how he half-seriously, half-ironically pictured them as embodying ethical and religious ideals. Moss animals also inspired Oka to think about the problem of the individual in biology and formulate his ideas of "distinction without division." In the following

passage, Oka, who lost both parents and two siblings, writes affectionately about the small moss animals: "Parents, children, and siblings are connected in body, while one bloodstream permeates the group. The nerves of each individual are connected with fine threads to each other, and the senses of one transfer to the others' feelings of pleasure, anger, sadness, and happiness, so that they are felt together."[134] Reading between the lines, one can see that it is possible that Oka, perhaps because of his loss, seemed to have been searching for a new connectedness in nature, as in the "distinction without division."

As Japanese historian of science Watanabe Masao has pointed out, a Buddhist air breathes in Oka Asajirō's evolutionary theory.[135] Oka's vision of inevitable decline and extinction bears more than a passing resemblance to the Buddhist notion of *mujō,* the impermanence of all things. Oka himself compared evolution with the Japanese classics such as *The Tale of the Heike,* an epic about the rise and decline of the Heike clan in Japan's medieval period, which is informed by the Buddhist notions of impermanence. All educated Japanese knew its opening sentence: "The sound of the Gion shōja bells echoes the impermanence of all things." Oka found his law of extinction in the demise of the Heike: "Their destruction had the same cause as the sudden extinction of the giant lizards and dinosaurs," and "always it has been proclaimed that the mighty will fade away. All that begins has an end—this is the law of life and death."[136]

The connection between Buddhist impermanence and evolution in Oka's thought was genuine and profound, but also has to be understood in its more recent historical context. As we have seen, modernizing Buddhist thinkers of this period explicitly argued for the connection between Buddhist impermanence and evolution, and among late Meiji-era intellectuals, and especially Buddhists, it became common to assert that evolution went hand in hand with retrogression (*taika*) and decline, a countercurrent that denied equating evolution with progress. Given that Oka used a similar vocabulary and arguments, this countercurrent most probably influenced his larger vision of the course of evolution. Oka's own research in biology and his ideas concerning evolution, combined with his experiences in life, led him to regain appreciation for the notion of impermanence in Buddhism. Oka's rejection of progressivism in nature and society must be seen as much in the light of his ideas on evolutionary biology as the Buddhist notion of impermanence and contemporary Buddhist thought.

Second, Oka's philosophy of nonsubstantialism, partly based on Bergson as well as his research on bryozoans, but which Oka applied to all of reality, was almost indistinguishable from the concomitant background of the Buddhist philosophy of *mujō:* that of the fundamental compositeness

and interrelatedness of all beings (i.e., the dependent co-arising of all phenomena). In classical Buddhist thought, this analysis was connected to the philosophy of nonego, that is, the absence of a soul or permanent ego. Oka identified precisely this Buddhist position when he rejected the existence of a soul, which, he argued was another illusion, based on thinking in terms of "divisions."[137] Oka's theory also echoed a much longer Buddhist critique of binary logic. And his epistemology, a form of pragmatist evolutionary epistemology that emphasized the impossibility of reaching absolute truth, was illustrated with Buddhist imagery but also reverberated a long-standing Buddhist critique of the impossibility of discursive reasoning to attain absolute truth. It is important to note that Oka's critique of the logic of solids and essentialism played a role in his rejection of Weismann's separation between the germ plasm and somatoplasm, and this in turn, as explained earlier, played a key role in Oka's defense of the reality of the inheritance of acquired characteristics.

Third, while Oka was at times critical of Buddhism as an established religion (as well as *kokutai* ideology), he reserved his sharpest criticism for Christianity. Oka continued the public critique of Christianity with the use of evolutionary theory, started by Morse and Fenollosa and intensified by modern Buddhists. Oka argued, for example, that good and evil, and beauty and ugliness, were human constructions that did not truly exist in nature, and he lamented how influential romantic and lofty assessments of nature were because of Christianity: "Christians believe the world is made for humankind and cannot believe that a master would give half-rotten food to its pet, so they hide the ugly parts of nature." While crudely formulated, Oka's comment, written with a general public in mind, meant a rejection of the old Christian creationist argument from design, which heavily relied on the notion of perfection in nature. Oka's critique was, besides his background in biology, probably also a result of the Buddhist heritage of Japan, for which creationism and perfection in nature had never been a theoretical concern. Oka rejected creationism and dismissed the notion that civilization and modernization required an embrace of Christianity.[138]

Oka Asajirō was a seminal figure in the history of evolutionary theory in Japan, not only as a popularizer but also because he was its pioneer in the philosophy of biology. He tried to tackle important and still-unsolved problems in biology: the problem of the individual, the definition of life, the distinction between social sciences and biological sciences, the nature of explanation in biology, how to explain biology as an independent science, and the implications of evolutionary biology for epistemology and ontology. Oka used evolution to criticize the state, capitalism, and modern rationalism. Like Darwin, he thought evolutionary biology explained much of what it

meant to be human, including such realms as society, philosophy, and ethics. Oka's evolution of society was not a linear conception of history and progressivism but one marked by paradox and deep pessimism. Epistemologically, Oka's evolutionary theory embodied a radical skepticism towards the possibilities of knowledge: truth itself became relative to evolution. As a result of the complex interaction between Buddhism and evolution, Oka produced one of the most profound critiques of the idea that evolution went hand in hand with progress, individualism, and materialism.

CONCLUSION

To a large degree these Buddhists were successful: they overcame the critiques of Buddhism as unscientific, irrational, and unmodern. The Buddhist encounter with evolutionary theory was not just a matter of either accepting or rejecting it, but a critical and constructive engagement with this theory, while responding to a complex and changing religious and ideological environment. However, the Buddhist responses to evolutionary theory cannot be understood as completely motivated and dominated by the attempt to restore the position of Buddhism postpersecution or vis-à-vis competition with Christianity. With the exception of Oka, their engagement with the theory on philosophical grounds attempted to overcome reductionist interpretations of evolution, thereby reenchanting nature, i.e., reimagining nature not as a distant and cold place of matter and strife, but as one harboring meaning, goodness, and the divine. Influenced by Buddhist philosophy, a current of evolutionary theory thus emerged that was nonprogressive, nonmaterialist, and not supportive of a view of nature and man as essentially locked in individualist competition—a view that would support the ideology of capitalism. Instead, we find views of evolutionary theory that were circular, paradoxical, or emphasized a balance between progress and decline; evolutionary theory that was pantheist, with the Buddha nature or the cosmic Buddha at the center, permeating and driving an evolving nature; and a view of evolution that was based more on connectedness and holism.

The Meiji Buddhist philosophers and biologists also came to find alternative epistemologies, based on nonessentialism, that emphasized the fluidity of identities. In the cases of Oka and Minakata, the Buddhist notion of impermanence actually influenced their research in biology and their larger conceptions of nature. And coincidentally, but along simultaneous paths, through their research into slime molds and bryozoans, respectively, both Minakata and Oka came to the conclusion that evolutionary theory implied a rejection of essentialism. In addition, Buddhist concepts and imagery such

as transmigration and impermanence functioned as an important catalyst for the transmission and popularization of evolutionary theory.

In short, Buddhism influenced the reception of evolutionary theory in Japan, while through evolutionary theory, Buddhist thinkers again found, as Darwin called it, "grandeur" in new visions of nature.[139] Evolutionary theory was thus not necessarily or inevitably a secularizing force in Japanese thought. Darwin's work actually stimulated new forms of religious thought, and in turn, Japanese Buddhists provided and spread ideas on how to be Buddhist in a modern society, and how to find the sacred in a world after Darwin.