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# Geomyths and Catfish Prints: An Analysis of the 1855 Ansei Earthquake in Japan

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**Abstract**

*Geomyths are myths and legends created by pre-modern cultures to explain unexplainable, strange, and mysterious phenomena. This paper will look at the Japanese geomyth of Namazu, a giant catfish who resides underneath Japan and causes earthquakes, and how it relates to the surge of catfish prints which circulated around Edo, Japan following the 1855 Ansei-Edo Earthquake. Through an analysis of this geomyth and the catfish prints it inspired, this paper will demonstrate how geomyths can reveal the history and sentiments of the culture from which they come and how the geomyth of Namazu demonstrates that the Tokugawa era of Japan was not as peaceful as many historians have made it out to be.*

## 1. Introduction

It is part of our human nature to desire an explanation for things which we cannot understand. For instance, unexplainable, strange, and mysterious occurrences such as earthquakes, tsunamis, and other natural phenomena naturally demand explanation by our human reasoning and intellect. In the 21*st* century, science and technology has advanced to the point where we can scientifically explain why and how these various natural phenomena occur. For example, we now know that earthquakes are caused by the shifting of Earth's tectonic plates and that lightning is caused by strong, oppositely charged electrical fields in clouds. Now, we can confidently predict when and where an earthquake, lightning storm, or tsunami will occur, but pre-Modern cultures lacked the scientific knowledge we have today and had no way of knowing or understanding why earthquakes or other natural phenomena happened. Therefore, to explain the unexplainable, pre-Modern cultures used myth and folklore to provide explanations for these strange occurrences. One "case study" that demonstrates the use of myth and folklore to explain strange phenomena is found in Japan's Great Ansei-Edo Earthquake of 1855.

Japan's location as an island nation situated on four major tectonic plates in the uproarious Pacific Ocean makes it a prime spot for natural disasters such as earthquakes and tsunamis. Japan has indeed had several catastrophic natural disasters in its history, a significant one being the 1855 Great Ansei-Edo earthquake that shook Edo (now modern-day Tokyo) with an estimated 7.0 magnitude, killing around 7,000 to 10,000 people and causing mass destruction[1]. In the aftermath of this devastating earthquake, something interesting happened: artistic prints of catfish started circulating around Edo in great numbers[2]. Although the production and popularity of these catfish prints seems unrelated to the Great Ansei-Edo Earthquake, a closer look reveals that the con-

[1] Gregory Smits, "Shaking Up Japan: Edo Society and the 1855 Catfish Picture Prints." *Journal of Social History* 39, no. 4 (2006): 1045. https://doi.org/10.1353/jsh.2006.0057, 1.

[2] Smits, "Shaking Up Japan", 1.

nection between these prints and the earthquake lies in Japan's geomyths. As this paper will elucidate further, the Japanese geomyth of Namazu the Earthshaker was used to explain how Japan's earthquakes were caused by a giant catfish thrashing itself underneath the nation of Japan. This paper will dive deeper into the geomyth of Namazu the Earthshaker and explore how the Japanese used this geomyth to explain the Great Ansei-Edo Earthquake of 1855. Through an analysis of this geomyth, this paper will not only demonstrate how the Japanese used geomyths to explain unexplainable earthquakes, but will also argue that a closer look into the geomyth of Namazu and the artistic prints that it inspired sheds light onto the broader sentiments and ideologies of 19th century Japan, revealing that the Tokugawa era of Japan was not as peaceful as some historians previously believed. In the end, the geomyth of Namazu and the Great Ansei-Edo earthquake demonstrates the purpose of geomyths and other myths, the complex layers behind geomyths and legends, and reveals the true state of Tokugawa Japan.

## 2. Geomyths

The Japanese, as well as other cultures, have tried to explain the unexplainable, the uncanny, the weird, and the unknown through myths, monsters, and legends. For example, in the Edo period and earlier, the Japanese believed that mysterious wolf-like creatures called *raiju* ("thunder beast") were responsible for thunderstorms and lightning strikes[3]. Riding on lightning, *raiju* were attributed to causing the destruction that comes with thunderstorms and lightning strikes, such as fires and lightning scars[4]. Myths and legends such as the *raiju* were created by the Japanese and other cultures to explain mysterious occurrences, such as thunder and lightning. More specifically, a certain kind of myth termed "geomyth" – a term coined by Dorothy Vitaliano in 1968 – were specifically used to explain *geological* phenomena such as earthquakes, volcanic eruptions, and floods[5][6]. Vitaliano writes, "Myth and geology are related in several ways. First, man has always sought to explain his natural environment" by creating myths and legends to explain the landforms he sees around him[7]. One example of this kind of geomyth is the "fishing up" myth used to explain the formation of islands. Vitaliano explains, "'Fishing-up' myths generally tell of a god who, while fishing, hooks his line on the sea bottom and hauls up rocks and other features that assume the specific configurations of the islands in question."[8] Vitaliano gives more examples of these kinds of geomyths, such as the Devil's Tower in Wyoming, which is said by Native Americans to have formed when a group of people, being chased by a gigantic bear, appealed to a deity for help to escape. According to legend, the ground on which they stood rose to the sky, allowing the people to be safe at the top where the bear could not reach them[9]. The fluting around the sides of Devil's Tower is said to be the claw marks of the giant bear trying to reach the people at the top[10]. Another example can be found on the islands of Hawaii, where the volcanoes are said to have been created by the goddess Pele – the Hawaiian volcano goddess – on the run from her sister. Adrienne Mayor explains this myth further in her article "Geomythology": "First she came to the northwesternmost island, where she dug a pit in search of fire, but her sister chased her to the next is-

[3] Michael Dylan Foster. *The Book of Yokai: Mysterious Creatures of Japanese Folklore.* Berkeley: University of California Press, 2015.

[4] Foster, 197.

[5] Adrienne Mayor, "GEOMYTHOLOGY," *Encyclopedia of Geology*, 2005, pp. 96-100, https://doi.org/10.1016/b0-12-369396-9/00366-x, 1.

[6] Dorothy B. Vitaliano, "Geomythology: Geological Origins of Myths and Legends," *Geological Society, London, Special Publications* 273, no. 1 (January 2007): pp. 1-7, https://doi.org/10.1144/gsl.sp.2007.273.01.01, 1.

[7] Vitaliano, 1.

[8] Vitaliano, 1.

[9] Vitaliano, 1.

[10] Vitaliano, 1.

land, and the next, and so on down the chain until she took up residence in Halemaumau, the fire pit on Kilauea volcano. Then the sister gave up the chase, and there Pele and her relatives are said to live today."[11] Mayor writes that even the small droplets of molten lava, blown away by the wind in volcanic eruptions, are said to be Pele's tears by Hawaiians[12]. According to Vitaliano, another kind of geomyth has been used to "account for conspicuous natural processes, such as earthquakes, volcanic phenomena, and floods."[13] One example of this kind of geomyth is the Japanese *namazu* ("catfish"), which will be focused on in the rest of this paper. Vitaliano gives a general overview of this myth in her article: "In Japan it was believed that a giant catfish in the earth was responsible for earthquakes. This catfish was usually pinned down by the Kashima deity, but when this god had to pay attention to other matters, the catfish was left free to wriggle and a quake resulted."[14] The most popular and well-known lore of the *Namazu* is the following:

> Namazu appears as a mythical sea denizen residing beneath 'the five provinces' and 'seven circuits' (Japan), supporting the land on its back. The head of the monstrous fish rests under old Hitachi Province, where the shrine of the Kashima deity is located. The deity holds namazu in check by means of the 'pivot-stone' (kaname-ishi), identified with a large sacred rock in the shrine grounds. As long as the god is resident, the belief goes, all is well, but when he is away, for instance, in the 'godless' month (October), the unguarded namazu becomes prankish; quakes are then due.[15]

[11] Mayor, 2.
[12] Mayor, 2.
[13] Vitaliano, 1.
[14] Vitaliano, 2.
[15] Cornell, John B. The Journal of American Folklore 79, no. 314 (1966): 621-22. doi:10.2307/538234.

Namazu became popularized again when prints of Namazu, called *namazu-e* in Japanese, spread throughout Japan following the Ansei Earthquake of 1855. After learning that the Japanese used the Namazu geomyth to explain why earthquakes occur, it is clear to see why these *namazu-e* began getting popular after the Great Ansei Earthquake. However, there is always more than meets the eye in these myths and stories. As we will see, a closer look into these myths and legends can often reveal the cultural context and sentiments of the society from which the myth came. Digging deeper into the history and events surrounding the Great Ansei Earthquake, we will see that the myth of Namazu the Earthshaker unveils deeper ideologies and sentiments of Tokugawa-era Japan. While Tokugawa Japan is widely heralded as an era of prosperity, stability, and peace by historians, an analysis into the geomyth of Namazu reveals that this era of peace was not as peaceful as commonly believed.

## 3. Rectification and World Renewal

Going deeper into the geomyth of Namazu reveals that this myth represents something more than just an explanation for earthquakes. In his book *Agents of World Renewal*, Takashi Miura, a professor of East Asian Studies at the University of Arizona, writes that in the *namazu-e* which circulated following the Great Ansei Earthquake, Namazu earned status as a *yonaoshi* god— a god of world renewal and rectification— because of its ability to redistribute wealth following the earthquake. Miura writes, "Besides being one of the most destructive earthquakes in early modern Japan, this earthquake [the 1855 Ansei-Edo Earthquake] was significant because the people of Edo interpreted it as an instance of world renewal. This manifested most vividly in a genre of woodblock prints known today as catfish prints (*namazue*)."[16] Although earthquakes are generally

[16] Takashi Miura. 2019. Agents of World Renewal: The Rise of Yonaoshi Gods in Japan. Honolulu: University of Hawaii Press.

**Figure 1. O-namazu-go no namayoi (Tipsiness following the great namazu), lithograph print, 10" x 14 5/8", https://www.fujiarts.com/japanese-prints/k407/143k407f.jpg.**

devastating events, they were also beneficial to certain classes of people because wealth was redistributed by taking money from the rich and providing money to the poor. Miura explains that following the earthquake, the rich were expected to make charitable donations to go towards those in need[17]. While money was being taken from the wealthy in these donations, construction workers or other low-wage workers, would earn money from being employed to rebuild following the destruction of the earthquake. Miura further explains, "The earthquake catfish, in other words, reinvigorated the circulation of wealth in Edo by providing lucrative opportunities to low-wage workers and forcing the hoarding rich to use their money for the less privileged. The catfish thus revitalized Edo by mobilizing a stagnant flow of money that had resulted in wealth inequality in the city."[18] The print in Figure 1, *O-namazu-go no namayoi* ("Tipsiness following the great namazu")[19] demonstrates this interesting dichotomy of loss and gain following Namazu's earthshaking. This print depicts Namazu being held down by Kashima, the Japanese deity whose job is to hold the catfish in place with a large stone, with one group of people on top labeled "smiling" while those on the bottom labeled "weeping" and "have plenty of free time", which, in other words,

[17]Miura, 97-98.

[18]Miura, 86.

[19]O-namazu-go no namayoi (Tipsiness following the great namazu), lithograph print, 10" x 14 5/8", Shaking up Japan, p. 1058.

means unemployed[20]. The people on the top include a carpenter, a blacksmith, and a physician, to name a few, while the people at the bottom include a teahouse proprietor, a seller of imported goods, and a variety of entertainers[21]. This particular print demonstrates that although all were affected by the earthquake, not all were affected in the same way. Construction workers and others benefitted from the work opportunities and money following the earthquake while other groups felt the loss of money and business from it. Miura writes, "The concept of world renewal is central in catfish prints and signifies a revitalization of Edo through rectifying the disparity between the rich and the poor. Two important themes underpinned this process of world renewal: (1) a postdisaster economic boom experienced by low-wage construction workers, and (2) punishment delivered against the hoarding rich, forcing them to use their money for the sake of others."[22] Thanks to Namazu's earthshaking, the imbalance of money was rectified as low-wage workers were paid and the greedy rich were forced to give away their money. As the prints above demonstrate, the *namazu-e* exemplifies the dual role of the Namazu geomyth: Namazu is not only a geomyth that explains why earthquakes happen, but Namazu also represents rectification, renewal, and balance through the redistribution of wealth.

## 4. Cosmic Imbalance

Namazu's role of bringing about world rectification and balance through the redistribution of wealth unlocks another key component of the Namazu geomyth. Rather than believe that Namazu's earthshaking was simply a result of the Kashima deity forsaking his duty and letting the giant catfish roam free, some Japanese believed that Namazu's earthshaking was due to a greater cause, namely,that the redistribution of wealth from Namazu's earthshaking was a divine intervention that sought to bring balance to the cosmic imbalance of the Tokugawa era. This cosmic imbalance was widely thought to be a result of an imbalance of yin and yang in society. In his article, "Shaking up Japan: Edo Society and the 1855 Catfish Picture Prints," Gregory Smits explains the concept of yin and yang as the "complementary opposite forces or tendencies underlying the world and its processes."[23] This concept was developed in ancient China and had evolved by the Common Era to uphold that yin and yang "make themselves manifest in the universe through the five agents of water, fire, metal, earth, and wood."[24] Over time, Smits writes, the concept of yin and yang working in harmony with each other, governed by the five agents and bringing balance to the world, was popular in East Asia. However, from time to time the balance and harmony of yin and yang and the five agents gets disturbed and there is imbalance in the world. As some Japanese believed, in order to bring back balance to the world, Namazu causes earthquakes which result in a redistribution of wealth in society, allowing for money to flow from the hands of the greedy rich to the hands of the needy poor, resulting in the restoration of balance to yin and yang. Thus, the geomyth of Namazu heralds something more than a giant catfish roaming free but signifies the intentional intervention to rectify a world in imbalance and restore harmony to the cosmos. However, questions arise in this theory of cosmic imbalance: What is the reason for this cosmic imbalance? Why would there be cosmic imbalance and a need for world rectification if the Tokugawa era is heralded as a time of peace and prosperity for Japan? If "Pax Tokugawa" were true, why the need for Namazu the *yonaoshi* god, a god of world renewal and rectification? The answer to these questions lies in looking deeper into the cracks on the surface of the Tokugawa era; a closer look into the era of "Pax Tokugawa" reveals that Tokugawa Japan was, in

[20] Smits, 1059.
[21] Smits, 1059.
[22] Miura, 95.
[23] Smits, 1050.
[24] Smits, 1050.

reality, comprised of an imbalanced society in an era of unrest.

## 5. "Pax Tokugawa"

The Tokugawa era, otherwise known as the Edo era, of Japan lasted between the years of 1600–1867. According to historians, the Tokugawa era was a time of stability, prosperity, and peace, and in many aspects it was. In *Early Modern Japan*, Conrad Totman explains that the years leading up to the Tokugawa era were rife with conflict and instability, which eventually led to the stability of the 1600's. He writes, "The 1630s marked a watershed in Japanese history as the pacifying of a tumultuous realm gave way to maintenance of a stabilized order."[25] Japanese politics, economy, and culture were all on the uprise during this time after years of war and disunity. In the realm of politics, years of civil war and military struggle for power gave way to the one man whom this era is named after, Tokugawa Ieyasu. After Ieyasu gained control of power, he rearranged the political power structure of Japan, which left the shogun with the real power and the emperor and the court with a public façade of power. Totman explains, "With those moves, Ieyasu had in fact defined the basic relationship of emperor, shogun, and daimyo as it would remain for the next 250 years. All honor was shown to the court, but it was nearly powerless. All governing authority rested in the hands of a hereditary Tokugawa shogun."[26] Under Tokugawa Ieyasu's reign, "The Tokugawa (or Edo) period brought 200 years of stability to Japan."[27]

The Tokugawa era also saw the growth of Japan's economy due to "more shipping of commodities, a significant expansion of domestic and, initially, foreign commerce, and a diffusion of trade and handicraft industries."[28] During this time, Japan's agricultural output also changed, which resulted in increases in food production. As Japan's economy grew, long-term increases in agricultural output, commercialization, and food production ultimately led to the population growth and urbanization of Japan. From 1600 to 1720, the population of Japan more than doubled from around 12 million people to about 31 million, with many flocking to cities such as Edo, Osaka, and Kyoto.[29,30] These cities eventually became centers of trading, production, food supplies, and consumer goods, respectively.[31]

Along with the economy, Japanese culture also flourished under the Tokugawa era as a new style of *ukiyo* culture defined this period. Totman writes, "As the century advanced and cities blossomed, however, cultural creativity flourished despite the outpouring of sumptuary rules and the ideological rhetoric of scholaradvisors. By century's end, a vibrant *ukiyo*, or 'floating world,' culture was setting the tone of urban life."[32] The fields of printing, theatre, poetry, prose, and art, were all changing and growing under the Tokugawa era as new artistic and literary styles were emerging in *ukiyo* fashion. Printing shifted from movable type to wood blocks; Japanese theater welcomed puppet theater and *kabuki*; poetry welcomed the *haikai* literary form; Japanese prose saw writing subjects expand to include a wide array of religious texts, travel writings, and writings on the "floating world" of *ukiyo*.[33]

## 6. Cracks in the Veneer: A Society Imbalanced

Despite the seemingly stable and prosperous areas of politics, culture, and economy, by the

[25]Conrad Totman, *Early Modern Japan* (University of California Press, 1995), 101.

[26]Totman, 50.

[27]Ronald E. Dolan and Robert L. Worden, Japan: A Country Study (Washington, D.C.: Federal Research Division, Library of Congress, 1992), 28.

[28]Dolan and Worden, 30.

[29]Dolan and Worden, 30.

[30]Peter N. Stearns and David L. Howell, "Japan," in *The Oxford Encyclopedia of the Modern World* (Oxford: Oxford University Press, 2008).

[31]Dolan and Worden, 31.

[32]Totman, 184.

[33]Totman, 204-205.

end of the Tokugawa era in Japan, cracks of societal unrest were starting to show on the veneer of Japan. These cracks would continue to build and eventually result in an explosion and rectification of Japanese society, manifested in the form of the Ansei-Edo Earthquake and the *namazu-e* that were published in the aftermath. One crack that shattered the veneer was class unrest due to the precepts and ideologies of what Japanese society should be failing to match up with reality. Robert Oxnam, the President Emeritus of the Asia Society New York, explains that "In addition to securing political order, the Tokugawa rulers sought to ensure social order as well. To this end, they institutionalized a four-class structure designed to limit social mobility."[34] In this four-tiered class structure, merchants were supposed to be at the bottom of the social ladder, with artisans above them, the peasants on the second tier (since they were the agricultural producers), and samurai at the top.[35] However, the reality of the social structure in Tokugawa Japan was much different than what was represented in the four-tier model. In reality, merchants had made their way to the top of the ladder thanks to the rise of commercialization and production of consumer goods, while the samurai started owing more debts to these merchants, eventually finding themselves nestling near the bottom of the social ladder. Peasant farmers, thought to be at the top of the societal ladder, were in reality living a poor existence at the very bottom of society. Many Japanese believed that the reason why the merchant class became more powerful and made their way to the top of the ladder was because of their greediness and the hoarding of their money. All in all, the Japanese saw this discrepancy between what was supposed to be and reality, and did not like it, believing that this dissimilarity was the source of cosmic imbalance. Smits writes that, "In the larger scheme of things, many residents of Edo regarded the Ansei Earthquake as a purposeful attempt by the cosmic forces to rectify a society out of balance. One reason for this imbalance was a stagnation of currency caused by Edo's elite merchants hoarding wealth."[36] Miura concurs: "Put another way, the earthquake punished the rich for hoarding wealth and preventing a healthy circulation of wealth."[37] By hoarding money and greedily keeping it for themselves, merchants interrupted the normal, healthy flow of money in society and "backed it up", so to speak, resulting in the accumulation of wealth for themselves and a reorganization of the model social order. Smits explains this idea further: "In short, these great merchants caused something akin to constipation in the social body, and the earthquake was strong purgative medicine."[38] This metaphorical concept of society needing the free circulation of wealth to maintain its overall health and wellness is a concept that was popular, especially among Confucians, in Tokugawa Japan, writes Smits. Many Confucians, "likened the flow of wealth in society to the flow of vital fluids through the body and the flow of vital energy through the cosmos", believing that the stagnation which was caused by merchants resulted in an unhealthy body of society.[39] That is why many believed the Ansei-Edo earthquake was a divine intervention to restart the flow of money in society. The *namazu-e* in Figure 2 below demonstrates this. This print is entitled *Furidashi namazu-gusuri* ("Namazu powdered medicine pouches") and depicts an anthropomorphic namazu as a medicine seller. On the stick is no longer the usual pouches of medicine that traditional medicine vendors would sell, but on it are people who would benefit from the earth-

[34]Robert Oxnam, Carol Gluck, and Henry D. Smith, "TOKUGAWA JAPAN Social Order: The Four Classes," Asian topics on Asia for educators || Tokugawa Japan, accessed July 28, 2021, http://afe.easia.columbia.edu/at/tokugawa/tj06.html.

[35]Oxnam, Gluck, Smith, "TOKUGAWA JAPAN Social Order: The Four Classes".

[36]Smits, 1059.

[37]Miura, 98.

[38]Smits, 1059.

[39]Smits, 1060.

quake. The text explains the health benefits of this namazu's medicine: "It restores the flow and circulation of money collected in storehouses, restores warmth to the cold hearted, cures poverty, reduces laziness, and reduces the ill effects of luxurious living."[40] Although most Japanese did not strictly follow a Confucian lifestyle, many agreed with the sentiment that the circulation of wealth is important to maintaining a healthy society.[41] Therefore, many Japanese saw the 1855 earthquake as a way for the circulation of wealth to bring back balance to the cosmic imbalance caused by greedy merchants and a broken social structure.

**Figure 2. Furidashi namazu-gusuri ("Namazu powdered medicine pouches")**

[40] Smits, 1060.

[41] Smits, 1060.

## 7. Cracks in the Veneer: Class Unrest

As a result of this societal imbalance, the Tokugawa era was rife with peasant uprisings and societal unrest bubbling beneath a peaceful surface. For instance, Miura cites the Kansei Uprising of 1797, the Bunka Uprising of 1812, the Kamo Uprising of 1836, the Shindatsu Uprising of 1866, the Bushu Uprising of 1866, and the Yashu Uprising of 1868 as some of the responses to this societal imbalance.[42] These uprisings were started in large part by peasant farmers who felt the financial strains and physical hardships of their work imposed by new tax laws or high prices brought on by famines and new leadership. Unhappy and tired of their painful existence, these farmers took up bamboo sticks, axes, picks, and even guns to destroy the houses of those they felt were wronging them and demand justice be done. These peasant uprisings, along with other conspicuous events of the Tokugawa era such as the arrival of Commodore Matthew Perry and the American fleet and crop failures, were held by the Japanese to be physical manifestations of cosmic displeasure and imbalance. Smits explains, "Detailed theories of purposeful cosmic intervention in society are found in specic philosophies such as Confucianism … but the general idea that cosmic forces intervene to correct human societies gone awry had become widespread by the nineteenth century."[43] That is why many Japanese believed the peasant uprisings, crop failures, and the opening of "isolationist" Japan, reflect an imbalanced society in need of cosmic intervention. The Ansei Earthquake serves as a physical manifestation of the reality of Japanese society at that time—a society of violent and restless undercurrents ready to explode. When the explosion did come in the form of the 1855 Ansei Earthquake, it not only shook Japan's physical state, but also the state of its society. The redistribution of wealth which came because of the earthquake was the "medicine"

[42] Miura, 44-58.

[43] Smits, 1046-1047.

needed to rectify societal imbalance and restore cosmic balance in Japan.

## 8. The Legacy of Ansei-Edo

We have seen how geomyths serve as a way for cultures to explain unexplainable, strange, and mysterious phenomena by focusing on the Namazu geomyth of Japan and its application in the 1855 Great Ansei-Edo earthquake. We have also seen how the geomyth of Namazu and the prints that it inspired following the 1855 earthquake speaks volumes about the state of Japanese society during the Edo period. Through these geomyths and prints, the larger historical context of Tokugawa society and beliefs are seen, and the true nature of an imbalanced society and the means in which to restore order are seen. We have also seen how the namazu-e of the 1855 earthquake illustrate the societal unrest and imbalance of an era which is commonly known as one of peace, stability, and prosperity. Now, looking forward in time, we will see that the importance of the Ansei-Edo earthquake is not only confined to the events and aftermath of its occurrence, but that the legacy of the Ansei-Edo earthquake has influenced the years following its occurrence and up to the 20th and 21st century in an unexpected way.

Although the Ansei-Edo earthquake of 1855 is one that has a background steeped in lore and myth, in the years following its occurrence it had a predominately scientific influence. Gregory Smits writes in his book *Seismic Japan: The Long History and Continuing Legacy of the Ansei Edo Earthquake*, that in the years following Ansei-Edo, Japanese scientists and seismologists used the earthquake as a baseline to measure improvement in terms of earthquake prediction and readiness.[44] "The Ansei-Edo earthquake quickly became an integral part of modern Japanese seismological knowledge. For this reason, the Ansei-Edo earthquake often served as a point of comparison in articles about different aspects of earthquakes."[45] For example, one article written in 1885 discussed the relationship between earthquakes and petroleum, citing that if another earthquake like Ansei-Edo happened, all of Tokyo would be destroyed due to widespread petroleum use.[46] This shift towards scientific and rational thinking can be seen in the years following 1855, where a noticeable rise in Japanese science and seismology can be seen. For instance, after the Nobi Earthquake of 1891, Japan established the Imperial Earthquake Investigation Committee, the first interdisciplinary scientific body of Japan.[47] A short article published by the Committee explains its purpose of investigating earthquake phenomena "with the view of finding methods of predicting earthquakes, if possible, and of ascertaining the nature of construction, building, and otherwise, best calculated to resist the effect of the shocks."[48] This shift towards attaining a scientific reasoning and explanation for why earthquakes occur is a far cry from catfish myths and cosmic imbalances. However, though it may seem that the impact of Ansei-Edo resulted in scientific endeavors which fall away from the Japanese myth and lore which originally surrounded the earthquake, some of these scientific endeavors still have hints of myth within them.

Beginning in 1976 and concluding in 1992, a team of Japanese researchers studied whether catfish can sense or predict when an earthquake will occur.[49] This research project was founded on the widespread belief that catfish can "sense" whether an earthquake will occur and, as a result, becomes

[44] Gregory Smits, *Seismic Japan: The Long History and Continuing Legacy of the Ansei-Edo Earthquake* (Honolulu, HI: University of Hawaii Press, 2013), 177.

[45] Smits, Seismic Japan, 178.

[46] Tomiharu Isao, "Sekiyū to jishin to no kankei," Yomiuri shinbun, February 24, 1885, morning edition, 1.

[47] Smits, 178.

[48] D. Kikuchi, "An Earthquake Investigation Committee," Nature 46, no. 1192 (1892): pp. 418-418, https://doi.org/10.1038/046418a0.

[49] David Thurber, "Catfish Are Off the Hook After Tokyo Ends 16-Year Earthquake Prediction Study," *Los Angeles Times*, April 1992.

more active prior to an earthquake—a belief which has its roots steeped in the myth of Namazu.[50] This government-funded research plan studied the movements of catfish every day for 16 years, and at the end of it found, "Consistently, all seven of the usually sluggish fish greatly increased their activity several days before about 31% of earthquakes that registered 'quite strong' or higher on the Japanese earthquake scale" while five or six of the fish became active before 60-70% of earthquakes.[51] Although this research endeavor failed to prove that catfish can sense earthquakes, it does serve to prove how the long-lasting impacts of the Namazu geomyth still resonate within the scientific psyche of the 21*st* century.

The myths and legends of different cultures tell us a lot about that culture's history and beliefs. The catfish prints which circulated following the Ansei-Edo earthquake show the historical context of Tokugawa Japan and the sentiments of its people, and reveal that the Tokugawa era was not as peaceful and stable as many believe it to be. We have also seen how certain myths and legends can still have influence many years after their conception, as demonstrated in the 16-year research project conducted on the ability of catfish to predict earthquakes. All these events illustrate the power of myth and legend and its ability to shape the mindsets of people in the past and future.

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