

The Men who Aided Manufacturing

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The Words of Hitachi Founders

I have frequently quoted the words of Hitachi founder Namihei Odaira and others in his management team in this series of articles entitled "Global Trends and Hitachi's Involvement." As a narrow view of current events overlooks the major trends and developments, there is a need to view these events in a historical context.

Likewise, underpinning how Hitachi responds to these trends is our corporate mission of "contributing to society through the development of superior, original technology and products." It is on this basis that I have ruminated on the words of our founders.

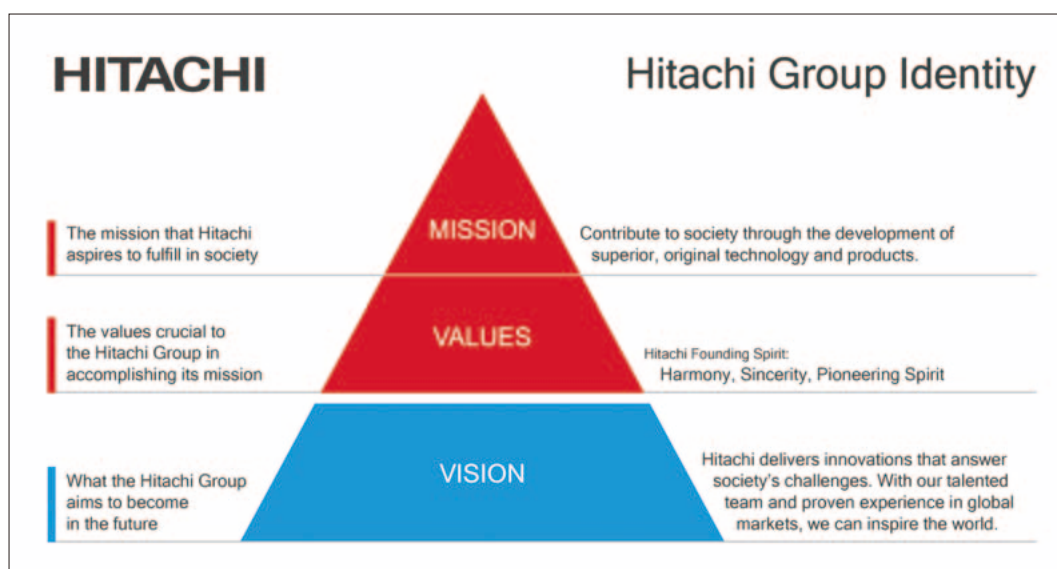
A paper put out by the Hitachi Kyoto University Laboratory, a joint research division for exploring future societal issues, proposes that modern life faces three forms of loss, namely having nothing to believe in, nothing to rely on, and nothing to do. Having nothing to believe in refers to people's loss of faith in the future due to increasing feelings of uncertainty surrounding future economic growth, a consequence of the structural inadequacies of capitalism. Nothing to rely on refers to how people's faith in government is being shaken by the advance of globalization. The third relates to the fear that technological advances such as artificial intelligence (AI) and robotics will leave nothing for humans to do. History suggests

that people who lose faith in the future and have nothing to rely on instead turn to religion. That religion has been making a comeback in recent years, becoming also a focus of new conflict, is likely the result of this long-term shift.

From the perspective of the company itself, Hitachi is fortunate to have inherited an excellent management philosophy from its founders. Hitachi's response whenever something happens, not least when it booked a 780-billion-yen net loss in the fiscal year ending March 2009 following the height of the global financial crisis, has been to go back to its roots and to reiterate its Corporate Credo and its Founding Spirit of "harmony, sincerity, and pioneering spirit." In fact, the Hitachi Group Identity that draws on our Corporate Credo and Founding Spirit and formalizes the Hitachi Group Vision expressing what we aim to become in order to sustain future growth is deeply ingrained in Hitachi staff, featuring in a variety of contexts not least being employee training [1].

In the Hitachi Integrated Report 2020, Hitachi President and CEO Toshiaki Higashihara quoted a member of staff saying on the subject of preventing the spread of COVID-19, "I feel like this is the time to make a positive contribution to the world," also harking back to his own experiences to express how a desire to help people and contribute to society are what motivates staff in their work. It is because of these three losses from our lives that our corporate mission of contributing to society should influence more strongly the actions of Hitachi.

[1] Hitachi Group Identity



Fusanosuke Kuhara, a Powerful Force Behind the Founding of Hitachi

[2] Fusanosuke Kuhara



Namihei Odaira identified three key factors behind the growth of Hitachi as a company: the presence of diligent and trustworthy colleagues, the support of Fusanosuke Kuhara and Yoshisuke Aikawa, and the faith placed in the company by its customers. As I have written about elsewhere in these articles, Fusanosuke

Kuhara [2] was the owner-manager of the Hitachi Mine of Kuhara Mining Company, which was the parent company of Hitachi, Ltd. Yoshisuke Aikawa, meanwhile, was the president of Nihon Sangyo following a re-organization of Kuhara Mining Company. He is known as the founder of Nissan Motor. To see how these two men supported Hitachi we need to go back to before the company's founding.

Having visited a number of factories while still a student, Odaira was surprised by the immaturity of Japan's industrial capabilities, prompting in him the grand ambition of somehow becoming a flagbearer for Japanese industry. After graduating from Tokyo Imperial University, he joined Fujita-gumi in 1900, working at Kosaka Mine where he had also trained as a student. Fujita-gumi, the owner of the Kosaka Mine, was a family firm run by the three brothers Denzaburo Fujita, Shikataro Fujita, and Shozaburo Kuhara. The mine itself was run by Fusanosuke Kuhara, eldest son of Shozaburo Kuhara, and this was how Odaira and Kuhara came to meet.

Kosaka Mine also employed Korehiko Takeuchi [3], a friend of Odaira's during their student days. Takeuchi and Odaira both worked as engineers, Takeuchi on the smelter itself and Odaira on the generation and transmission of its electric power. The young men were similar in age, Kuhara being 31 years old and Takeuchi and Odaira both 26. Along with being cooped up together in a remote mountain mine, this helped them transcend their superior/subordinate relationships to forge a strong bond of trust. Odaira was responsible for all of the work associated with the construction and upgrading of the

Tomaridaki Power Station and other generation and distribution plant needed for mine electrification, as well as for the ordering and installation of electrical machinery and the running of transmission lines.

In 1904, a breakdown in the family management arrangements at Fujita-gumi led to Kuhara leaving his position as mine manager. Odaira, meanwhile, became interested in the construction of the Komahashi Power Station, a project on a much larger scale than Kosaka Mine, ultimately quitting his job at the mine in order to participate. A joint farewell party was held for the two men.

While Odaira came to this major power plant construction project harboring hopes of his own, once on the job his frustrations grew as he was obliged to follow the instructions of the engineers sent out by the overseas equipment vendor. In 1906, he received a request from Kuhara to come and help with the electrification of the Hitachi Mine that Kuhara had recently acquired. Odaira set out for this new workplace with renewed faith in the future. The first task he was given by Kuhara was to recruit Korehiko Takeuchi, still at Kosaka, to come and work at the Hitachi Mine. This brought the three-man team of Kuhara, Takeuchi, and Odaira back together again, with Kuhara handling mine management, Takeuchi the smelter, and Odaira the electrification project.

Mine development and smelter operations in those days were accompanied by large amounts of pollution. As recounted elsewhere in this series, Kuhara put a lot of effort into reducing the black smoke and other such pollution from the smelter. Noting how other major mines had faced local opposition as a result of their pollution, Kuhara engaged in

[3] Korehiko Takeuchi (left) and Namihei Odaira (right)



dialogue with the local community and invested in a variety of measures for eliminating smoke pollution. This included detailed surveys of nearby agricultural land and paying compensation to those farmers affected. He also established an agricultural research center that studied which plants were most tolerant of smoke. The center discovered that wild cherry was one such species and went on to plant these trees in places where the forest had been lost to smoke damage. He also established high-altitude meteorological stations in the surrounding hills to study things like smoke drift and the direction of high-altitude winds, including by the launching of observation balloons. His efforts included the construction of three chimneys aimed at preventing smoke pollution. Unfortunately, all three turned out to be failures. Undaunted, Kuhara utilized the weather observations as a basis for building yet another chimney, this one close to 156 m in height. Once this Great Chimney commenced operation, the problem of smoke pollution was dramatically reduced. One can only imagine just how much Odaira was influenced by this corporate stance of Kuhara's of placing a high priority on the environment and the public good.

While it is said that Kuhara had little interest in the dowdy task of building electrical machinery, along with agreeing to Odaira's establishment of Hitachi Engineering Works, he also opened a plant for manufacturing equipment. He acquired an ironworks at Tsukudajima in 1907, naming it Tsukudajima Machine Company after its location. Tsukudajima Machine Company produced equipment such as air compressors, blowers, cranes, centrifugal volute pumps, and hoists. The Kuhara Mining Company was reorganized in 1912, with Tsukudajima Machine Company being raised in status to a division of the company alongside Hitachi, Ltd. With Tsukudajima having become too small for their needs, a new plant was opened in 1916 in Kameido on newly purchased land and given the name Kameido Works of Tsukudajima Machine Company. The Hitachi and Tsukudajima operations were merged in 1918 after Odaira argued the need for and merits of running a combined manufacturing business for both electrical and general machinery, which is where two works of Hitachi, Ltd., Hitachi Works and Kameido Works, got their start. Kameido Works went on to become what is now Hitachi Industrial Equipment Systems Co., Ltd.

Hitachi Works lost most of its operations to a major fire in November 1919. Another fire struck Kameido Works in March the following year destroying a newly constructed plant for

electrical machinery. Undeterred by these setbacks, Odaira took command of the reconstruction. How much faith must he have had in the future?

Yoshisuke Aikawa, another Great Man

Another major figure from these early years toward whom Odaira acknowledged his gratitude was Yoshisuke Aikawa [4]. While Aikawa's name has been given a variety of different readings in Japanese, his signature and other sources indicate that this was the correct form.

Aikawa was born in Yamaguchi in 1880. Although 11 years younger than Kuhara, because Kuhara had married his younger sister, by Japanese convention it was Aikawa who was considered the older brother-in-law. Also related to Kaoru Inoue, a prominent member of the Meiji government, he stayed at his relative's residence while attending Tokyo Imperial University. Frequently encountering the notables of government and industry who came to pay court to Inoue, Aikawa developed his own ambitions: that while never getting rich, he wanted to do great work, exploring new directions where few others had gone before but that would contribute to the public good. It was an attitude that echoed that of Odaira.

Incidentally, his graduation thesis at university was on the design and performance of the blades on the Escher Wyss water turbines at Kosaka Mine. That is, he studied the turbines that Odaira had installed at Kosaka Mine. In fact, Odaira made his work available to Aikawa and gave advice on preparing his thesis. Although Odaira was the older of the two and as an instructor could have lorded it over Aikawa, his character and the strength of the bond between the two men are evident from how, in later years, he would thank Aikawa, identifying his support as one of the factors behind the growth of Hitachi.

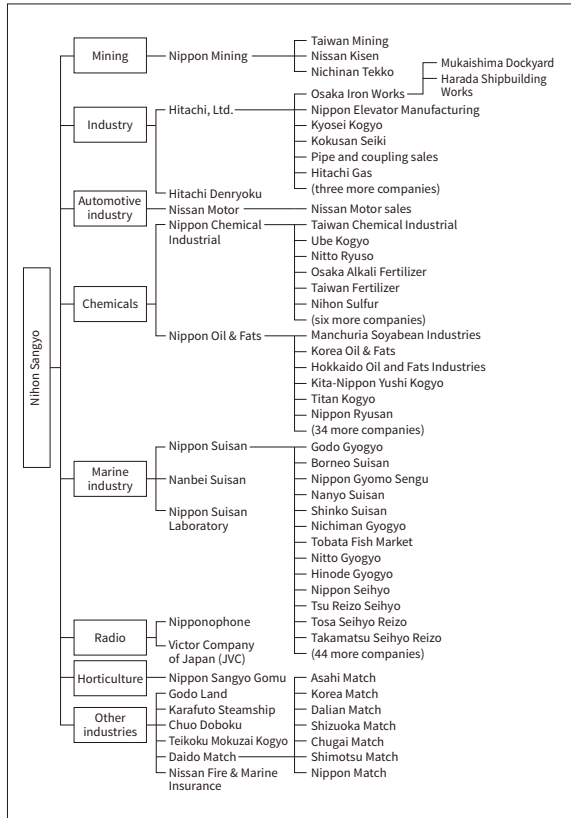
After graduation, Aikawa focused on practical work, joining Shibaura Engineering Works not as an engineer, but as an apprentice. He spent his first year on metal finishing and his second working in turn at a variety of different tasks, including

[4] Yoshisuke Aikawa



Source: National Diet Library

[5] Organizational Chart of Nissan Group (June 1937)



Source: M. Udagawa, "Nissan Founder Yoshisuke Aikawa," Yoshikawa Kobunkan

machinery, fabrication, sheetmetal, assembly, and casting work. Outside his day job, he also visited around 80 different factories around the Tokyo region during those two years. From what he learned about the state of Japanese manufacturing plants at that time from his experience as a metal worker and through these site visits, Aikawa came to the conclusion that all of the successful companies were imitating something from overseas. This experience of going out to view factories in person bore a close resemblance to Odaira's own time as a student, including how it left him lamenting the immaturity of Japanese industry.

Where he differed from Odaira was that what he had seen prompted him to travel abroad with the aim of gaining practical experience from working at overseas companies. Aikawa visited the USA in 1905 and took a job as a metal worker at a malleable cast iron manufacturer. Although the diminutive Aikawa apparently found factory work in the USA very demanding, he gained confidence from a belief that Japanese workers' manual dexterity could make up for their difference in physical size from Americans.

When Aikawa informed Inoue of his return to Japan at the end of this two-year stint of practical experience, he also expressed his desire to start a business and asked for his assistance. In 1910, the same year that Hitachi, Ltd. was founded, he established Tobata Foundry Co. (later renamed Kokusan Industries, Ltd.) in Kitakyushu.

As well as growing the company's business, he also sought to diversify by acquiring a number of other companies, including Teikoku Foundry Co. (now Hitachi Metals Wakamatsu, Ltd.), Kizugawa Manufacturing (now Hitachi Metals Kuwana Works), Yasugi Steel Manufacturing (now Hitachi Metals Yasugi Works), and Toa Electric Industrial (which later became Hitachi Totsuka Works). He, in particular, had plans to enter the automotive market. The Lake Erie shore where Aikawa did his training was a major industrial center in the USA and the early 1900s in particular were a time when the automotive industry was on the rise in Detroit. Aikawa was able to watch the flourishing of the US automotive industry from up close.

With the aim of first establishing the parts businesses that are essential to vehicle manufacturing, he built up the operations of Yasugi Steel Manufacturing (specialty steel) and Toa Electric Machinery Manufacturing (electrical parts) among others.

Faced with the recession that followed the First World War, signs of decline in Kuhara Mining Company were starting to become apparent in the 1920s. Accepting responsibility for this, Kuhara resigned as president in 1928 and was succeeded by Aikawa. Aikawa transformed Kuhara Mining Company into a pure holding company that he renamed Nihon Sangyo (with the mining division becoming Nippon Mining). Recognizing the corporate governance concerns associated with Kuhara Mining Company being a family business, he extricated the company from its clearly outdated status as a family concern by means of a public offering of its stock. In August of the same year, Aikawa was appointed chairman of Hitachi, Ltd. This made Hitachi a core company in the Nissan Group of which Nihon Sangyo was the holding company (Odaira, meanwhile, took up the post of president of Hitachi in 1929) [5].

In 1933, with the business of Nihon Sangyo on an improving trend, Aikawa sold off some of that company's holdings in Nippon Mining and Hitachi. He used the profit on this sale to establish Jidosha Seizo Co., Ltd. (renamed Nissan Motor Co., Ltd. a year later). To improve corporate governance, the practice was adopted of designating separate companies for each sector, including Nippon Mining for mining, Hitachi for

industrial products, Nissan Motors for the automotive business, and Nippon Suisan for marine products, with each of these companies managing operations in its respective industry. In accordance with this arrangement, Kokusan Industries, Ltd. (previously Tobata Foundry) was absorbed into Hitachi in 1937.

While it is said that Aikawa placed his full trust in Odaira, rarely instructing him on how he should be running Hitachi, it is likely that these two men, who had shared similar ambitions from the beginning, also shared a common approach to management.

In its early years, Hitachi was supported by two great men in the form of Kuhara and Aikawa.

Corporate Mission in the Era of COVID-19

Turning the focus back to the present day, we find ourselves in the midst of a pandemic. There are no great men to call for help. The pandemic has highlighted the public need for ways of doing things that are “remote,” “non-contact,” and “automated.” While these are keywords as we find ourselves adrift in a time of loss, in the Hitachi Integrated Report referred to earlier, Hitachi President & CEO Toshiaki Higashihara spoke about COVID-19 representing an opportunity for our Social Innovation Business. The challenges this is posing for industry include business continuity planning (BCP) in the face of supply chain interruptions and the use of remote, non-contact, and automated practices to boost productivity while also keeping staff safe. Hitachi sees these challenges for industry, which is to say the gaps that exist across the entire value chain, encompassing management, workplaces, and supply chains, as being issues of *kiwa* (boundary).

Worth noting is that, in an interview with Higashihara published in a special Summer 2020 edition of *Hitachi Hyoron* entitled “Beyond Smart Life: A Society Driven by Curiosity” (Nikkei Publications, Inc.), Juichi Yamagiwa, a former president of Kyoto University, puts forward the idea that, in contrast to the dualism of a zero-sum world of digital technology that underpins modern western thinking, Japanese culture has prized the idea of *aida* (space between), and that this philosophy of *aida* will be important in the future. He also noted that it is from this space between people that innovation arises.

Hitachi’s *kiwa* is another way of expressing this idea of *aida*. Rather than taking a dualistic view, Hitachi intends to resolve challenges that exist in these boundaries or in-between

spaces (*kiwa* or *aida*) and to deliver new seamless solutions that target business optimization from a management perspective by using digital technologies to link cyber and physical space together and provide free movement back and forth between the two.

Recognizing the rising demand for automation on the back of workforce shortages, rising labor costs, and COVID-19, industry is making a shift from manufacturing being something done by people and machines to something achieved through collaboration between people and robots. This poses a challenge in terms of the problem of there being “nothing to do.” Accordingly, with a view to better dealing with the issues of boundaries and gaps between workplace and management, Hitachi has been accelerating its business development through measures that include the acquisition of JR Automation in 2019. It is a situation that resembles Aikawa’s aggressive corporate acquisitions of times past. Obviously, what will bridge the boundaries and gaps with these companies that have newly become part of Hitachi will be the words of our founders as expressed in our Corporate Credo and elsewhere.

Even in this time of COVID-19 and of the three losses from our lives, continuing to take heed of the ideals of our founders will be key to turning great risk into opportunity.

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