Open letter2

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These texts were translated from Japanese to English using the "Deep L translation-tools" and "Google Translate".

Open letter2

The Emperor, beloved by all his people

The Emperor, beloved by all his people

June 15, 2022

I would like to reiterate. We ask that His Majesty the Emperor please become the founder of a new Christianity. At the request of Almighty God, I ask you again.

I have the honour to be, Your Majesty's humble and obedient servant,

Sincerely,

The following text describes our reasons for asking.

I would like to reiterate. We ask that His Majesty the Emperor please become the founder of a new Christianity.

The value of the emperor seems to differ somewhat from what Japanese people think of him and what people in the rest of the world think of him. The following is a brief introduction to the historical length of the Emperor family. The Meiji government assumed that the Emperor family has been in existence for 2,600 years since Emperor Jinmu ascended to the throne. The Meiji government decided that 660 B.C. was the year of the beginning of the Emperor's reign (the first year of the Jinmu era). In 1940, the "2600th Anniversary of the Founding" was celebrated in the first year of the Jinmu era. Historiographically, however, the emperor system is considered to be a historical fact for about 1,300 years, starting in the late 7th century. This is likely due to the mythical element in the early part of the period. The Emperor System is a system that has been consciously maintained by the Japanese people for a considerable period of time, and there is no other example in the world of such a single system lasting so long.

When we consider the existence of the Emperor in terms of uniqueness, uniqueness means that from the human point of view, one of the myriad options is almost non-existent, or in human terms, it is almost equal to "zero," and is very difficult to find. From God's point of view, however, uniqueness means that "I (God) have chosen only one, and it is the only one, and it is twinned with all the countless alternatives that I (God) have not chosen.

I believe that the existence of the Emperor has been upgraded to universal uniqueness in the world, freed from the unique uniqueness that existed only in Japan before World War II. I believe that after World War II, the interpretation of the existence of the emperor changed. Japan, which had been closed off from the rest of the world, was invited by the world. In the first place, it was the people who believed in Jesus Christ who invited the Japanese who had been closed off from the rest of the world. The action of the Japanese people at that time was to include the existence of the Emperor in the Constitution of the Empire of Japan, citing the theory of the “theory of the divine right of kings.” It was related by the description of the “Nihonshoki.” On this basis, and in accordance with the existing Japanese spirit, the organization of Japan was created. Then, following the lead of the developed countries, Japan began to expand overseas, but in the end lost it all.

The Nihon Shoki is one of the oldest history books of Japan.

In the postwar period, Japan was given a social mission in the world, which is a Japanese matter, but it does not seem to have been decided by the Japanese people on their own. What is the social mission of the nation of Japan in the postwar period? I think it is that the state of Japan will be completed only when the Emperor accepts Shintoism, Buddhism, and Christianity.

The defeat in World War II did not result in the loss of the Emperor's presence in Japan. This means that the Emperor continues to play a part in the functioning of the nation of Japan even after the war. However, the interpretation has changed from the prewar period, and the Constitution of Japan clearly states the guarantee of the Emperor's existence as "the symbol of the nation. Given this history, it can be said that the Emperor's existence is an official recognition of his role as a bridge between the heavenly world and this earthly world.

What this means is that the emperor was sent out into the world under the “theory of divine right of kings” adopted in the Meiji Constitution, which can be interpreted as meaning that his birthright was carried over to the new Constitution without any change.

In the past, there were many countries that thought of their national origins in terms of the "divine right of kings" theory, but today there are not many. I believe that the Emperor should add the role of a guardian of Christianity to Shintoism and Buddhism.

Why do I argue that the Emperor should be the patron saint of Christianity in Japan, following Shintoism and Buddhism? It is because it seems to me that Christianity has made an unmistakable achievement of making an immense contribution to Japan by "providing science". This will be explained in detail in the section "The Emperor and Tokyo University." This "science" opened the door for Japan to have a full-fledged relationship with foreign countries, and a new era began. It was those who believed in Jesus Christ who led the Japanese, who had been closed off from the rest of the world, to become citizens of the world.

I will elaborate on this in the next chapter, but the short answer is that the miracles performed by Jesus Christ were the prototype of science. Thus, the pursuit in science

was to search for natural laws with the assurance of Almighty God. We could say that science is the search for natural laws of necessity!

The teachings of Jesus Christ are not only from the perspective of being the "archetype of science. I believe that it can express what traditional Shintoism and Japanese Buddhism could not adequately express, namely, the latent "Japanese mind" that the Japanese people have. In other words, we can show that Japanese people also have a heart that can sympathize with Jesus Christ. What exactly does that mean? It means that the prewar Japanese behavior showed a hostile character toward foreign countries. It was not the first time that the Japanese expanded overseas, but even then they acted in a hostile manner. Before World War II, the Japanese people clearly expressed the Japanese social system to the outside world in the form of "Kokutai," and showed that the Japanese people were a group of people with this kind of thinking.

However, in the postwar period, the Japanese have not explained themselves to the world. People around the world may think that the Japanese people are only restrained by the "Peace Constitution" presented by the U.S., and that they remain unchanged in their prewar attitude. The Japanese people are still the same as before the war, only restricted by law and docile in content. I think the Japanese should look for and acquire more ways to defend and explain themselves. If you and I are willing to do so, I believe that Jesus Christ is always there to help us. I believe that we should utilize the power and wisdom of Jesus Christ, who is recognized worldwide. Jesus Christ also taught us that if man does not keep His Word, God has prepared the way for his destruction.

It is a difficult task for the entire Japanese nation, which had been closed to the rest of the country, to acquire new functions. It involves hard work. It is not an easy task to truly make it one's own. It is similar to what humans do when they study. I believe that through Christianity, we can express to the world the spirit and feelings that the Japanese people have latent in them and that they have been unable to express until now, and that we can approach His Majesty the Emperor with such a renewed spirit.

Christianity and Science

Almighty God created the world, but Jesus Christ came in human form to teach us how it works. Jesus Christ also encouraged the use of that mechanism. As a way to do this, Jesus Christ used miracles, but they depended on special, God-given individual abilities, and not just anyone could do them. People at that time appreciated them, but consequently rejected them. As a result, they crucified Jesus Christ. They rejected a world in which certain people were active with miraculous powers. The resurrection of Jesus Christ was foretold in the Old Testament, and it came to pass.

The resurrected Jesus Christ invites people to go in the direction they are about to go. This was a gift from God and something people wanted. Existing human beings chose to do this not because they suddenly had god-like powers, but because they were on the rails of time, connecting generations in the form of evolution, and anyone could do it. I think Christianity can also be described as a "prototype of science," like a precursor to science. Science can go beyond the normal level of human evolution, but also with the exercise of science comes a responsibility to Jesus Christ. It is God Almighty who created this world. Although Jesus Christ was in human form before His death, He actually performed "miracles" to show us what God's workmanship is all about.

Science is something that allows man to go beyond his normal evolution as an animal, and compensates and extends man's normal capacities, both for his being itself and for his cognitive functions. Therefore, it must be adaptable to everyone and yet be established over and over again. The guarantor of science is God Almighty, and man is only finding what is guaranteed, not making it new. The results of science are the result of the joint work of God and man. The crown of thorns that Jesus Christ wore on the cross was actually "science. It was placed on Jesus Christ by human beings. Jesus Christ also showed us what man, born into this world, should do at the end of his life. That is, to be killed by one's social self. That was also what people wanted.

Chapter 1

The Emperor and the University of Tokyo (Takashi Tachibana, Publisher, Bungeishunju)

This book runs to 1,500 pages in the upper and lower volumes, and I have summarized, edited, and described the parts of the book that I consider important. The book provides an overview of the formation of Japan since the Meiji Era (around 1868), reading modern history from the perspective of the changes in the University of Tokyo, the center of education in Japan. It also provides an understanding of the peculiar currents of the times during the transition from the Edo period to the Meiji period. The Imperial Household and the Emperor System are also analyzed from an unbiased standpoint. The content of this period is definitely necessary when considering the existence of the Emperor in the modern age. I have quoted from Takashi Tachibana's book because I do not live to think about such things on a daily basis.

Takashi Tachibana, Author

His parents were nondenominational Christians. His father was baptized while a student at Waseda University, while his mother was baptized in the chapel of Kassui Girls' School after her marriage. There was a teacher at Kassui Girls' School named Takesuke Minatogawa, who became a nondenominationalist under the influence of Kanzo Uchimura, a known nondenominationalist Christian. Strongly influenced by him, his parents later became nondenominational. Since there is no baptism in nondenominationalism, he was baptized before he became a nondenominational. For the record, Takashi Tachibana is neither non-denominational nor a Christian, although he is strongly influenced by Christianity.

Outline from the Meiji Restoration to the end of the war (World War II)

From the Meiji Restoration to the end of the war (World War II), there were various incidents. In order to give a brief overview, I have summarized the year, the name of the incident, and the events that took place in Japan. The events are listed in chronological order. Some of them are important, but I will discuss them separately.

The first University of Tokyo, or the University of Tokyo before the Imperial University, was established in 1877. The new Meiji government established the Tokyo Imperial University in order to help Japan get on its feet as a modern nation as quickly as possible. This university was dedicated to the intake of Western civilization and the training of human resources. And the period from the late modern era (late Meiji era) to the early modern era (until 1945) can be called the "Age of Empire" when Japan called itself the "Empire of Japan". During this period, the University of Tokyo called itself "Imperial University" (from 1897, "Tokyo Imperial University") and played a central role in training personnel for high-level bureaucrats such as government administrators and diplomats in imperial Japan.

The Constitution of the Empire of Japan was promulgated on February 11, 1889. The central ideology of the Meiji Restoration was the reverence for the Emperor. The basic idea was to return the basic structure of the nation from the samurai government centered on the shogunate to the Emperor's parental government as in ancient times. This was realized in an instant as a palace revolution (coup) in 1868 with the "Great Decree of Restoration of the Monarchy."

The idea of "reverence for the Emperor" means to respect the emperor and repel foreign enemies.

The Sino-Japanese War was fought between Japan and the Qing Dynasty from July 25, 1894 to April 17, 1895. This was followed by the Russo-Japanese War. That war took place from February 1904 to September 1905 between the Empire of Japan and the Russian Empire, which had a policy of southward expansion.

In 1918, a university ordinance was created (and came into effect in 1919), and universities other than the Imperial University were officially recognized for the first time. Although one might think that there had been private universities such as Waseda University and Keio University before that, these private universities were not officially recognized as universities under the law, but as technical colleges that were allowed to use the name of "university."

The “Great Kanto Earthquake” occurred on September 1, 1923, causing extensive damage in the southern Kanto region and adjacent areas. With an estimated 105,000 dead or missing, it was the largest earthquake disaster in Japan since 1868.

During the Taisho Democracy (1912-26), politics had reached the level of party politics, an aspect of modern constitutional monarchy, but the May 15 Incident marked the end of the party cabinet. Young armed naval officers stormed into the Prime Minister's official residence and killed the Prime Minister, Tuyoshi Inukai. The military was transformed into an organization that was uncontrollable by the Emperor, as a series of military outbursts followed, including the February 26 Incident and the China Incident. 2/26 Incident was an attempted coup in Japan that took place between Wednesday, February 26 and Saturday, February 29, 1936. Influenced by the Imperialist faction, young army officers led 1,483 non-commissioned officer and soldiers in an uprising. They attacked government officials and occupied Nagatacho, Kasumigaseki, and other areas. Eventually, the situation was settled when the young officers returned the enlisted men to their original units and surrendered. However, some soldiers committed suicide.

The armed clash between the armies of Japan and China that began with the Marco Polo Bridge Incident on July 7, 1937 was effectively the start of war, but Japan did not declare war and called it the Shina Incident. On December 8, 1941, Japanese forces attacked Pearl Harbor in the U.S., plunging Japan into the Pacific War. The war ended on August 15, 1945. This marked the end of the Emperor System, the system of modern Japan.

In Japan just prior to the outbreak of World War II, the contradictions of the emperor system erupted repeatedly in the form of problems with the national system. Then, radical-minded emperor-centrists, under the guise of the "Kokutai Meicho Movement" (National Identity Movement), almost achieved a bloodless coup. The groups that promoted this emperor-centered approach were linked to the military, and after the China incident, a national mobilization system was created. It was so-called Japanese-style fascism led by the military. Japan finally spiraled out of control and entered the war against Britain and the U.S. In 1945, the Emperor decided to end the war. In other words, the Emperor regained control of the situation through the exercise of his command over the military.

Kokutai Meicho Movement is a movement to clarify that the state of the nation is Emperor-centered. Specifically, it was accomplished by eliminating the "emperor-organ theory," in which the military and the right wing promote parliamentary politics.

Now is the time for Japanese people to relearn modern history

The author of this book, Takashi Tachibana, says the following Now is the time for the Japanese people to relearn modern history. Due to the astonishing flaws in the Japanese educational system, the majority of modern Japanese have grown up without knowledge of modern history. I (Takashi Tachibana) thought I knew more about history than most people, but I realized how little I knew about modern history. In a nutshell, modern Japan is a nation built on the death of the Empire of Japan. The connection between the Empire of Japan and modern Japan seems to have been severed long ago, but in fact it is still connected by countless threads. The corpse of the Empire of Japan seems to have long ago decayed and decomposed back into the earth, but in fact, a significant portion of it has been reabsorbed into the body of modern Japan as nutrients, and is once again a constituent component. Or, they have not decomposed and remain intact. Or there are even parts that have been resurrected and are still alive. History is not so easily broken. How and why did the Empire of Japan die? How did the Empire, one of the greatest in the world, disappear? What was the critical time period that determined its extinction? Without understanding these questions, the future of Japan will not be clear.

The greatest actor in Japan's modern history has been, above all, the emperor. This does not mean that individual emperors of each period have played such a major role. It is that the concept of the Emperor, or the Emperor as an institution, has played a central role. As the reigning monarch of the "Empire of Japan," the emperor was similar in character to the absolutist monarchs who reigned in Europe a generation earlier. He was also a shaman king who reigned over Japan in mythical times. He was also unique in that he was a military king who established political power through a military revolution known as the "Taika-no-kaishin" in ancient Japan.

Trying to define the existence of the emperor is very difficult because of the many different ways in which the emperor is projected by those who wish to worship him. For this reason, the emperor has functioned as a uniquely Japanese political system with a multifaceted character. This holy symbol was revered as the highest value of the Japanese nation and became the principle that governed the lives of the Japanese people. In this era, denying the idea of "Emperor-Organ Theory" became affirming the concept of "kokutai," and Japan rapidly changed to such a social system. It was a time when this concept of "kokutai" magically ruled Japan.

The term "kokutai" refers to the system of legitimacy of the Emperor's rule under the Meiji Constitution. It was used as a concept to express the superior national character ruled by the emperor of an unbroken imperial line.

Shaman King is the King of Prayer.

Catching up with Europe and the United States

Hirobumi Ito created the Meiji Constitution. In later years, looking back on the education they received when they were young, he said.

"Today, you are studying at universities. When we were young, there were no schools or teachers to teach us such things, and we could only read a few books such as Japanese history books, Chinese history books, and military books. Even this was not easy to master." (Hirobumi Ito speaks directly, Published in 1936)

"The studies we studied when we were young were Confucian literature and history books, and if we learned a little arithmetic on top of this, it was assumed to be sufficient. The only history books we could read were the history of Japan and the history of the Han Dynasty, and it was not possible to study the history of other peoples at that time." (Hirobumi Ito speaks directly, Published in 1936)

The lack of any information about the world and the prevailing ideology of exclusion of foreigners in Japan made such research impossible. As of ten to fourteen or five years before the Meiji Restoration, the debate was not constant as to whether Japan should open its country to diplomacy or not. At times, some argued for the cessation of diplomacy with Christian countries, while at other times they argued for the abolition of the national seclusion order and the opening of diplomatic relations with foreign countries. Even when there was an opinion to start diplomacy with other countries, it was divided into several factions, and the argument for exclusion of foreigners was overwhelmingly dominant.

At this time, importing European civilization was a dream come true. However, if we had not been able to import European civilization at that time, many of the studies that exist today would not have existed in Japan. At that time, if you wanted to learn Western studies, you could not find any translated books. There were some artillery or

castle-building books, but they were few in number and very old. Even if Japanese people read them, they could not fully understand and explain them in an easy-to-understand manner. There were few people in Japan who were willing to study European studies. But a few visionary intellectuals thought that we must raise up a few brilliant people and let them run the nation. (Hirobumi Ito speaks directly, Published in 1936)

Western studies in Japan often refer to the flow of medicine, starting with the translation of "Taher Anatomia" by Genpaku Sugita and his colleagues in 1774 and the publication of "Kaitai Shinsho" (anatomy medical book). In addition to medicine, another important flow of Western studies was actually astronomy. These two streams of Western studies created the origin of the University of Tokyo.

"Kaitai Shinsho" is an anatomy book written in Japanese and published in 1774.

Astronomy was called astronomical calendar science in Japan. The most important task was to create a correct calendar. The Japanese calendar was imported from Tang of China in the Heian period (794-1185) and remained in use for more than 800 years until the beginning of the Edo period (1603-1868) without revision. However, any calendar can go awry after 800 years of continuous use. In fact, at the beginning of the Edo period, the date of the winter solstice was off by two days. In order to correct this deviation, a calendar scholar named Shunkai Shibukawa created Japan's own calendar (Joukyou calendar) for the first time. He used Chinese calendar books as references, but the most accurate Chinese calendar of the time was based on Western astronomy introduced to China by the Jesuit priests. It was a theoretical book that included not only the theory of celestial motion, but also how to determine the time difference between distant points east and west.

At first, Japanese scholars simply imported Western astronomical knowledge via China. Eventually, they began to find discrepancies with reality, such as the inability to correctly predict eclipses, and so they began to make their own continuous astronomical observations. After some time, he learned that the latest astronomical knowledge in China came from Europe, and he sought this knowledge directly from Europe via the Dutch official in Nagasaki. Since ancient times, the proclamation of a correct calendar has been one of the hallmarks of power for political authorities. It was troubling to those in power that the calendar could be out of sync with the natural flow of time, or that

unpredictable eclipses could occur. Therefore, even though Japan was in seclusion, such moves to introduce knowledge of European astronomy were officially sanctioned by the shogunate. The 8th shogun, Yoshimune, was particularly enthusiastic about the introduction of new knowledge. He loosened restrictions on prohibited books and allowed the importation of scientific and technical books, even if they were written by Christian priests residing in China.

In this vein, the "Astronomia of Sterrekunde" was eventually imported. Yoshitoki Takahashi wrote the following about his surprise when he first picked up the book: "This book was like an anthology of the best astronomical books of the late 18th century. This book was like an anthology of the best books on astronomy at the end of the 18th century, so it contained all the latest astronomical knowledge of the time. There were five volumes in all." Takahashi stopped all other work and immersed himself in the translation, forgetting to eat or sleep. From this point on, Japanese astronomy became completely Westernized and did not lag far behind the European knowledge of the same period. Instruments of considerable precision were made, and observations were made constantly. The reason why Tadataka Ino's detailed maps of Japan were so accurate is that he was accompanied by an astronomy expert who had precision instruments and was constantly making astronomical observations.

The new Meiji government made it a top priority to catch up with the Western nations in every sense of the word, and attempted to transplant higher education to Japan while maintaining the current level of education in foreign countries by sending out more and more foreign students and hiring foreign teachers to educate them directly in foreign languages. In the early Meiji period, dozens of foreign students were sent out to various countries each year, and the cost of sending them out amounted to 2% of the total national budget and one-eighth of the education budget, making the expense of sending out foreign students a very heavy burden for the newly born nation.

However, in the Meiji 10s and 20s, foreign students returned to Japan one after another and became teachers. Education by hired foreign teachers was gradually replaced by education by professors who had returned from study abroad or had graduated from Japanese universities. The same situation progressed not only in the field of education, but also in all aspects of the state administrative apparatus, the construction of government-owned model factories in the country, the development of transportation and communications, and the financial system. Work was being transferred from the

hands of hired foreigners to the hands of the Japanese.

Yukichi Fukuzawa's Private University

In this period, that is, the early Meiji period, the university and the state were partially integrated. In other words, there were people throughout the university who felt secure and proud to be in a position where they could maintain a sense of oneness with the nation. Yukichi Fukuzawa was the first to oppose this mindset. In his "Encouragement of Learning," Volume IV, "Discussing the Duties of Scholars," which he wrote in 1874, Fukuzawa made the following statement. I criticize the intellectuals who are well versed in Western studies taught in institutions belonging to the state, because the government is still a tyrannical government and the people are still apathetic, powerless fools. This will not allow me to keep my country's independence, even for a day."

The people of Japan do not have a spirit of independence. Their spirit has been distorted by more than 1,000 years of tyranny, and a spirit of servility and distrust has seeped into their very bones. As a result, they are unable to say out loud what is on their minds. They have developed an irrepressible behavioral pattern of deceit, dishonesty, and lack of shame. They have no sense of independence, so they try to depend on the government for everything. But even then, they try to deceive the government for personal gain. They are not even somewhat ashamed of deceiving the government. The problem lies above all in changing such a mindset of the people. Only a Western scholar can point out where the problem lies and guide the people by providing clear guidelines on what to do and how to change things. However, the scholars who had studied Western studies were all on the side of the government. There were no scholars who were willing to advocate for the citizens from a neutral standpoint. As a result, Japan has only a government and no citizens.

Fukuzawa criticized Western scholars who took the side of the government, using expressions such as the one quoted here. They had forgotten the spirit of independence and self-respect, and considered the attitude of easily aligning themselves with authority to be one of the factors that caused the Japanese people as a whole to lose their spirit.

The beginning of a retrogression of the times

Nagazane Motoda, a native of Kumamoto and a Confucian scholar who served as tutor to the feudal lords, became tutor to the Emperor in 1871 (Meiji 4) at the recommendation of Sanetomi Sanjo and Toshimichi Okubo. At that time, the Emperor's tutors were already Western scholars such as Kato Hiroyuki and Amane Nishi, and the Emperor's education was centered on Western studies. Motoda insisted that this was not the way to go, and that the imperial education of an Oriental monarch should be centered on "Confucian scriptures," which he himself taught enthusiastically. Emperor Meiji liked his teachings, and Motoda became the emperor's closest advisor.

Emperor Meiji was only 15 years old when he ascended to the throne. Almost a boy, he did not make his own decisions in early politics. In fact, it was left in the hands of the leaders of the Meiji Restoration, Okubo, Kido, and Saigo. However, a major turning point came in 1877 and 1878. These were the successive deaths of the three great figures of the Meiji Restoration (Kido, Saigō, and Okubo) and the Takebashi Incident, in which the Imperial Guard rebelled. Motoda and other close associates of the Emperor took this opportunity to demand that the Emperor take politics into his own hands. The Meiji Emperor, who had acquired kingcraft and was at an appropriate age to do so, decided to do so with the help of his entourage. The Emperor's first task was to reform education. He stopped focusing on Western learning, revived Confucianism, and tried to firmly instill the idea of humanity, justice, loyalty, and filial piety in the hearts of all the people. In 1879, he ordered Motoda to draft the "Kyohgakuseishi" and make it the basic policy of education. The Emperor's government put the brakes on the Western-centered approach that had been in place since the Meiji Restoration. Motoda took the lead in this effort.

"Kyohgakuseishi" was an educational policy dedicated to the will of the Emperor. It was centered on the cultivation of a spirit of benevolence, loyalty, and filial piety, on which moral education was based, and discouraged the acquisition of Western knowledge, arts, and skills.

The most important time to instill a spirit of humanity, justice, loyalty, and filial piety is at an early age. Emperor Meiji ordered Motoda to create the "Essentials of Childhood Education" (1882). The book selected 20 virtues, such as filial piety, loyalty, perseverance, and bravery, and included appropriate phrases selected from the "Four Books and Five Classics" and other texts. In addition, episodes related to these virtues

were selected from the Chinese and Japanese classics and illustrated. Scholars who were asked to assist in the editing of the "Essentials of Childhood Education" advised the inclusion of Western episodes, since morality is universal. Motoda, however, said that morality was the basis of education and that it should be centered on Japan and China, and he did not incorporate anything from Europe or the United States.

The "Essentials of Childhood Education" was an Imperial book of morals, a Confucian textbook for children. From this point on, the Meiji period, with its blossoming of civilization, was to become the Meiji period of nationalism. Their goal was to create a path from the "Essentials of Childhood Education" to the "Imperial Rescript on Education." Motoda made that clear in the "Supplementary Agenda on Education."

There is no need to wait for the appearance of a person who is so gifted and intelligent that he can create a new national religion and who is clear about the reasonableness of things. The Emperor himself is the one whose vocation is to be the sovereign and teacher of the people. In short, the Emperor should create a national religion in the form of an imperial edict. There is no need to create new content for the state religion. All that is required is to carry on the teachings of the emperor's ancestors. The Emperor's ancestors since "Ninigi no Mikoto" should be retained, and Confucianism should be added to them. In short, the purpose is to make the emperor the head of rituals as well as the head of politics and teaching, an entity of ritual-political-teaching-academic unity. This major shift in educational policy occurred around 1879.

Motoda and the Meiji Emperor had the following ideas about the administration of education. With regard to elementary and secondary education, they were satisfied with the educational interference without involving the Ministry of Education, which distributed Motoda's "Essentials of Childhood Education" directly from the Ministry of the Imperial Household. However, although he was dissatisfied with higher education, he could not interfere directly. Emperor Meiji had little interest in science departments, and his greatest concern was whether or not universities had subject of moral training. Even if you graduate from a science department and achieve accomplishments, you will only be recognized in a specific science field. It does not mean that they will join the government and become ministers or other figures in charge of the nation. Today, Japan is still supported by the leaders of the Meiji Restoration. However, they will not remain in leadership positions for long. Their successors are needed. What is needed above all else for those who will become leaders of a nation is the study of subject of moral

training and a sense of humanity, justice, loyalty, and filial piety. Emperor Meiji believed that the subject of moral training was lacking in higher education.

The Regeneration of Japanese Historiography

Kunitake Kume was a samurai of the Saga domain and was a classmate of Shigenobu Okuma at Kodokan (the domain's school). Kume became a close adviser of Naomasa Nabeshima, the feudal lord of the Saga domain, and through his recommendation, he joined the Iwakura Mission (a delegation sent to the United States of America and 12 European countries in the U.S. and Europe). He was 33 years old at the time. Because of his ability, Kume was appointed to the staff of the government's historical compilation office. The government's historical compilation office was the highest organization for national historical compilation projects after the Meiji Restoration. The historical compilation was led by Yasutsugu Shigeno, a samurai from the Satsuma Clan. He was strongly influenced by Chinese historical exegesis and the positivism of Western history, and was skilled in the criticism and examination of historical sources. He was the first full-fledged historian to emerge from Japan, and his work was highly regarded, including his later election as the first president of the Historical Society of Japan.

In 1888, the government's Historiographical Institute, which had compiled the old historical records, was transferred directly to the Imperial University of Tokyo's College of Letters. This was the beginning of the University of Tokyo's Historiographical Institute. Yasutsugu Shigeno, Kunitake Kume, and others who had been at the core of the government's historical compilation office were appointed as professors at the university.

The greatest shortcoming of conventional Japanese historiography is that history and narrative are inextricably intertwined. In order to establish a true historical study, we must first and foremost "get rid of this bad habit of making no distinction between history and narrative." The most important principle to be observed in historical studies is to pursue only the facts, and to tell the truth as soon as it is discovered. Shigeno and Kume thought the same way. The mistake that the masses and historians for the masses tend to bring into history is the ideology of honoring the good and punishing the bad. There is an assumption that good has triumphed and evil has perished in the end, or that history must be written in a way that encourages good and discourages evil. These two assumptions form the ideology of good and evil in history, and along with the

ideology of good and evil in the morality of daily life and social morality, they have become deeply embedded in the Japanese mind. The Japanese view of history is fundamentally colored by this ideology.

Confucius was a Chinese thinker and philosopher during the ancient Shunju period (770 B.C. to 403 B.C.) and the founder of the Confucian family. The reason why Confucius wrote the book "Shunju" in the first place was because he lamented the moral decay of the world and the prevalence of evil and violence in the world. Confucius said, "I wrote 'Shunju' to punish with words those who disturbed public order in the world. This is not an ordinary history book, but a book to honor the good and punish the evil. Therefore, "Shunju" is not a history book that describes historical facts as they are. Kunitake Kume emphasized that unless we quickly depart from this ideology of respecting good and punishing evil, and start by looking at facts as facts, we will not be able to establish a true study of history. This can be said to be a declaration of farewell to Confucianism, which has long harmed Japanese historiography. The Historical Society attempted to start the study of history with such a declaration of farewell. However, the new Japanese historiography, which was just beginning to emerge, soon succumbed to the old Confucianist and imperialist historiography in its entirety.

A Return to Conventional Historiography Again

This issue arose over an article entitled "Shinto is a Ritualistic Old Custom" written by Kunitake Kume in the "Journal of the Historical Society" following his criticism of "Taiheiki." This issue is as follows. The content of this paper traced the origins of Shinto, arguing that Shinto is not a religion, but simply an ancient custom of purification to drive away misfortune and bring good fortune at festivals. Since it is a custom and not a religion, there is no problem if it is practiced alongside Buddhism or other religions. In fact, in Japan, reverence for the gods and worship of Buddha have been practiced side by side since ancient times.

All religions began by conceiving the concept of God and worshipping Him in daily life. While worshipping the same God in heaven, other religions became organized and institutionalized by creating systems of doctrine and order religious community. However, what makes Shinto different from other religions is that it has no savior, no salvation, and no doctrinal system. It remained in the form of an ancient custom of nature worship. Therefore, Shinto can be viewed as a custom, not a religion. Shinto was

a primitive religion in a very primitive stage of development, a custom with a religious atmosphere before it became an independent religion.

Then came the highly developed Buddhism. It is thought that Shinto had neither the content nor the will to compete with Buddhism as a religion. The basic purpose of this paper is to argue that Shinto stopped at the pre-religious stage and ceased to develop further as a religion, and that it has maintained a long life in harmony and coexistence with other religions since then. This is an analysis that makes sense when you look at it that way. The Shinto side was outraged by this analysis and went all out to attack Kume and Shigeno, who was said to be behind it. The point of the attack was that the paper was a disrespectful and disloyal dissertation that insulted the imperial family and the ancestors of the imperial family.

The issue quickly became a political issue when he published an article entitled "Shinto is a Ritualistic Old Custom." The Ministry of Education retained Kume's status as a civil servant, but took away all his duties. Kume therefore resigned from the civil service and went to work for Waseda University (Tokyo Senmon Gakko). Shigeno was dismissed from the civil service. The Historical Society lost its president and ace scholar, and at the same time, the Department of Japanese History at the University of Tokyo lost two professors. This was the first major incident to occur at a Japanese university that shook academic freedom and university autonomy. However, there was no movement, either from within or without the university, to help these two professors.

In hindsight, the Kume Kunitake Incident (1892) was a major historical turning point. From that point on, the state began to dominate academia. Japanese historiography was twisted and myth suppressed history. The people began to have a mythical view of the nation drilled into their heads from childhood. The deification of the Emperor was carried out by the hegemony of Emperor Meiji himself. The "Essentials of Educational Procedures and Regulations" of 1881 abolished the world history classes (Western and Chinese history) that had been taught in elementary schools until then. It was decided that as long as a person was loyal to the Emperor, it did not matter if he or she lacked internationalism.

This was the time when the basic rail was laid for the development of the completely inward-looking human being that would characterize Japan in the years to come.

Sakuzo Yoshino, a shining standard-bearer of Taisho democracy

Sakuzo Yoshino graduated at the top of his class from the Department of Political Science at the University of Tokyo Law School in 1904, and became an associate professor at the Law School in 1909. Yoshino then studied in Europe and the United States for three years, beginning in 1905. Immediately upon his return to Japan, he was visited by Choin Takita, the chief editor of "Chuo Koron" (Central Public Opinion). At Takita's suggestion, Yoshino wrote "The Japan-U.S. Problem from an Academic Perspective," which was highly acclaimed. From then on, Yoshino wrote an article for "Chuo-Koron" almost every issue.

Particularly prominent is a lengthy 100-page article in the January 1916 issue, titled "Explaining the Original Significance of Constitutional Government and Discussing the Method of Carrying it Out Honourably. At that time, advocating democracy in Japan was considered a dangerous ideology that went against the "kokutai" of the emperor system. However, the paper used clever rhetoric to argue that the emperor system and democracy are not contradictory, and that democracy is the only way to realize the spirit of the Meiji Constitution in essence. This paper harmonized the Emperor System and democracy, and became the basic theory of Taisho democracy.

The rhetoric that reconciled the Emperor System and democracy was that democracy is not one concept, but a composite concept with two aspects. The first is that democracy as a theory of power, where state power resides, is a theory of popular sovereignty. However, this is a dangerous idea that is totally incompatible with the Japanese constitutional position that the sovereignty of the state is vested in the emperor. The second is democracy as a semantic theory of politics. This semantic democracy is in harmony with the Emperor System. Historically, the purpose of politics under the sovereignty of the emperor has been for the benefit of the people, and it has been conducted in accordance with the will of the people. And for democracy as semantics, I argued that it is better to include a parliamentary-centered element in real politics.

And in order to distinguish between these two aspects of democracy, Yoshino decided that the appropriate translation of democracy as the semantics of the latter is "people's democracy." This is because the conventional translation "democracy" can easily lead to the misunderstanding that it is a theory of popular sovereignty as a theory of locus of power. Yoshino's "people's democracy" lit a bright light in a social climate that was in a

state of stagnation. Taisho democracy blossomed.

"People's democracy" is not a theory of power but a semantics of democracy.

Shinkichi Uesugi is a rare emperor-centrist

Shinkichi Uesugi was born in Fukui Prefecture in 1878 and graduated from the Department of Political Science, Tokyo Imperial University Law School in 1903. He was soon appointed as an assistant professor. Uesugi was a rare example of an emperor-centrist, an absolutist of the Emperor's power. He believed that whenever and for whatever reason the Emperor issued an imperial edict, it belonged to his absolute freedom and that his subjects should not interfere with it or question its expression. People today may feel uncomfortable with "Uesugi's theory of kokutai." Even if prewar Japan was a country with an emperor system, the emperor was not a despot but a constitutional monarch. Japan had a constitution and a parliament. Wasn't the Emperor's rule also carried out in accordance with the Constitution and with the support of the Diet? If so, then the power of the emperor was not all-powerful, but was subject to the limits of law and parliament. One might think that even under the Meiji Constitution, the power of the emperor would have been understood in this way, but this was not always the case.

While the holders of liberal leanings, such as “Minobe's the emperor-organ theory” and “Yoshino Sakuzo's democracy,” both of which will be introduced later, thought so, the traditional state-sanctioned doctrine did not. According to “Uesugi's theory” of constitutional law, the Japanese Constitution (Meiji Constitution) excludes parliamentary government, so the very claim that parliamentary government is acceptable is false. The reason why parliamentary government is excluded is that Japan's constitution is emperor-centered and recognizes the emperor as the sole sovereign.

In the United Kingdom (and by that I mean postwar Japan), the political party with a parliamentary majority was free to organize a cabinet and rule the country by holding the power of appointment and dismissal of ministers as well as the executive power. If this were to happen in Japan, the Emperor System would become a nominal entity with practically no meaning or power.

Uesugi distinguishes between the national system and the political system. "Kokutai" refers to the national system, while "Seitai" refers to the political system. The term Kokutai is difficult to understand because it is rarely used today. In summary, Kokutai refers to the fundamental nature of a nation in terms of where the roots of national power lie. Seitai refers to the nature of political power, i.e., the form of government. The term Kokutai originally ranged from meaning "the origin of a nation" or "the state of a nation" to the meaning of a state system or political system.

At some point, it came to mean the emperor system, not as a political power structure, but as a mechanism that gives legitimacy to secular political power. Regardless of how political power changes from time to time, the emperor as a traditional religious authority continues to exist above it.

For a while, the Meiji government was based on the Emperor's parental rule, and there was no discrepancy between the national and political systems. 1885 saw the establishment of the cabinet system, followed by the promulgation of the Constitution in 1889 and the opening of the Imperial Diet the following year, which gradually led to a gap between the "national system" and the "political system." During the Taisho Democracy period (1910s to 1920s), there was much discussion about the operation of the political system and political thought. There was also much discussion about the nature of politics and how it should be changed in the future.

Emperor-centrists like Shinkichi Uesugi believed that The emperor has all authority over politics, called the "Great Authority to Govern," and the emperor may do as he wills. There is no need to necessarily question the will of the people. Even if there is a Diet, it is a body whose sole purpose is to sponsor the emperor (it is not a legislative body), so there is no need to give it importance. A political party that relies on Congress is nothing more than the root of all political ills. Therefore, it is better to eradicate them as soon as possible. This was Uesugi's argument.

The term "Great Authority to Govern" refers to the authority that was considered to belong to the Emperor under the Constitution of the Empire of Japan.

The Claims of Emperor-Organ Theory

The "emperor-organ theory" theory is a constitutional hermeneutic established under the "Constitution of the Empire of Japan." The authority to govern rests with the state as a juridical person. The Emperor, as the supreme organ, exercises the right to rule with the assistance of other organs such as the Cabinet.

Professor Kitokuro Ichiki of Tokyo Imperial University defined the Emperor as occupying the highest position among the various organs of the state. Based on the juridical personality theory of the state, he held that the right to govern is vested in the state as a juridical person. This "constitutional hermeneutics" was called the "emperor-organ theory." This theory denied the divine transcendence of the emperor. This theory respected the authority of the Emperor as the supreme organ of the state. After the Sino-Japanese War, the bureaucratic forces, which were seeking to compromise with the political forces, heavily relied on the "emperor-organ theory."

After the Russo-Japanese War, the "emperor-organ theory" was developed by Ichiki's disciple, Tatsukichi Minobe, a professor at Tokyo Imperial University, in the direction of increasing the role of the Diet. Minobe introduced Jelinek's theory, which revitalized the juridical theory of the state as a theory of resistance against the strengthening of the German monarchy after the Bismarckian era, into the "Emperor's Agency Theory. He held that the parliament, the representative body of the people, could also bind the will of the emperor through the cabinet. Minobe's theory provided the theoretical basis for party politics.

The emperor-organ theory is a constitutional hermeneutic of the Empire of Japan Constitution that explains the question of where the subject matter of the state resides. The first view holds that the right to govern the state belongs to the Emperor as an individual, who has the power to exercise it as he pleases and in any way he chooses. The second view is that the authority to govern rests with the state itself, and that the Emperor, as the supreme authority of the state, exercises this authority. In other words, is Japan a Louis XIV "I am the State" type of despotism, or is it a constitutional monarchy in which even the head of state must exercise the right to rule according to law? The theory of the emperor-organ theory supports the second view.

Minobe's son, Ryokichi Minobe, former governor of Tokyo, writes in his book "Anguished Democracy" as follows. My father insists that the emperor is an organ of the state. The state is an organization and has the right to govern, but the state itself cannot directly exercise the right to govern. The same is true of the state, and the right to govern can only be exercised through its representative body. And the Emperor is one of those organs, and the article 'The Emperor shall rule' is interpreted as saying that the Emperor, as one of the organs of the state, exercises his right to rule on behalf of the state." (abbreviate hereafter.)

It is difficult to write about the "emperor-organ theory" without being misunderstood. The term "emperor-organ theory" itself is easily misunderstood. Even if one hears the term "emperor-organ theory," it is difficult to grasp its meaning, even if it is explained as a theory that regards the Emperor as an organ of the state. What is an organ? What does it mean to regard the emperor as an organ? The questions pile on top of each other, and before you know it, you find yourself in a labyrinth of incomprehension. This is the general course of ordinary people when they try to understand the "emperor-organ theory."

It is not the first time this has happened, and in 1935, the issue of the emperor-organ theory became such a major social event that it shook Japan. Even in the midst of the controversy, few people correctly understood the theory of the “emperor-organ theory” as a legal theory, and the majority of people participated in the debate without understanding its meaning. The reaction of the masses, filled with misunderstanding to the extent that "it is outrageous to call the Emperor an institution," moved society. At that time, the world was filled with voices that said, "The emperor-organ theory is outrageous," and Minobe's "emperor-organ theory" was ostracized by society. The opposition to the institutional theory at that time was not primarily against the theoretical content. I think it was an emotional backlash generated by the bizarre word "emperor-organ theory” It was a backlash based on emotional reaction rather than rationality. However, social psychology teaches us that the world is often driven more by emotion than by rational judgment.

I (Takashi Tachibana, author) am used to it now, but when I first heard the term "emperor-organ theory," I thought something strange. I did not understand why the emperor and institution were connected. I don't remember who said it, but the word "institution" in the institution theory was originally created as a translation of the word

"organ." So he said that if he had translated it with the names of specific organs of the human body, he would have been understood correctly. Then there would have been fewer people to criticize.

If we use the word "organ," what image do we want people to have of it to minimize misunderstandings? It would be the head. The original idea of the "emperor-organ theory" was to imagine the nation as a human body and the head as the emperor. The same thing was said by Emperor Meiji himself in his military imperial treatise “Gunjin Chikyoku” (Imperial Rescript to Military).

The Imperial Rescript to Military is an imperial edict issued by Emperor Meiji to the Army and Navy on January 4, 1882 (Meiji 15). The "Imperial Rescript to Military" is written in old Japanese, so it is translated into modern Japanese and then into English.

Imperial Rescript to Military

“The Emperor wants the soldiers to work as his hands and feet, and the soldiers take the Emperor as their head. The relationship must be deep." (excerpt)

The Showa Emperor accepted the theory of the Emperor's agency as a matter of course. In the memoirs of Keisuke Okada, it is described as follows. “The Emperor is the supreme organ of the nation. The ‘emperor-organ theory’ correctly describes the existence of the Emperor." Emperor Showa also made this statement to his entourage.

If the expression "Imperial Rescript to Military" had been explained as an image of the "emperor-organ theory," there would have been no public outcry. History would have been different if it had been called the "Emperor-Head Theory" instead of the "emperor-organ theory." The "emperor-organ theory" is essentially a "theory of the life of the nation."

The background to the military's persistent attacks on Minobe was that both the Navy and the Army held a considerable grudge against Minobe, an anti-militarist ideologue. It comes down to the issue of the deification of the emperor. What the military could not tolerate in the "emperor-organ theory" was that it weakened the sanctity of the Emperor. For the military, the essence of Japan's "Kokutai" was the inviolability of the emperor. The military was united with the inviolability of the emperor by the right of command.

However, the Minister of War and the Minister of the Navy were questioned in Congress about their views on the "emperor-organ theory," and they repeatedly expressed their opposition to it. Although the military had always made it a principle to "stay out of politics," it became centrally involved only in this "emperor-organ theory." Finally, the military, not the Diet members, became the most central force in the elimination of the "emperor-organ theory." In line with the military's assertion, actual politics began to move in the direction of eliminating the "emperor-organ theory." At first, the military only modestly expressed its belief in the "Living God" and its difficulty in accepting the "emperor-organ theory." Eventually, they became bolder in word and in deed, and began to pressure the government to eliminate the "Emperor Agency Theory." At the same time, the issue of the "emperor-organ theory" was in the process of being transformed into the "Kokutai Meicho movement."

The "Kokutai Meicho movement" was also, at first, to oppose the "emperor-organ theory" and to defend and coerce the national constitution against government officials and various ministers. Eventually, it turned into the "Kokutai Meicho movement" in all sectors of society. Along with this movement, the belief in the "Living God" as the basis for the rejection of the "emperor-organ theory" was spread throughout Japanese society. The destination of this movement was a unique Japanese-style fascist society with the "Living God" and militarism as the foundation of society. The most important role played historically by the issue of the "emperor-organ theory" is that it was the greatest motivating factor in bringing about such social change.

The Kokutai Meishin Movement was a movement that occurred with the rise of the military in the political arena. The theory of the Emperor as an organ of state was rejected as a doctrine that was contrary to the national polity.

At a plenary session of the House of Peers on February 18, 1935, Takeo Kikuchi, a former lieutenant general in the army, delivered a speech in which he denounced Minobe as a "traitor," "rebel," and "academic bandit. This was because he believed that the "emperor-organ theory" was problematic. Inside the Faculty of Law of Tokyo Imperial University, there were scholars such as Shinkichi Uesugi and Yatsuka Hozumi. They held the view that the emperor was a "Living God" who naturally possessed absolute power, a god-like the "Absolute Monarch Sovereignty Theory." Some right-wing political groups, the military, and other forces shared their views. The "emperor-organ theory" incident refers to the fact that these various forces joined together to hunt down

Minobe. The background to this was the issue of the right of command.

The right of command was a great authority of the emperor along with the right of governance, which was the supreme authority to command and supervise the armed forces in Japan under the Constitution of the Empire of Japan.

The following developments took place regarding the "emperor-organ theory" after World War II. While the momentum for a revised constitution was growing after the war, Minobe was adamantly opposed to constitutional revision. The draft constitutions of the government, the Liberal Party, and the Socialist Party were all based on the "emperor-organ theory." However, with the establishment of the Constitution of Japan based on the principle of the sovereignty of the people without the Emperor as the supreme organ, the "emperor-organ theory" theory ended its mission as a theory of constitutional interpretation.

The Origin of the Meiji Constitution: The Theory of the Divine Granting of Kingship and the Modern Name "Emperor"

The draft of the Meiji government's constitution was prepared by Hirobumi Ito and others, including Takeshi Inoue, Miyoji Ito, and Kentaro Kaneko, beginning in 1886 (Meiji 19), with advice from German advisor Roesler and others. The Meiji Constitution was a curious constitution that Hirobumi Ito worked hard to create in order to successfully combine the sacredness of the Emperor System with a modern constitutional monarchy.

Article 1 (The Empire of Japan shall be ruled by an Emperor for all generations), Article 2 (Provisions for Succession of the Imperial Throne by Imperial Male Descendants), and Article 3 (The Emperor is Sacred and Inalienable). These three articles guaranteed the sacred character of the lineage-derived emperor system (the lineage of all generations). From Article 4 onward, the structure was to lay out the restrictive parts of the monarchy of a modern constitutional monarchy. (governing power shall be exercised in accordance with the provisions of the Constitution, legislative power shall be exercised with the sponsorship of the Diet, certain rights shall be guaranteed to the people, etc.)

The first part of the Meiji Constitution contains a "Koumon," which is a kind of ritual prayer uttered by a Shinto priest. It also contained an "imperial edict" issued to

promulgate the Constitution. In addition, it was accompanied by a "Jouyu" for the promulgation of the Constitution. These three together are called "Sankoku." (three components) These served the same function as the preamble to the modern Constitution. The preamble described the significance of and reasons for the Emperor to create a constitution and give it to his subjects, going back to mythology. It was also a mythical explanation of the legitimacy of the Emperor's existence.

By adopting this structure, the Meiji Constitution retained the theory of the divine right of kings that European states had abandoned in their transition to modernity.
In addition, the sacred Emperor of "unbroken imperial line" was given the unique character of a religious, sacred state that would rule this country forever by divine decree.

Thus, the Emperor's authority in Japan's system of constitutional monarchy was not sufficiently limited by parliament, and his power remained quite strong. The most important of the Emperor's powers were his command authority to lead the military (Article 11) and his organizing authority (Article 12) to determine the organization of the military and the amount of troops to be stationed. The relationship between these powers and the powers of the Diet (the power to deliberate on bills and the budget) and the Cabinet remained ambiguous.

The Japanese word "Tenno" translates to "Emperor" in English. This is how the Emperor was incorporated into the Constitution. This is the reason why it is called Emperor. The Emperor is the imperial title of the Son of Heaven. I believe that the name "Emperor" has been incorporated into the Japanese national system because of its historical significance in the context of the theory of the divine right of kings.

Open the "History of Japan, Upper Volume, for Elementary School" from 1940 (Showa 15). On the first page you will find "God-Given Commands."

(Translated from old Japanese into modern Japanese, translate it further into English)

God-Given Commands

Japan has always been a land where rice grows in abundance and splendor by the providence of God. This country is a land where “Ninigi no mikoto,” a descendant of “Amaterasu,” is slated to become emperor. His throne will flourish forever with heaven and earth.

These words are found in the "Chronicles of Japan" and are called "commands given by God that will last forever with heaven and earth.” It is said that “Amaterasu” gave this command when she sent her grandchildren down to earth.

This is the basis for the Emperor's right to rule over all generations. The reason is that Amaterasu had so commanded. In the written record, the only basis for the Emperor's right to rule is this statement in the "Chronicles of Japan." Hirobumi Ito, the author of the Constitution, clearly stated that these are the grounds for Article 1 of the Constitution of the Empire of Japan, "The Empire of Japan shall be ruled by one Emperor for all generations." The Emperor System is built on this myth. That is why it is included at the beginning of elementary school history textbooks.

Christian Tadao Yanaihara's article "Nostalgic and Progressive of the Japanese Spirit"

Tadao Yanaihara entered the former Daiichi High School in 1910. While still a student, he was admitted to a Bible study group organized by Kanzo Uchimura, "Non-church Movement Activist," and deepened his Christian faith. After entering the University of Tokyo, he was influenced in his thought formation by Sakuzo Yoshino's People's democracy, and Inazo Nitobe, who was taking colonial policy studies from a humanitarian standpoint.

Yanaihara made a decision to live his life as a believer (evangelist) who did not belong to any group. Yanaihara's life had three aspects. In addition to being a scholar (professor at the University of Tokyo) and an educator, Yanaihara was well known in Christian circles as an evangelist of "Non-church Movement" in the vein of Kanzo Uchimura.

Uchimura did not belong to any church, but advocated "Non-church Movement," holding private Bible study meetings every day of the week and publishing his own personal magazine. He devoted his life to evangelism. Many of his disciples also followed in his footsteps and continued their own Bible studies, and many of them lived a life of evangelism through their own personal magazines and personal meetings. The "Non-church Movement" that have been engaged in such activities continue to have a unique influence in the Christian world in Japan even today.

Yanaihara's life was spent in order to "say what I have to say publicly." However, it was not easy to say what needed to be said in Japan, where freedom of speech was rapidly disappearing after the Manchurian Incident. Moreover, what Yanaihara had in mind was not a euphemistic criticism of state policy, as he had done in his lecture on the "Manchurian Question" at the Faculty of Economics. It was a frank assertion that Japan's national policy after the Manchurian Incident was fundamentally mistaken. It was not merely a criticism of policy errors, but an indictment of the fact that Japan had become an ungodly nation before God. In those days, when Japanese-style fascism was sweeping Japan, it took a great deal of courage to go that far.

In an article titled "Nostalgic and Progressive of the Japanese Spirit," contributed to the magazine "Ideal" (January 1933 issue), Yanaihara was much harsher on Japanese nationalism. In it, he tackled head-on the issues of Kokutai, emperor divinity, and national supremacy, subjects that none of the non-emperor-centrist intellectuals of the time were willing to address for fear of getting burned. The issue is the fundamental relationship between Christianity and the national supremacy. It is an esoteric thesis, so I cannot discuss it in detail here, but its essence lies, after all, in the question of the divinity of the emperor. As a Christian, Yanaihara could not just put the divinity of the emperor on the same level as the divinity of the Christian God. The Christian God Almighty exists in the sense that He is the Creator of all things in the universe. Yanaihara tried to argue that even if the emperor has divinity, it is a different divinity from the Christian God Almighty.

When the Emperor-centrists assume that the “Emperor is guided by the existence of the universe and therefore must obey ‘the most wonderful thing’,” there are three assumptions that are separate from the Emperor. These are "a being greater than the emperor," "something that guarantees the existence of the emperor," and "the reason of the universe, which the emperor must also obey. Next, some Emperor-centrists claim

that the existence of the Emperor itself is "the most wonderful thing" itself. Is this an idealization of the Emperor, or is it a reality?

Let us examine this further. If we ask the question, "Are there other rules of conduct that the emperor himself must observe, or is the emperor the very rule of conduct?" we are led to the following conclusion. That is, the basis of the emperor's divinity exists in his position, and the basis of his humanity exists in his personality. In other words, the actual emperor has divinity in the institutional status of the state, but not in his personal qualities of supreme holiness, supreme love, and omniscience and omnipotence. In the case of the emperor, as in the case of all human beings in terms of life and personality, he is "a being of relative personhood" to God, the Creator.

In summary, when the emperor is before "God the Creator," he has divinity as an institutional status of the state, but his personality, which is the basis of his humanity, is like that of all other human beings. This leads to the conclusion that this is consistent with Christian doctrine.

The sole purpose of statism is to pursue the interests that the state desires. Such statism confuses the ideal state with the reality of the state, resulting in the pursuit of profit. Statism is an extremely shallow view of morality and the nation, and is akin to a self-righteous view of life.

True patriotism must recognize the course to be taken as the axiom of the universe more than that of the nation, criticize one's own actual nation, and if there is anything that needs to be changed, point it out and correct it to the correct state, bringing it closer to the ideal of the nation that should be taken, and allowing the light of reason to shine from within it.

It held that true patriotism was to consider the state of the nation first, rather than putting the nation's interests first. This article should be regarded as a blow against the Emperor-centrists who dominated the era with their absolutist view of the national polity and their argument that nationalism was the best choice.

Newspaper reporter Sorge's view

Richard Sorge, a spy of the Soviet Union, was engaged in intelligence activities in Japan from 1933 to 1941 with the Sorge Intelligence Service, investigating the possibility of German and Japanese participation in the war against the Soviet Union. He was arrested by the Japanese police as the mastermind of the Sorge Incident, and was sentenced to death and executed at a criminal trial for violating the Security Law and the National Defense Security Law.

Sorge came to Japan as a newspaper reporter in 1933, and was arrested in 1941. As a newspaperman, Sorge reported both the emperor-organ theory (1935) and the February 26 Incident (1936) as events of the same era. Sorge was an excellent spy, but he also excelled as a newspaperman and social critic.

Sorge's report, "Japan's Military," covered the issue of the military's intervention into politics as of 1935 (Showa 10). First, he discussed the issue of the army pamphlet (1934) and the issue of the emperor-organ theory (1935), and analyzed how the military was likely to play a major political role in Japan in the future, despite the fact that it was forbidden for military personnel to be involved in politics in Japan (as stated in the Imperial Rescript to Military). The analysis was based on the fact that the military is likely to play a major political role in the future. As a background for such analysis, he pointed out that Japan has no political leadership, and all other political sectors are weak. He said, "Despite this critical situation, there is no political leadership in Japan. For years, the government has been a mixture of the military, the bureaucracy, the business world, and the political parties. The previous political parties were powerful, but due to corruption and internal factional struggles, they have degenerated to the point of total political crisis. The current party is despised by the majority of the population."

As Sorge wrote in this report, it was after the 5.15 Incident and the Manchurian Incident that the military's political power suddenly increased. The military succeeded in causing the Manchurian Incident and creating an artificial state called Manchukuo.

After that, the military controlled and managed Manchukuo militarily, politically, and economically as they wished. The "Kwantung Army" became the de facto dictatorial ruler of Manchukuo. The military acquired the know-how and profit-making methods of

military-centered state management in Manchukuo. The military used its experience to achieve military control of the Japanese state.

Behind this was the realization that modern warfare had shifted from battlefield combat to an era of total warfare, in which the total power of the nation (especially its economic productivity) was mobilized to fight each other. There was an idea that Japan must urgently establish a total war system (national mobilization system and advanced national defense state).

They insisted on the need for mental control to unify the spirit of the entire nation in this direction. The entire nation must reject individualism and liberalism, and have "unshakable belief in the mission of the Empire." In other words, they are to be loyal to their country and repay the favors they have received from their country, to deny themselves, and to have a spirit of unity.

It is easy to understand if we consider that the issue of the emperor-organ theory emerged as part of this overall trend. Sorge saw through this in his 1935 paper and pointed out that at the heart of the issue was a "national mobilization system" based on "Japanism." At the core of this system was the pushing forward of the idea of the Imperial Way, and the issue of Minobe's theory of the emperor-organ theory was a problem that emerged in the process, as follows.

The idea of "Japanism" is merely a framework that encompasses the core. The core is the philosophy of the Imperial Way. Especially in recent years, the struggle for the purity of Japan's imperial ideals has been a vigorous one, but so far the attacks have been directed mainly at Western public law and state philosophical influences. Minobe's emperor-organ theory, which had been generally accepted for decades, was criticized in modern times, and his book was banned. Minobe is respected by the Emperor (Emperor Showa) himself for his accomplishments and admits that he was the one who interpreted the Meiji Emperor's Constitution with Western concepts, which had strong Western influences. This is true and well known now, but it was not generally known at the time.

Opinion of the Emperor

There is something that puzzles me about the issue of the emperor-organ theory. It is that those who preach that the Emperor's will must be respected above all else and that obedience to the Emperor's will must be given top priority at all times, have ignored the Emperor's opinion on the emperor-organ theory. The Emperor did not hide inside his opinion on the "emperor-organ theory" to himself, but spoke about it repeatedly to various people whenever he had the opportunity. It is written as follows in the Honjo Nikki (Honjo Diary) of Shigeru Honjo, a general in the army who was the Emperor's chief military attaché. The following is also written in "Prince Saionji and Political Affairs" by Kumao Harada, who was secretary to the Emperor's close aide Kinmochi Saionji, and in "Memoirs of Keisuke Okada" by Keisuke Okada, who was the Prime Minister of Japan.

In "Memoirs of Keisuke Okada," the following is written. I tell you this because it is an old story now, but the Emperor had the following thoughts on the issue of the emperor-organ theory. 'The Emperor is the supreme organ of the state. The emperor-organ theory is a correct expression of this.' the Emperor said. I was concerned that Japan was moving in a direction that was not in line with the Emperor's wishes. But I did not want to bring up these words to suppress those who were dismissive of the emperor-organ theory. I kept it to myself, thinking that I must refrain from saying or doing anything that might have a negative impact on the imperial family, based on my own ad hoc thoughts without thinking of the consequences."

In "Prince Saionji and the Political Affairs," there is a part where Emperor Showa clearly states his appreciation of Minobe, albeit through the mouth of Kantaro Suzuki, chief samurai advisor to the Showa Emperor.

I know it is not my place to say this, but the Emperor is very well aware of these issues. It is absolutely confidential, but according to the chief chamberlain, the Emperor made this statement. The Emperor said, "I think it is meaningful to discuss whether the sovereignty of the nation rests with the sovereign or with the state, but it is absurd to simply discuss whether the emperor-organ theory is good or bad. For myself, I would prefer the sovereignty of the state to the sovereignty of the monarch. But in a country like Japan, where the monarch and the state are identical, either is fine. Sovereignty of a monarch can easily fall into tyranny if it is careless.

(Omitted) Though there are those who speak ill of Minobe, I believe that Minobe is not disloyal. Today, there are very few people like Minobe in Japan. It is very regrettable to bury that scholar," he said. He also said to the military chamberlain (Shigeru Honjo), "It is totally contradictory for the Army to speak ill of the emperor-organ theory. In the 'Imperial Rescript to Military,' there is a phrase that the emperor is the head of the military. Also, Article 4 of the Constitution states that the Emperor is the head of state." The Emperor is indeed an institution. In his talks, His Majesty often said, "Minobe's emperor-organ theory may have gone a little too far, but I don't think it is wrong."

Words spoken directly by the emperor were never to be leaked to the outside world. It was not until after the war that all of these stories were put into print and made available to the outside world. The emperor's feelings were clear, and since those feelings had been expressed in various forms since that time, they must have been conveyed to some extent to those in the center of power.

His Majesty also made the following remarks.

(English translation of old Japanese into modern Japanese)
When the discussion is pursued, it seems that the final content of both the imperial sovereignty theory and the emperor-organ theory are identical. It is said that matters of international relations, such as labor treaties and claims, can be conveniently handled under the theory of the emperor-organ theory. In the military, the emperor is believed to be a living god. He responded that it would be difficult for military education and administration to treat the emperor as a human being under the emperor-organ theory.

This is the point of the last two lines. The Emperor makes this statement. "The imperial sovereignty theory and the emperor-organ theory are similar when the theories are examined to their ultimate conclusion. However, matters of international relations (such as claims issues) are more conveniently handled using the emperor-organ theory." This statement is noteworthy. It shows that the Emperor had a good grasp of the points of the issue of the emperor-organ theory.

Minobe raises this question. Under the interpretation of the Emperor's sovereignty theory, if the Emperor dies, does the legal acts performed under his sovereignty during his lifetime cease to be effective, or are they succeeded by the state?

In fact, the emperor knew from his own experience that such issues arise in real politics. When the Russian Revolution (1917, Taisho 6) brought an end to the Russian Empire, the critical issue was whether the Treaty of Portsmouth, concluded after the Russo-Japanese War, was valid or invalid. The governments of Japan and the Soviet Union held negotiations on the restoration of diplomatic relations in Beijing for over two years starting in 1923. Finally, in 1925, they concluded the Basic Treaty between Japan and the Soviet Union. Japan was able to get the Soviet Union to recognize the full existence of the Portsmouth Treaty. The logic that Japan used to get Russia to recognize it was the theory of national sovereignty.

The Treaty of Portsmouth was not a treaty that Nicholas II personally concluded on his own, but a treaty that he concluded on behalf of the nation of Russia. Therefore, the new Soviet government that succeeded that state had to inherit all of its treaties as well. At this time, it was Emperor Showa who directly handled this issue as a party on the Japanese side. (Emperor Taisho was ill.)

There was also the 1928 Huanggutun incident (Showa 3), which took place in Mukden, Manchuria. The incident attracted international attention, and the League of Nations dispatched a team to investigate. Giichi Tanaka, the prime minister of Japan at the time, reported to the emperor a summary of the incident and promised that the perpetrators would be severely punished. However, Tanaka was unable to keep his promise to the Emperor because some politicians who had concluded secret agreements with the military strongly opposed the release of the truth and the punishment of the perpetrators. The Emperor was very angry and said to Tanaka in a strong tone, "That is not the same as what you said before. As a result, the Emperor's anger caused him to dissolve the Cabinet. This left a deep trauma in the Emperor's mind.

After this incident, the Emperor decided to accept cases in which those assisting him in state affairs followed the formal procedures as they were and not to make arbitrary decisions. This led to the Emperor's decision to devote himself to the emperor-organ theory. He believed that this was the correct way to be a constitutional monarch. This is the most logical basis for the argument that "the Showa Emperor is not responsible for the war." Even with the decision to start the war in 1941, the Japanese national system did not allow the Emperor to reject a proposal that had been submitted to him according to the proper procedures.
Also, here is a statement by the emperor as recorded in the “Honjo Diary.” “I am

physically the same as an ordinary human being, so if you try to deify the emperor in an effort to eliminate the emperor-organ theory, I will not be able to act as a human being, which is annoying." The emperor had already made a "human declaration" in this way in his inner circle.

Post World War II

August 15, 1945, is the day that World War II ended (the end of the war). The reason why I (Takashi Tachibana, Author) consider this day important is because I believe that the nation of Japan fundamentally changed after this day. Although Japan has taken the position that it accepted the Potsdam Declaration on the condition of preserving its national polity this is a mere formality. (This is the Japanese understanding, the American understanding is different.)

Koichi Kido, one of Emperor Showa's close associates, was involved in politics before and after the World War II, including recommending Hideki Tojo as Prime Minister. In October 1951, Koichi Kido conveyed a message to the Imperial Court officials asking them to inform the Emperor of his intention to abdicate. Kido recommended the abdication to the Emperor several times thereafter through people. The Emperor took his advice and decided to abdicate. However, it is said that MacArthur and Prime Minister Yoshida blocked it, fearing the negative political effects it would have on them.

Government leaders were skeptical about the continuation of the Emperor System. The U.S. side had indicated that the new Japanese head of state would have to act within the authority granted to him under the Constitution. This deepened my sense that the U.S. was speaking with the Emperor in mind. The U.S. position of Emperor of Japan was recognized in a roundabout way by stipulating that the sovereignty of the Emperor was subordinate to the orders of the Supreme Commander of the Allied Powers. The Emperor's will, which had been absolute, became subject to the Supreme Commander of the Allied Forces (MacArthur) after the acceptance of the Potsdam Declaration. This was a fundamental change in Japan's "Kokutai." From that day onward, both the Emperor and the Japanese government had to fully comply with MacArthur's repeated orders. The Japanese national structure after the end of the occupation was to be determined by the freely expressed will of the Japanese people as a whole. This is clearly stated in the Potsdam Declaration. From a country in which only the Emperor was sovereign, Japan became a country of "sovereignty of the people" in which the will

of the people as a whole is sovereign. This is a fundamental change in Japan's “Kokutai.”

Speech by Shigeru Nanbara delivered at the “Kigensetu Ceremony” on February 11, 1946

“Kigensetsu" was a national holiday designated on the day of the accession to the throne of Emperor Jinmu, the first Emperor of Japan, but was abolished on July 20, 1948 with the promulgation and enforcement of the "Law Concerning National Holidays".
Shigeru Nanbara was the first postwar president of the University of Tokyo, and in the so-called Human Declaration, an imperial edict issued on January 1, 1946, the Emperor denied his own divinity. During the war, the emperor himself rejected the common belief that he was a god in human form, saying that it was an imaginary conception. Nothing could have been more shocking to those who had always believed that the emperor was a god in human form. Nanbara called the Emperor's "Human Declaration" the "Reformation in Japan.”

At that time, President Nanbara of the University of Tokyo gave a speech at Yasuda Auditorium once a month. The first speech that had a particularly large social impact was given by Shigeru Nanbara at the Kigenbetsu Ceremony on February 11, 1946.

The original text is quoted for clarity. The militarists and nationalists who dominate Japanese politics have abused and perverted the tradition of Japanese national mythology and used it to extol the superiority of their own people. They incited their people to exaggerate their destiny to dominate East Asia and even the world. The World War II slogan "Hakko Ichiu," meaning the world under one roof, implied the establishment of a world empire, the Empire of Japan, with the Emperor at its top. It was nothing more than dogmatism and megalomania stemming from a chosenness philosophy that the Japanese people were God's chosen people. Such a mythical perception of the world led to the outbreak of war, and eventually to Japan's catastrophe.

The Emperor's "Human Declaration" an imperial edict was such a "liberation of the Emperor himself from Japanese theology and Shinto doctrine, a declaration of the independence of his humanity. It was at the same time a liberation of the Japanese

people and Japanese culture. Specifically speaking, what was this liberation from? In terms of the past, it is "liberation from Japanese theology," but it is also "liberation toward a new 'global universality'" for the future. This is because, having broken free from the "ethno-religious" shackles that have held Japanese culture in place until now, we now have the basis for a universal culture that can be understood by the world at large.

The end of the war can be interpreted as the liberation of not only the Japanese people but also the Emperor from Japan, allowing him to become an entity for the benefit of the world. As a result, the war can be interpreted as also being for the liberation of the Emperor. The people were given the basis to form themselves as citizens of the world as well as citizens of the nation, and this was supported by the human declaration made in the imperial edict. And while it is clear that legally and politically the Emperor is not responsible, he still has a moral and spiritual responsibility to his people. He is also responsible to the ancestors of successive generations of Emperors.

Considering the Symbolic Emperor from the Age of 2022

I have been reading a book titled "The Emperor and the University of Tokyo" by Takashi Tachibana (Bungeishunju), which has more than 1500 pages in total in the upper and lower volumes. I (Shimizu) have edited and summarized in about 23 pages what I (Shimizu) consider important to introduce the contents. I have written out a road map that traces Japan's choices after the Meiji Restoration (1868-1889). I had seen and heard bits and pieces of it in school textbooks and war movies. However, this was the first time I systematically studied the historical flow of events after the Meiji period. When I was young (around 1970), Japanese modern history was not covered in detail in school. I don't think it is still covered in detail today.

Here are my (Shimizu's) impressions. Let us look back to the Meiji Era, more than 150 years after the Meiji Restoration. Let us consider the flow of the times in the world at that time. The proponents of the theory of state sovereignty thought that the imperial sovereignty theory of the emperor would be forgotten forever if the "emperor-organ theory" promoted by the proponents of the imperial sovereignty theory of the emperor took the lead. In other words, they thought it was now or never to be able to ask the world about our thoughts. Even if it was only for a short period of time, they must have thought that this was the only opportunity. Therefore, I believe that the proponents of

the imperial sovereignty theory of the emperor pushed forward with every possible means to eliminate the theory of the emperor-organ theory at all costs.

In other words, we are now prepared to take our turn. The parties promoting the imperial sovereignty theory of the emperor were also intellectuals, so they could understand the idea of the theory of state sovereignty. However, they could not stop themselves from eliminating the theory of state sovereignty and had no choice but to let it happen. The proponents of the Emperor's sovereignty theory and the proponents of the theory of state sovereignty must have spent a lot of time discussing the issue. The reason why the theory of the sovereignty of the Emperor took the lead can be traced back to the "Great Decree of Restoration of the Monarchy" of 1868.

Since the existence of the Emperor was incorporated into the system of state by the Meiji Constitution, this situation must be substantiated. Given this, I guess I was drawn to the theory of the Emperor's sovereignty, which expressed the sentiments of the traditional Japanese people. I thought this was the perfect way to show the world what the Japanese people were like at that time. I believe that the theory of the sovereignty of the emperor struck a chord with the Japanese people. I believe that the theory of the sovereignty of the emperor is a concept that expresses the traditional Japanese desire to be close to and adore the emperor.

(English translations of modern meanings of old Japanese)

When I go to the sea to fight, I may be a corpse in the water
If I go to the mountains to fight, I may be a grass corpse
If I can die by the Emperor's side
I will never regret it.

Many of you are probably familiar with the song "If I Go to the Sea" I think this song expresses well the sentiments that Japanese people have had since ancient times. I would like to say a few words about the ancient song "If I Go to the Sea." This is a poem by Otomo no Yakamochi in the 18th volume of the Manyoshu (Anthology of Myriad Leaves). It means that if you can die by the emperor's side, it does not matter if you become a waterlogged corpse at sea or a grass corpse in the mountains afterward. This

is a song about the attitude of a warrior. Yakamochi probably saw many corpses at the sites of battles on the sea and in the mountains as a result of his experience as a warrior.

This song became a symbol of the concept of Kokutai as the issue of the emperor-organ theory was transformed into the “kokutai meisho movement.” For the Japanese of that era, it was considered the highest morality to sacrifice their lives for the Emperor, and this song seems to have been a symbol of that. “The Central League for National Spiritual Mobilization” (1937-1940) was formed and various collective movements were actively conducted in various regions. The specific activities included shrine visits, recitation of Imperial Rescript on Education, memorial services for the war dead, visits to military families, welcoming and sending off soldiers and spirits of heroes, National Foundation festivals, radio exercises, national defense contributions, and labor service. As part of the campaign, the National Spirit Emphasis Week was established and various events were held. The theme song was composed by Kiyoshi Nobutoki based on Otomo no Yakamochi's song. During the war, "If I Go to the Sea" was the most popular national song, and was sung at every opportunity.

Considering the Meiji Restoration from the present day of 2023, this is not the only way to describe the Japanese sentiment toward the emperor. In other words, I do not think that just wanting to be close to the Emperor unconditionally, as in the mperial sovereignty theory of the emperor, is a sufficient expression of the Japanese mindset. After World War II, the Meiji Constitution was replaced by the "Constitution of Japan," which also replaced the Emperor in the Constitution. According to the interpretation of the emperor-organ theory in the "Meiji Constitution," the Emperor was the supreme organ of the nation. However, in the "Constitution of Japan," the Emperor "has no authority over the affairs of state (Article 4). The Japanese Constitution does not make the Emperor the supreme organ of the state. With the establishment of the Constitution of Japan based on the principle of the sovereignty of the people, the emperor-organ theory ended its mission as a theory of constitutional interpretation. The existence of the Emperor was incorporated into the new "Constitution of Japan" as "the symbol of the nation of Japan. Although the treatment of the existence of the "Emperor" was changed in the Constitution, the existence of the Emperor took over.
In the course of world history, Japan experienced a unique historical experience in the world. At a time when European countries were abolishing the theory of the divine right of kings, Japan adopted it anew and made its debut to the world with the Meiji

Constitution. How should we explain to other countries what kind of country Japan is? Even though the Constitution is new, as long as we have inherited the existence of a being with the name of Emperor, we cannot say that the elements of the theory of the divine right of kings have completely disappeared. How can we make people understand the nation of Japan and say, "I see, that's how it is." This problem has not yet been completed. If the emperor had abdicated after World War II and the existence of the emperor had ceased, there would be no need to think about it anew, but the emperor continues to exist in Japan. Such topics are few and far between and have remained dormant to the present day.

After World War II, has the Emperor become irrelevant to Japan's new Constitution? No. He is firmly incorporated into Article 1 of the Japanese Constitution as a symbolic emperor.

Article 1 of the Constitution of Japan stipulates that the Emperor is the "symbol" of the unity of Japan and the Japanese people. His position is based on the consensus of the sovereign Japanese people, and is succeeded by hereditary succession in accordance with the Imperial Household Law as voted by the Diet (Article 2). The duties of the Emperor are limited to performing acts of state (Article 7) and require the advice and approval of the Cabinet (Article 3). He has no authority in matters of state (Article 4). From Wikipedia

The symbolic emperor is not directly involved in political matters. The Emperor is supposed to perform only acts related to national affairs as stipulated by the Constitution of Japan, which means that he does not have the power to be directly involved in national politics. Also, in constitutional law, the word "symbol" does not have a legal meaning, but only a political or sociological meaning. A symbol is a hypothetical image of something in an arbitrary symbol. As long as people believe that the Emperor is the symbol of the unity of Japan and the Japanese people, the Emperor is a symbol. That status is expressed in the description "based on the consensus of the people." From Wikipedia

Why did Japan run amok before the war? The world situation at that time was like a battle to acquire colonies. Considering the need to protect one's own country and expand one's territory by acquiring colonies, it might have been conceivable to adopt a policy like that of the time, but there were alternatives not to do so.

I believe that there was a way to use Christianity to express the Japanese people's desire to be close to the world and not have a hostile attitude toward it. Another way to put it would be to express the ability to empathize with the world.

It was introduced in Takashi Tachibana's "The Emperor and the University of Tokyo" with the following description

Not only was the university system itself a product of imports, but almost all of the knowledge and technology taught at Japanese universities (including law, economics, philosophy, literature, history, and other liberal arts studies) were also imported studies. It was, in a sense, a general agent for the import of "Western learning" from among the "Japanese spirit and Western learning," which was the slogan of the civilization and enlightenment of the early Meiji period. The "Japanese spirit" did not fit well into the curriculum of universities specializing in "Western learning," and with the exception of Japanese history and literature, there were virtually no courses in this area.

The reason why Japan as a country could not take the path of empathy with the rest of the world is that before the Meiji era, Japan did not have the thinking to express this. According to this description, the Western spirit was rejected. In other words, they did not ban Christianity, but they did not accept it at all. I (Shimizu) think that Jesus Christ is the one who taught us what science is all about.

Man is responsible for Jesus Christ. This is because man has crucified Jesus Christ, the Son of God. The responsibility for this must be borne by future generations. As a result of crucifying Jesus Christ, Almighty God resurrected Him as a proof of God's love for mankind. Human beings must now follow the invitation of the resurrected Jesus Christ and create their future on their own. It is not only the Jews who bear this responsibility. It is all mankind. It is necessary to correctly understand the source of science. At that time, the average Japanese person was only concerned about his or her immediate surroundings. Under such circumstances, it was the people of the Western countries who gave us all the learning in one fell swoop. Naturally, I think they paid us back, or rather, they paid us money (price), but more valuable than that was the knowledge of science that took hundreds of years to acquire and the technology to apply it.

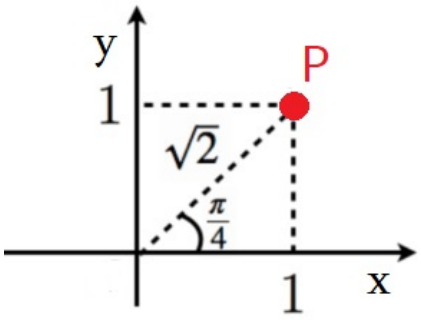
To tell the truth, the knowledge of science and the technology that applied it included a responsibility to Jesus Christ. The Japanese people of that time did not realize this. I believe that not only in Shintoism and Buddhism in Japan, where the emperor exists as a god, but also in Christianity, we should be able to find elements that Japanese people have latent in them and can relate to. We must find them and express them as Japanese.

Chapter 2

Entering the Era of Space Travel for the General Public

Copernican turn in the brain

The following is an excerpt from the introduction to "Takashi Tachibana's Last Lecture" (Bunshun Shinsho Publishers). What is Takashi Tachibana trying to say here? This book seems to have been written based on a lecture he gave to students at the University of Tokyo. It seems to be concerned with the question of whether each human being should be expressed in the Cartesian coordinate system or in the polar coordinate system when each person is expressed in terms of coordinate points.



For example, let P denote the position of the point (1,1) in the Cartesian coordinate system on a two-dimensional graph. In the polar coordinate system, it can be expressed as $(\sqrt{2},\frac{\pi}{4})$. In the Cartesian coordinate system, the x and y values of the point (1,1) are both 1. This one point is me or you. In other words, it is one person. Let me explain in detail. (Angles are shown in radian method)

Cartesian coordinate system, (1,1) = polar coordinate system, $(\sqrt{2},\frac{\pi}{4})$

In polar coordinates, $(\sqrt{2},\frac{\pi}{4})$ means that the length from the origin is $(\sqrt{2})$ and the angle with the x-axis is $(\frac{\pi}{4})$.

In a polar coordinate system, the point (1,1) is represented only by the objective element of the x-axis and its own element using the x-axis; the element of the y-axis is not used for the display element of the point. In the Cartesian coordinate system, the point (1,1) is represented by two objective elements, the x-axis and the y-axis.
Tachibana recommends expressing oneself in terms of the elements of the Cartesian

coordinate system. I am saying that there are various advantages to having one person, me, composed of elements on the x- and y-axis. On the other hand, when you express yourself in a polar coordinate system, you express yourself in terms of the angle between your own value (distance from the origin) and the x-axis. The distance from the origin is considered to be one's innate nature, and the "angle formed" between the x-axis and one's own line represents one's relationship with the x-axis. Tachibana says that it is better to substitute the Cartesian coordinate system for the polar coordinate system, which is a component of the innate self.

The following text has been excerpted and edited from the text.

There is one important thing I want to say first. That is to wipe out the celestial motion theory from your minds. Switch from polar coordinate-centered thinking to Cartesian coordinate-centered thinking.

Let me explain what that means. The first important fact that must be pointed out is that the innate coordinate system in your mind is in polar coordinates. You can think of polar coordinates as if you had cut a sphere in half and put the location number on a three-dimensional drawing. In short, it is a composition that places you at the center of the world and views the world from an egocentric point of view. This is not because your brains are particularly poorly made, but because the brains of all living creatures are made that way. The most important decision that all living things have to make when encountering others is "fight or flight. The brains of all living creatures, not just humans, use simple calculations in polar coordinate space to formulate answers and react quickly and reflexively. All instinctive behaviors of animals are such immediate reflexive behaviors, and there is no deliberative behavioral element at all.

From the perspective of human history, humans have been able to maximize short-term gains by mastering polar-spatial thinking, but have often failed in terms of gaining long-term gains. Then, humans realized the limitations of "animal instinctive immediate decision-making behavior" and changed their brain's operating pattern to "think things over carefully before acting." Since it was found that more long-term benefits could be gained by doing so, humans have given rise to new cultures by switching their brain's operating patterns entirely to the latter by making full use of their acquired learning and memory abilities.
As a result, we have been able to build an advanced civilized world that overwhelms all

lower life forms. This is a brief summary of human history. The central principle of the transformation was to free the human brain from its fixation on polar coordinate space and to induce it into a Cartesian coordinate system that would allow us to grasp the world more objectively.

The new coordinate system is Cartesian coordinates. Cartesian coordinates are coordinate planes constructed on the Cartesian coordinate axes of the x- and y-axes that we have been forced to learn since middle school. In the language of middle school mathematics, the idea of analytical geometry developed on the Cartesian plane is that "equations can be solved graphically." That is the greatest gift Descartes gave to mankind. Almost every mathematical problem one encounters can be solved as a first- or second-order algebraic problem on the Cartesian plane. What is important here, however, is to understand the fact that Cartesian coordinates freed mankind from its instinctive polar thinking style, and what this means.

Through this, humankind was able to rebuild society on the new principle of calmly analyzing oneself and one's natural environment, oneself and one's social environment, and determining one's actions based on an objective view of everything. The result is that mankind is now able to have a scientific and civilized society. Another advantage that Descartes' analytical geometry gave was that it freed man from the "instant decision-making" principle that did not make him think like a reflective-action type of animal. He transformed man into a "deliberative behavior type" animal that thinks things through and analyzes them carefully. It is analytic geometry that always adds a term of analysis between the premise and the conclusion, and this is the key to the analytic geometry style of thinking.

This is fundamentally different from the animal instinctive thinking style (short-circuit thinking), in which the neural circuits of the reflexive bow connect the premise and the conclusion in a linear fashion. In the world of astronomy, the Geocentrism is the polar coordinate worldview itself. And the Heliocentrism is the Cartesian coordinate world.

In human history, both theory and observation have led to the abandonment of the Geocentrism. The new era of human history, modernity, began with the acceptance of the Heliocentrism. The brain will not modernize, or rather, mature, unless each individual in his or her own history also abandons the Geocentrism and converts to the Heliocentrism.

Entering the era of space travel by the general public

Soon civilians will be able to experience a stay in space. When we are able to experience a stay in space, we will be able to see the earth directly with the naked eye. In other words, the brain will be able to directly recognize that the earth is a sphere. What should we do in this modern age?

Although not well known in Japan, there are people in the world who preach the "world plane theory. Those who preach the flat-earth theory describe the earth only in terms of the information directly obtained from physical vision. The world as seen from the earth is shaped like a dome. The earth is an immovable circle, and the sun and stars revolve around the earth. They reject indirect scientific means as creating fakes. They believe only in the world they see directly with the naked eye.

Man acquired the means of science at the invitation of Jesus Christ. Those who preach the flat-earth theory do not acknowledge that the tools of science are add-ons to the human senses far beyond the level of normal human evolution. The five senses that humans have acquired are sight, hearing, smell, touch, and taste. These five senses have far expanded and also greatly extended their original functions.

Certainly, with ordinary bodily functions, we cannot look down on the earth and recognize it as round. Even if you were to fly in an airplane, you would not be able to admit that it is round. In order to accept that the earth is round, we have to use the method of science. The fact that the earth is round is a result of the scientific method. Without science, it is not possible to directly see that the earth is a sphere.

Human vision has a stereoscopic function. It is the ability of human vision to find the dimension of depth of an object or landscape that it sees. When the viewpoint changes, the same object appears to have a different shape. When the viewpoint changes, the shape of the depth dimension changes. It is not that the shape of the object has changed, but that the shape appears to change because it is obscured by an overlap or shadow. The change in shape by perspective is the discovery that there are dimensions in the depth direction as well as left to right and up and down. The cognitive function of the human brain has discovered this. If we cannot accept that the earth is round without this "stereoscopic function," then there is no other way but for humans to go to outer space by rocket and see it directly with the naked eye.

If the scenery on the earth is the front stage, space is the back stage. There are two types of backstage worlds: macro and micro. The micro world can only be viewed objectively, but in the macro world, human beings can enter and experience the real world, in other words, have a mystical experience. It means that humans can now go directly into what used to be the world of the gods. From the perspective of the earth, the universe was the behind-the-scenes world, the world of the gods. Now, the general public can go to space, although it will cost a lot of money. Space travel businesses are starting up, such as those planned by SpaceX, Blue Origin, Virgin Galactic, Space Adventures, and Venus Aerospace.

Return from Space (Takashi Tachibana, Chuko Bunko, Publisher)

Astronauts have a lot to study. They spend dozens of hours studying each of these subjects: astronomy, aeronautical engineering, aerodynamics, rocket propulsion, computers, communications engineering, guidance and control, space navigation, mathematics, geography, upper atmosphere physics, space physics, environmental control, and more. In addition, there are subjects such as medicine, meteorology, geology, petrology, and mineralogy.

Now, not only cosmic experiences, but all experiences mature over time. At the very moment when we are experiencing something, we have no time and no room for consciousness other than to surrender ourselves to the flow of the experience. Therefore, it is only after reflection and rumination that we can grasp the inner meaning of the experience. Of course, this is only the perception of the awakened consciousness, but in the subconscious mind, some kind of change has already begun from the moment of the experience. The value of an experience is a subjective judgment, so what may be an insignificant experience for one person may become a life-changing experience for another, and vice versa. What specific changes did the astronauts, who had the most unique space experience in human history, undergo as a result of their experience? We do not know how the experiencers themselves were aware of this unique experience of being outside the earth's environment, with which they had been familiar for 1.7 million years. However, it must have had a deep internal impact on the structure of the experiencer's consciousness.

As soon as the astronauts return home, NASA (National Aeronautics and Space Administration) conducts a thorough debriefing. The debriefing is a detailed,

step-by-step report of everything experienced during the flight, with experts in various fields taking turns interviewing and answering questions. NASA is not interested in the mind, consciousness, or spirit of individual astronauts. NASA is a group of engineers and scientists.

When I met Dr. E. C. Ezell, the historian assigned to compile NASA's history at the Space Center in Houston, he said, "I must be the only humanities major here. That is how much NASA is an engineer-centered society. And even the astronauts were selected from among military test pilots in the early days, and later on, from among jet pilots (military and civilian) and scientists, all of whom were technical people. In the words of Jim Irwin, the Apollo 15 lunar module pilot, the astronauts were a "bolt and nut type" group.

In the words of Jim Irwin, the Apollo 15 lunar module pilot, the astronauts were a "bolt and nut type" group. Mike Collins (Apollo 11) spoke of his impressions as follows. “If we had a poet or a philosopher as an astronaut, I don't think the spaceship would have made it to space. And if it did, I don't think it would have made it back to Earth."

Many people may remember that the first impression of Yuri Gagarin of the Soviet Union, the first person in human history to go into space, was that "the earth was blue. According to the cosmonauts, the blue of the Earth is incomparably beautiful. It is this beauty that shocks them the most. They say that photographs can never capture that beauty. Just as the sky looks blue when you look up at a clear sky from the ground, the atmosphere looks blue when you look at the Earth from space. In other words, the blueness of the Earth is the blueness of the biosphere, which consists of the hydrosphere and the aerosphere. It looked beautiful because the perception that the biosphere was in its most beautiful part was largely unconsciously at work.

As you may know, Apollo 13 had an accident and failed to complete its mission to land on the moon. After a life-and-death struggle, the Apollo 13 astronauts made it safely to Earth. Captain Jim Lovell's first impression upon returning to Earth was this. When you actually leave Earth, you get a better idea of what we humans have here on Earth." LaBelle had a special, life-threatening experience in space. This perception was not because they were astronauts who had a special life-threatening experience. All astronauts who have completed a spaceflight and returned have had similar feelings. The impression is not as simple as understanding how essential the global environment

is to human life support, but rather an awareness of the total relationship between the earth and human beings. The earth in front of us carries the entire human race, and all human activities are developing on it. This is a special perception that only a person who has experienced directly seeing the entire earth floating in space can have.

The beauty of the earth probably comes from the fact that there is life only there. I am staying here (in outer space). The earth exists in the distance. There is no other life anywhere else. My life and the life of the earth are connected by a single thin thread, which may break at any moment. The earth and I are both very weak. I was able to directly see with my own eyes how helpless and weak beings live in the universe. This was an undeniable fact, not a fiction.

Here is what one astronaut (A) commented.

What did you feel when you left Earth orbit and headed for the Moon?

"The view was exceptional. I was able to see the earth in a way that no human being had ever seen it before. It is truly seeing the world with God's eyes. I am a human being, but I thought I was experiencing the eyes of God. And as I move away from the earth, the earth becomes more and more beautiful. Its colors are so beautiful that words cannot describe it. I will never forget that beauty for the rest of my life."

"We know its beauty from pictures, but what exactly does that mean?"

"The Earth as seen with the naked eye and the Earth as seen in a photograph are two very different things. First, there is the difference between a two-dimensional photograph and a three-dimensional reality. Photographs lack the sense of reality and immediacy of being able to reach out and touch the earth. This is another difference between two-dimensional and three-dimensional reality. When we look at the earth from space, we see the darkness on the other side of the earth at the same time. The other side of the earth is nothing but darkness. It is true darkness. That blackness. The depth of that darkness can never be imagined by anyone who has not seen it. The beauty of the sun shining in the eternal darkness, and the earth, colored blue and white, shining in the light of that sun. This cannot be expressed by a photograph".
Here is what one astronaut (B) commented.

Looking at space from Earth is a completely different experience from looking at space from outer space. People on Earth think they understand the universe, but in reality they only have a conceptual understanding of it. For example, everyone knows the structure of the solar system. When we step out into space, we see the Earth and the Sun in front of us. We can understand not only the solar system, but the entire universe, not as an idea, but as a real experience.

Since ancient times, there was a time when people believed in various curious arguments about cosmic images, such as the Geocentrism and the flat-earth theory. I brought people who created strange images of the universe here and want to say to them, "Open your eyes and look closely. This is the real Earth. This is what the universe really looks like." I don't need to explain anything else.

There was a time when I was working outside the spacecraft at night due to some procedural difference, and I had to float alone outside the ship. It was so dark in the night part of space that it was truly pitch black and I could not see anything. It was as if I had fallen into a deep abyss and could see nothing. And I am floating there all alone. At that moment, I was struck by an indescribable feeling of eeriness.

If you think about it, if we lose this world called Earth and are thrown out into outer space, this universe is that weirdness itself for human beings. When you think about it, you realize how important and unique this planet Earth is to human beings.

Encounter with God

Using the length of human history as a measure, until just recently, mankind, regardless of its religion, thought that God (though different religions have different names) was up there in the heavens watching human activity. It is only recently that we have come to think of God's acts in abstract terms. It was only recently that I began to think of God's actions in abstract terms. The heavens have always been the seat of God. In pre-modern Western paintings, we can see any number of images of God in heaven, looking down on earth. Modern people might interpret it as a figurative representation, but at that time, both the painter and the viewer thought it was a depiction of reality.

Yuri Gagarin, who first circled the heavens, stated. I looked around hard, but I still couldn't find God. I looked around in circles as hard as I could, but I still couldn't see

God. Gagarin's line shocked the American public. In the United States, more people remember this line said by Gagarin than "The earth was blue". The United States is a Christian country, and the majority of Americans are Christians. For such Americans, Gagarin's lines were, first of all, blasphemous. Second, it was a provocative statement of pride in the superiority of the Soviet Union, an atheistic communism, over American Christian culture.

Here is what one astronaut (C) commented.

There is no direct answer when you pray to God. You have no choice but to make your own decision. Later, he learned that it was the best decision he could have made. I later learned that it was the best decision I could have made, and that the decision I thought I had made at the time was actually God's guidance. I think this kind of thing happens often. But in space, it is qualitatively different from such so-called divine guidance. It is more direct guidance from God. It is guidance without any distance between you and God. In short, it is a revelation. It is generally called mystical experience, and those who emphasize mystical experience are called mystics. In the world of religion and philosophy, mysticism has continued uninterruptedly since ancient times in both East and West. In short, it is about feeling, not reason.

"I want to ask you about your inner workings of that mind, what was the biggest thing you got out of it?"

“It is the recognition of God's existence. The name of God differs from religion to religion. Christianity, Islam, Buddhism, Shintoism, all give different names to God. But whatever the name, there will be some identical supreme being to which it refers. That is the realization of existence. All religions are man-made. That is why God was given different names. The names are different, but the object is the same. When I look at the earth from space, I am struck by its sheer beauty. Something so beautiful could not have been created by chance. It is absolutely inconceivable that such a thing could have been created by chance, by the accidental merging of elementary particle that happened to collide with each other at a certain time. The earth is that beautiful. It is impossible for something so beautiful to be formed solely by chance, without any purpose or intention. I became convinced when I saw the earth from space that such a thing is logically impossible.

Today, this beauty cannot be shown to the public. It seemed a terribly selfish act for us to be the only ones seeing it."

Here is what one astronaut (D) commented.

“In your case, would you say you are closer to having a religious heart than a religion?”

“Yes, I believe more in knowledge from one's own experience and intuition than in the teachings of established religions."

“By the way, you are a professional scientist. How do you keep your religious beliefs compatible with your science?"

All science can do is explain how things happen. And explanation is really just replacing one level of ignorance with another level of ignorance. For example, one explains why a phenomenon occurs at the material level. Further, when the question is asked how, an explanation at the molecular level emerges. Further questions lead to explanations at the atomic level, and then to explanations at the elementary particle. Beyond that, no one has yet been able to explain it. Modern physics is ignorance at this level. Science has always replaced the question "why" with "how" and come up with explanations. Science cannot answer the fundamental "why" or the ontological "why. Science claims to have discovered various laws. But it cannot explain why those laws are valid. Science cannot answer why the universe exists. Why does the law of the immortality of energy hold? How did energy come to exist in the first place? What is material? Science cannot answer any of these questions. All science can do is define things better. Herein lies the fundamental limitation of science.

Another limitation is the problem of perception. How does man know the external world? Directly, he knows through his sensory organs, the sensors that he possesses. If there is an external sensor that can perceive something that does not touch the senses of the self, it can be known indirectly by reading that external sensor with the senses. And anything that is not caught by either the internal sensor or the external sensor is considered to not exist. However, I believe that there are still many entities that exist but are not perceived by humans simply because there are no appropriate sensors yet. Such beings would be placed outside the purview of science. It is as if man were shut up in a hut, looking at the outside world through the eyes of several television cameras set

up outside. It is arrogant to think that we know everything about the outside world. There are many things that science cannot answer and cannot understand, and that is why I think there is room for religion to exist.

“But isn't it also the arrogance of religion to say that it knows what science does not? Rather than believing in religion in your case, are you agnostic?"

“Yes, it is. It is a kind of agnosticism. But it is not an agnosticism that throws out that we don't know such things, but a positive agnosticism that assumes that it is right to not know. And I think there is real religiosity in this agnosticism. I don't know why, but our universe is a tremendously good thing. It is before us as such. Isn't that good enough? My basic position is that we should start from that way of thinking.”

Here is what one astronaut (E) commented.

In some cases, astronauts who were originally nonreligious remained nonreligious after returning from space. I asked him, "You do not believe in the existence of God?” He replied, "You mean the bearded old man in the heavens above? Then no, I don't believe in God. I left Christianity in the late 1950s. I think I was still quite religious at that point, but then I moved further away. I became more philosophical than religious. One of my major influences was J. E. Lovelock, who wrote Gaia: The Science of Gaia (Kousakusha Publishing Co., Ltd.). Gaia is the idea that the earth itself is a living organism. The earth has such an amazing self-regulating function that it is impossible to understand the earth without thinking of it as a living organism in itself. The earth itself can be considered alive."

Opinion of those who believe in the flat-earth theory

People who believe in the world flat-earth theory are called Flat-Earthers. Flat-Earthers are basically positivists with observation supremacy. They place the greatest importance on what they can confirm directly with their own eyes and hands. The next most important thing is to think theoretically and without preconceptions as much as possible. Since childhood, we have been imprinted by all kinds of media on a daily basis that the earth is a sphere. I want you to think about it carefully. Have you ever seen the earth from a bird's eye view?

Why do you believe that the earth is round when you do not check? Is it not simply because you were taught that the earth is round in school and you have seen images of a round earth on TV? People today, who have been stuffed with textbook knowledge from childhood, ignore their own intuition when they sense a discrepancy between reality and their own knowledge and experience. They also do not check to see what the facts actually are.

One such statement is that "the earth is flat." Many people have never thought about how curved the horizon of the earth is. They have never felt the earth move at all. They think one-sidedly that "the textbooks are more correct than their intuition" or "the earth is a sphere because the textbooks say so. I believe that "intuition" and "gut feeling" are highly reliable things that are determined by solid experience.

Why does the world plane theory cause "cognitive dissonance" in people who generally believe that the “earth is a sphere?”

Before the brainwashing by images created by NASA and Walt Disney (1901-1966), flat earth maps were commonly found in the Encyclopedia Britannica and the Bible published in the 1950s. This fact suggests that the full penetration of the "earth is a sphere" may have been more recent than thought.

“If the earth is flat, how do you explain the existence of satellites in space?"

That's a fallacy. It is more radio-friendly for satellites if the earth is flat," a logical argument that I will leave aside here. Flat-Earthers claims that the universe does not exist. So the logical conclusion is that satellites do not exist either. All satellites are

suspended in the atmosphere on large balloons.

All the so called satellites in space are imaginary objects created by computer graphics. I want you to notice that it was Arthur C. Clarke, a famous English novelist who was active long before NASA and others, who popularized the imaginary concept of satellites in space.

The space satellite is an imaginary scientific invention that began as a proposal by a novelist. In school, we are taught that the earth is a sphere orbiting a sun shining in the middle of a huge universe. If you zoom out on a map search application, a round Earth appears. By going to the movie theater to see Hollywood movies that "visualize" the earth as seen from space, we come to have a false common understanding that the “earth is a sphere.” And unconsciously, they have become "earth is a sphere" as a matter of course.

References Flat Earth Super Introduction (Hikaruland Publishing Co., Ltd.), Flat Earth World (Hikaruland Publishing Co., Ltd.), Flat Earth REAL FACTS (Hikaruland Publishing Co., Ltd.)

Chapter 3

Challenges to Image Understanding

Try image restoration with pix2pix (GAN)

I considered this to be one of the demonstrations of the dynamical systems theory. The goal I seek is to recover the three-dimensional shape of the tooth shape mesh data. This means that the shape of a partially missing tooth is restored to its original form using artificial intelligence.

To be more specific, the technology itself for capturing three-dimensional data of three-dimensional objects in a computer has already been perfected. Various types of commercially available scanners exist. So, the purpose of this project is not to use artificial intelligence to recognize the shape of a three-dimensional tooth, but to have artificial intelligence restore the three-dimensional data of a missing tooth to its original shape. This is quite difficult and my ability will never reach the end.

The missing shape will be captured by the scanner, restored to its original shape by the artificial intelligence function, and output as three-dimensional data. In conclusion, I think it is difficult even with the most advanced technology currently available. I have read several manual books with an interest in artificial intelligence. For example,

Generative Deep Learning (O'Reilly Japan, Publisher)

GANs in Action (Mynavi Press, Publisher)

GAN Deep Learning with PyTorch Implementation Handbook (Shuwa System Publishing Co., Ltd.)

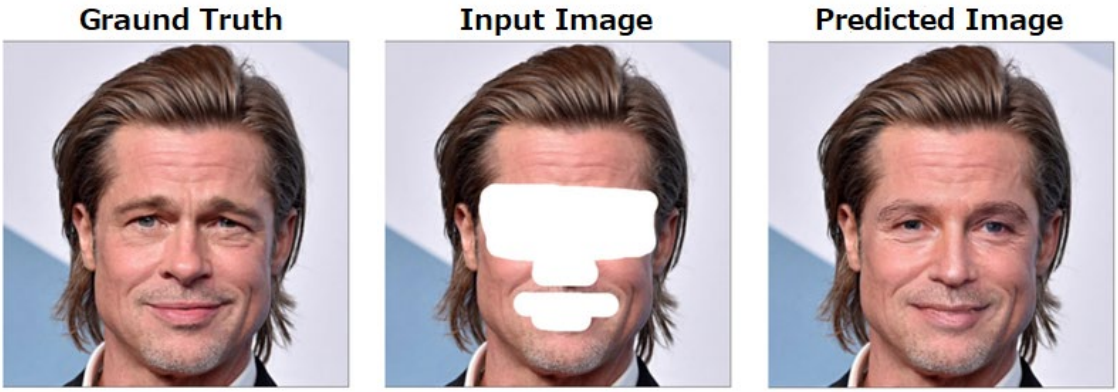
etc.

Most of the examples presented in these books were related to two-dimensional images. Artificial intelligence can be broadly divided into classification and generation. Since classification is not relevant at this time, I will discuss the generation of 3D shapes. Currently, most of the examples that are available to the public, in other words, publicly

available, are related to the generation of two-dimensional images. There were only a few examples of generating 3D shapes using 3D voxels, which were introduced with a simple explanation and the voxelization of MRI image data for medical use to obtain a 3D shape. This was not something that could be handled without specialized knowledge and high-performance computers and other equipment. It seemed impossible for a novice to perform a task using google's Colaboratory, which is open to the public.

I believe that universities and companies that use artificial intelligence to develop products are researching the generation and repair of 3D shapes using artificial intelligence functions. However, from the general manual books on artificial intelligence available on the market, I found that it is not feasible at this time. Since I bought the book for study purposes, I decided to perform some task, albeit a two-dimensional one, to repair an image using AI. If you have actually experienced this kind of thing, you know that a part of an image is missing, and the missing part is added or corrected by AI. For example, in a partially missing photo, AI can fill in the holes in harmony with the surrounding image, as shown in the figure below.

(Example image 1)



Reference URL　https://note.com/kuriyama_data/n/n82c67a226387　(Figure cited in.)

This example goes beyond the level of restoration and could be described as a creation of sorts. The restored image fills the missing area without any discrepancy from the surrounding image that remains. Comparing the "correct image" and the "restored image," there is nothing unnatural about the restored image, although there are obvious differences, and it is difficult to tell which was the original painting.

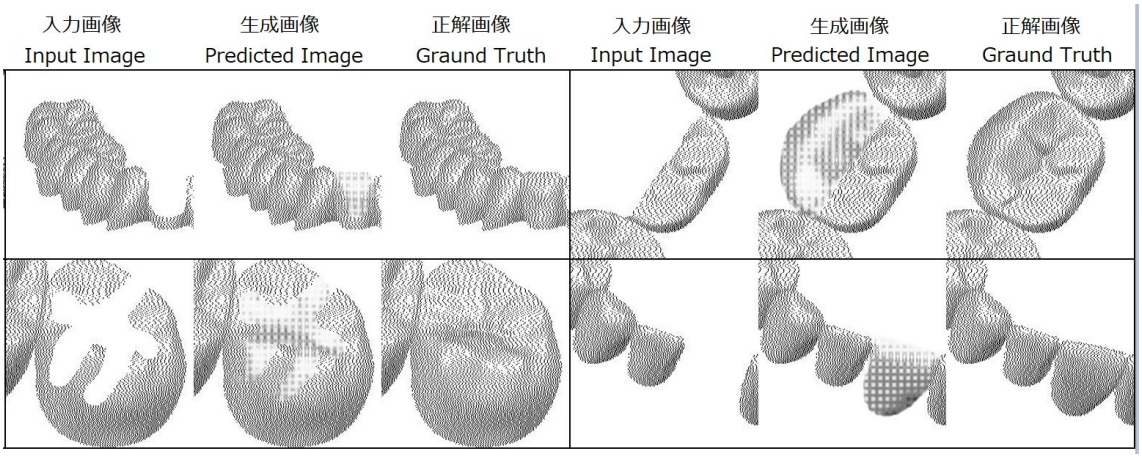
(Example image 2)

Domain conversion refers to converting a line drawing into a realistic photo or a daytime landscape into a nighttime landscape photo.

Reference URL　https://arxiv.org/pdf/1611.07004.pdf (Figure cited in.)

This time, I will use my own data to perform a domain conversion task called pix2pix. The image will be restored, but in the example I have done this time there is no background. In the examples of image restoration described in various manual books, such as landscape photos, there is some kind of image on the entire screen. The sky also shows blue as a background. In my example, however, the background is white and shows nothing. This image was created by capturing a CAD screen. The only thing you see are teeth. Some are single crowns, some are multiple teeth.

(Example image 3) Task results are displayed below.

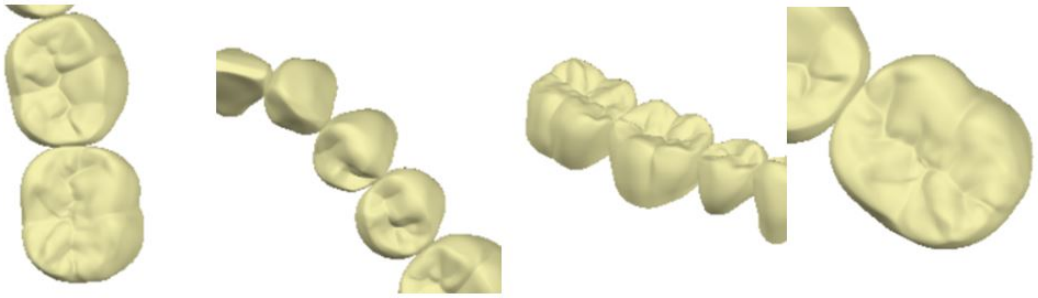


Let me explain about this picture. The "input image" on the left is a partially masked version of the "correct image" on the right. And the "generated image" in the center is the one in which the image restoration task was performed. The restored portion has been added to the input image. The texture of the generated "texture" is a little different. The loss area has been restored and reproduced, although there are some unclear areas.

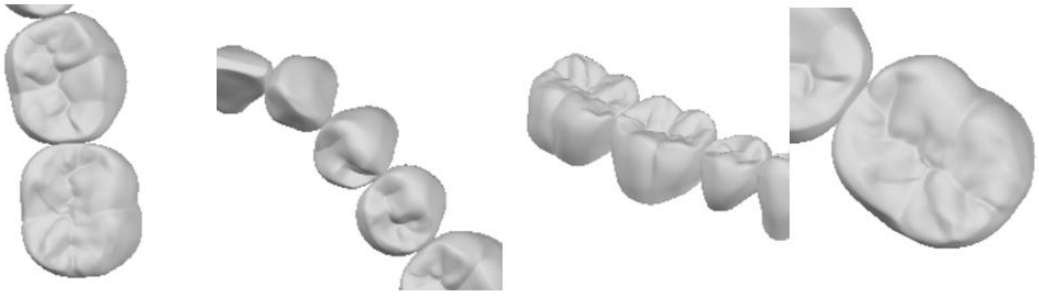
The following steps were used to edit pix2pix images to create the data set

The first step is to create the original image. The number of sheets required is as follows. (train_400 sheets, test_100 sheets, val_100 sheets) The virtual environment using Python was created in Jupyter Notebook with reference to "generative" from the book "Generative Deep Learning (O'Reilly Japan)".

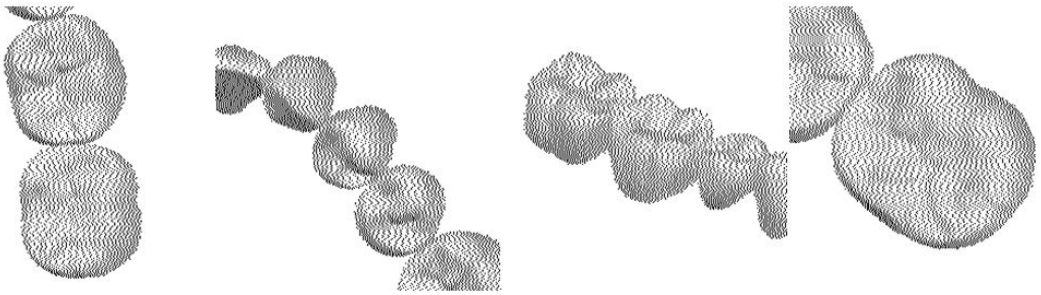
1,I manually captured 300 CAD screens with the free software "Window Photo". The size of one sheet is "256x256". Later, I will invert and double the number of sheets.



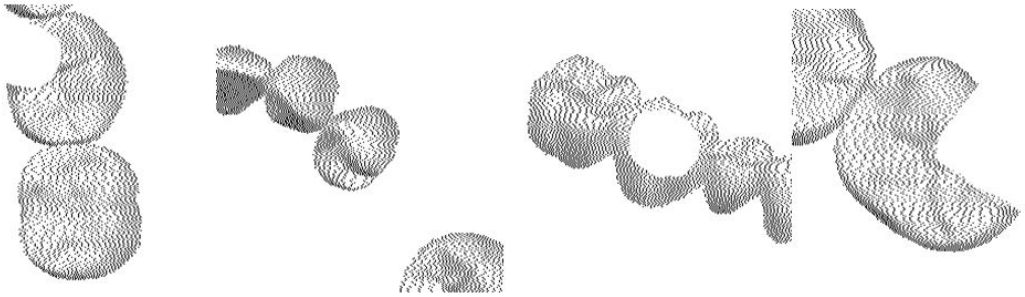
2, Convert 300 sheets to grayscale.　(image_change_GRAY(gray scale).ipynb)



3, 300 images are converted to point images using the Error Diffusion Dithering method. We performed this operation to image the mesh data. （Error diffusion method.ipynb）

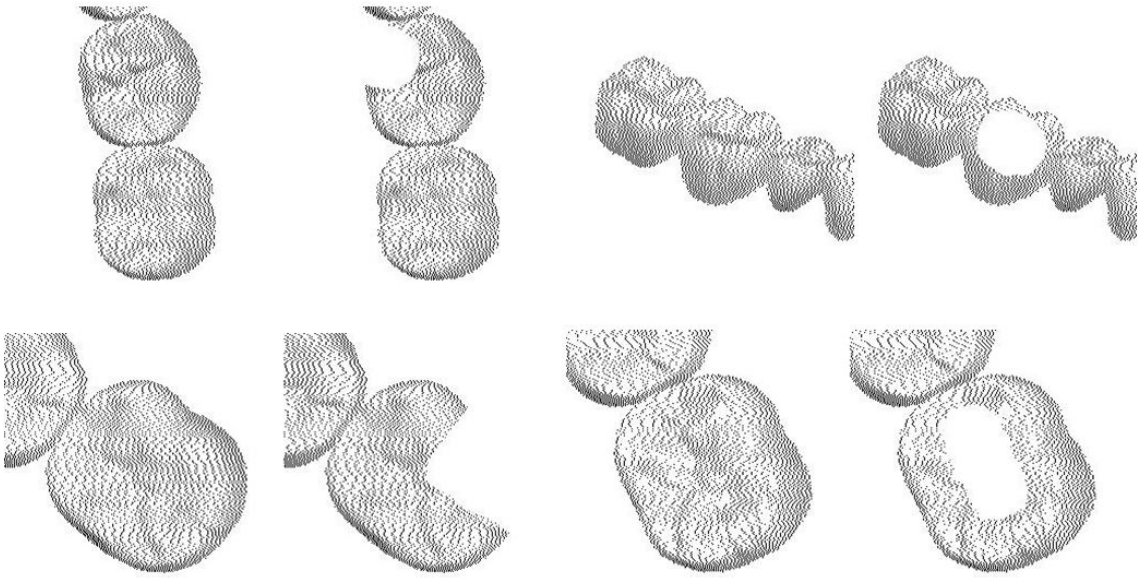


4, A mask (using windows PAINT) is created individually for each of the 300 images by hand to partially hide the image.



5, The image created in the previous step is flipped left and right to create 300 images, for a total of 600 images. (image_change_GRAY(Flip horizontal).ipynb) Flipped left and right images

6, The images are concatenated so that the original image is paired with the masked image. （pix2pix_dataset_1.ipynb）



7, If the grayscale image is 1-channel, make the image 3-channel. This makes the grayscale image 3 channels because the original program is for color images. （image_change_1to3_(in_out).ipynb）

8, This makes a total of 600 homemade data sets.

Domain conversion (pix2pix) with google's Colaboratory

Using this home-made dataset, I used google's Colaboratory to perform a domain transformation task called pix2pix (from the “GAN Deep Learning with PyTorch Implementation Handbook (Shuwa System Publishing Co., Ltd.)”) Transforming the appearance of a set of images with unique features is called a domain transformation. What this task learns to do is to "restore the missing parts by adding the missing parts with reference to the original image.” With each epoch, the image becomes closer to the original picture step by step.

I used the "pix2pix" program from the “GAN Deep Learning with PyTorch Implementation Handbook (Shuwa System Publishing Co., Ltd.)” for this task. I modified the program so that I could use my own data only for the input part of the

program. 5000 epochs were run using google's Colaboratory. The results of the study are available for download (download page) in PDF format for those interested. You can see how the areas to be restored become more original as the study progresses. The restored areas, however, did not reproduce the image detail of the original painting.

What can be drawn from this conclusion

After running the pix2pix domain conversion task, I realized that "image restoration or restoration" by artificial intelligence did not just appear one day, but was built on a foundation of experience in "image processing". For example, OpenCV and various types of filter processing. Image processing was used in the form of open source libraries such as OpenCV. These libraries provide a rich set of algorithms. Therefore, there is no need to write programs for image processing from scratch. Image recognition is built on image processing and feature extraction, and the process of recognizing objects and useful information in an image through the necessary processing of digital image data is treated as image recognition. The task of processing two-dimensional images by AI is a technology built on top of "image processing" technology.

By the way, what does it mean for a computer to recognize images? All images are handled in units of "pixels" on a computer. A computer understands that "this pixel is red, this pixel is blue, ...", but it does not understand that "this image shows a human face". To make a computer understand what is reflected in an image in this way is what is known as image recognition technology. In other words, it is a field of research that aims to somehow give computers the visual functions that we humans take for granted. In order for a computer to understand the content of an image, it must extract some pattern from a set of pixels. In other words, instead of looking at the pixels individually, we need to look at them as a set and determine what the image represents by the pattern that the set has. Extracting meaning from a signal pattern is called "pattern recognition. Pattern recognition" refers not only to image recognition, but also to any process that extracts meaning from a signal, such as speech recognition and language analysis.

There are also two types of filters of various kinds: transforming images and extracting features. The term "image processing" is often used interchangeably with these terms in filtering techniques, but the meaning is slightly different. Image processing does not include recognition, but refers to the process of transforming an image to create a

different image, for example, blurring an image, or conversely, emphasizing edges such as contours, or creating a mosaic.

Image recognition technology is about making a computer understand what is in an image, and there are two ways to "understand" an image. The first is to represent or classify what the image is as some symbol, a word such as "face," "car," or "letter. This is called image recognition; the second is to reconstruct an object or scene as a three-dimensional model. This is done using stereo cameras, moving images, and image shading, and is specifically referred to as "image understanding" or "3D reconstruction."

What does it mean for a computer to understand images?

What does it mean for a computer to understand images? And what is the relationship between the human brain and the eye, the function of vision? There are many possible situations when it comes to understanding, and I think it is necessary to clearly indicate the purpose of what you want to do. As long as the program is designed to achieve the objective, the computer will automatically perform the task without the need for a human being to set detailed conditions. This is AI. As I mentioned earlier, the shape of a tooth can be easily captured by a computer using a commercially available scanner. In the field of prosthodontics, which is used to treat teeth, the data is read from a three-dimensional point cloud, for example, of a tooth that is partially missing. If the data is visualized using visualization software that can display point clouds, humans can also see the data on a monitor screen. The AI will generate a shape that satisfies the missing part of this "point cloud data" and output it.

The "GAN Deep Learning with PyTorch Implementation Handbook (Shuwa Systems)" states that "3D convolution can be performed using the same approach as 2D convolution, and spatial relationships of objects in 3D space can be extracted as features. Unfortunately, there were no detailed instructions on how to set up the system, only this introductory statement. If a computer already recognizes a three-dimensional shape, is it necessary to perform any special operations to understand the three-dimensional shape from the two-dimensional image? Is such an operation necessary to understand 3D shapes, or is it acceptable to perform convolution directly from 3D data that has already been acquired? I don't know about this situation because I have no experience in this area.

By the way, in dentistry, it is not enough just to be able to create a three-dimensional image, but it is necessary to consider "one step further in understanding images. The reason for this is that the function of the teeth is established by the upper and lower teeth. It must be produced in coordination with the teeth of the opposite jaw, vertically and horizontally. Inadvertent collisions between teeth or failure to close the mouth during mastication are strictly prohibited. Considering the occlusion of such teeth, I think it is necessary to go one step further in understanding the shape of the teeth. It is necessary to consider the movement of the mandible, in other words, to think about "shape and movement," the four-dimensional shape that adds the dimension of time to shape. This means that when the mandible moves, the multiple teeth must be able to move without interfering with each other at a controlled distance. It also means that in certain situations, the teeth need to be generated so that they are in perfect contact with each other.

I decided to study a little more about "computer image understanding." I thought the process of people with eye disabilities acquiring normal vision might be helpful. I thought it might be helpful to see cases in which people with eye disabilities acquired vision through surgery or functional training. I extracted and edited what I thought might be helpful for "image understanding" of computers.

In the following text, the terms "open-eyed" and "clear-eyed" appear, where open-eyed refers to those who acquired their vision later in life, and clear-eyed refers to those who acquired their vision normally.

Books that I have referred to.

Fixing My Gaze: A Scientist's Journey Into Seeing in Three Dimensions (Susan Barry, Chikuma Sensho Publishing Co., Ltd.)

The 3D World Created by the Brain (Ichiro Fujita, DOJIN Sensho, Publisher)

The Visual World of the Congenital Blind (Shuko Torii, Toshiko Mochizuki, University of Tokyo Press)

Theory of Visual Development (M. von Senden, Kyodo Shuppan, Publisher)

Formation of Visual Perception 1 (Shuko Torii, Toshiko Mochizuki, Baifukan, Publisher)
Formation of Visual Perception 2 (Shuko Torii, Toshiko Mochizuki, Baifukan, Publisher)

"Monocular stereopsis," a stereoscopic effect that can be obtained even with a single eye

Susan Barry's eyes were strabismic, but she acquired stereopsis through surgery and optometric training. Here are her thoughts as a professor of neurobiology at Mount Holyoke College.

I (Susan) believed that these cues alone were sufficient to obtain a crisp three-dimensional image of the world, since painters can reproduce an intense three-dimensional effect on a flat campus using only monocular cues. We can recognize the shape of objects by the way shadows fall and surface shading, distinguish which objects are in front and which are behind by the overlap of the images, and get a sense of depth and distance by the use of perspective. Recognizing that the world is three dimensional does not necessarily require binocular stereopsis. I thought that stereoscopic vision would increase the ability to recognize depth, but it would not drastically change the way we perceive the world. Therefore, the fact that binocular stereopsis has drastically changed my perception of space was completely unexpected. The experience of seeing something very ordinary in three dimensions for the first time is similar to the experience of seeing a view from the top of a mountain for the first time when climbing a mountain.

Acquisition of stereopsis affects not only vision but also thinking

What amazed me (Susan) more than anything else was how the change in vision affected even the way I think. All my life, I had been looking and thinking in a step-by-step fashion. I would look with one eye and then the other. When I walked into a room full of people, I looked for my friends by looking at them one by one. I had no idea how to get the whole room and the people in it into my head at a glance. I assumed that seeing the details and seeing the whole were two separate processes. I was in a state of mind where, after I had identified the details, I could finally add them together to create the whole picture. As the saying goes, "you see the trees and you don't see the forest. It was only when I acquired binocular stereo vision that I became aware of the forest as a whole and the trees therein at the same time.

One of the brain's key functions is to bring together the information provided by all the senses to create a coherent perceptual world. In a person with normal vision, images from the two eyes are seamlessly synthesized and connected to other physical features of the object, such as touch.

Explanation of the three-dimensional structure of vision

The world seen with both eyes has a qualitatively different three-dimensional quality than the world seen with one eye. However, many of you may be thinking, "The world seen with one eye is also sufficiently three-dimensional. That is true. The fact that one eye is sufficient to know at least the three-dimensional structure of the world is evident from the fact that we can get a three-dimensional impression by looking at a picture, a photograph, or a TV screen. This is because, although we see with both eyes, the image in the left and right eye is the same, no different from what we see with one eye. This means that, apart from the binocular disparity calculated by the brain based on the images in the left and right retinas, there are visual cues in the image in the retina of one eye that create a sense of depth in the scene.

Our brain makes use of it. This ability is called "monocular stereopsis," and the depth visual information internalized in the retinal image of one eye is called the “monocular depth cue.” Many of the "monocular depth cues" are also contained in still projection images, which are collectively called "pictorial cues. In addition, there are depth cues that can only be obtained from moving projected images. One of them is "motion parallax. An example of this is the new sense of depth that arises in the world seen with one eye the moment a train starts moving. This is another clue to the brain's perception of depth. Together, these two are called "physiological cues.

Another example of this also exists. The monocular depth cue that enables the perception of three-dimensional structure in a black and white photograph is information called "shading. A black-and-white photograph is a collection of small gray pixels of varying intensity from white to black. These pixels are distributed in a particular way according to the three-dimensional structure of the object in the picture, which forms the shading. Surfaces that protrude out have more light gray pixels because they are exposed to more light, while areas that are not directly exposed to light have more black gray pixels. These light and dark shades change smoothly according to

the shape of the surface, or change abruptly from black to white, creating unique shades.

Since we live in a world where the sun and electric lights are usually shining from above, our brains work under the assumption that the light source is above. When light shines on a hollow, shadows are created on the top edge of the "eaves". On the other hand, when light shines on a protrusion, the top edge is brightly illuminated and a shadow is cast on the bottom edge. Based on this correspondence, the brain reconstructs the three-dimensional structure based on the information of shadows, independently of our consciousness.

These things are the result of visual experience. Without experience, we would not be able to understand such things. For example, we cannot conclude without experience what the relationship is between faintness and smallness with respect to distance to an object. There is no obvious and inevitable connection between large and powerful appearing and short distance, or between small and faint appearing and long distance. In other words, experience shows that the brain reconstructs three-dimensional structures on its own, independently of our consciousness, based on information.

Repetitive pattern changes express perspective

The surfaces of many objects have peculiar irregularities, often in a repeating pattern. The leafy trees that cover a mountain, when viewed from a distance, create a repeating pattern that shows a particular pattern depending on how the leaves grow. Similarly, even a plain white shirt can tell whether it is made of cotton, linen, or synthetic fibers by the texture of the fabric. Texture is the English word for the feeling of touch, and in the visual sciences, texture is the repeating pattern that provides clues to the characteristics of an object's surface irregularities, including the feeling of touch, and thus to the object's materiality.

In a cobblestone path covered with stones of the same size, the stones at a distance appear smaller and more compressed, giving the appearance of close spacing. This change is called the "texture gradient" and is an important clue to the slope and curvature of the surface. From the cobblestone texture gradient, we can estimate what angle this cobblestone has to the camera lens. Another type of perspective method is called "overlapping perspective," which is a method of depicting multiple objects

arranged along the depth direction in three-dimensional space on the screen so that the nearest object partially shields the farthest object. In other words, "the nearest object is depicted in its entirety, the second farthest object is depicted with only a small portion visible, and the third farthest object is depicted with a small portion not obscured by the second object," thereby creating a picture with a perspective effect. In a study of this kind of picture, it was found that the "overlapping perspective effect" was observed in healthy infants and toddlers at around 4 years of age, although there seems to be some discrepancy in the age at which this effect was observed.

On the world as seen by “open-eyed people” whose sight has been acquired through surgery

There is a phenomenon in which the "shape" of a three-dimensional object appears different when observed from different perspectives. When one open-eyed person conducted an experiment to identify three-dimensional objects, he commented as follows while observing a "cube" and a "rectangular prism" presented to him. He said, "When I look at them from different angles, the top surface looks like a 'rhombus' and it's hard to tell. Indeed, as long as you touch it with your hand, there is no rhombus anywhere on the cube. The rhombus suddenly appears when you look at it with your eyes, and at first, people who have opened their eyes to it seem to be very confused. Here is another example. Something never encountered in the tactile world, but constantly encountered in the visual world, is the presence of "shadows" with various deformations. For adults with normal vision, "shadows" and "gradients of shade" are naturally expressed on three-dimensional objects and the two-dimensional surfaces that contain them.

Shading and gradient of shading are effective "information" for creating a "three-dimensional effect" in paintings and photographs. However, it seems to be difficult for open-eyed people who have just begun to identify "things" to separate the relationship between "things" and "shadows". They seem to see "objects" and "shadows" as one connected thing. This is why they were unable to accurately identify the three-dimensional objects that are "things. Shading" is one of the attributes.

“Open-eyed people” are those who acquired their vision through surgery or training.

Impressions of people who acquired stereoscopic vision

This is the case of Susan, who had strabismus, which I have previously described. An engineer might describe my world "view through low-frequency filter" before I received visual therapy. I describe this in the sense that the clarity of the contours is weakened. When I did not have stereoscopic vision, the contours that framed objects were blurred, but I had no way of knowing this fact because I had nothing to compare them to. Now that I have stereoscopic vision, I can see the edges and contours of objects more clearly and vividly than ever before.

Lately, when I walk in the woods, I pay more attention to the empty spaces between the branches and trees than to the trees themselves. I try to find a particularly beautiful space and immerse myself in it. This new sensation of immersing myself in space is a fascinating one. I feel like I am in a three-dimensional world. I can clearly see and feel empty space as an entity." At first, I did not understand how the stereoscopic vision could give me such an intense sense of immersion in my surroundings.

According to popular academic literature, stereopsis increases depth perception only for objects within the focal distance of the two left and right eyes. In my (Susan's) case, however, my sense of space was completely changed. What is most wonderful is the feeling of being "in dimension". There is a lively sense of openness, I can see things drifting off to the side as I walk, and I can feel the presence of depth here and there. The three-dimensional sensation is in front of me, but also at my feet. Now that I have binocular stereopsis, I can see the textures and contours of objects much better than before. I felt that I could touch and manipulate anything with my vision alone, even without the sense of touch with my fingers.

At that time, I understood what the philosopher Maurice Merleau-Ponty meant when he said, "Vision is the tactile sense of the brain."

Binocular stereopsis

The amount and direction of the displacement between the image seen by the right eye and the image seen by the left eye provide clues to the depth of what is being viewed. This disparity is called “binocular disparity” and is the most important concept when considering the mechanism of binocular stereopsis. The essence of what is happening in

binocular stereopsis is that a "physical quantity" of image disparity between the left and right eyes is detected and converted into a "perception" of depth and stereoscopic effect. The left and right eyes cannot directly exchange information, and this event occurs in the brain. Naturally, the world with its length, width, and depth does not jump into the eyes and brain with its three-dimensionality intact; once the three-dimensional world is projected onto the retinas of the left and right eyes, it becomes two two-dimensional images. Based on this information, the brain reconstructs the three-dimensional world in the mind.

By the way, when we open both eyes, where exactly are we looking at the world from? It is not from our right eye, nor from our left eye. We feel that the origin of our gaze is in the center of our left and right eyes. However, there are no eyes there. This is another clear proof that the perception obtained by binocular stereopsis is synthesized by the brain. The world we see is made by the brain, and nowhere is this fact clearer than in binocular stereopsis.

Since the world we live in is spatially three-dimensional, it seems natural that the world appears three-dimensional. On the other hand, it is a fresh surprise when we see stereoscopic images that rise from a flat surface, such as in 3D movies and stereograms. In both cases, however, there is no clear indication of depth in the information received by the brain. The brain extracts depth information from the light information that enters the retina and creates a three-dimensional world in the mind.

Even if one eye is closed, the object in front of the eye does not change its color, shape, pattern, shade, or movement. Nor does it change the positional relationship between what is near and what is behind. One eye is sufficient to know what the objects in front of us are and their positions in relation to each other. However, the view seen with both eyes is definitely different from the view seen with one eye. In the world seen with both eyes, we perceive that objects have volume and that there is space between them. The moment one eye is opened, the world takes on a sense of depth, with an obvious three-dimensionality.

Each object has its own volume, and the expanse of space between multiple objects is not something to be understood but felt. We can see that there is a space between objects. In contrast, the world seen with one eye can see three-dimensional structure and spatial arrangement, but cannot perceive the extension in the direction of depth. By

simply closing or opening one eye, we can turn off or on just this sensation. There are mental events that occur only when we view the world with both eyes. It is a product of the brain's function of binocular stereopsis to our mind.

How the Brain Works

Attributes" are properties that can be directly perceived through the sensory and visual systems, such as color, shape, size, length, softness, sound, and smell. How are these "attributes" involved in the identification of objects?

Delay (1950) reported a case of "tactile apraxia" that may be related to this question. A 23-year-old woman, after suffering trauma to the right parietal lobe region, was unable to rerecognize an object placed on her left hand with her eyes closed. However, according to Delay, she still had the basic senses, such as touch, sound, and pain, as well as perception of the object's "form" and "material." Delay (1950) reported that the impairment in "tactile agnosia" was due to a disconnect between "the activity of extracting attributes" and "the activity of identifying objects. In the closed-eye condition, when an object was placed in this woman's left hand, which is dominated by the right parietal lobe area, and asked what it was, she responded as follows.

She says, "This is hard, smooth, long, and cylindrical. It is also flat at one end and pointed at the other." But she does not answer what it is. When the same object was placed in her right hand, which has a healthy parietal lobe area, she immediately responded, "a pencil." Delay confirmed that her left hand retains the basic senses (touch, warmth, pain, etc.) as well as perception of the object's "form" and "material" but that it is unrecognizable. She explained that she perceives but cannot rerecognize. This is regarded as a divergence between the "attribute extraction activity" and the "thing identification activity".

Jean Delay (1907-1987) French psychiatrist, neurologist, and author

An "event or object" has several "attributes. In other words, an "event or object" is a collection of "attributes. Attributes do not mean the properties of an "event or object" that can be perceived by some physical or chemical means. It refers to properties that can be directly perceived through the various sensory and motor systems of human beings. In other words, it refers to sensory and motor properties such as "lightness,

darkness, color, size, length, shortness, shape, hardness, softness, vibration, oscillating sound, smell, taste, and movement.” The activity of extracting one or more attributes from an “event or object” is called "attribute extraction activity.”

What mechanism or principle connects "the activity of extracting attributes from events and objects" and "the activity of identifying events and objects?" Occasionally, these two types of activities may diverge. With respect to these unrecognizable situations, we can perceive the individual qualities of objects and events, but we cannot integrate these qualities into a single whole. An object or event is a collection of several "attributes," and by what mechanism can each of the lower functional unit systems that extract these attributes be integrated to make it possible to identify the thing or identify it as an individual thing? If "extraction of attributes" and "identification of objects as individuals" are connected through the medium of "integration," what principle does this "integration" consist of?

As the “open-eyed people” became accustomed, they were able to extract at least two attributes from the "event or thing". The first method of coping they took to estimate the "individual thing" of the presented "event or object" was to "enumerate" the attributes of the "event or thing". In the next step, the “open-eyed people” not only "enumerate" the two attributes, but also attempt to infer the "individual thing" by superimposing the attributes. We call this method of estimating "individual objects" the "superposition of attributes operation.” The “open-eyed people” were sometimes faced with a situation where they could extract two or more attributes from the presented "event or object" but could not necessarily determine it as an "individual thing.”

As the experience of sometimes being confused with other "event or object" that shared these attributes built up, the “open-eyed people” took on new strategies to deal with it.

It is a strategy to assign weights to the extracted attributes. The strategy of assigning relative weights to several attributes and thereby identifying "individual thing" is called the "attribute weighting operation.” Once the “open-eyed people” are able to "attribute weighting," he or she tries to use the sense of touch when experimenting with object identification. This is thought to be for the purpose of "attribute weighting.”

If an open-eyed people can extract the "decisive factor" or "possible decisive factor" from a set of attributes of a presented object using tactile or visual functions, he/she can

identify the object as an "individual object." What is the procedure for an open-eyed people to relate the activity of "extraction of attributes only by vision" to the activity of "identification of individual objects"? When "identifying individual objects," an open-eyed person first performs the "weighting of attributes," then goes through the "selection of attributes," and finally performs the "confirmation of a series of operations to select and extract the decisive attributes. In addition, we have learned from the results of various experiments that there is a step of "determination as a kind" before the "final identification of individual objects."

It is thought that the accumulation of experiences, such as repeatedly encountering the same thing or coming into contact with things of the same kind but with different attributes added by chance, can lead to modification or transformation of the method of determination. The accumulation of such experiences will encourage the expression of a series of operations starting with the above-mentioned "weighting of attributes," and the eye-opener will learn to freely change the "decisive factor" according to the situation. We have concluded that the "activity of recognizing things" by open-eyed person is a search for "decisive factors.

What is a bad setup calculation problem?

Knowing the structure of a three-dimensional surface based on two-dimensional video figures is a difficult task for the brain and computers. Only one retinal image can be obtained when looking at a three-dimensional object from a particular viewpoint under certain lighting conditions. The image is uniquely determined based on the size and distance of the object and optical processes such as refraction and reflection in the eye. This means that it is possible to predict what image will be produced on the retina when the object's structure, position, and illumination conditions are known.

On the other hand, conversely, there can be more than one three-dimensional structure of an object from which one retinal image is derived. Problems like this, where the answer cannot be uniquely determined based on the given information, are called "ill-posed computational problems" in science and engineering. This means that the problem cannot be solved because the way the problem is set up is not good. Vision is a ill-constructed problem because we are trying to understand the three-dimensional structure of the world, but the information we rely on is the two-dimensional image on our retina. Since there is essentially not enough information to obtain the correct

answer, one cannot theoretically seek a single solution.

Then why is it that when we see the real world, we can see a three-dimensional object from a two-dimensional image projected on the retina without making a mistake? The answer is that when we are looking at a real object, binocular parallax is generated according to its unevenness. When viewed with both eyes, protruding objects produce cross parallax and retracted objects produce noncross parallax. By distinguishing between these structures, we can perceive three-dimensional structures without error, even if they create images that can be interpreted in multiple ways when viewed with one eye.

In contrast, photographs and pictures are printed on a flat surface, so there is no misalignment between the images in the two eyes and binocular disparity information cannot be used. In other words, the images on the left and right retinas were not identical, and by using the information from the two different images on the left and right retinas, the problem of a bad setup was solved. As a result, they were able to perceive a single three-dimensional structure without making a mistake. Thus, the human visual system has a "perceptual bias" (bias or tendency) to choose one of the two possible interpretations of an image, even when there are two possible interpretations that could have been seen either way.

We have something in common with artificial intelligence

The brain has a perceptual bias to generate and restore the most plausible 3D structure from the two 2D images on the left and right retina, and this is called the "general image extraction principle. In other words, our visual system can be thought of as estimating the 3D structure that is probabilistically most plausible given an image on the retina, based on the assumption that "a slight change in gaze will not significantly change the way an object looks. It is obvious that perception based on this rule has adaptive significance. The reason is that we are choosing the interpretation that has the highest probability of being correct from among the many possible interpretations. We are not looking at the world while trying to reason that this image is a "general appearance" or an "accidental appearance". Most of the work of the brain that supports perception is done automatically in the conscious mind. Many of the mechanisms are not unique to humans, and we expect to share them with other animals.

It is true that stereopsis is possible with one eye, but as we have discussed, seeing with two eyes has various advantages that cannot be gained by seeing with one eye. The world seen with both eyes is wider, brighter, and, above all, has more depth. Objects are framed by distinct contours, occupy a specific depth, have volume, and have space between them and other objects.

NASA's Mars rover and Subaru cars are equipped with two cameras, which are used to identify pedestrians, bicycles, etc. from the three-dimensional structure of the object and to reconstruct the shape of the ground, etc. If the purpose is simply to measure distance, it would be much easier and more accurate to use the laser method or radio waves and calculate the value from the time it takes for the reflection of the laser or radio waves, rather than using this system. The significance of sticking to the stereoscopic function is not so much to obtain absolute values of distances, but rather to calculate relative parallaxes and surface tilts to determine the three-dimensional structure of an object. This is why two cameras are mounted.

To summarize the above, it comes down to this. Binocular stereopsis reduces the unavoidable interpretive ambiguity of vision in the monocular eye. As a result, the structure of an object formed from two retinal images can be correctly interpreted. However, even with binocular disparity information, there may still be multiple interpretations when recreating a three-dimensional object from a projected retinal image. In such cases, the brain has a "perceptual bias" to choose one specific answer, or the only answer, among multiple interpretations. By examining the nature of this "perceptual bias," we can understand the assumptions on which the brain views the world. In other words, how does the brain process visual information when it encounters such a case?

That is, the brain views the world under the assumption that "changing the line of sight by a small amount does not significantly change the way an object looks." In other words, this is because most of the surfaces of objects in the world are smooth. We call the assumption adopted by the brain about this phenomenon, in which perception chooses the smoother surface structure when there are multiple interpretations of the surface structure, the "smooth constraint".

Visual space to be structured

Three-dimensional objects form their images on the flat retina, a collection of cells. We construct a three-dimensional world in our brain by combining various depth cues from this two-dimensional image. For example, by comparing the images on two retinas using stereopsis, we create a vivid three-dimensional sensation. It also uses cues from only one eye. This is the same method used by Jean-Auguste-Dominique Ingres and other painters to reproduce a realistic three-dimensional sensation on a flat canvas. Come to think of it, the painters of the past were in many ways visual scientists because they discovered and used these methods.

Francis Bernard Chavasse argued that the ability to fuse images depends on a set of reflexes that develop during childhood. Later, scientific research on neural development in the second half of the 20th century supported Francis Bernard Chavasse's ideas. Experiments suggested that the newborn brain is not a blank slate. On the contrary, they confirmed that the majority of brain circuits were already established at birth or very early in life.

Also, both sighted and blind people's somatosensory cortex is activated when they read Braille. What is surprising is that in the brains of blind people, the visual cortex also fires at the same time, but this is not the case in the brains of people who can see. There is a connection between the tactile and auditory areas of the brain and the visual cortex, and this connection is silent and ineffective in the sighted person, while it is active in the blind person.

Whether we are looking at printed matter, video images, or the actual objects from which they originate, light information is received by photoreceptor cells, which are arranged in a single layer in the retina at the back of the eye. Photoreceptor cells sense the intensity and wavelength of the light they are receiving and transmit this information to neurons in the latter stages. However, they cannot tell from what distance the light they are receiving is coming. Individual cellular neurons can only tell you how the intensity (a clue to brightness) and wavelength (a clue to color) of the light is distributed on the retina and how that distribution changes over time. So whether we are looking at a real object or a printed figure, there is no explicit knowledge of depth in the information the brain receives from each individual neuron in the retina.

However, the brain extracts information about depth from the information carried by the population of retinal cells and creates a three-dimensional world "in the mind." The brain must always construct a three-dimensional perceptual world based on two-dimensional information in the form of retinal projection images. We humans are not the only ones who see the world in three dimensions with depth. Monkeys, cats, pigeons, and spiders all have their own ways of achieving stereopsis. Within the limitations of their own bodies, eyes, and brains, animals, including humans, use clever means to measure the distance to objects and prey around them and to grasp the three-dimensional structure of objects.

Jean-Auguste-Dominique Ingres (1780-1867) Ingres's paintings of the human figure were deformed from the anatomical correctness that had been emphasized up to that time, in order to idealize the form as a pictorial plane. He is also regarded as one of the central figures of the painting trend of the first half of the 19th century. He is also regarded as a painter who bridges the gap between neoclassical and modern painting.

Francis Bernard Chavasse (1889-1941) graduated from the University of Liverpool Medical School and qualified as a physician, and was sent to Egypt and France where he was awarded the Military Cross. He then practiced as an eye specialist in Liverpool and studied strabismus.

The process of visual acquisition in open-eyed people

When the same visual impression is perceived repeatedly, the congenitally blind open-eyed person will eventually be able to retain it in his or her "memory image" of the object.

1. Repeated observation creates a sense of knowing, which in turn speeds up the cognitive process to a greater or lesser degree.

2. When re-identifying something previously seen, it becomes possible to disregard some of the details, and to be guided in the right direction without having to think about the details of the thing, and to be able to give the thing its correct name.

3. When he hears the name of a certain thing, a series of details that he once could not even attempt to memorize come to his mind. In this way, with each observation, details

are added and fixed by repetition, until finally, at first glance, he is able to utter the name of the thing in question.

4. When the thing in question is mentioned, he is able to guess its name and to conceive the image of its representation at will. It is no longer a mere figure, as before, without any connection to the representation. For example, if a chair has four legs, a seat, and a backrest, it is a chair, no matter what its appearance.

5. Once the open-eyed person has accumulated a certain amount of morphological representations, he or she will be able to investigate new visual objects on his or her own and utilize the representations already acquired. The role of the physician or psychologist in guiding visual learning ends when the open-eyed person is able to increase the accumulation of morphological representations on his or her own.

So-called "space" is something that is experienced visually!

The sighted person continually positions himself within the vastness of environmental space and perceives the things he encounters along the way as tangible. Above all, the visual space is not a borrowed knowledge or a product of his own thought process, but an ever-changing experience that relies purely on his senses. He is constantly determining his spatial position in relation to the visual objects in his field of vision and adjusting the behavior of his motor system. Thanks to this permanent and completely unique sensory experience, the sighted person has a deeply rooted "spatial awareness. This is not so much a matter of theoretical definitions regarding the concept of "space" as it is something that is experienced, at least visually. How do open-eyed person develop a visual perception of the form of objects? How do open-eyed person experience the vastness of environmental space?
The blind man acquires his vocabulary through a teacher with a clear eye. Since the visual world is closed to him, the blind man cannot comprehend the many terms created by the clear-sighted person unless he is provided with converted semantic content. In other words, the language of the sighted person is extremely poor because there is little information available to the sighted person about the words necessary to express in words the sensations extracted from the tactile domain. The blind person has difficulty describing the subtle differences in tactile experience in words.

Thus, blind people have to resort to words that may cause impressions that are not appropriate to describe their experience. The blind also have a hard time understanding that the sighted can perceive great distances. Blind people cannot imagine a distance unless they are mediated by the amount of time it takes them to walk to get there. For the congenitally blind, distance is a matter of time, not space. The concept of distance for the blind is not something that they themselves acquired spontaneously. It is based on the need to use the expressions used by the sighted and to explain them in a way that is understandable to the blind.

One blind patient had no understanding of depth. He confused it with something that revolves around him or follows the edge of a circle. What that means is that he only understands the position of things in space precisely on the basis of their relationship to his own body. It was only when he could touch them directly with his hands, in a stationary position, without changing the orientation of his own body. Depending on the normal range of activity of his arm, a blind person could only obtain information about what he could grasp within this range of muscular activity. And he does not have a sense of space even within this range. If these assumptions are correct, then nothing exists behind it for him, in what the average sighted person would describe as the direction of depth.

What is seen as the forward direction for a clear-eyed person is the same as the knowledge of how many steps it takes a blind person to reach a goal when moving forward while maintaining a characteristic posture toward it. I would like to add here what Helen Keller answered one time when she was asked, "What does a straight line mean to you?”

She answers this way. When I am going to do something that I have to do, I try to get to where I am going as quickly as possible. It's also about trying to keep walking wherever I'm going without veering off to the right or left." These words express that the blind person's "forward walk" is not a matter of contemplating a spatially straight line, but rather a specific physical and mental goal-oriented posture. This is a straightforward statement of what a straight path means to her.

As we have learned through the congenital blind's own linguistic reports, movement is not expressed in the blind person's consciousness as a change in spatial coordinate position. It is transformed into the time during which he experiences the various typical

concomitant phenomena that affect his body when he moves, that is, into the time he experiences. When he moves, he does not have any sense of the distance he has actually traveled.

Spatial Recognition and Processing Diagrams by Tactile Senses

Can a blind person acquire and envision in his mind the three-dimensional shape of an object he touches? The fundamental question here is not as simple as whether or not one feels something that indicates resistance when an object is touched. It is whether the touched object can be perceived as an object that fills space in the blind person's consciousness.

To be more precise, it is whether or not it appears as a voluminous object, and whether or not it acquires morphological characteristics that enable us to objectively describe this touched object that occupies space. We will carefully observe the process of alternation of these two perceptions in congenitally blind people: the process of gradually acquiring a new sense of vision opened by surgery, and the process of gradually abandoning the mode of thought acquired from the tactile perceptual situation.

We believe that this will help us to understand how people with open-eyed people acquire three-dimensional representations. It is clear from the reports on congenital blindness that the biggest and strongest difficulty they should consider in achieving this change is the "acquisition of spatial concepts. This is even more clearly shown in the experiment with the cube. For this girl, the cube is not so much a representation of geometrical features, with sides of equal length parallel to each other and with identical sides, but rather the tactile shape of its edges. If its edges are rounded, it is no longer a cube for her. The concept of "cube" is not a three-dimensional object for her, but is tied to the impression she gets when she touches the edges.

Another case in point. An open-eyed person who had learned to use her eyes found that she could find almost nothing that her hands actually told her during her period of blindness. She was completely confused when she discovered that each person who came to see her for the first time had a completely different face. She had thought that all faces were very similar to each other, and that the only difference was that one was a little rounder than another. Thus, she thought that the differences were very small and

subtle, and that they were not spatial differences, but merely differences in tactile search sequences that only a few particularly sensitive blind people could detect. The blind, for example, have only one processing diagram for a face. And within the concept of a diagram is the fact that the processing diagram of one face corresponds almost exactly to that of another face.

From the case reports I have given so far, one thing emerges clearly. That is, there is a fundamental difference between what the sighted person might call "true spatial awareness" and what the congenitally blind use processing diagrams to represent "spatial" features. The latter is what we call a "processing diagram," and this group of common processing diagrams encompasses a variety of qualitatively different things. It is the mutually distinct tactile texture of each of these objects that establishes perception of them, not their three-dimensional form. Blind people do not willingly engage with the question of form unless they are prompted to focus on cues that help them identify objects, such as those that the sighted person names the form of an object.

Can tactile spatial perception be reaffirmed in visual space?

The "drawing" that the open-eyed person created consisted of two lines of different lengths crossing each other in a haphazard fashion, with one end ending in a loop for a finger. It was not the shapes that he was able to memorize by touching and exploring the scissors and other objects, but merely their rough outlines. By tracing the objects, he was paying attention to the characteristic sequence of hand movements and the muscular sensations experienced in doing so. To the sighted observer, something more or less similar in form might come to mind. But what the motion in drawing brought to the mind of the open-eyed person was not the "tactile form" of finger or hand exploration of the scissors. It was the reproduction of a fixed and schematic series of "arm movements" characteristic of scissors. During the first visual examination after surgery, the open-eyed person was shown numerous objects: scissors, a large cup, a table knife, an apple, and a book. He could not even recognize the scissors again, even though he had drawn them before the surgery.

Their idea of form as a blind person was not three-dimensional, but flat and schematic, artificially assembled and constructed. They are forced to create diagrams that transform the spatial into the temporal in an attempt to fill their consciousness with a content they can understand, a space that is incomprehensible to them. However, the

first visual experiments conducted after the surgery showed that nothing spatial is connected to these diagrams in their own consciousness. One open-eyed person has expressed a real sense of disillusionment in this regard. The fact that the newly acquired vision cannot recognize the form of the object seen cannot be explained by simply attributing it to blurred, amblyopic vision. The three-dimensional morphology of a clearly structured visual object was fundamentally new to the congenitally blind open-eyed person. At the same time, it showed that tactile exploration alone did not provide him with any spatial relationships other than those of the figure. Thus, the grasp of three-dimensional form given visually is, on the part of the newly sighted, a completely new creation.

The End