

Dr. Taro Takemi and Seizon & Life Sciences

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“Takemi Memorial Trust for Research of Seizon and Life Sciences”

Dr. Taro Takemi (1904–1983) strove to make the Japan Medical Association (JMA) a medical association that ensured high academic standards by creating many internal special committees. With such an academic organization, Dr. Takemi wanted to recognize a correct future direction of healthcare and engage in scientific activities. After being asked to become the JMA’s Vice-President, he slept on the request for three days and concluded that it was important to connect academic fields and society. In 1950, Dr. Takemi took office as Vice-President of the JMA.

In 1957, Dr. Takemi was asked to become President of the JMA succeeding Professor Takeo Tamiya, who served as President of the JMA and President of The Japanese Association of Medical Sciences (JAMS)¹ amid the chaotic postwar situation in Japan. When Dr. Takemi was Vice-President of the JMA, the GHQ (General Headquarters, the Supreme Commander for the Allied Powers) ordered him to follow the instructions of the countries that won the war in the post-war situation under control of the occupation forces. However, noting that the losers of the war were soldiers, not medical scientists, Dr. Takemi tried to push forward his healthcare initiatives. Shortly thereafter—three and half months later), he was “actually” dismissed (in fact, he submitted his resignation) together with President Tamiya.

Later, Dr. Takemi assumed the same position at the JMA together with Dr. Tamiya in 1952. However, again, he submitted his resignation in 1954 due to the JMA’s internal problems.

Dr. Takemi resigned because of his opposition to the profession-related egoism of many medical doctors who sought benefits at the expense of others. I heard that his well-known statement, “I’m not going to become a chief of a village of the greedy!,” apparently appeared in the minutes of a meeting of delegates.

At that time, there was a phrase making fun of medical doctors—“Nagasode (long sleeve)” with a similar meaning to that of “sode no shita (under the sleeve),” or a gift of money or commodity given to a professional service provider other than a professional fee. People started to use such a phrase in the Edo era. Actually, Dr. Takemi agreed with part of the GHQ’s direction to change the JMA into something similar to the U.S. medical association.

I am keenly interested in Dr. Takemi’s idea of “bringing in scientific logic and judgment.” Although there is no medical academy in Japan, I believe a venue where we can discuss and express opinions from a neutral standpoint is necessary.

Today, academies worldwide are experiencing reorganizations relative to the medical field.

The United States is a trailblazer in such reform, having its own 3+1 National Academies consisting of three academies—the National Academy of Sciences (NAS), the National Academy of Engineering (NAE) and the National Academy of Medicine (NAM)—and the U.S. National Research Council (NRC), which is the operating arm of the three academies. Before the reorganization, the NAM was called the “Institute of Medicine,” but an upgrade occurred about two years ago.

The NAE referenced above is included in the International Council of Academies of Engineering and

Technological Sciences (CAETS),² of which I serve as a Board Member. Recently, the CAETS became an Ex Officio Board Member of the Inter Academy Partnership (IAP).³

The Science Council of Japan (SCJ) is a General Board Member of the IAP.

Although the IAP used to be a global network of science academies, it is reorganizing into a structure consisting of an IAP for Science, an IAP for Health and an IAP for Research, given the increasing emphasis on health (medicine).

Although medicine used to be a single field, the future trend likely will be toward an integrated vision centered on medicine.

Exactly as Dr. Takemi suggested, an “era focused on human life” has become today’s global trend.

I think such a trend is known to only a few medical doctors. Most doctors in Japan might be too busy treating patients to find time to study. Many people might think that medical doctors are interested in a narrow path as a technician. What patients want is only one thing—curing their illness. However, with such a sole purpose alone, doctors are the same as a repair factory, quoting Dr. Takemi.

Such a tendency is seen not only in the medical field but also in most other fields.

What is lacking in such a tendency is a larger point of view—Is the status quo acceptable as our future direction? Should we address how humans should live from a larger perspective? I believe we are at a significant turning point.

As I mentioned earlier, Dr. Takemi often said, “I don’t want to become a chief of a village of the greedy who are thinking only about raising treatment fees.” One-third of doctors are highly ethical and sincere, whereas the same number of doctors are the opposite. The balance is neither.

However, we need doctors to maintain a reasonable degree of affluence. Otherwise, difficult problems could emerge in actual implementation of the healthcare policies of the government. To create a system beneficial to patients, we need to implement realistic measures, quoting Dr. Takemi.

Despite such critical issues, without a high-level academic meeting in place inside the JMA, the JMA might become a commercial organization. Furthermore, it was long ago that Dr. Takemi foresaw the arrival of a time to review everything with a central focus on human life. He mentioned such things quite frequently.

“Seizon & Life Sciences”

Dr. Takemi passed away, leaving the term “Seizon Kagaku (Seizon & Life Sciences)” behind.

Dr. Takemi used to say that a field to comprehensively address the holistic human being including mental issues had not been called a science before, but he dared to call such a field a science and try to configure such a science.

Dr. Takemi said that it would take 30–40 years until people finally understood the future direction of society as a whole and reached a stage to promote such a field as a specific science but that the life sciences would become a priority theme of the world.

The medical field is a narrow path and needs a broader view. Including the purposes of medicine, I think he wanted to propose such a broad perspective.

In Dr. Takemi’s view, the medical field was a single small area. I believe he had a more comprehensive and larger concept in mind.

Today, many subsets exist within the medical field with each area becoming deeper and narrower independent of other areas, which has been exacerbated as the results from each discipline—whether about the brain or genes, chemistry or molecular biology—have seriously affected social philosophy.

Given such a trend and radical changes in each field, as we think about what a human being is, I believe Dr.

Takemi wanted human life-related issues to be discussed comprehensively.

Dr. Takemi's concept was too big of a theme to be contained in the medical field.

Of course, Dr. Takemi regarded medicine and biology as important, as he was involved in such fields, but he was also interested in physics; at RIKEN, he developed a vectorcardiogram (VCG) instrument on his own.

According to Dr. Takemi's concept, future direction need not be limited to the healthcare field. At the origin of his concept of Seizon & Life Sciences were his thoughts about "what is a human being?" and "in what way should a human being live to ensure everyone's well-being?"

Have you heard of the Science and Technology in Society (STS) forum? As it might be a good reference, let me explain a little about it.

The STS forum began as a "scientific technology for society." I think it is about 15 years since its inception. Although I first kept a little distance from the forum, I started attending the forum a couple of years ago because of my position.

The forum is a one-week event held at the Kyoto International Conference Center. The STS sought attendees from around the world. Invitation was required to attend the forum. Although I understand that the STS forum is an important NPO meeting, especially given the theme of scientific technology for society, which is close to the life sciences, the forum has become somewhat formal even including a speech by the Prime Minister of Japan.

Such experts as Nobel Prize winners speak about their field, and topics have included information processing by artificial intelligence (AI), smart cities, society's energy mix, cloning and genome editing, global warming and other environmental issues, and the Internet of Things (IoT). All the fields are roughly classified into categories, some of which are further divided into several subcategories.

Each attendee addresses cutting-edge research in his or her respective field, how to utilize that research in society and in what direction the world is heading.

The STS forum is truly a venue for discussion, and I believe it has been successful in that regard. Technological issues and the basic philosophical base are both discussed.

Discussion only about the philosophical base would result in impractical theories. The STS employs a framework to discuss our future direction based on an understanding and discussion of the specific innovations and developments occurring in society and where their cutting edge exists. Such a venue for meaningful discussion does exist.

The term "Seizon Kagaku (Seizon & Life Sciences)" was created 100% by Dr. Takemi. I believe there are no original terms in German or French referring to the same.

The term closest to "Seizon Kagaku" ?

Because Dr. Takemi created such a perfect Japanese term, "Seizon Kagaku," it is difficult to find a replacement term. Also, it is difficult to translate this term. I present the phrase "Human Security and Well-Being" as semantically equivalent to what Dr. Takemi really meant via "Seizon Kagaku."

At the root of the concept of "Seizon Kagaku" exists the background in which Dr. Takemi grew up.

His uncle was a high priest of Nichiren Buddhism, and his father was from Nagaoka in Niigata Prefecture. Dr. Takemi is from a rural place. Nevertheless, he studied in the United States for 15 years. In addition, his mother's father was close to Tessai Tomioka. Such an environment might have nurtured his concept.

Nagaoka is known for "Kome Hyappo (a hundred rice bags)," which is difficult for non-Japanese people to understand. However, the views of Buddhism and Shinto, which are deemed as Japanese-specific concepts, will become increasingly important. As such, I feel that an era when people understand "Seizon & Life Sciences" including the spiritual world might be just around the corner.

“Dr. Taro Takemi and Myself”

Please allow me to mention my personal connection. My sister married Keizo Takemi, Dr. Taro Takemi’ s son. Therefore, his son is my brother-in-law.

Dr. Takemi brought Keizo Takemi to our home in the spring of 1982, saying he wanted my sister as his son Keizo’ s wife.

My sister had no idea about the father of her future husband. When Dr. Takemi came to our house, it was the first opportunity for my sister to talk with him.

Before that, I had seen Dr. Takemi in the press. When he came to our house, I thought, “Wow. That unlikable man with quite an attitude came to our house.”

When I met him, however, he was nothing like that.

When Dr. Takemi asked me what I did for a living, I explained to him that I was developing MRI (magnetic resonance imaging) and showed him some MRI images.

He showed great interest, saying, “MRI is exactly the machine we will need. Different from X-rays, MRI provides both morphological and functional visuals, thereby enabling accurate diagnosis.”

When he said that, I believe his own development of a VCG instrument was on his mind.

At the time, I was in my early 30s. Dr. Takemi invited me to visit his home to continue the discussion.

That was the start of my frequent visits to Dr. Takemi.

Our discussion was about the essence of philosophy and biology as well as what is necessary for the future of healthcare. Dr. Takemi talked so comprehensively that I could not find any missing elements when I checked my notebook documenting our meetings.

The image I had of Dr. Takemi changed completely after I met him.

Many people have a perception of Dr. Takemi based on imagination. Regarding Seizon & Life Sciences, many define his concept in their own way without looking into what he was really saying.

I was totally absorbed with Dr. Takemi, and my family used to tease me often, saying that I had love sickness. I must have been talking about Dr. Takemi all the time.

Therefore, what I am saying might be biased somewhat. His influence on me was that great.

“Seizon & Life Sciences Workshop”

Dr. Takemi passed away a year and half after I started visiting him. Despite such a short period, I met with him more than 20 times, including short discussions, usually one hour each.

Dr. Takemi told me, “I have just set up a Seizon & Life Sciences workshop. It’ s sometimes good to check out or study a field different from one’ s own specialty area. You are invited if interested.” So, I attended the workshop starting with the second one in 1982.

My membership was No. 21. The workshop continued for 13 sessions until his passing.

The workshop attendees included essential people including Hiroshi Kumagaya, who chaired a General Assembly of JAMS. In my memory, there were hardly any young members.

The workshop members seemed to overlap with the attendees of the JMA’ s study meetings.

During the 25 years that Dr. Takemi served as President of the JMA, he helped to hold a General Assembly of JAMS multiple times, which showed that the top management of a medical association in charge of society’ s healthcare was akin to the top academicians in medicine.

Based on Dr. Takemi’ s ideas, the workshop began with attendees selected from a broad range of fields. There were about 20 attendees at the second session, which I attended for the first time.

The content of the discussion was interesting. For example, a researcher in geriatrics lectured as to the extent the role medicine should have in a person's life.

The lecturer analogized a person's life to a candle.

Like the limited life of a candle, when the wind is about to blow out the candlelight, it is the role of healthcare to help control the wind. Neither medicine nor healthcare add wax to the candle. Such an explanation provided a clear distinction between what should be done and what should not be. The lecture was followed by our discussion on that subject.

This is still an essential issue even today.

Whether regenerative medicine or organ transplants, we had serious and highly in-depth discussions on all such issues that are still important today.

To include attendees from overseas, Dr. Takemi invited Wassily Leontief, a winner of the Nobel Memorial Prize in Economic Sciences for inventing Input-Output Tables, when he visited Japan. With Dr. Leontief, we discussed the importance of economics in human life.

Seizo Ohe, a scholar in the philosophy of science, also gave a lecture and we discussed human existence from the perspectives of the philosophy of science and the history of science. The Seizon & Life Sciences workshop originated for the essential purpose of the bridging and fusion of different fields beyond the existing borders of each discipline.

That is why the workshop attendees included those outside medicine. Without such attendees, Dr. Takemi might have thought medicine itself would lose its relevance, like losing its mirror image.

Although most of the workshop attendees were in the medical field, almost half were from completely different areas, selected by Dr. Takemi himself, who interviewed each candidate.

We still have the record of lectures given at the workshop. Not everyone's lecture, but at least I have maintained the record of Dr. Takemi's lectures.

Before he passed away, Dr. Takemi lectured at four of the workshops. The stenographic record of these lectures is available for public viewing. He continued to lecture until only a few months before he died.

“Life Sciences”

At the first conference with a theme of “Life Sciences” held in Basel, Switzerland in 1972, Dr. Taro Takemi was the only Japanese participant.

Deeply impressed by Dr. Jerne, the main sponsor of the conference, Dr. Takemi sponsored the second conference, despite its small scale, inviting Dr. Jerne to Japan.

Although the name of Dr. Jerne is hardly known in Japan due to its northern European pronunciation, many of his disciples received the Nobel Prize in Physiology or Medicine and Dr. Jerne himself received one after Dr. Takemi's passing.

Although an academic group of scientists in the natural sciences that included physicists Satoshi Watanabe and Yoshio Fujioka and agricultural chemist Fumito Inukai had formed a life sciences research circle and related research was ongoing, triggered by the conference in Basel, research on the life sciences was initiated at a special subcommittee of the JMA.

Eight symposia on the basic theories of the life sciences have been held.

The report from the eighth JMA special medical subcommittee on “Life Sciences and Freedom” (edited by the Japan Medical Association (JMA) and published by Shunjusha Publishing Company in 1981) is easy to understand. The symposium was attended by many people from various fields.

All symposium lecturers and contributors to related publications were selected by Dr. Takemi.

Experts from diverse fields, including biologists, philosophers, art critics, finance scholars, intestinal microbiologists and artists, reported their research results and expressed opinions from their professional perspective.

By repeating these attempts, Dr. Takemi presented many different entry points to climb the mountain of life sciences.

Dr. Takemi was creative and prepared all the basic elements for the symposia. Dr. Takemi would use the term “life sciences” rather than “Seizon Kagaku” in such symposia.

As to whether Dr. Takemi wanted to integrate the whole theory of life sciences in the various discussions, such intention is far from my understanding.

Although there is no way of knowing whether the life sciences are like a single mountain or a mountain range and where the summit is, there are many entry points for climbing it. Let’s start climbing toward its summit. Such attitude may be a life science, much like “Human Security and Well-Being,” which I mentioned earlier.

Dr. Takemi may have hoped that various people with distinct talents in the pursuit of their own goals would eventually create something like a new world originating in the future life sciences. He must have thought that it would be wonderful if the number of such people gradually increased, thereby creating a new starting point.

Although many scholars say that it is difficult to understand the term “life sciences” and do not know if there is such a science, Dr. Takemi often said that he wanted to try such an endeavor.

“Seizon no riho (principle of human existence)”

In his later years, Dr. Takemi would say that the “human being lives and dies in accordance with the principles of human existence.” He lectured about that, and we have related papers that he wrote.

His handwriting “Principles of Human Existence” showed up in various places.

The term “Principles of Human Existence” does not imply a religious view or concept. In my understanding, this term means, if extended, that a life form has its own order inside something like the order of the universe and humans live in accordance with that order, which Dr. Takemi must have been feeling directly at the time.

Because Dr. Takemi learned at RIKEN and had much knowledge in physics and other basic sciences, he understood that human life and death are simply nature in accordance with the logic of human existence. Despite such an understanding, he thought of using the sciences as a bridge to mental issues and changes in the social environment, hoping to see something as a result. As such a bridge, he initiated the life sciences.

Although Dr. Takemi was asked to remain at Keio University to teach internal medicine, he left on his own decision and went to RIKEN.

He said, “Compared with intense research and discussion, ongoing activities in the field of medicine are not a science at all. Because I needed to learn a scientific way of thinking, I went to RIKEN.”

He often said half bragging, “It was the dawn of physics at that time. Hideki Yukawa and Shinichiro Tomonaga were discussing physics fiercely. I was allowed to join them, and that was my foundation!”

I heard that Dr. Tomonaga and Dr. Yukawa were discussing passionately the particle and nuclear theory and related matters. Dr. Takemi said he was deeply immersed in such an environment and that their theoretical base was Dr. Niels Bohr.

He said that there are several “outlets” of Dr. Niels Bohr in the world and RIKEN is one of them. Being at the dawn of quantum mechanics, Dr. Takemi had a good understanding of quantum mechanics and used such knowledge as a basis in forming his concept.

Dr. Yoshio Nishina is said to have quoted Dr. Bohr’s remark, “Physics ultimately needs to address issues of human life.”

According to Dr. Bohr, to address the question “what is a human being?” mental issues are largely involved. In that sense, a scientific way of thinking is important in dealing with mental issues as well.

Ongoing discussions at RIKEN were based on scientific logic. Dr. Takemi felt that a scientific method might be necessary in comprehensive research of the entire human being as well.

Dr. Takemi clearly said, “Although research on the human being is generally not called a science, I want to call research involving mental issues a science, too. Therefore, I proposed life sciences.”

“Theory of evolution and ancient Buddhism”

Dr. Takemi used to say that the best theoretical basis is the theory of evolution, which is not exactly the same as Darwin’ s, including scientific knowledge.

He said he thinks he understands the theory of evolution. Moreover, I believe that Dr. Takemi’ s spirituality, which was his conceptual basis, was from a religion.

He said that ancient Buddhism is important to understand contemporary Buddhism and advised me to study ancient Buddhism well. In practice, Dr. Takemi learned Pali and Sanskrit languages in a Buddhism circle during his university days.

He was never devoted to Nichiren Buddhism. His relation to Nichiren Buddhism was mainly due to his uncle having been a high priest. Dr. Takemi himself did not necessarily believe Nichiren Buddhism. Dr. Takemi had a much broader concept.

Although I did not have an opportunity to hear the reason from Dr. Takemi directly, I have long wondered why he advised me to study ancient Buddhism.

Any religion, Western or Eastern, gets additions and extensions over time. An old sutra includes an item that says, “Buddha did not answer.” This item is called “muki (The unlabeled)” or “shachiki (responding with silence).”

Buddha was asked by believers of other religions if he understood the world after death because most religions think highly of the after-death world.

Buddha did not answer that question.

He did not answer because real society has many issues that need to be solved. We should direct our total energy to solving such issues. Having no interest in matters that are not directly connected with reality, he chose not to answer such a question.

Ancient Buddhism is close to philosophy and different in quality from other religions. Precisely speaking, it is not a so-called religion, which, I think, was what Dr. Takemi wanted to say the most. Although various schools of today’ s Buddhism have some important aspects that should be maintained as customs and traditional social practices, the concepts of ancient Buddhism and Buddha’ s teaching are essential.

Ancient Buddhism was a philosophy. The Indian philosophy before the emergence of Buddhism was based on well-structured logic. Indian logic, or Vedas-based philosophy, was on Dr. Takemi’ s mind, and he must have called such philosophy “Seizon no riho (principle of human existence).”

When he talked about principles, he mentioned the logic derived from the Inmyo (hetu-vidyaa) theory of Indian philosophy, which he studied.

Dr. Takemi was good at putting the right term to each concept or phenomenon. The term “Looking Back from the Future,” which he used often, is also an excellent term.

Dr. Takemi noted that he took the term from the Inmyo theory.

The Inmyo theory includes “Kohi (comparison with events that occur later)” and “Zenpi (comparison with past events).” The Inmyo theory is a concept to study and learn from the events that occurred in the past and utilize the learning to create a better future.

The concepts of Kohi and Zenpi are important, he said.

It immediately becomes clear that his thinking included the concept of “Backcasting for innovation,” a term used often recently.

The term “Backcasting,” which was first used in Sweden for an administrative policy in the 1990s, is from “back casting” in fly fishing, which refers to a pullback action when casting a fishing rod by pulling back the rod first and then throwing it forward.

Compared with “Backcasting,” though, I feel that Dr. Takemi’s term “Looking Back from the Future” expresses the same concept more accurately and concisely.

When Dr. Takemi delivered lectures, he never provided precise definitions for the terms that he used. When mentioning molecular biology, he said, “Looking Back from the Future” without explanation. The audience later had to think about what that meant. More than 35 years since he used that term, people are finally showing interest in it. At that time, however, it was difficult to determine the significance of the term.

“Harvard Seminar”

After the discussion on life sciences had progressed to a certain level, Dr. Takemi wanted to expand it to a global trend. To this end, with a plan to establish a Takemi Course at Harvard University, he collected donations from JMA associates and pharmaceutical companies and created a professorship at the Harvard School of Public Health.

This was realized because Dean Howard H. Hiatt at the Harvard School of Public Health was a huge supporter of Dr. Takemi’s concept. A department of public health, which is included in the department of medicine in Japan, is an independent discipline in the United States.

Although I thought it would be difficult for foreigners to understand Dr. Takemi’s concept, which includes the perspective of Buddhism, Professor Hiatt seemed to understand Dr. Takemi. When Dr. Takemi passed away, Professor Hiatt visited his grave. Professor Hiatt adored Dr. Takemi to that degree.

Dean Fineberg, Dean Hiatt’s successor, was also a wonderful person. When I heard Dean Fineberg suddenly resigned as President of an affiliated hospital of Harvard Medical School, I went to Harvard University and directly asked him the reason for his resignation.

Dean Fineberg specializes in pediatrics. In Boston, where Harvard Medical School and the group of its affiliated hospitals are located, low-income families were not able to afford children’s healthcare at all, resulting in a high death rate of infants.

Dean Fineberg said that he realized he had not paid attention to the real societal situation and decided to devote himself to children’s healthcare in local communities.

Although I sense that Harvard University includes quite a few people seeking fame and prestige rather than content, there are wonderful deans too. Such great deans shared a passion with Dr. Takemi.

Dr. Takemi wanted to nurture the next generation overseas to contribute to solving healthcare problems throughout the world, including Japan. Through such activities, I sensed that he was predicting that life sciences would develop steadily.

Before he died, Dr. Takemi said that healthcare costs would become problematic in 20 to 30 years. As the society ages, a pyramid of population changes its shape. This problem will become extremely serious in Japan. We need to start thinking about this problem; otherwise, Japan’s healthcare system could become unethical, for example, “Just leave the elderly with illnesses to die.”

There is only one method to address this issue, he said, which is the provision of scientific preventive care on a regular basis.

At that time, not enough research had been done on the prevention of illness. There was not such a movement either. He insisted on the absolute need for research on preventive care.

Dr. Takemi's point was specific preventive healthcare methods.

True preventive healthcare including forward-looking cohort studies is crucial, but almost no such measures were being taken in Japan. Dr. Takemi was concerned about that reality from the beginning.

In foreseeing the serious aging of society at an early stage, Dr. Takemi showed the direction for the healthcare policy of the Japanese government, in much the same way a compass shows direction.

Now, finally everything that Dr. Takemi said is easy to understand. He used such expressions as "Stability in Instability" and "Optimal Allocation of Medical Resources" 30 or 40 years ago.

He expressed to me his serious concern about ethics in healthcare.

In such a low-ethical situation where the issue of abortion has never surfaced, if the aged society arrives, he said, extremely inhumane results could happen.

"Ethics"

The issues of bioethics and life sciences might be as close to each as two sides of the same coin. In today's radically changing world, ethics is increasingly important.

Ethics is a key issue today because there are many ethical issues but no related ongoing research. No research means no understanding.

I am interested in the process of evolution of animals and the fact that there was no era in the history of evolution in which information devices were used like today.

Therefore, the human brain is not structured to adjust to the information age.

With the widespread dissemination of information devices/equipment and the Internet, a huge imbalance has emerged in the relation between the evolution of the human brain and the environment surrounding the brain. In the Internet society, the distance between individuals has expanded and we are in a risky situation with serious ethical issues.

Although medical science was born as a technique, it should not be limited to techniques. Healthcare must develop taking in other factors as well, through which the ethical issues will surface.

What has emerged in the increasingly unstable global situation is the issue of human dignity. Everyone may be feeling that human dignity is being suppressed. That might be why the issues of life sciences and ethics are priority themes in today's world.

That is my understanding.

Although various ethical issues have been mentioned, I do not think enough has been done yet.

In such a situation, high-quality and in-depth discussion is ongoing at the Pontifical Academy of Sciences (PAS) in Vatican City, which is probably the world's highest-level related discussion.

The PAS in Vatican City has the longest history of science academies in the world. It is 400 and some years since it was established as Accademia Nazionale dei Lincei in the era of Galileo Galilei.

Although it is difficult to become a member without a Nobel Prize, membership is lifelong and approximately 50 academicians discuss and determine the world's most urgent issues. Then, selecting the most appropriate people to discuss specific issues, the PAS invites additional dozens of participants throughout the world for extended workshops.

I have attended four such workshops at the Vatican.

The content of the discussions at the workshops have been published by Cambridge University Press and Springer. Clear directions determined as a result of in-depth discussions support the viewpoints dispatched, at

present, by Pope Francis.

When U.S. President Trump visited the Vatican, the Pope gave Trump a book about the environment, which is a theme that the PAS has discussed thoroughly. Although President Trump said religious groups should not comment on issues of the environment and economics, Vatican City has the Academy of Social Sciences, at which thorough discussions are ongoing among participants including Nobel Prize winners and candidates.

Following Pope John Paul II, the Academies in the Vatican have become increasingly scientific. Regarding the incident of Galileo Galilei, the Catholic Church formally apologized to Galileo Galilei. Regarding the theory of evolution, although many U.S. states still do not approve the theory of evolution in education, the Vatican, where the theory of evolution is now regarded as something beyond a mere theory, announced that the theory of evolution has been publicly accepted as a biological hypothesis.

Ironically, immediately after Pope Francis gave President Trump a book on the results of the discussion at the Academies in the Vatican, the United States announced its withdrawal from the Paris climate conference (COP21).

In ancient Greece, Plato created an Academy when he was about 40 years old, having inherited Socrates' desire to nurture human resources who could govern the country. Aristotle, who was young at that time, joined the Academy and learned together with Plato until Plato died at age 80.

I think Academies worldwide should return to their origin and think about the Academy's original concept again.

The most important role of Academies is to be a compass.

The original Academy positioned, at its central core, the combination of the theory of the universe and ethics—or, the “Right and True” such as the absolute existence of nature and “Principles.” The greatest existence, which you can call whatever, might also link to Dr. Takemi's “riho (principles).”

I wish we had an Academy pursuing these goals in Japan. We should establish one. That is why I talked about the STS forum. I believe now is the time for an Academy to fully discuss the theme of life sciences and make important proposals, if necessary, to the government and internationally.

Concerning ethics, when I received an invitation and met the Dalai Lama when he visited Japan, I asked him, “what is ethics? Because I don't know, please teach me.” I met him in his hotel room. The Dalai Lama was quiet, pondering, for about 30 minutes. Then, he said, “warm-heartedness or compassion.” He said “warmheartedness.” 4

Coincidentally, the final book of Hajime Nakamura, a great philosopher, was “Atatakana kokoro (Warm-heartedness),” with the subtitle “Toyo no riso (Eastern ideal).” This means the existence of the essence of Buddhism in his philosophy.

It was interesting to me that the Dalai Lama's answer happened to be identical to the title of the book Hajime Nakamura wrote before his passing. I feel that “warm-heartedness” might be the most important basis for all humans to continue to live together.

Although I did not hear Dr. Takemi say “warm-heartedness,” his thoughts and concepts could ultimately lead to warm-heartedness.

To discuss these important matters fully, he proposed a large “container” called “life sciences.”

Although I was called “almost lovesick!” by people around me after meeting Dr. Takemi, I feel his strongest attraction was his warm-heartedness.

Although each of us has started from a different entry point at the base of the mountain, the term we will see on the flag at the summit might well be “warm-heartedness.”

Notes:

1.The Japanese Association of Medical Sciences (JAMS)

JAMS is an academic organization originating at the 1st Japan Sogo (comprehensive) Medical Conference, held in 1902, at which medical academic organizations participated. By resolution of the 12th general conference, held in 1947, it was determined to establish the Japanese Association of Medical Sciences (JAMS) as a permanent organization. In 1948, JAMS was integrated with the Japan Medical Association (JMA), which was under reorganization at that time. (Dr. Taro Takemi became Vice-President of the JMA in 1950 and President of the JMA in 1957). The JMA's Articles of Incorporation include the following provisions: "The Japanese Association of Medical Sciences (JAMS) shall be placed within the Japan Medical Association (JMA)," and the "Purposes of the JAMS are to promote research on medical science and technologies and contribute to improvements in the standards of medical science and healthcare." JAMS currently has 129 subcommittees (academic conferences). The 30th JAMS General Assembly (held every four years) will be held in Nagoya in 2019. The 29th JAMS General Assembly (held in Kyoto in 2015) began with opening lectures by Yoshitake Yokokura, President of the JMA, and Fumimaro Takaku, President of JAMS. In addition, Hiroo Imura, Chairman of General Assembly of JAMS, summarized the themes in an easy-to-understand way, editing and publishing "I to Ningen (Medicine and Human Beings)" (Iwanami Shinsho, 2015) as a commemorative edition. Hideaki Koizumi wrote one of the Chapters of the book.

2.CAETS

The International Council of Academies of Engineering and Technological Sciences (CAETS) consists of academies of the 26 member countries. One academy represents each country that satisfies the strict requirements stipulated in the Articles of Incorporation of CAETS (Bylaws). The membership of such academies is approved after undergoing deliberation at the CAETS council meetings and a prescribed period as an observer. In 1990, the CAETS membership was approved for the Engineering Academy of Japan (EAJ) as the science and engineering academy representing Japan.

3.IAP

The Inter Academy Partnership (IAP) consists of an IAP for Science, an IAP for Health and an IAP for Research. Before a recent reorganization, it was called the Inter Academy Panel. The IAP is a loose coalition of 130 academies. The Science Council of Japan (SCJ) serves as a Board Member at the IAP for Research. Also, CAETS (Note 2 above) serves as an Ex Officio Board Member.

4.Dalai Lama

Because political disputes tend to become an issue concerning the Dalai Lama, I consulted the Ministry of Foreign Affairs of Japan in advance. Their answer was that there was no problem because I had received an invitation and the conversation was limited to science and religion.