LITTERAE POPULI

A news magazine presented by Hokkaido University



Recent News from Hokkaido University



Litterae Populi

Litterae Populi is a bi-annual magazine with the latest news about Hokkaido University. Its name is Latin for "letters of the poplar trees."

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Cover Photo taken at Central Lawn

Feature: To Tackle

Hokkaido University will celebrate its 150th anniversary in 2026, and we are now tackling the challenges of both local and global issues in the pursuit of achieving the SDGs. Here we introduce three initiatives under the theme of "To Tackle."

Japan's northernmost experimental forest: a showcase of future forest development



Field Science Center for Northern Biosphere Teshio Experimental Forest The Teshio Experimental Forest has not only served as a site of research and education of the University, but also as a property where trees have been grown for business purposes. We are making the most of the natural environment and vegetation of Japan's northernmost research forest to create a forest with even more diverse functions.



Lumbering work at the Teshio Experimental Forest.

Japan's northernmost university research forest

The Teshio Experimental Forest is Japan's northernmost university-owned forest. It is located on the 45°N in the latitude. It is about 300 km north of the Sapporo Campus—a 5-hour drive. It was established in 1912 as the Toikanbetsu Experimental Forest of the Agricultural College of Tohoku Imperial University, which preceded Hokkaido University. It covers an area of about 22,500 hectares, equivalent to 4,800 times the size of Tokyo Dome baseball stadium. The Teshio Experimental Forest and its neighboring Nakagawa and Uryu experimental forests are famous as a trio of northern forests covering a total area of over 60,000 hectares. The Teshio Experimental Forest is one of the world's largest research forests owned by a single university.

Special soil and flowers that bloom only here

The forest area experiences heavy snowfall and the annual average temperature is about 5°C. The western part of the forest comprises a mixture of coniferous and broadleaved trees, which are typical of Hokkaido, while the eastern part is globally valued pure forest of Sakhalin spruce. "These three northern forests show similar vegetative composition, but the Teshio Experimental Forest has more conifers, which are suited to cold climates, than the other two. The reason for the domination of the Sakhalin spruce is not only the climate, but also the geological conditions," says Professor Kentaro Takagi, the director of the Teshio Experimental Forest at the Field Science Center for Northern Biosphere.

In the eastern part of the forest, ultramafic rock called serpentinite is widespread, and the soil here resists vegetation establishment by general plants. Pure forests of the slowgrowing Sakhalin spruce have developed under these special soil conditions that are unsuitable for the growth of other tree species. Growing slowly over hundreds of years, Sakhalin spruce exhibits closely spaced annual rings, making it ideal for precise processing. The wood was once prized for musical instruments. The Teshio Experimental Forest preserves Sakhalin spruce trees that are over 500 years old.

The vegetation in serpentine zones tends to be unique. In addition to the Sakhalin spruce, several other endemic species are found in this zone. Teshio-kozakura (*Primula takedana*) of the primrose family blooms only here, and attracts enthusiasts from all over Japan during its annual one- to two-week flowering season. Ozeso (*Japonolirion osense*) is found only in Teshio, on Mt. Shibutsu near Ozegahara in Nikko, and on Mt. Tanigawa. Blooming only in isolated areas, Ozeso attracts great scientific interest, and researchers from other universities regularly visit the experimental forest to study the plant.

Serving as a research field for the Brown Bear Research Group

The Teshio Experimental Forest abounds in wildlife, including the Ezo brown bear, Steller's sea eagle, Japanese huchen, and cherry salmon. The unique value of the





Professor Takagi, director of the Teshio Experimental Forest.



Distribution of serpentinite in the Teshio Experimental Forest.

forest attracts researchers not only in forest science, but also in ecology, geology, and various other fields. The natural environment here is used for practical training of undergraduate and graduate students of Hokkaido University, as well as other institutions in Japan and beyond. Before the COVID-19 pandemic, the forest was used by a total of more than 3,000 people a day per year.

The Hokkaido University Brown Bear Research Group, a student club, also uses the Teshio Experimental Forest as their research field. For over 40 years since 1975, the group has conducted brown bear population and other surveys. Many club members draw on their field survey experience at



the forest to become researchers at universities and research institutions. In July 2021, the Brown Bear Research Group published a paper on the results of their analyses of 40 years' worth of data on brown bear traces like footprints and scats, under the initiative of the group's alumni.

Large-scale, long-term research

The Teshio Experimental Forest, with its vast tracts of land, heavy machinery, and technical staff, has been the site of large-scale, long-term field research. One research project monitors the carbon cycle function of forest ecosystems. This project was launched in 2001 by Hokkaido University, the



Left: A 30-meter-high tower equipped with monitoring devices.

Above: Inside a prefab hut located by the monitoring tower. In this computer room, researchers analyze various sets of monitoring data.

Below: Work with a high-performance forestry machine called Feller Buncher Zaurus Robo. This heavy machine builds forest roads, fells trees, and collects felled trees.

National Institute for Environmental Studies (NIES) Center for Global Environmental Research, and Hokkaido Electric Power Company's Research and Development Department to clarify how human activities affect the forest's ability to absorb CO2. In this project, researchers cut down trees in a 13.7-hectare area and planted about 30,000 seedlings in the clear-cut area. They have been monitoring how the forest's CO2 absorption changes through the processes of logging, planting, and growing of trees long-term. During the initial seven years after logging, more CO2 was emitted than was absorbed, but in the eighth year this trend was reversed, and CO2 absorption began to outpace CO2 emissions. It took as



Koike, who is set to retire in March, is imparting his skills to his younger colleagues



Yamamoto is using a chainsaw to remove branches.

long as 18 years for the forest to recover all the CO2 emitted into the atmosphere due to the logging. The infrastructure of this ongoing monitoring site has also been used for many other studies, including those on the material cycle in river basins, CO₂ emissions from soil, and numerical simulations. Professor Takagi mentioned, "We all came together to plant seedlings. While continuing various studies, we predicted that we would be able to recover all the CO2 released by clearing trees by the time of the 2020 Tokyo Olympics."

Another project is a soil warming experiment that began in 2007. This field study will examine whether or not a long-term, 3°C elevation in soil temperature will accelerate carbon decomposition in the soil. Forest inventory studies for the entire Teshio Experimental Forest are also being conducted from ground-based and aircraft measurements. Long-term monitoring data on the ecology and environment of the forest have been collected and made publicly available for use by researchers worldwide.

Superb artisanship and state-of-the-art machinery

When asked about the appeal of the Teshio Experimental Forest, Professor Takagi modestly replied, "I'm grateful that people of different backgrounds use the forest despite its geographical disadvantage. I think another attraction is its relatively high wood production." The Field Science Center for Northern Biosphere, of which the Teshio Experimental Forest is a part, introduced state-of-the-art, high-performance forestry machinery about two years ago, and the efficiency of wood production has skyrocketed. The machines have been used in parallel with the traditional method of logging with chainsaws. The Center has also devised ways to sell lumber, such as auctioning good lumber at precious wood markets. This has led to a twofold increase in profits since the machines were introduced.

Logging takes place in winter, when the trees are dry. Locally employed skilled forestry staff play a crucial role in logging here. Among other things, felling of standing trees requires excellent skills. One of the staff members, Yoshinobu Koike, is highly skilled in the quick felling of trees in the right direction, and has earned the trust of Professor Takagi and other faculty members. Reflecting on his work at the forest, Koike observes, "My work is diverse. For example, I operate heavy machines, plant saplings, and cut bamboo grass. I also sometimes help faculty members and students with their research. As a result, I've learned a lot myself. While logging in winter is hard, it is truly rewarding. Now that we have machines, it has become a little easier. I used to cut down about 20 trees a day with a chainsaw."

Skilled young forestry staff are making vigorous efforts with the support of their colleagues to overcome the shortage of willing successors facing the forestry industry in general. Yurika Yamamoto, who is in her second year at the Teshio Experimental Forest, joined the forest staff at the recommendation of her high school teacher. She expressed



Teshio Experimental Forest office building in a blizzard.

her aspirations, saying: "At first, I was worried that I would not have the physical strength for logging, but with the support of my senior colleagues, I've made it. Since I was in junior high school, I have always wanted to pursue a career related to the environment. I think I'm doing important work because cutting down trees and maintaining forests help preserve the environment. I hope to learn to do a good job like my senior colleagues." Yamamoto admires Koike as her mentor and has learned various techniques from him, including how to ensure safety.

Creating forests with diverse values and functions

In 2017, Hokkaido University and Horonobe Town, where the Teshio Experimental Forest is located, concluded a comprehensive partnership agreement to promote studies, education, culture, and local industry. Based on the agreement, wine barrels have been made from Japanese oak from the Experiment Forest. Wine, sake, and craft gin that have been aged in these barrels are sold in Horonobe and also serve as gifts in return for donations received as part of the tax-deductible donation program known as furusato nozei. Collaboration will continue across a wide array of fields, including the joint organization of work experience programs for junior high school students, a Teshio-kozakura flower appreciation event for enthusiasts throughout Japan,

and open seminars for local residents.

Professor Takagi stresses the future of forest management: To ensure efficient wood production while protecting the academic and scenic value of the Experimental Forest, it is essential to manage it from a long-term perspective in consideration of the ideal function of each part of that forest.

At the Teshio Experimental Forest, efforts have been made to find a way to generate profits while protecting the valuable vegetation that has thrived in the challenging natural environment and distinctive soil. Today, the staff are taking another steady step in the snowy mountain forest toward the goal of becoming a sustainable research forest in the future.



Wine barrels made by Horonobe Town

According to the Ministry of Health, Labour and Welfare, the number of dementia patients aged 65 or older is expected to reach around seven million by 2025. This means that one in five elderly people will suffer from dementia. With its particularly rapidly shrinking and aging population, Hokkaido is expected to have a high ratio of dementia patients. Addressing the dementia issues requires a perspective stretching beyond medical intervention. It is a social issue that demands a comprehensive approach. Against this backdrop, Hokkaido University established the Cognitive Science Research Center in April 2022 to promote dementia-related research and countermeasures. and to ensure the successful deployment of the results in society. At the Center's inaugural lecture meeting in July 2022, Hokkaido University President Kiyohiro Houkin, who chaired the Science Council of Japan's Comprehensive

Study Committee on Cognitive Impairment, delivered a keynote speech. The event drew a significant crowd, including researchers from within and outside the University, as well as corporate representatives, indicating the keen interest in this subject matter.

Tackling the challenges with the University's collective strength

Dementia-related research subjects are manifold. In addition to medical areas, dementia involves countless issues crossing disciplinary boundaries that must be addressed, including social issues of supporting people with dementia and enabling them to live their own lives. Expertise in information engineering and other disciplines is also necessary to take advantage of AI and other technologies. Capitalizing on the advantages of the comprehensive

Cognitive Science Research Center Creating a sustainable, dementia-friendly society



The Cognitive Science Research Center was established in April 2022 to promote world-class dementia-related research towards the creation of a sustainable aging society. Here, a broad array of research projects are underway to solve the pressing issues facing Japan's aging society by bringing together all the wisdom of Hokkaido University.



university, the Center aims to create a dementia-friendly society, based on the three pillars of developing technologies for the prevention, diagnosis, and treatment of dementia; creating a dementia-friendly community; and promoting digitalization and eliminating the digital divide.

The members of the Center include researchers from various departments, including the Faculty of Medicine, the Faculty of Health Sciences, Hokkaido University Hospital, the Institute for Genetic Medicine, the Faculty of Advanced Life Science, and the Faculty of Information Science and Technology. Professor Ichiro Yabe (Department of Neurology, Faculty of Medicine), who serves as the representative of the Center, shares his aspirations, "My hope is that by fostering more lateral ties through interdepartmental collaboration, we can achieve greater research results than before."

Dementia is a general term used for symptoms caused by cognitive decline and does not denote a specific disease. Even if someone is diagnosed with dementia, identifying the specific causative disease can be an extremely challenging task. This has been an obstacle to the development of therapeutic drugs. To find clues to resolve this issue, Professor Yabe is focusing on the establishment of a brain bank in Hokkaido. Brain banks collect and store biological samples of dementia patients, including brain, spinal fluid, and blood, for use in the development of diagnostic and therapeutic methods. Brain banks already exist in and around Tokyo, but there are none in Hokkaido, yet. The establishment of brain banks for the analysis of genes, proteins, and other biological molecules helps to identify components that may be applied to diagnose dementiacausing diseases, which in turn lead to the development of therapeutic drugs.

Currently, the Faculty of Advanced Life Science and the Institute for Genetic Medicine are using these biological samples to develop biomarkers that can be used for the early detection of dementia, the diagnosis of diseases that cause dementia, and evaluation of the severity of dementia.

Living well with dementia

The COVID-19 pandemic has clearly shown the importance of remote systems in a wide range of fields. Regardless of the pandemic, however, remote systems may be key in the fight against dementia. As with other diseases, early detection of dementia is essential for its treatment, but specialist consultations are not easily accessible to people in many areas of Hokkaido. As the Center's coordinator, Associate Professor Mika Otsuki (Department of Emergent Neurocognition, Faculty of Health Sciences) remotely monitors the daily lives of elderly people while maintaining respect for their privacy, observing changes in their movements and collecting and analyzing their data to detect early signs of dementia. Dr. Otsuki enthuses about the future, "We are currently collecting data with the cooperation of elderly residents of the Makomanai Danchi-Complex in Sapporo. I hope to collect data on a much larger scale in the future, and to use the analysis results to benefit the community, and establish a regional network to combat dementia."

The center is also conducting many other projects, including the development of diagnostic imaging



Experiments at the Department of Neurology, Faculty of Medicine.

techniques using new MRI technology, the suppression of brain inflammation that is associated with early symptoms of dementia, the study of genes that cause dementia, and the research of dementia-preventing foods. Through these research projects, the issue of how society should address dementia is investigated from many perspectives.

Dr. Otsuki comments, "People with dementia require varying degrees of care, from around-the-clock assistance to none at all. Our goal is to create a seamless system that provides care at every stage of the disease, allowing people to help one another when necessary." Professor Yabe hopes that many people will become interested in dementia and join them as friends of their research or supporters of people with dementia. The Cognitive Science Research Center strives to create a dementia-friendly society filled with optimism for the future by tackling dementia together, a disease that will affect everyone directly or indirectly.





Above: Remote evaluation of an elderly person's cognitive function. Below: Explaining how to use a cell phone to perform brain training exercises.



Hokkaido Transformation Cross Space (HX) An integrated pre-incubation facility

Fostering a new generation of entrepreneurs in Hokkaido to drive positive global change

The Hokkaido Transformation Cross Space (HX) is a hub of support for R&Doriented startups in Hokkaido. It helps researchers and students start businesses through widely differing programs, including an entrepreneurship development program, a human resources matching program, and networking events for experts, researchers, and representatives from companies.

Hokkaido has seen a rapidly shrinking, aging population. The brain drain from Hokkaido has also cast a cloud over sustainable development of industries. Particularly noticeable is the outflow of talented young people, as many Hokkaido University graduates find jobs outside Hokkaido.

To help transform Hokkaido from a region with advanced challenges to an affluent, livable region, the Hokkaido Startup Future Creation Development by Mutual Support Network, or HSFC^{*1} for short, was established in 2021 Yosuke Takita, a manager at HX, comments, "HSFC is an academia-centered industry-government-banking collaboration platform that includes 15 Hokkaidobased universities and technical colleges centered around Hokkaido University, Sapporo City and other local governments, and financial institutions. Here, universities and collaborating institutions join hands to create R&Doriented startups." The goal goes beyond simply creating a large number of startups and helping them achieve economic prosperity; HSFC endeavors to build a startup support system as a framework for solving the challenges facing Hokkaido.

In October 2021, Hokkaido Transformation Cross Space (HX) was launched to bolster this network of universities and collaborating institutions and implement initiatives to

accelerate business creation.

Entrepreneurial consultation services to catalyze the formation of new industries

The name "HX" is derived from the concept of transforming the conventional industrial structure by multiplying (X) the wisdom (H) of Hokkaido. The word "wisdom" is "*eichi*" (叡 智) in Japanese, a homophone for the alphabet H.

HX has four major initiatives: support of entrepreneurial activities, entrepreneurship development, the development of an entrepreneurial environment, and the formation of entrepreneurial ecosystems.

Manager Takita explains, "In our support of entrepreneurial activities, we work closely with researchers (faculty members) and students who wish to start their own business. Entrepreneurship development is aimed at students with the main goal of fostering an entrepreneurial mindset and teaching them how to start a business. The development of an entrepreneurial environment is exactly what HX is about. As we see HX as a pre-incubation facility for the next step, we encourage anyone wishing to start a business to freely contact us. The formation of entrepreneurial ecosystems means building a solid structure for startups by strengthening not only intra-university networks, but also networks with industry, government, and financial institutions."

The first in line to accelerate job creation

HX serves as a hub of networks as its members include not only staff affiliated with Hokkaido University, but also faculty members of Otaru University of Commerce and other outside advisors.

"Examples of matters that faculty members often seek advice on include things to consider when building a startup, such as patents and trademarks, as well as postlaunch fundraising issues. We actually offer fundraising coordination services," comments Haruka Chiwaki, a manager at HX.

Advice seekers include students who have only a vague idea about starting a business. "To students thinking about launching a business rather than finding a job, I explain the business sector and the process of establishing a company based on my own experience," says Shinta Yanagihara, another manager.

HX was launched during the COVID-19 pandemic. After more than a year, the number of face-to-face consultations is gradually increasing, as is the number of events.

"We want to engage students not only in science, but also in the humanities. To raise awareness of entrepreneurship, we held social business events in 2022. For the events, we partnered with the managers of four incubation centers in Sapporo, including EZOHUB at a Satudora^{*2} outlet, and took turns hosting events on social business once a week. Those events attracted a total of about 100 people and were supported by the City of Sapporo, the Hokkaido Government, and the Sapporo Electronics and Industries Cultivation Foundation," remarks Manager Takita.

Manager Chiwaki adds that they have also started holding events to match researchers with business owners. When starting a business, researchers often face the problem of having no one to serve as a manager. This has led to the organization of such matching events in partnership with



The exterior of HX, located on the Northern Campus (Kita 21, Nishi 11).

K-NIC*3. HX has received many consultation requests from business owners interested in research seeds at Hokkaido University.

"The work here is more rewarding than challenging," says Manager Chiwaki. "Faculty members who come to us for advice have one thing in common: their strong desire to use their expertise to bring positive change in the world. I've seen the power of people and networking every day as I've realized how working together opens new horizons."

In the long history of the University, some research projects have developed alongside Hokkaido's industries. With practical learning upheld as one of the University's fundamental philosophies, HX is committed to tackling the challenges facing Hokkaido and creating new sustainable industries.



At a press conference held when HX was launched in October 2021, Kiyohiro Houkin, President of Hokkaido University, and Makoto Anazawa, President of Otaru University of Commerce, joined forces to create startups.

- *1: The abbreviation HSFC is pronounced *eichi force*, which means the power of wisdom.
- *2: [•]Satudora" is short for Sapporo Drug Store, a drug store chain headquartered in Sapporo.
- *3: K-NIC is the acronym for the Kawasaki-NEDO Innovation Center. It's a one-stop support center for entrepreneurs operated by the tripartite collaboration of the New Energy and Industrial Technology Development Organization (NEDO), the City of Kawasaki, and the Kawasaki Institute of Industrial Promotion.

[HX website]





Interview with the president

Guest

KIMATA Masatoshi

Chairman of the Board, Kubota Corporation

Since its founding in 1890, Kubota Corporation has been committed to solving various social problems in the areas of food, water, and the environment. Today, Kubota conducts business in more than 120 countries, with overseas sales accounting for more than 70% of its total sales. President Kiyohiro Houkin, who has been leading reforms to make the University an unparalleled institution, interviewed Masatoshi Kimata, an alumnus of the University and a driving force behind Kubota's globalization, about his life and Kubota's corporate philosophy, among other topics.

Frontier spirit to tackle global challenges

Student days spent doing nothing but experiments

- Houkin: I was watching the World Cup soccer match on TV early this morning (Japan vs. Spain on December 2) and was impressed by the Kubota commercial. It communicates the image that Kubota is a forwardlooking company doing business with a data-based understanding of Qatar, the host country of the World Cup.
- Kimata: In Qatar and other Middle East countries, we have mainly contributed to water projects. Another commercial featuring actress Masami Nagasawa, with the message Because there is a wall, we go there, also attracted attention both inside and outside our company.
- Houkin: I understand you are from Gifu Prefecture. Please tell us about your background and why you chose Hokkaido University.
- **Kimata:** Partly because my father and uncle worked for the former Japanese National Railways, I always drew pictures of steam locomotives as a child. My love of steam locomotives sparked my interest in boilers. Later, with the shift from steam to diesel locomotives, I came to be fascinated by diesel engines.

When I was in high school, I liked traveling by train, which made me want to also visit Hokkaido someday. I then thought that if I attended a university in Hokkaido, I would be able to travel there. So, Hokkaido became a dream destination as an extension of my travels.

Houkin: What were your student days like?

Kimata: I remember being cash-strapped and unable to travel very often. I spent the money I earned from my part-time job on tuition and alcohol. That said, I traveled around Hokkaido with a huge backpack like other cash-poor young travelers in Japan in those days. Just like those backpackers, who were called "crab tribe" because of their appearance from behind, I slept in train station buildings or on benches.

At the School of Engineering, I enrolled in Dr. Murayama's Heat Engine Studies Course 2 to



study diesel engines, my favorite subject. There, my supervisor, Dr. Murayama, and Takemi Chikahisa (professor emeritus at Hokkaido University, now president of Hokkaido Polytechnic College), with whom I worked as a lab team, would work me to the bone. This may be unthinkable today, but I often went without sleep for several days on end running engines.

My research was on how to reduce NOx and CO2 emissions from diesel engines. I spent hours collecting data while changing the injection method used for the engine. Through this experience, I developed a sense of perseverance.



I believe your research at the University has continued to this day. – Dr. Houkin

I strived to develop environmentally friendly engines. I also considered electronic control of exhaust gas purification and transition from diesel oil to hydrogen fuel.

Putting "Boys, be ambitious" into practice

- Houkin: I believe your research at the University has continued to this day. What made you decide to join Kubota?
- **Kimata:** Kubota was an option because it was a machinery manufacturer that was also engaged in research and development of engines, working on large engines at the time. I chose the company based on a strong recommendation by a senior student.

Upon joining the company, I expressed my desire to engage in R&D of engines during my placement interview, but I was assigned to a tractor plant in Tsukuba. I felt a bit let down at first.

Houkin: You started working in Georgia in the U.S. in 1988. I studied in California for about two and a half years from 1986. At that time, the Japanese economy was booming based on the strength of the yen, and many Japanese people were working around the world.

Kimata: When I was assigned, the Tsukuba Plant was an



I strived to develop environmentally friendly engines. I also considered electronic control of exhaust gas purification and transition from diesel oil to hydrogen fuel.

– Mr. Kimata

international plant in the company, and half of its products were exported. In view of the rapid appreciation of the yen, I advised the GM of the plant to open a production base outside Japan. Before I gave that advice, I had an opportunity to go on a two-month business trip across the U.S. The trip totally convinced me that my mission was to have Kubota develop tractors and other agricultural machinery suitable to the U.S. market. I was young and cocky, but I volunteered to set up a production base in the U.S. and was told to do so without any objections.

Houkin: In those days, most of the Japanese companies doing business in the U.S. were either on the East or West Coast. You must have had a hard time establishing a plant in the southern state of Georgia?

Kimata: I was the only expatriate in charge of the Plant, so it was truly challenging to do everything on my own, including planning, construction, employee recruitment, sales promotion, and new product development. That being said, I had free rein. The rigorous training that I had endured during my school years was paying off (laughs).

> I chose Georgia mainly because it had the largest market for tractors and other agricultural machinery in the U.S. Other reasons include the proximity to customers and the beauty of the area, which has many forests, like Japan. Today, Kubota has eight plants in Georgia employing about 3,000 people.

- **Houkin:** You returned to Japan seven years later. Was it challenging for you to adjust to the business culture in Japan?
- **Kimata:** When I returned to Japan, I wanted to be involved in the globalization of the company but ended up returning to the Tsukuba Plant. There, I worked on the development of large tractors and their sales in the U.S. Kubota's market share for large tractors had been a mere 3%, but I was able to boost it to 15%.

When I started working in the U.S. in 1988, Kubota was an unknown company. Around 1995, however, it came to enjoy greater visibility. After 2000, I was moved by the fact that more and more people said they were using our tractors. I had put "Boys, be ambitious" into practice.

Today, Kubota has plants all over the world, with more than 70% of its total sales generated overseas. Since half of those overseas sales are exported from Japan, however, we need to build more plants overseas.

- Houkin: In 2010, you went to Thailand as the president of the local branch of Kubota.
- **Kimata:** At the time, I was misunderstood as being strict about productivity and streamlining, which led to the formation of a labor union. Later, a massive flood hit Thailand, dealing a devastating blow to many companies. When many companies decided to pull out of Thailand, I publicly stated that Kubota would



never pull out. Nearly 1,000 employees joined me in the recovery efforts, and the labor union fizzled out. When I resigned, the workers sent me off with applause. I found my work there both challenging and rewarding.

Food, water, and the environment.

- Houkin: Japan has been mired in economic stagnation for more than three decades, and as the situation continues to worsen, there is pessimism about the country's economic future. How will Kubota respond to the situation and to globalization going forward?
- **Kimata:** Expanding business in niche markets may have been sufficient until now, but the time has passed when we can survive by focusing solely on the tangible aspects of our business. We see food, water, and the environment as the most important business areas for the future. We cannot necessarily help to increase food production just by making tractors, because we have to consider the intangible matters as well. Although I'm not inclined to embrace fads, digital transformation (DX) is the future of waterrelated projects. It seems to me that Japan is lagging

behind both in tangible and intangible aspects of the overall business process. We should take care of the entire business process, from start to finish, while at the same time enhancing productivity not only of machinery but also of crop cultivation, for example, through automation and robotization.

- Houkin: It's the concept of value chains, isn't it? In the medical industry, major companies that manufacture large equipment have recently formed value chains and focused more on establishing new software networks. Japanese companies have partially achieved some success, but not completely, because there are limits to manufacturing alone. I took your comment to mean that even a big company like Kubota still faces some obstacles.
- **Kimata:** If there are fewer farmers due to the aging of the population, there will be no one who can use agricultural machines, no matter how great they are. It is thus important to digitize and share the knowhow of those farmers. Smart agriculture must be promoted in broad areas including competitors and companies in other sectors, but that is not enough. We need to establish a structure that enables us to join hands with the world in reference to examples

in Europe.

Houkin: In retrospect, Kubota may have made many mistakes as well, I guess.

Kimata: We've made countless mistakes (laughs). Business

development can be classified into two types: the "parachute" approach, which involves expanding into unrelated areas, and the "underground water vein" approach, which entails exploring new opportunities within existing business domains. Agricultural machinery business belongs to the latter type, where business begins with castings and then expands to include cast pipes, engine blocks, engines, agricultural machinery, and construction machinery. Nevertheless, Kubota's management once ordered a "parachute jump" into new business fields because expansion in existing fields alone would not develop the company, thereby unsuccessfully embarking on the computer business and golf course management. I thought they'd better explore the terrain before diving.

I tell young employees that they can make mistakes because they can learn lessons from their mistakes, but the management is not allowed to make mistakes.



The activities of our alumni at Kubota are inspiring to our students.

– Dr. Houkin

HOUKIN Kiyohiro

President, Hokkaido University

Born in Hokkaido in 1954. Graduated from Hokkaido University School of Medicine. Doctor (medicine) (HokkaidoUniversity). Worked for Hokkaido University Hospital and other facilities since 1979. After working as a visiting researcher at the University of California, Davis, became an assistant professor at the Hokkaido University Graduate School of Medicine in 2000, professor of Sapporo Medical University School of Medicine in 2001 and professor of the Hokkaido University Graduate School of Medicine in 2010. After becoming the director of Hokkaido University Hospital/vice executive of Hokkaido University in 2013 and the director of Hokkaido University in 2017, assumed the present position in October 2020. Houkin: I agree. It's difficult, but the management should not take too large a risk. In golf, we say "Never up, never in." Those who know the situation well should oversee the business to make sure that it does not go in the wrong direction.

Lastly, I am interested to know which areas Kubota intends to concentrate its expertise on in the years to come.

- Kimata: Food, water, and the environment. Centering on these areas, Kubota will promote smart autonomous technology, resource circulation, and decarbonation to provide differentiated products and solutions that only Kubota can offer.
- Houkin: Actually, those fields are the strengths of Hokkaido University, and we have long been engaged in the fields of food, water, and air as field sciences. Hence, the activities of our alumni at Kubota are inspiring to our students.

Today, I was impressed by the idea of globalization. It's essential to consider where your company is in the world, and the same is true of universities as well.

Thank you very much for your time today.

Centering on the areas of food, water, and the environment, we strive to provide differentiated products and solutions that only Kubota can offer.

– Mr. Kimata

KIMATA Masatoshi

Chairman of the Board, Kubota Corporation

Born in Gifu Prefecture in 1951, Masatoshi Kimata graduated from Hokkaido University's School of Engineering and joined Kubota Tekko K.K. (currently Kubota Corporation) in 1977. He was transferred to the U.S. in 1988. After returning to Japan in 2001, he served as the GM of the Tsukuba Plant. He then assumed the posts of Director and Managing Executive Officer in 2009 and President of Siam Kubota Corporation, Kubota's subsidiary in Thailand, in 2010, among other positions. He was appointed as President and Representative Director in 2014, before taking up the post as Chairman of the Board and Representative Director in 2020. He assumed his position as the Chairman of the Board until March 2023 and is currently Special Corporate Advisor.

Refining: Cell Physiology

<complex-block>

Dr. Amano has been promoting the commercialization of a diagnostic technique developed by Professor Ohba. Their initiative has garnered significant public interest, culminating in them being bestowed the highest award by the New Energy and Industrial Technology Development Organization (NEDO) TCP* in March 2021.

*TCP stands for Technology Commercialization Program. It supports researchers with an entrepreneurial mindset. Their initiative, Opto-diagnostics Pickles to bring light to every patient's future, received the highest award at NEDO TCP.

Department of Cell Physiology, Faculty of Medicine, Hokkaido University

AMANO Maho

Lecturer

Maho Amano, a Doctor of Agriculture, completed her Ph.D. at the Department of Applied Biological Chemistry, Graduate School of Agricultural and Life Sciences, The University of Tokyo. She was appointed to the position of Specially Appointed Assistant Professor at the Faculty of Advanced Life Science, Hokkaido University, in 2007. She then became a <u>University Research Administrator</u>, a role that enhances and supports research activities; and thereafter an Assistant Professor at the Faculty of Medicine in 2019. She assumed the position of Lecturer in 2020, and was interviewed for this article during this period. In April 2023, she assumed the position of Specially Appointed Associate Professor.

OHBA Yusuke

Professor

Yusuke Ohba, a Doctor of Medicine, specializes in cell physiology and bioimaging. He completed his Ph.D. in Pathological Science at the Hokkaido University Graduate School of Medicine. He started his basic medical research as a researcher at the International Medical Center of Japan Research Institute. After working as an Assistant Professor at Osaka University and The University of Tokyo, he became Associate Professor at the Hokkaido University Graduate School of Medicinein 2006. He was appointed to his current position in 2012.

Successful deployment of groundbreaking research results in society

Physiology is the study of the basic functions and mechanisms of the body. In particular, physiology is aimed at elucidating the mechanism of homeostasis, the ability to maintain the internal milieu, which is a requisite for people to stay alive. Our bodies are known to be made of 60 trillion cells. Cell physiology seeks to find answers to the question: How is the homeostasis of each and every cell maintained?

Once homeostasis is disrupted, the risk of diseases increases. For instance, chronic myeloid leukemia (CML) is a blood cancer that develops when an abnormal chromosome known as the Philadelphia chromosome forms in hematopoietic stem cells, and the protein BCR-ABL appears in the cells.

While molecular targeted drugs are considered effective for the treatment of CML, it takes months or even more than a year to determine the efficacy of the drug in each patient after the treatment was started. If the drug was found ineffective, different drugs must be used. To solve this problem, Dr. Yusuke Ohba, Professor at the Faculty of Medicine, developed pre-treatment diagnostics for CML therapeutics utilizing fluorescence diagnostic technique, and Dr. Maho Amano, a Lecturer in the faculty, has worked to deploy the diagnostics in society.

Professor Ohba has been engaged in medical biology research since 2012 in the Department of Chronophysiology of the Hokkaido University Graduate School of Medicine(currently, Department of Cell Physiology, Faculty of Medicine). Previously, he had been engaged in research at International Medical Center of Japan Research Institute the International Medical Center of Japan Research Institute; Osaka University; and The University of Tokyo, following his graduation from Hokkaido University's School of Medicine. One of his research focuses has been fluorescence bioimaging, with the goal of applying it to clinical testing. Fluorescence diagnostic technique enables highly sensitive and quantitative measurement of protein interactions and structural changes in living cells by visualizing them using fluorescent protein. Professor Ohba used the fluorescent protein-for which Dr. Osamu Shimomura won the Nobel Prize in Chemistry in 2008-to perform fluorescence bioimaging, and applied that technology to clinical testing for CML. He then developed the opto-diagnostic technique called Pickles (Pickles: Phosphorylation indicator of CrkL en substrate), which allows the evaluation and prediction of the efficacy of molecular targeted drugs for CML, enabling the pre-treatment determination of a drug's efficacy against specific CML cells. CML cells are isolated from a patient's bone marrow and Pickles is applied to them; when these cells are treated with different molecular-targeted drugs, CML cells for which the drug is effective appear blue and those for which the drug is ineffective appear yellow. The time required from bone marrow sampling to the determination of drug efficacy is about three days, enabling significantly accelerated confirmation of drug efficacy compared with the current methods. This revolutionary technology makes it possible to verify the efficacy of drugs at a glance-but the unprecedented nature of the technology left clinical testing companies uncertain.

Under these circumstances, to ensure the successful deployment of the opto-diagnostics developed by Professor Ohba in society, Dr. Amano launched a startup at Hokkaido University: Horizon Illumination Lab Optics, Co. Ltd., aka HILO. She had first learned about the research on optodiagnostics while investigating medical research seeds in her



Determination of drug efficacy using the opto-diagnostics Pickles. CML stands for chronic myeloid leukemia, and FRET stands for Förster Resonance Energy Transfer (also, Fluorescence Resonance Energy Transfer), a fluorescence diagnostic technique.

role as a University Research Administrator. She reminisces: "I found it puzzling that this remarkable research seed had not seen any progress toward commercialization, so I visited Professor Ohba. I realized that the social application of the technology would require the establishment of a company, but no one was available to take the lead as president. I instinctively wanted to give it a try myself." She established HILO in August 2021 and serves as its president. At present, she is kept busy with her duties as a university Lecturer as well as business owner.

Thoughts embodied in the company's name

HILO is the acronym of Horizon Illumination Lab Optics. Professor Ohba and Dr. Amano say they are aiming to create a society where imaging technology will shine light on each patient's future and enable them to receive treatment with peace of mind. They are seeking to obtain regulatory approval from the Ministry of Health, Labour and Welfare within five years, and continue on this path toward tailor-made medicine, selecting the optimal treatment for each CML patient.



HILO lab, located in the incubation facility Hokkaido University Business Spring, in the University's Northern Campus. The lab has two researchers. They engage in technology development through collaborative research.



Professor Ohba enjoys playing musical instruments. Staff members at the Department of Cell Physiology say that he is also good at cooking and DIY carpentry.



Dr. Amano likes reading books on non-work-related topics on holidays and before going to bed.

Using the power of painting to bring people closer to nature while listening to the voices of forests and the workers





HIRATA Misako

Manager, Management and Planning Section, Planning Division, General Affairs and Planning Department, Hokkaido Regional Forest Office, Forestry Agency

| School of Agriculture – Graduate School of Agriculture Graduate |

Misako Hirata aspires to become an "interpreter" and "cheerleader" of forestry using her illustration and cartooning skills based on her frontline experience as a forester at the Forestry Agency. The bold composition of her illustrations is fascinating, and her cartoons with humorous dialogue warm the hearts of readers. She works earnestly as a cartoonist at the Forestry Agency, and discussed her interests since her school years and her motivation to continue drawing illustrations and cartoons in an interview.

- What was your childhood like?

When I was a child, I loved reading The Insect World of J. Henri Fabre and drew insects and various other pictures.

When I was in the first grade of elementary school, my drawing of a fire engine was chosen to represent my class in a

sketching contest. As a girl who had rarely been praised, this incident made me decide to become a painter (laughs).

In high school, I had a sense of inferiority, because it was a struggle to study and manage the brass band I headed. Even so, my passion for creativity remained.

-What made you enter the Department of Forest Science in the School of Agriculture at Hokkaido University? What did you learn there?

In high school, I was in two minds on whether to become a painter or a biologist. Having studied painting on my own, I decided to study ecology at university and entered the School of Agriculture. There, I was blessed with classmates, 70 percent of whom were from outside Hokkaido, and we hitchhiked across Hokkaido. At the Department of Forest Science, it came to me as a shock when I learnt about mycorrhizal fungi. While forests support human life through the respiration of trees and the production of wood, it is fungi that support forests. Mushrooms are to fungi what flowers are to plants; the main body of fungi consists of hyphae, which spread around tree roots and in the soil. Fungi have a symbiotic relationship with tree roots. When hyphae extend to other plants, nutrients can be transported to distant trees through the hyphal network. In this respect, forests are a lifeform with interconnecting hyphae under the ground. My excitement at the realization that fungi support the flow of energy throughout the entire earth led me to decide to study mycorrhizal fungi.

While at university, I was impressed by a scene in a virgin forest in the Daisetsuzan Mountains. The forest was full of "corpses," which was contrary to my childhood impression that forests are full of life and therefore exciting, which I probably developed because my parents often took me camping. In forests, new trees keep growing on top of dead trees over hundreds of years. It was great to feel the endless cycle of death and rebirth.



—In relation to your earlier account of mycorrhizal fungi, I wonder if the broad compositions of your illustrations are due to your experience of seeing forests, including the underground, more extensively than most people. That may be so. I would like to serve as an interpreter

highlighting the relatively unknown but commendable parts of forests.

—What do you mean by "interpreter"?

I would like to spread the word about the functions of fungi and forestry. I want people to know that forests in Japan are preserved by those working in mountains. I also want forest workers to know the charm of forests and the fact that urban life cannot be sustained without forests. I draw illustrations in the hope that I will become a cheerleader who helps to create more cheering parties for forestry.

—How did you acquire the skills to use novel perspectives, such as bird's-eye view illustrations?

I have no idea. Someone who looked at my illustrations told me that they had never thought of such angles, but these angles come to my mind effortlessly. This may be because I had once read that Fabre used to crawl on the ground to watch insects.

—After completing graduate school, you joined the Forestry Agency, didn't you?

Hirata's works are posted on the Hokkaido Regional Forest Office website.





Yes. I also considered a career in research, but my desire to raise public awareness of the charms of forests, including fungi, led me to work for the Forestry Agency. In my second year there, I was appointed as a forester to patrol and survey the national forests. I was assigned to the Forestry Agency's first project to promote forestry while protecting the natural environment, together with local residents and members of a nature conservation organization in the Akaya Forest located on the border between Gunma and Niigata prefectures. The project involved many people who were familiar with the mountains, and the best I could do was to draw illustrations. Gradually, people began to use my illustrations, and I felt that illustrations could be my weapon.

—Is there anything you keep in mind when you draw illustrations?

I make a point of gathering information on site, as far as possible. I also have a specialist, such as a professor at Hokkaido University, take a look at my rough sketches whenever I can. In the beginning, many mistakes were pointed out, such as "Rabbits' ears face forward when they run." While it may be challenging to replicate everything precisely, the insights I acquired from visiting field sites myself continue to shape my understanding today.

—What are your career aspirations for the future?

My goal in life is to draw an illustration that will remain 100 or 200 years into the future. Even if I, the illustrator, become anonymous, I want to leave one that shows the relationship between living beings and forests. To achieve this goal, I will continue to study and draw illustrations.



Hirata's study in her house.

—Finally, what thoughts or insights would you like to share with the students of Hokkaido University?

Despite the prevalence of online communication, it is important to value in-person interactions. I believe my ongoing pursuit of what I love is what has led me to where I am today. I hope that Hokkaido University students will never be afraid to share what they love and value.

PROFILE

Misako Hirata was born in Hokkaido in 1978. After graduating from the School of Agriculture at Hokkaido University in 2002 and completing a master's course at the Graduate School of Agriculture in 2004, she joined the Forestry Agency. She worked as a forester in Gunma and Shizuoka prefectures, and then in the Forestry Agency's Public Relations Office in Tokyo, before being transferred to the Hokkaido Regional Forest Office. She has also worked as a cartoonist for the Forestry Agency to spread the appeal of forestry to the public.

Trom Korea/USA Letters from Ambassadors and Partners

A bridge between Hokkaido University and the world

This issue features contributions from Dr. Jong-Sup Park, who is active as a Hokkaido University ambassador in Korea, and Dr. Alexander Pettitt, who is active as a Hokkaido University partner in USA.







Dr. Jong-Sup Park Emeritus Professor, Department of Agricultural Economics, Chungbuk National University

A mbassadors play an important role in diplomacy, representing their own country and communicating its intentions to their host country. I believe my responsibility as a Hokkaido University Ambassador is to lead the internationalization of Hokkaido University; I encourage many young Korean people to pursue their dreams at Hokkaido University by promoting it in South Korea. I feel truly honored to be able to serve as an Ambassador because I want to do all I can for the development of Hokkaido University, where I worked from 1987 to earn my Ph.D.

I have given the students at Chungbuk National University, where I work, promotional materials about Hokkaido University that I receive from the Hokkaido University Seoul Office. In interviews, I have also told them what a wonderful place the University is. I have taught Japanese to students in my spare time for about 10 years. Some of my students have since gone on to study or enroll in short-term programs in Japan, and are now teaching at Japanese language schools. Increased

interest in the Japanese language and short-term programs in Japan among Korean students will motivate more students to study in Japan. The goal of Korean students studying abroad is to become university professors or researchers at research institutes when they return to Korea. To get a job at a university or research institute, they need to publish many papers in world-class academic journals and accumulate various research results. I hope Hokkaido University will provide more support for international students so that they can accumulate and publish many research results while studying in Japan.

I believe that the successful internationalization of Hokkaido University will require more robust people-to-people exchanges. It will be easier to solve problems by communicating in-person than by phone or e-mail. My meeting in Seoul with President Kiyohiro Houkin and Atsushi Yokota, Executive Vice President in charge of international affairs management, in November 2022, was truly instructive for me to help to internationalize the University as an

Ambassador. In my opinion, arranging regular meetings for Hokkaido University Ambassadors in different countries to engage in dialogue would solidify the collaborative framework for the development of the University.

I live in Cheongju City, an inland city located in central South Korea, where snow rarely falls. As the capital of North Chungcheong Province, the city has long been known as a city of education. The popular Korean dish of *samgyeopsal* is said to have originated in Cheongju's Seomun Market in the 1950s.

There are two adages that come to mind: "All things under the sun eventually converge like flowing rivers" and "While one can change one's nationality, the history of one's alma mater can never be changed." I hope that international students who studied at Hokkaido University will remember the University, where they pursued their dreams, forever. I urge everyone at Hokkaido University to unite with me in pursuit of its enduring development.





Dr. Alexander Pettitt Assistant Professor, Physics and Astronomy faculty at California State University Sacramento

was very pleased to be asked to continue to be a part of the Hokkaido University family. It has been an important part in my academic career and I'm very happy to give back in some form. During the pandemic, I've had little chance to do much as an HU Partner but, in the future, I would like to investigate the possibility of establishing a student exchange between our universities. I know there is a great deal of interest for students in the U.S. to spend some time in Japan.

While in Sacramento, I've continued to collaborate with students and staff in the astrophysics department at Hokkaido University. We discuss our ongoing simulation work on galaxies and aim to better understand their properties. I also have many fond memories of my time at Hokkaido University. It was the first time I had supervised student work, the first time I had taught at the university level, and the first time I was able to start my own fully independent research program. Going to the University's museum for a drink after work with ISP* colleagues, meeting my fiancée by the river at Central Lawn for lunch in the sunshine, and trying the tasty food at the Hokudai-sai (Hokkaido University Festival) are some of the more personal memories that spring to mind.

Sapporo and Sacramento are both capitals of their respective regions (Hokkaido and California), but both make the pace of life less hectic than other more bustling metropolises. They are also very well connected to nature, with nearby mountains, lakes, and countryside. California State University, Sacramento (CSUS) has lots of trees on campus, which makes for lovely Fall scenes, and both cities are also famous for the wide variety of food available, with Sacramento being called the "farm to fork" capital of America. The winters aren't as cold here, though the locals still manage to celebrate Christmas with great enthusiasm, and you can readily buv real Christmas trees (picture included with our cat!). The sum-





- 1. With students on the campus of Chungbuk National University
- 2. Get-together with members of a delegation led by the President of Hokkaido University (November 2022).
- 3 & 4. Activities of the Korea International Cooperation Agency (KOICA) in Ethiopia and Vietnam





mer is much hotter though, and as I'm from England I'm also not very used to temperatures above 40 degrees; it's been one of the harder things to get used to.

In Fall 2021, when I moved to CSUS, they were beginning the transition back to in-person instruction. However, the largest classes still had to be virtual, which was quite unfortunate for the students in my astronomy classes for example, we couldn't provide classes that were supposed to be held inside a planetarium.

The last few years have been tough on everyone but try to be as open to trying new things as possible! If given the chance to break out of your comfort zone a bit, do it. Travel somewhere new, meet some-it is experiences like this that shape you and your outlook on life.

* Integrated Science Program: an English-lan-guage Bachelor's and Master's degree program in science for international students at Hokkaido University

- 1. CSUS campus in the Fall.
- 2. Exploring Old Folsom, a historic region of greater Sacramento famous for the gold rush prospectors in the 1800s.
- 3. Famous riverboat hotel and restaurant moored on the Sacramento River.
- 4. Alexander Pettitt with his family cat, Freyja, in front of a real Christmas tree.



Movement to establish a medical college

There were diverse opinions about the independence of the Agricultural College of Tohoku Imperial University as an Imperial University consisting of two colleges by founding another college in Sapporo. Eventually, by around 1916, consensus was reached in favor of establishing a medical college. At the time, Sapporo Ward Hospital (located in the area of today's Kita 1-jo Nishi 8and 9-chome in Chuo Ward) needed to be reconstructed due to aging of the buildings, a lack of space inside the facilities, and the need to upgrade equipment to cope with infectious disease outbreaks. In light of the discussions on the establishment of a medical college, some members of the Sapporo Ward Assembly argued that the ward hospital that would be reconstructed should eventually be reorganized as a medical clinic affiliated with the medical college. Kyushu Imperial University in Fukuoka and Tohoku Imperial University in Sendai had both established medical colleges by repurposing the organization and buildings of local hospitals and medical schools. The proposal to utilize the ward hospital bolstered the university independence movement through the establishment of a local medical college.

Dr. Shosuke Sato, President of the Agricultural College of Tohoku Imperial University, had initially focused on establishing a science and engineering college, but in light of the local movement, he decided to ask the Ministry of Education to approve the establishment of a medical college for reasons including the need to nurture Bachelors

of Medicine in Hokkaido. President Sato also reasoned that the establishment of a medical college was essential for an Imperial University because the other Imperial Universities all had a medical college. For years, he had considered it his mission to develop the Sapporo Agricultural College into a comprehensive university. His vision was to first establish Hokkaido Imperial University independently of Tohoku Imperial University, consisting of two colleges of agriculture and medicine, and then to develop it into a comprehensive university by gradually adding colleges of science, engineering, law, letters, and so on.

Powerful local support

President Sato worked with Hokkaido Governor Magoichi Tawara and Unohachi Abe, Director-General of Sapporo Ward, as he negotiated with the Ministry of Education. The then Minister of Education in the Cabinet of Prime Minister Shigenobu Okuma, Sanae Takata, was an old friend of President Sato's dating back to their time in Tokyo Eigo Gakko [Tokyo English School], before Sato entered Sapporo Agricultural College. Takata expressed her support for independence as Hokkaido Imperial University by establishing a medical college. In September 1916, the Cabinet approved a budget of 1.46 million yen, which had to be raised continuously over a period of eight years, to establish a medical college on condition that it would not put a strain on the public purse. The budget bill was passed at the 39th session of the Imperial Diet held in July 1917.

The budget bill totaling 1.46 million yen included donations of 100,000 yen from the Hokkaido Government, one million yen from Sapporo Ward, and over 300,000 yen from private firms. Sapporo Ward played such a significant role in this movement that the local Hokkai Times newspaper even published a reader's letter to the editor insisting that the university should be named Sapporo Imperial University instead of Hokkaido Imperial University. Although the proposed reorganization of Sapporo Ward Hospital as a university-affiliated medical clinic did not materialize, the establishment of a medical school and

"This university-affiliated clinic was situated at the northern edge neighborhood. After it opened, however, the area was transformed the public had for the clinic." (*History of Hokkaido Imperial University*)

independence as Hokkaido Imperial University would not have been possible without the support of local residents, including those in Sapporo Ward.

Establishment of Hokkaido Imperial University School of Medicine

Hokkaido Imperial University was founded on April 1, 1918, achieving the long-pursued goal of independence as a university. Shortly thereafter, the term "college" was renamed "school," and on April 1, 1919, Hokkaido Imperial University established the School of Agriculture and the School of Medicine. In 1919, students aiming to enter the School of Medicine joined the preparatory course. Three years later, in April 1922, the inaugural class of 67 students joined the School of Medicine. Earlier, in November 1921, the School of Medicine's Medical Faculty Clinic became operational. Prior to the opening of the Medical Clinic, the Course of Nursing Law was established in September 1920 to start training nurses. The Course of Nursing Law is the predecessor of today's Department of Health Sciences in the School of Medicine.

The faculty members of the School of Medicine when it opened in 1921 were Eiji Arima(internal medicine), Benzo Hata (surgery), Haruo Yamazaki (anatomy), Hyonosuke Miyazaki (physiology), Kaoru Ohguro (medical chemistry), and Yutaka Kon (pathology). Benzo Hata, who was transferred from the post of director of Sapporo Ward Hospital, was appointed as the Dean of the School of Medicine. Eiji Arima served as the first director of the Medical Faculty Clinic. The faculty consisted of young academics, including Hata, 44, the eldest, and Ohguro, 30.

Fruits of establishing the School of Medicine

The establishment of the School of Medicine triggered a range of changes to Hokkaido University. The heart of the campus used to be around Kita-8 jo, from the Main Gate to the School of Agriculture building, and further north to around Kita 11-jo, where Keiteki-Ryo Student Dormitory was located. The buildings

of central Sapporo, in a once sparsely populated into a vibrant urban hub, revealing the high hopes

of the School of Medicine spanned what is now Kita 13-jo Street, with the main buildings to the south of the street and the affiliated Medical Faculty Clinic to the north. The campus thus expanded significantly to the north. Many outpatients visiting the Medical Faculty Clinic increased the flow of people, thus facilitating the formation of a town outside the North 13 Gate.

The faculty members appointed to the School of Medicine also breathed new life into the campus. These up-and-coming new faculty members had recently been abroad and understood the atmosphere of the culture emerging in Tokyo in the 1910s. They stood in stark contrast to faculty of the School of Agriculture, most of whom had graduated from Sapporo Agricultural College or the Agricultural College of Tohoku Imperial University and carried the air of old traditions and customs since the Sapporo Agricultural School years. For instance, Haruo Yamazaki and Seishichi Ohno (obstetrics and gynecology), who joined the

- 1. Professor Yutaka Kon (around 1926)
- 2. Professor Haruo Yamazaki (around 1926)
- 3. Clinical lecture by Professor Benzo Hata (around 1926)
- 4. The main buildings and garden of the School of Medicine (the latter 1920s)
- 5. Professor Kaoru Ohguro (around 1926)
- 6. Paradise Hütte in Mt. Teine (around 1932)
- 7. Distant views of the main buildings of the School of Medicine (around 1923)
- 8. Lecture of the Course of Nursing Law held in a lecture theater (around 1934)
- 9. Distant view of the School of Medicine's Medical Faculty Clinic (around 1926)

10. Unohachi Abe, Director-General of Sapporo Ward (around 1913)

School of Medicine in 1924, enjoyed mountain climbing and mountain skiing. They contributed greatly to the development of a mountaineering culture in Hokkaido through their activities in the University's mountaineering and skiing clubs, building mountain huts for mountain climbers, and writing related books.

Hokkaido Imperial University decided to establish its third school, the School of Engineering, as early as 1919. The University followed the path leading to a comprehensive university just as Shosuke Sato, who had become President of Hokkaido Imperial University, envisioned.

Hokkaido University HISTORY 1914-1926

1914	November	The Hokkai Times newspaper causes a stir when it reports on
		the reconstruction of Sapporo Ward Hospital in relation to an independent Hokkaido Imperial University.
1916	August	President Shosuke Sato, Hokkaido Governor Magoichi Tawara, and Unohachi Abe, Director-General of Sapporo Ward, visit the Ministry of Education in Tokyo for negotiations.
	September 22	The Cabinet approves a budget bill for the establishment of a medical college.
1917	July	The Imperial Diet passes the budget bill for the establishment of a medical college.
1918	April 1	Hokkaido Imperial University is established.
1919	April 1	Hokkaido Imperial University establishes the School of Agriculture and the School of Medicine.
	September	Students aspiring to enter the School of Medicine join the preparatory course.
1920	June	The School of Medicine Main Building is completed.
	September	The Course of Nursing Law is established.
1921	April 23	The Medical Clinic affiliated with the School of Medicine is established.
	May	Benzo Hata becomes the Dean of the School of Medicine.
	September	The main building of the Medical Clinic affiliated with the School of Medicine is completed.
	October	Eiji Arima becomes the Director of the Medical Clinic affiliated with the School of Medicine.
	November	The School of Medicine's Medical Faculty Clinic opens.
1922	April	The inaugural class of 67 students enter the School of Medicine.
1926	March	The first commencement ceremony of the School of Medicine is held.

Hokkaido University Archives

This facility collects, classifies and preserves historical documents and records of Hokkaido University. It also conducts investigations and research on its history.

Topics



President Houkin delivers a

Completion ceremony held for the Ushiomaru III, a training ship of the School of Fisheries Sciences

On November 4, 2022, a ceremony was held at the Hakodate Research Center for Fisheries and Oceans in Hakodate City to celebrate the completion on October 31 of the Ushiomaru III, a training ship of the School of Fisheries Sciences.

At the ceremony, after an address by Kiyohiro Houkin, President of Hokkaido University, there was a congratulatory address by Takakuni Ikeda, Director-General of the Higher Education Bureau in the Ministry of Education, Culture, Sports, Science and Technology (read on his behalf by Masahiro Okui, Deputy Director of the Technical Education Division in the Higher Education Bureau), followed by a progress report on the ship's building by Professor Toru Mukai, who chairs the Subcommittee on Ushio-maru Substitute Ship Construction in the School of Fisheries Sciences. These speeches were followed by a ribbon-cutting ceremony by eight concerned officials at the quay where the Ushio-maru III was moored, and then a tour of the vessel led by Captain Keiichiro Sakaoka of the Ushio-maru. The newly completed Ushio-maru III is significantly larger than its predecessor, the Ushio-maru II, with an overall length of 45.62 meters, a breadth of 8.20 meters, a gross tonnage of 262 tons, and full complement of 33 persons. The ship has increased safety and weather resistance, reduced hull motion, improved accommodations for female passengers, and reduced environmental impact through increased fuel efficiency. It is equipped with state-of-the-art instruments for advanced oceanographic research, and has reinforced sound and vibration control measures to prevent interference with precision acoustic instruments such as quantitative echosounder and sonar.

The School of Fisheries Sciences will continue its research and human resource development using the Ushio-maru III as a practical platform for comprehensive education and research in fisheries sciences, which pursue the sustainability of marine ecosystems, and their related fields.

Ribbon-cutting ceremony by concerned officials



The Ushio-maru III on the day of its completion ceremony



Delegation led by Hokkaido University President Houkin visits the University of Melbourne

Hokkaido University (HU) delegates visited the University of Melbourne (UoM) in Australia between November 21 and 24, 2022. The delegates included President Kiyohiro Houkin, Executive Vice President Atsushi Yokota, Executive Vice President Takao Masuda, and faculty members representing the fields of zoonosis control, science, Ainu and indigenous studies, and environmental and health sciences. In June of the same year, Hokkaido University welcomed a delegation from UoM led by Vice-Chancellor Duncan Maskell, and strengthened universitywide collaboration between the two institutions.

During the visit to UoM, the universities concluded a Research Partnership Agreement on Hokkaido-Melbourne Joint Research Workshops Fund, and also renewed the Inter-University Exchange Agreement and the Memorandum of Understanding on Student Exchange. The above-mentioned fund was established earlier, in March 2022, to support the organization of joint research workshops, with both universities contributing matching amounts to the fund. HU and UoM agreed to fund workshops for the following two years.





A banner for Hokkaido-Melbourne Joint Research Workshops Fund.

Through the fund, the scope of research collaboration between the universities has been broadened to include geriatric medicine, philosophy, residential environments, and mechano-pharmacology, in addition to long-standing collaborations in zoonosis control and electronic science. Dialogue between researchers of both universities have also begun in areas of common interest to both universities, including indigenous studies and food science.



Vice-Chancellor Duncan Maskell of the University of Melbourne and President Kiyohiro Houkin of Hokkaido University.

After the Meeting on Interdisciplinary Research Collaborations.

The season of beginnings

Photographer: Hiromi Terashima



Snow begins to melt, and one can feel the warm sunshine.

The entire campus is ready to welcome new students.

This spring marks the birth of a new research building on the University's Northern Campus.

With more new buildings to come, transformation of the University continues, but the "Be ambitious" ethos never changes. With your support, we will continue moving forward as we approach the 150th anniversary of the University.





Videos of campus views QR code











- a. School of Medicine
- b. Administration Bureau
- c. Creative Research Institution
- d. Centennial Hall
- e. Baseball Field



https://www.global.hokudai.ac.jp/

