Autumn 2019

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."

Contents

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Feature: Support

In 2019, Hokkaido University celebrated the 143rd anniversary since its foundation as Sapporo Agricultural College.To further promote educational and research programs geared toward solving global and regional challenges, the university needs organizations that support such initiatives.

Under the theme of "support," this feature highlights the initiatives being undertaken by three organizations at Hokkaido University.

A Green Oasis That's Passed Down History

Gazebo at North Lawn. The verdant space here is a place of relaxation for visitors.

Feature: Support

Hokkaido University Botanic Garden

The moment you set foot in the Hokkaido University Botanic Garden nestled in the heart of a bustling city, you're instantly transported to a world of unspoiled nature. The garden, which has shared the history of Hokkaido, not only supports the university's educational and research programs but also serves as a green oasis for the local community.

Miyabe Kingo Memorial Building. The Botanic Garden is in the city center packed with high-rise buildings.

The Hokkaido University Botanic Garden is right in the heart of the city, just a 10-minute walk from Sapporo Station. This 13.3-hectare garden opened in 1886 as the second-oldest botanic garden in Japan and was the country's first modern-style botanic garden. This long-established botanic garden has been popular among local residents for its accessibility to the public as well as for its contributions to the advancement of education and research.

It is believed to have begun in 1877, when Dr. William Smith Clark, the first vice president of Sapporo Agricultural College (SAC), today's Hokkaido University, suggested to the Hokkaido Development Commission that a botanic garden would be needed to teach botany. The Commission transferred the ownership of its museum and land to the SAC for use as a botanic garden, and Dr. Kingo Miyabe, who would become the first director of the Botanic Garden, planned and designed it.

A green oasis left behind in the city center

The Botanic Garden is located on the alluvial fan of the Toyohira River, a tributary of Hokkaido's longest river, the Ishikari River. The area had been woods of deciduous broad-leaved swamp trees until Hokkaido's pioneering era (the mid-19th century). However, the greenery disappeared as urban development progressed, and the Botanic Garden became the only woodland there that retained the atmosphere of the pioneering days. Aerial photos of the garden and the surrounding area clearly indicate how isolated this green oasis looks amidst high-rise buildings.

Professor Fujita emphasizes that a main feature of the Botanic Garden is that the woodland has been left untouched as much as possible so that visitors can imagine how dense the forests would have been during the pioneering days.

Designed by taking advantage of the area's topography, the Botanic Garden has a gently rolling terrain unique to alluvial fans. Until the late Taisho era (the early 20th century), it was fertile ground where springs, or *memu* in the language of the indigenous Ainu people, welled up everywhere. Today, the landscape of the garden is maintained by releasing pumped-up groundwater into the stream in the garden.

Northern Peoples Museum, a showcase of invaluable objects collected between Hokkaido's pioneering era and the early Showa era (i.e., from the mid-19th to early 20th centuries).

Learning about plants and about indigenous peoples

At the Hokkaido University Botanic Garden, visitors can see various species of plants. The Alpine Plants Rock Garden, designed as a miniature of the upper slopes of Mt. Tomuraushi in Hokkaido, showcases some 600 species of alpine plants from Japan, centering on plants native to the Taisetsuzan Mountains and Mt. Apoi. Professor Fujita underscores its significance, as an alpine plant nursery designated by the Japan Association of Botanical Gardens is attached to the Botanic Garden. She says that few other botanic gardens in Japan are cool enough to grow alpine plants outdoors.

The garden's highlights also include the Northern Peoples Ethnobotanical Garden, where some 200 species of plants used by the Northern peoples of East Asia—the Ainu, Nivkh and Uilta—are displayed along with their uses, such as for weaving, for dying, as food, as household and ritual utensils, for medicine, and for hunting. The Northern Peoples Museum on the 2nd floor of the main office building features everyday items made from these plants, providing a priceless opportunity for anyone looking for a deeper understanding of such plants. The Botanic Garden introduces visitors not merely to plants indispensable to the lives of Northern peoples, but also to the history of those who have lived with plants throughout their lives.

Inheriting and protecting the invaluable

The museum in the Botanic Garden displays invaluable taxidermy specimens. Of particular significance are those of animals native to Hokkaido, such as a brown bear and a Hokkaido sika deer, and extinct animals, including a Hokkaido wolf and a Japanese river otter. Must-sees include the stuffed body of a Sakhalin husky named Taro, a sled dog

Alpine Plants Rock Garden, one of Japan's largest rock gardens, where flowers bloom in succession from mid-May.

The exterior of the museum, surrounded by historic structures designated as National Important Cultural Properties.

The interior of the museum, with a stuffed brown bear in the middle and the stuffed body of a Sakhalin husky named Taro at the back on your right. Taro was popular for his exploits in the Japanese Antarctic Research Expedition.

that pulled for the Japanese Antarctic Research Expedition, in which faculty members of Hokkaido University also participated.

The museum also shows bird specimens collected by Thomas Blakiston, the English naturalist who identified the faunal boundary line (Blakiston's Line) at the Tsugaru Strait, as well as exhibits showing differences between the fauna of Hokkaido and that of southern Honshu.

Also on display are collections related to the Hokkaido Development Commission, including replicas of canned venison and salmon made at a government canning factory and petrological and mineralogical specimens collected by Benjamin Smith Lyman, an American engineer and advisor to the Commission who conducted a thorough geological survey of Hokkaido. The museum has maintained and managed these invaluable collections inherited from the Commission. Professor Fujita says that the Botanic Garden's missions include protecting the collections while making them available for research. The museum building itself was designated as a National Important Cultural Property in 1989.

Missions as a university botanic garden

Botanic gardens at universities have important roles to play also in research and education.

The Hokkaido University Botanic Garden and Research Faculty of Agriculture have begun joint research on the cultivation of the Rebun lady's slipper orchid (*Cypripedium macranthos* var. *rebunense*), which is found only on Hokkaido's Rebun Island (Rebun Town). This rare plant has been designated "a specified national endangered species of wild flora," but its population is rapidly decreasing due to illegal collecting.

Since the seeds of the Rebun lady's slipper orchid are as small as powder and have no endosperm, which would store nutrients essential for germination, they depend completely on symbiotic fungi for their nutrition in the wild. The collaborative research team succeeded in establishing symbiosis by infecting the orchid seeds with fungi, thereby enabling the cultivation of this orchid—a result long considered difficult to achieve.

The Botanic Garden is also engaged in wide-ranging research on endangered wild flora species which are included on the Hokkaido Red List in collaboration with countries near Hokkaido, including Russia, South Korea, and China. Collaborative studies with these neighboring countries have begun to reveal where these endangered species originated and how they were brought to Hokkaido, among other details.

Professor Fujita enthuses that analyses not only reveal the history of species but also enables data-based recommendations for the conservation of endangered species, expressing her hope for continued development of the networks with those countries.

Overcoming disasters

The powerful Typhoon Songda hit Japan in September 2004, causing severe damage to Hokkaido. It wrought havoc among trees in the Botanic Garden, toppling or snapping the trunks of roughly 680 of the 3,000 trees.

Professor Fujita looks back on those days and says, "Our garden, more than a century old, couldn't allow those fallen trees to just be thrown away, so we put them to use in every way possible, such as by creating timber specimens and sample stumps for counting annual rings. To utilize them, we leveraged our strengths as a university botanic garden and sought advice from faculty members who are experts in a wide range of fields."

When a massive earthquake hit the eastern Iburi region of Hokkaido in September last year, dozens of windowpanes were shattered in the greenhouse, which houses plants that can't overwinter outdoors in Hokkaido. This is the only facility in the Botanic Garden where visitors can appreciate and learn about flowers and greenery during Hokkaido's long winter, but the damage inflicted by that earthquake forced its first temporary closure last winter.

The greenhouse, which will be open as usual in the coming winter.

For the sake of all visitors

An information board in Japanese and English was installed in front of the entrance to the Botanic Garden in April this year. Many visitors—Japanese and foreign alike—have come to stop to take a good look at the board.

In recent years, the number of inbound visitors to the Botanic Garden has been on the rise. To meet their needs, it's become a pressing issue to install multilingual signboards here.

Professor Fujita explains challenges facing the Botanic Garden: "We were able to install a bilingual English-Japanese information board at the entrance this year, thanks to a donation from a botanical artists' group—*flos society*—but we haven't been able to keep up with the times because most of the signs and panels in the garden remain written only in Japanese. The Northern Peoples Ethnobotanical Garden, for example, appeals also to foreign visitors, but it has only Japanese explanations. Providing English information with the displays remains a significant challenge for us, because without it, no matter how many foreign visitors we have, we can't convey the significance of our collections."

There's another issue with the facilities: the Northern Peoples Museum, which showcases objects of historical significance, is on the 2nd floor of the main office building and doesn't offer barrier-free access. Just to show how significant the collections are, the museum displays roughly 250 items that highlight the culture of Northern peoples native to Hokkaido and its vicinity, centering on the Ainu. Approximately 2,500 folklore materials there have made this one of the largest collections of its kind not only in Japan but throughout the world. Materials collected primarily in the Meiji era (the late 19th century) and the early Showa era (the early 20th century) include clothes, ritual instruments, and hunting gear that were actually used, and models of a dwelling and hunting traps made for educational and research purposes. On the side of a display of an altar at the back of the gallery, an invaluable documentary of a bear sacrificial ritual of the Ainu people is shown. "It's unfortunate that these collections are not accessible to all visitors," says Professor Fujita.

The national center for the revival of Ainu culture, the Symbolic Space for Ethnic Harmony (a.k.a. Upopoy), including the National Ainu Museum and Park, will open in the Lake Poroto area of Shiraoi Town in April 2020. "Given the flow of tourists to and from Upopoy and the Botanic Garden's proximity to Sapporo Station, more tourists are anticipated to visit the garden. We may be able to attract more domestic and overseas visitors to Hokkaido by working closely with relevant municipalities," says Professor Fujita.

The Rose Garden, where some 20 varieties of roses bloom primarily in July, but also from late June to autumn.

There are challenges that the Botanic Garden needs to address to make it even more enjoyable to all visitors.

Community-based initiatives

The Botanic Garden holds children's events twice annually as part of its efforts to contribute to the local community.

The one held this past July was an open workshop for elementary school students on how to make a pictorial book of plants using leaves. In all, 38 students tried their hand at making original pictorial books using leaves from plants growing in the Botanic Garden. The workshop aims to introduce students to the diversity of plants as they learn that different plants have different leaf arrangements, sizes, shapes, colors, and feels.

"The Botanic Garden's primary missions are education and research, because it was originally founded for the Sapporo Agricultural College," Professor Fujita says, "but it's also kept its doors open to the public since it opened. It may be a rare facility in Japan in that it's continued to offer adult education since the 19th century."

Professor Fujita gives an explanation to visitors using an information board made possible via donations.

The Hokkaido University Botanic Garden, which has shared the history of Hokkaido, plays significant roles in supporting the university in research and education as well as supporting the local community.

Student Advice and Counseling Center

Hokkaido University launched the Student Advice and Counseling Center (SACC) in August 2018, under which brought together the Student Counseling Office, the Disability Services Office and the International Student Counseling Office. The staff members of these offices strive to provide effective support to students from a student perspective to cater to their unique needs.

Feature: Support

Meeting the Diverse Needs of Students

Organizational reforms

Professor Mari Koyano of the Graduate School of Law is serving as the first director of the Student Advice and Counseling Center (SACC). When she was appointed in 2017 to the directorship of both the Student Counseling Office and the Disability Services Office as an advisor to the university president, she realized the pressing need to reform the organizational structure for student counseling because it failed to meet the diverse needs of students. Her years of experience in teaching students has made her aware of the issues around student support, and her research on international law led her to believe that the university should provide student support services of a global standard—services that protect each student's human rights—to continue prospering in the age of globalization.

To define a direction for the reform, she worked with her frontline staff members to find a model that would best suit Hokkaido University based on a thorough investigation into the organizations in charge of student counseling and support services at other universities in Japan, including the seven former "imperial universities." They also reviewed the student counseling services then currently provided at Hokkaido University to clarify their current situation and issues.

Looking back on those days, Professor Koyano says the first-hand accounts she heard during the review from those involved convinced her that the best way to improve student support services would be to create a comfortable working environment for well-trained, highly motivated counselors. She also found that as Hokkaido University promoted globalization, it would need to extend strong support not only to Japanese students but also to international students. "Creating an environment where all can feel safe and devote themselves to study or research should contribute enormously to the development of the university as a whole," says Professor Koyano.

Following the investigation and review results, the university decided to launch the Student Advice and Counseling Center (SACC) and to bring together under SACC the three existing counseling organizations: the Student Counseling Office, which offers counseling services for virtually any issue; the International Student Counseling Office, which provides counseling services to help international students deal with a wide-range of issues, including cultural adjustment problems and academic concerns; and the Disability Services Office (today's Accessibility Services Office), which provides support to students who need assistance in their studies due to disability or illness. With these three offices working in closer cooperation than before, a system to provide student support services even more flexibly has been put in place. There was also a long-overdue increase in the number of clinical staff, enabling them to offer training to teaching and administrative staff and to more proactively engage in research activities regarding student support services.

Above: The exterior of the Student Communication Station (SCS). SACC is on the 2nd floor of this building.
Below: SACC multi-purpose space (on the 2nd floor of the SCS). The space is available to students visiting SACC for counseling, and also to their parents, etc.
Left: SACC staff meeting to regularly share information to ensure its smooth running.

A training session for teaching and administrative staff hosted by SACC entitled "Understanding and Responding to Developmental Disabilities at Institutions of Higher Education." The lecturer in the photo is Associate Professor Ayumi Seki of the Faculty of Education.

Roles of the three offices, and a structure for cooperation

Of these three offices, the Student Counseling Office plays a leading role and has the most users. Staffed with full-time clinical psychologists, the office provides counseling services to help students deal with all kinds of difficulties, including academic concerns, issues with daily life and interpersonal problems. One of the office's most important roles includes referring students who need more specialized care to medical institutions. Consultations with a student's family members and pertinent teachers are also provided when necessary. "Going forward, we'd like to put more effort into promotional activities and outreach programs," says Associate Professor Choichiro Saito, director of the office, who doubles as deputy director of SACC, and Lecture Daisuke Fujioka, deputy director of the office.

The International Student Counseling Office provides counseling services to international students. Amidst the ever-growing number of international students and researchers, the roles played by the office grow every year. Since graduate students account for a large percentage of international students on campus, counseling services cover a broad range of issues, including those regarding life and culture in Japan, academic issues, and matters concerning partners and family in the students' home countries. The office has two bilingual counselors who provide counseling services in English or Japanese. In the new international student orientation sessions held every spring and fall, office staff talk about tips for cross-cultural adjustment and communication in Japan, as well as depression, anxiety disorders and other common difficulties that international students may experience, in order to smoothen their transition with preventive support. Staff members also visit various international student programs to promote the office by familiarizing students with it and encouraging them to drop by for a session. Associate Professor Harue Ishii, deputy-director of the office, passionately says that the office plans to offer more workshops and group activities to reach out to students, including those who have concerns that do not rise to the level of requiring individual counseling.

The Accessibility Services Office, which was renamed from the Disability Services Office this year, provides support to students who need assistance or reasonable accommodations in their academic learning due to disability or illness. The office was so named in the hope that it would become more accessible to students rather than just providing "special accommodations." It determines methods of support depending on the disability or illness of each student and enlists the cooperation of pertinent teaching and administrative staff members. To assist students with disabilities, it is imperative that the teaching and administrative staff understand what is needed by students with disabilities, so the office holds staff training sessions several times a year to deepen their understanding of what it takes for students with physical disabilities and those with developmental disabilities to pursue their studies. Nowadays, teaching and administrative staff members have a better understanding and are therefore more willing to accommodate requests to provide assistance to students in class and elsewhere.

Challenges that the Accessibility Services Office must address include how to provide preventive support to students with developmental disabilities who may find it difficult to live on their own for the first time, to understand the university's course registration system, or the like. While some such students seek support upon enrolling in the university, others may have difficulty acknowledging that they have a disability. Associate Professor Yuko Tatsuta, deputy-director of the office, hopes to make the office an inviting place for students to drop by casually by sending out the message "If you're struggling with your academic learning, we're willing to listen regardless of whether you have a disability."

In recent years, there have been increasing numbers of requests for counseling from students with gender dysphoria, so SACC is liaising with pertinent organizations on campus to provide reasonable accommodations.

A student receives advice at the International Student Support Desk.

Peer Support Unit, a support organization run by students

The Peer Support Unit, which straddles the three SACC offices, is run by students with the aim of providing assistance to fellow students. When the three offices were brought together under SACC, the peer support programs of the offices were integrated into a "unit." Peer supporters work as professionals and get paid as part-time employees of the university.

The Peer Support Room, supervised by the Student Counseling Office, is where students can pop in for advice from peer supporters if they have any issues or concerns about their lives or studies. To be peer supporters, students must receive training and understand the roles expected of them. When necessary, peer supporters advise fellow students to seek assistance from professional counselors or other specialists.

The International Student Counseling Office has the Support Desk for international students, where international students can ask any question ranging from general questions about living in Japan to how to make friends with Japanese students. Students staffing the desk also provide assistance if possible to help students solve problems they encounter in everyday life, such as difficulty understanding a manual written in Japanese. According to Associate Professor Michelle La Fay, director of the office, the Support Desk also promotes exchanges between Japanese and international students by holding events, including the Language Corner and tea parties.

The peer support provided by the Accessibility Services Office is more specialized and centers on note-takers, who help hearing-impaired students by simultaneously inputting into a laptop what is being said in class. Note-taking requires special skills, so students who have applied to become peer supporters are trained to serve as note-takers. Those students who have received training become able to take notes electronically irrespective of their field of specialization. With training, students with majors in the liberal arts arguably become capable of taking notes even in specialized science classes.

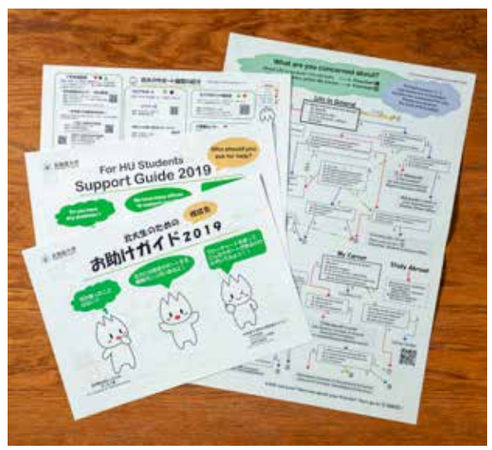
In addition to providing peer support, students have also played a leading role in publishing the "Support Guide for Hokkaido University Students." Knowing that students and staff members were not that aware of the student counseling and support services available on campus, Professor Koyano in 2018 launched a student project to publish this guide—a brochure that provides an at-a-glance view of contacts for student counseling and support services. The students who volunteered for the project hope that the published brochure is inviting and easy to understand. The English edition was published in 2019. The brochure has been used as a tool for introducing the university's support system not only to students but also to teaching and administrative staff.

The future of SACC

It has not been long since the three offices were integrated under SACC, so staff members are still considering how they can take advantage of the integration to expand the scope of their organizational activities, Professor Koyano says. SACC has provided its staff and counselors in other departments with opportunities to discuss various cases and topics that concern them, but the question is how they can build on these cooperative relationships to provide better services to students. Professor Koyano hopes to put more effort into collaboration with the Health Care Center, where medical specialists provide internal medical care and psychiatric consultation, with the Harassment Consultation Office, which handles various harassment claims, and with the Learning Support Office, which provides counseling about career paths, course registration and academic support.

SACC is a place for students to turn to for advice and to talk about their anxieties, concerns and uncertainties in life. Staff members are committed to lending all students a helping hand. SACC is expected to play an even more proactive role as a center for student support that caters to each student's needs to help all Hokkaido University students find the best way forward.

The Peer Support Room in the Student Counseling Office, where first-year students are often seen seeking advice about course registration from senior-year peer supporters.



The Support Guide for Hokkaido University Students, with the Hokkaido University Festival mascot ("Futto-kun") on its cover. The guide has been well received and contains reader-friendly content, including a flowchart that helps students determine where to seek advice about their concerns.

Central Institute of Isotope Science

Supporting Hokkaido University and the Local Community with Advanced Expertise

Feature: Support

The Central Institute of Isotope Science (CIS) has among the largest, most well-appointed facilities of their kind in Hokkaido and highly experienced staff. In addition to overseeing the overall management of radioisotopes at Hokkaido University, the CIS as a joint-use facility supports radioisotope use in Hokkaido as well as research and education involving radioisotopes.

The term isotope refers to any two or more nuclides of a chemical element with different numbers of neutrons in their nuclei. Among such nuclides, those which have an unstable nucleus that decays spontaneously and emits radiation are known as radioactive isotopes, or radioisotopes (RI). They have come to attract the interest of the general public, as they have been used in medicine, and they have gained attention for their use in environmental studies.

Radioisotopes emit radiation in the form of alpha, beta, gamma, and X rays—radiation which consists of high-energy particles and electromagnetic waves. Due to their actions such as ionization, penetration, sensitization, and fluorescence, radioisotopes have been used in various fields, including medicine (e.g., radiography, radiation therapy), agriculture (e.g., cultivar improvement, germination inhibition), airport security (e.g., baggage inspection), and other fields (e.g., nondestructive testing of internal structures of buildings, artworks and the like). However, it takes expertise to handle radioisotopes.

Working to fulfill its missions

The Central Institute of Isotope Science (CIS) plays a crucial role in ensuring the safety of radioisotope use at Hokkaido University. Its director, Professor Shigetsugu Hatakeyama, says that the CIS has four primary missions: (1) providing facilities where radioisotopes are used for education and research, (2) ensuring the overall safe management of radioisotopes, (3) providing education and training for the safe use and handling of radioisotopes, and (4) developing radioisotope applications and management techniques.

The CIS has its origin in the Radioactive Isotope Laboratory, which was established in the School of Medicine in 1951. After several reorganizations, the present organization was set up in 1978. Between 2014 and 2016, the north building was reconstructed and the south building renovated. Now, various new facilities and apparatuses are up and running.

The CIS, most of whose staff members are certified class-1 radiation protection supervisors with expert knowledge and skills, oversees RI facilities operated by nine individual schools and institutes on campus and provides assistance to CIS users, who belong to more than 20 schools and institutes on campus. The center also opens its doors to other research and education institutions in Hokkaido, allowing the shared use of its facilities, measuring and analytical instruments, and more than 80 radioisotopes.

The CIS: At the forefront of radioisotope use and research

Partly due to its proximity to medical research facilities on campus, the CIS is used by numerous researchers in medicine, the life sciences and pharmaceutical sciences. Among its facilities and instruments, the PET/SPECT/CT small-animal imaging system has been attracting particular attention in recent years. This is how it works: When a short-lived radioisotope is administered in the body of an animal with cancer, the radioisotope is attracted to cancer cells and accumulates in them so they look brighter on the PET scan. By combining the scan with computed tomography (CT), this system shows where exactly the cancer cells are in the body. At veterinary institutions, this system is used to identify whether cancer is present, its stage, whether it has spread or relapsed, and whether it is benign or malignant, among other uses.

A PET/SPECT/CT small-animal imaging system which can identify cancer cells in the body of an animal by detecting radiation emitted from a radioisotope.

A mass spectrometry imaging system. It is characterized by its ability to simultaneously visualize a large variety of molecules by having a laser scan the surface of a tissue. It is used for analyses that are difficult for other imaging techniques to accomplish, including analyses of lipids and of the localization and structural changes of administered drugs (analyses of metabolites).

Professor Hatakeyama, who is an MD himself, stresses the significance of PET scanning, saying: “Previously, to remove cancer, the healthy surrounding tissue was also removed to ensure that all the cancer cells were gone, but the spread of PET scanning has dramatically reduced the risk of after-effects from extensive tissue removal and nerve injury during surgery. In fact, Hokkaido University is one of the first institutions in Japan to offer insured medical care using [^{18}F]fluorodeoxyglucose ([^{18}F]FDG), the most widely used radiopharmaceutical in PET scanning.”

In addition to medical research, the CIS is also used for research in science and engineering. Since the 2011 nuclear accident at the Fukushima Daiichi Nuclear Power Station, there has been growing public interest in the safe handling of radioactive materials, in detection and decontamination technologies, and in technologies to monitor the spread of radioactive materials to the environment. Professor Hatakeyama says that the responsibilities of universities include advancing research that can turn a crisis into an opportunity, expressing his hope to promote research on nuclear safety. By way of example, the CIS is engaged in extensive simulations to clarify how cesium penetrates concrete and other environmental specimens. There are few facilities at which nuclides can be used in an unsealed state, and the CIS is the most well-appointed facility of its kind in Hokkaido.

Amid the trend of regulatory tightening

In line with the enforcement of the amended and retitled “Act on Regulations for the Use of Radioisotopes, etc.,” the CIS introduced new rules in August 2019 to bolster its security measures and improve its safety management system.

These rules are rigorously enforced. Radioisotopes are stored under strict control in a controlled area accessible only to authorized personnel. Anyone entering the controlled area must wear a radiation dosimeter, and CIS staff members are ready to immediately handle any detected abnormalities. The water used in the controlled area is also temporarily stored in a tank and drained only after tests confirm that the radiation has decreased to an acceptable level.

Under these circumstances, Hokkaido University has found it increasingly difficult to maintain small RI facilities operated by individual schools and institutes because of the increased maintenance costs associated with enhanced management and equipment upgrading. As the consolidation of such facilities is under way, CIS staff help with procedures for decommissioning decrepit facilities based on their expertise and experience.

At the heart of Hokkaido University and the community

The CIS organizes various lecture meetings and study sessions, in addition to giving practical training to students majoring in medicine, science and engineering. The center is also playing a greater role than ever in the academic community, with users from other research institutions in Hokkaido.

“Radioisotope utilization may enable novel research and allow the quick and accurate implementation of time-consuming experiments,” Professor Hatakeyama says. “Since we offer various support services, including expert advice, I hope that anyone interested in radioisotope use will contact us and use our facilities.” The CIS offers Bruker’s mass spectrometry imaging systems for shared use and accepts users from research institutions not only on campus but also across Japan.

The Central Institute of Isotope Science (CIS) supports radioisotope use at Hokkaido University and in the local community as a core radioisotope facility in Hokkaido.

The contamination inspection room. To enter the controlled area, you must put on a special laboratory coat (a.k.a. a yellow coat) and footwear to prevent contamination. Before leaving the controlled area, you must measure your radiation exposure.

CIS summer training session for international students in July 2019. The lecturer in the photo is CIS Assistant Professor Kei Higashikawa.

Refining: Pharmacy

Photoimmunotherapy (PIT), a Driver of Transformation for Cancer Treatment

Mikako Ogawa

Professor, Faculty of Pharmaceutical Sciences

Mikako Ogawa specializes in pharmaceutical sciences and bioscience. After receiving her Ph.D. and Master's Degree from Kyoto University's Graduate School of Pharmaceutical Sciences, she continued to pursue her research at medical institutions before joining Hamamatsu University's School of Medicine. While at the university, she became a visiting fellow at the United States National Cancer Institute. Since 2015, she has been a professor at Hokkaido University's Faculty of Pharmaceutical Sciences. Also serving as a researcher of the Japan Science and Technology Agency (JST) Precursory Research for Embryonic Science and Technology (PRESTO), she is expected to play an even more significant role in the years and decades to come.

In pursuit of cancer therapies with fewer side effects

Today, three major cancer therapies are available: surgical therapy, radiation therapy, and drug therapy (e.g., chemotherapy, hormone therapy). Surgical therapy is a method by which cancer cells are surgically removed and is the most fundamental and often preferred option for cancer treatment. Radiation therapy aims to kill cancer cells by irradiating them and surrounding tissue with ionizing radiation, such as gamma rays, and is used on its own or combined with surgical therapy and/or drug therapy. Chemotherapy, which is a drug therapy, uses anticancer drugs to prevent cancer cells from dividing and to destroy them.

Surgery and radiation are effective local treatments, but may not be used for patients with advanced metastatic cancer. In contrast, chemotherapy—based on the approach of "poison with poison"—is a systemic therapy effective for both early and advanced cancer, but it can cause serious side effects because the anticancer drugs used are toxic not only to cancer cells but also to normal cells, particularly immune cells. Against this backdrop, Professor Mikako Ogawa of the Faculty of Pharmaceutical Sciences has been engaged in pioneering research to develop cancer therapies with fewer side effects, with a focus on photoimmunotherapy (PIT), which can kill cancer cells based on newly discovered photoreactions.

Professor Ogawa says she has always liked independent research as a child. She entered Kyoto University's Faculty of Pharmaceutical Sciences in 1994, where her supervisor encouraged her to engage in research, which led her to pursue a career as a researcher. After receiving her Master's Degree from Kyoto University's Graduate School of Pharmaceutical Sciences in 2000, she continued her research at the National Center for Geriatrics and Gerontology and then at the National Cerebral and Cardiovascular Center, before joining Hamamatsu University's School of Medicine in 2002. It was then decided that she would become a visiting fellow at the United States National Cancer Institute from 2007 to 2009. "I was introduced to the National Cancer Institute (NCI) in the United States to learn to work on optical imaging, a theme of research being conducted at the lab to which I partly belonged because I was doing research related to positron emission tomography (PET) at that time," Professor Ogawa says.

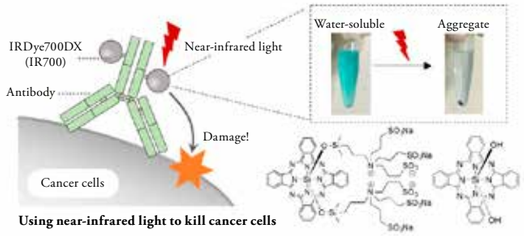
At the NCI, she engaged in research on optical imaging under the supervision of Dr. Hisataka Kobayashi, a senior investigator. Her career reached a major turning point just before she completed her fellowship. She looks back on those days and says, "I scattered an optical imaging agent on the surface of a cell and looked into the microscope to find the cells dead. I thought my experiment had failed, but Dr. Kobayashi suggested that this phenomenon might be used for cancer treatment. The fortuitous discovery of this phenomenon during my research on optical imaging sowed the seeds of my research on photoimmunotherapy (PIT)."

An "optical remote control switch" that kills only cancer cells

Upon returning to Japan, Professor Ogawa continued her research at the Hamamatsu University School of Medicine until she became a professor at Hokkaido University's Faculty of Pharmaceutical Sciences in 2015. She worked with Dr. Kobayashi of the NCI and other researchers to elucidate the mechanism behind PIT, a new form of cancer therapy. They proved that PIT kills cancer cells based on newly discovered photoreactions and that near-infrared (NIR) light turns on a "death switch" in targeted cells and therefore can selectively kill cells.

This photoimmunotherapy uses an antibody to which a chemical, IR700, is attached (a.k.a. the antibody-IR700 conjugate). When injected into a patient with cancer, the conjugate binds to the surface of cancer cells. Those cells are killed when the cell-bound conjugate is irradiated with NIR light. Focusing on the changes in chemical structure of IR700 after NIR light irradiation, Professor Ogawa and other members of her research group used organic chemical synthesis and various analytical methods to analyze the chemical structure of IR700 after NIR light irradiation with that chemical and with the conjugate in various environments. They also examined the stereostructure of the conjugate after NIR light irradiation using atomic force microscopy and obtained images showing how the photoreactions alter the structure of the antibody. They also used mice to prove that NIR light irradiation induces photoreactions in vivo.

Ultimately, the researchers found that the chemical structural changes of IR700 which are caused by NIR light-induced photoreactions and the resulting changes in physical properties are a "death switch" that kills cancer cells and that NIR light, which is harmless to the body, acts as an "optical remote controller" that can turn that switch off and on. They made clear that near-infrared photoimmunotherapy is a novel cancer therapy whereby light can turn a drug only targeting cancer cells into the poison. Professor Ogawa says, "A pharmacist friend of mind from college died of cancer. I'll never forget how watching her suffer through chemotherapy fortified my resolve to eliminate its side effects. I hope to deliver this new therapy to cancer patients soon." She is committed to developing cancer therapies with fewer side effects.



Using near-infrared light to kill cancer cells

Near-infrared (NIR) light, which is harmless to the body, activates a chemical on the membranes of cancer cells and kills them. In this photoimmunotherapy, NIR light turns the chemical that has bound to the cancer cells into poison, without affecting nearby normal cells. This therapy is attracting attention as an effective treatment with fewer side effects.

Relaxation

Skiing for a change!

Professor Ogawa skies in Hokkaido every winter, and she had been doing so even before taking up her position at Hokkaido University. In winter, she goes out to a local ski resort, where she enjoys skiing and then hot spring bathing. The photo shows Professor Ogawa (at the far right) and other faculty members.

Alumni Interview

Serving as a Communicator of Meteorological Events to Safeguard Human Life

Pursuing Compelling, Viewer-Friendly Weather Storytelling from Various Approaches

Kimiharu Saita

Meteorologist/Weather Forecaster, Himmel Consulting Co., Ltd.

| School of Fisheries Sciences Graduate |

Mr. Kimiharu Saita has been wearing the three hats of meteorologist, disaster-relief specialist, and emergency manager. He appears on "News Watch 9," presenting weather information in this flagship weekday evening news program of Japan's public broadcaster, NHK. He works vigorously to raise public awareness of weather impacts and disaster risk, and he shared his thoughts on his career and college days during an interview.

Where were you born?
I was born in Tokyo, but moved around Japan because of the transfers of my father, who worked for the Forestry Agency of Japan. Even in the short period until my graduation from elementary school, I moved to Akita, Tokyo, Osaka, back to Tokyo, and then to Kumamoto.

What was your childhood like?
I had to change elementary schools four times. Every time I transferred to a new school, I watched other students and saw what they were doing without talking much with them, but before long I bonded and became friends with them through sports, which I excelled at. Having lived in various places, I became interested in differences in weather conditions in different places. My parents once said that when I saw snow for the first time in Akita, I stared at the sky, transfixed.

What were your junior high school and high school days like?
I was kind of a serious student in junior high school, on student council and the like, but I didn't study much in my high-school years, as I devoted my waking hours to playing rugby. I was selected to play for the prefecture where I lived, and I played preliminary games for the National Sports Festival. In the summer of my third year of high school, I was so busy at a training camp and with other sessions as a member of the prefectural team that I didn't have the time to study for university entrance examinations. But my experience in winning a championship gave me confidence in myself.

What made you decide to enter the School of Fisheries Sciences of Hokkaido University?
I gathered information about Hokkaido and Hokkaido University because I wanted to live in Hokkaido, partly because my family lived there before I was born. I liked the School of Fisheries Sciences because it has its own training ships, the *Oshoro-Maru* and the *Hokusei-Maru*, offering opportunities for fieldwork in the ocean and not just lectures in the classroom.

What impression did you have of Hokkaido University in those days?
To put it positively, it was unique, but I actually had the impression that it was an assemblage of odd people who'd gathered from across Japan. Students in the School of Fisheries Sciences were particularly unique in their own ways, and some of them had already started businesses when entrepreneurship was a rare pursuit.

What motivated you to become certified to work as a meteorologist?
In my third year at college, I realized how important weather information was while checking weather and wave conditions while training aboard a training ship. This experience motivated me to take the examination to become a meteorologist. I took one in the summer of that year, but I failed. So I studied all over again and was able to pass in the winter.

What made you decide to enter the Hokkaido Cultural Broadcasting Corporation (UHB) upon graduation, and how did you come to work as a meteorologist?
The meteorologist exam results were announced about the time I started looking for work. I applied to several media and weather-related companies, and I decided to enter UHB because

A foam container of instant noodles which he and his college classmates sank to ocean depths of up to 2,000 meters using lab equipment aboard a training ship. Due to high water pressure, it has shrunk by about five centimeters.

it was the first to give me an unofficial job offer. I joined the company with the hope of working as a weathercaster, but I was assigned to the business department, where I engaged in event production and the like, and then to the news department, where I covered news stories, sometimes aboard a helicopter. After that, I took the entrance exam for admission to a medical school once again, as I'd once aspired to study medicine, but I failed again. After much soul-searching, I made up my mind to become a weathercaster by taking advantage of my skills.

Has anyone influenced you in your career?
Mr. Akira Yoshitake, a veteran weathercaster in Fukuoka and an interviewer for my job interview at the Japan Weather Association Kyushu Branch, told me that solid skills as a weathercaster would guarantee my success in career no matter where I choose to work. And Mr. Tatsuro Ikeda, the newscaster for the local TV program in Kumamoto Prefecture, where I landed my first job as a weathercaster, helped me develop various skills. I owe what I am to both of them.

You moved to NHK Tokyo after working at NHK Kumamoto, didn't you?
I'd worked in Kumamoto for three and a half years, when I found that NHK Tokyo was looking for a successor to a retiring

It occasionally rained on the day of this interview. In this photo, Mr. Saita was checking cloud movements in front of his office.

weathercaster. I applied for the post because I thought I should seize the opportunity.

What are things you always keep in mind as a communicator?
I believe that weather information helps safeguard lives. While research is improving the accuracy of such information, I always consider what I can do to encourage the public to pay attention to weather reports and act when necessary. I always try to convey accurate information to viewers.

What made you decide to obtain the qualifications of disaster-relief specialist and emergency manager in addition to those of meteorologist?
Many meteorologists have the qualification to work as disaster-relief specialists because expertise in disaster-relief operations is a plus for them in the event of a major earthquake, for example. I acquired the qualification of emergency manager because I wanted to learn how to use weather information and what information is needed in crisis management. There are lots of things you can learn only from fellow emergency managers.

What was a turning point in your career?
The turning point came when a massive earthquake and tsunami struck Japan in March 2011. It was weeks short of one year since I'd come to Tokyo, and the disaster made me contemplate what weather information should be communicated to the public. I also realized how important it is to present weather forecasts as a daily routine.

Why did you name your company Himmel Consulting Inc.?
Himmel is a Danish word for "sky." I chose it because I wanted to work extensively—like the sky, without limits.

What are your career aspirations?
Ideally, I'd like to create a new position as a communicator not only for weather information but also disaster information, and to ensure that the information I communicate will be useful for disaster risk reduction.

Finally, do you have anything to say to current Hokkaido University students?
There's no doubt I was able to broaden my world because I went to Hokkaido University. The friends with whom I studied there have been friends for life. I hope that the current students of the university will enjoy their college days while taking in the natural splendor of Hokkaido.

PROFILE

Kimiharu Saita, born in Tokyo in 1975, graduated from the Department of Fisheries Oceanography and Marine Science at Hokkaido University's School of Fisheries Sciences in 2000. After working at the Hokkaido Cultural Broadcasting Corporation and then at the Japan Weather Association Kyushu Branch, he became a weathercaster for the Kumamoto Station of Japan's public broadcaster NHK in 2006. He moved to NHK Tokyo in 2010, where he made appearances on weekday weather programs and news programs aired in the Tokyo metropolitan area. Since 2016, he has been on "News Watch 9," NHK's flagship evening news program. He founded Himmel Consulting Corporation in 2018 and has been active in various fields, publishing books and giving lectures, both of which are well received.

This issue features contributions from HU Ambassador Akihito Ikushima, Chairperson of the Hokkaido University Hanoi Elm Association, and HU Ambassador Kenneth J. Ruoff, Professor of Portland State University. We interviewed them to commemorate the opening of our brand-new satellite offices in Hanoi, which manages Vietnam and other ASEAN countries, and in Portland, which manages the west coast of the U.S.A.

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Dr. Akihito Ikushima

Dentist, General Manager of the Mikuni Dental Clinic Hanoi Corporation, Chairperson of the Hokkaido University Hanoi Elm Association, appointed as a Hokkaido University Ambassador in November 2018

When I received an offer to become a Hokkaido University Ambassador, I was amazed at how far Hokkaido University (HU) had expanded its overseas alumni network. At first, I was of two minds about accepting the offer, because I'd played only a coordinating role for a local alumni association. When I learned about the university's commitment to its globalization, however, I thought it would be an honor to serve as an ambassador to help my alma mater fulfill its commitment.

I'm from Sapporo and I've known about HU since childhood, and I'd dreamed of going to university there. Looking back, I can find only good memories from my college days, partly because my generation benefited from the economic bubble. The vast, verdant campus is the best place I could ever hope to be in Sapporo and the place I never fail to visit when I temporarily return to my home country.

After graduating from HU, I joined the Japan Voluntary Dental Organization (JAVDO) and visited Vietnam three times to provide free dental services while working for a Hokkaido company. Through this experience, I formed an attachment to Hanoi, the capital of Vietnam, which ultimately led me to take up the position of representative among the inaugurating members of Mikuni Dental Clinic Hanoi in 2015. Since 2018, I've also served as an instructor at Tra Vinh University, a public university in Vietnam.

As a Hokkaido University Ambassador, I've been helping with the university's international promotional activities by forwarding e-mail newsletters to Hanoi Elm Association members, distributing promotional brochures that arrive by post, and by explaining the university's globalization at get-togethers of the association. As was the case before I became a Hokkaido University Ambassador, I also give send-off parties for Vietnamese students going to HU and hold welcome parties for Japanese HU students visiting Hanoi for internships, study-abroad programs, and the like.

There's a world of difference between Hanoi and Sapporo. While the average age of Japanese citizens is 46, the highest in the world, that of Vietnam is 30. It's a country whose cities overflow with young people and give everyone a sense of vitality. Cities are flooded with motorbikes, with noise from horns sounding through the streets all the time, and the skies are always hazy from pollution. Even so, Vietnam is a pleasant place to live, because it's warm year-round and has no pollen, the cause of hay fever.

In July 2019, the Hokkaido University ASEAN Office in Hanoi opened at a joint office with the Vietnam National University, Hanoi – University of Science (VNU-HUS). With the establishment of a point of contact nearby, HU has greater potential for engaging in activities in a wide range of fields.

HU alumni in Vietnam are happy to welcome visitors from Japan. I believe that in-person exchanges with HU representatives will enable local alumni to better understand the university's initiatives for internationalization and their present situation, which in turn helps establish a local structure for cooperation with HU's international programs. If a Vietnamese Alumni Association is founded, local alumni will work closely with the Hokkaido University Elm Alumni Association, not to mention the Hanoi Elm Association, to provide opportunities for Japanese and Vietnamese people to do business together. The breadth of their activities will further expand if they have information about Vietnamese students enrolled at HU.

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1. Lotte Center Hanoi, a landmark completed in September 2014. This high-rise complex tops out at 267 meters, with 65 stories above ground and 5 stories below ground, and it houses an observation deck, business offices, a hotel, serviced apartments and more. Mikuni Dental Clinic Hanoi is on the 8th floor of this building.
2. Staff at Mikuni Dental Clinic Hanoi.
3. Hanoi flooded with motorbikes.
4. Members of the Hokkaido University Saigon Elm Association at the 11th Seven Universities Golf Competition in Ho Chi Minh City.

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Dr. Kenneth J. Ruoff

Professor, Director of the Center for Japanese Studies (CJS), Portland State University, appointed as a Hokkaido University Ambassador in July 2019

When I was offered the appointment of HU Ambassador, I remembered the amazing time that I spent at Hokkaido University as a *joshu* (research associate) and then *kōshi* (lecturer) in the Faculty of Law, from 1994-96. I also remembered in particular amazing *Seijigaku kōza kenkyūkai* (Study Group for the Political Science Course), after which all of us would go to a local restaurant such as Tōhoku hanten (Chinese restaurant which is still in business in Sapporo) and continue the discussion while eating delicious food.

When I was at Hokkaido University from 1994-1996 I was researching my Ph.D. dissertation which then became the book *The People's Emperor: Democracy and the Japanese Monarchy, 1945-1995*, a work that I suspect that some Hokkaido University alumni are familiar. There were numerous professors in the Faculty of Law who helped me with my research, but it was Professor Takami Katsutoshi in particular who spent hours and hours helping me understand various constitutional issues related to the emperor, for example constitutional interpretation about the status of the emperor, etc.

My overall impression of Hokkaido University's research programs and initiatives is world-class. Hokkaido University has long been the academic home of leading scientists such as Ukichiro Nakaya and leading social scientists such as the constitutional scholar Mutsuo Nakamura, and so many other scholars whose work enjoys a worldwide following. I just became an HU ambassador, but I very much want to deepen exchange programs between HU and Portland State University, not only student exchanges but faculty exchanges too.

The opening of the new Hokkaido University Portland Office is a fascinating new development to which we must give positive shape. I would imagine that HU's new Portland Office can play an important role in facilitating all sorts of collaborative projects that go far beyond Japanese Studies (my own field).

Like Sapporo, Portland is a genial city that enjoys a high quality of life. It also attracts a large number of tourists, but not to the extent that they become an annoyance. Like Sapporo does with Hokkaido, Portland enjoys, in terms of food, the incredible richesse of the Pacific Northwest. Portland is only one hour from the ocean and one hour from Mt. Hood*. So, in addition to Portland, one can easily enjoy all that the stunningly beautiful coast has to offer, or go to Mt. Hood for everything from hiking to skiing.

Please keep Hokkaido University the wonderful place that it is! What I mean by that is that it is important to maintain both the delightful physical environment that defines Hokkaido University, and the cultural environment, which when I was there was incredibly open, promoting a non-hierarchical pursuit of the truth, or at least multiple ways of interpreting any issue. What I enjoyed most of all about my time at the Faculty of Law is that at *kenkyūkai*, graduate students felt as free as to ask questions of the speakers as did senior professors.

* A stratovolcano located 80km southeast of Portland. The highest peak in Oregon at an altitude of 3,429 m. There is the Timberline ski resort where is the only place you can enjoy skiing throughout the year.

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1. The Appointment Ceremony for Prof. Ruoff in Portland, U.S.A. (June 2019)
2. Professor Larry Kominz introducing to the audience the famed scholar Donald Keene who made a special trip to see an English-language kabuki version of the "Revenge of the 47 Loyal Samurai" (*Chushingura*) directed by Dr. Kominz, a disciple of Dr. Keene. PSU is renowned for its rich public programming about Japan.
3. Sea lions resting on a dock in the Port of Astoria, where the mighty Columbia River meets the Pacific Ocean.
4. Patrick Ruoff at Trillium Lake with Mt. Hood in the background, in the incredible Mt. Hood National Forest.

Hokkaido University Archives

140 years of challenge

SCENE-11

1899-1909

Relocation of the SAC to North 8th Street


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1. Office of experimental farms (ca. 1900, Hokkaido University Archives). It became the main SAC office and later the headquarters of Hokkaido University.
2. Completion of the lecture hall for agricultural chemistry (1903, Hokkaido University Archives).
3. Architectural rendering of new lecture halls and other buildings (1901, Hokkaido University Archives). A lecture hall for fisheries was built where a large lecture hall had been planned.
4. Architectural drawing for the lecture hall for agricultural policy prepared by Seiichiro Chujo (Hokkaido University Archives).
5. Takeo Arishima and other members of the 19th graduating class, who planted trees where the construction of new buildings was planned (1901, Hokkaido University Archives).
6. Lecture hall for agriculture after completion (1901, Hokkaido University Archives).
7. Roof-laying ceremony for the lecture hall for botany and zoology (1901, Hokkaido University Archives).
8. Library reading room and book storehouse on the left, and the lecture hall for entomology and sericulture at the far right (ca. 1903, Hokkaido University Archives).
9. From left: the lecture hall for fisheries, the herbarium room, and the lecture hall for botany and zoology (1908, Hokkaido University Archives).
10. Former racecourse site to which the SAC campus was later relocated (1878, Hokkaido University Archives). The area is near today's School of Agriculture.

Under pressure both within and beyond the campus

Sapporo Agricultural College (SAC), which opened in 1876, saw its enrollment continue to rise. By the time its inaugural class had graduated in 1881, enrollment had increased to 89:48 students in the regular course and 41 in the preparatory course designed for students planning to enter the regular course. The number of faculty members teaching regular and preparatory courses also increased to nine (five Japanese and four foreign). In 1895, the 19th year after its foundation, the SAC had 179 students (72 in the regular course and 107 in the preparatory course) and 23 faculty members (six professors, nine assistant professors and eight part-time instructors). In other words, the SAC had more than doubled in terms of the numbers of students and teachers. During this time, the expansion of lecture halls and other buildings on campus was limited to the construction of a dissecting room, a library office and a gymnasium and to the reconstruction of the North Auditorium that had burned down. The existing buildings were also becoming old and decrepit.

Meanwhile, the population of Sapporo rapidly increased from roughly 9,000 in 1882 to nearly 24,000 in 1895. As the city's urban development progressed, the SAC, located in the heart of the city, was being surrounded by hustle and bustle. This put the SAC under pressure for the expansion of its campus from within and beyond due to the increasing size of the college and due to the expansion of the city's urban district. In those days, the campus stretched over the area bordered by North 1st and North 2nd streets and West 1st and West 2nd streets.

Relocation to North 8th Street

After repeated requests by the SAC to construct new lecture halls and other buildings, the Ministry of Education gave its approval in the 1899 fiscal budget. The new campus was where the SAC's Experimental Farm No.1 was situated, and the construction of new buildings was planned at the western back of that farm site, near the North 8th West 6th area. It was where Edwin Dun, hired by the Hokkaido Development Commission to assist with the region's modernization, built a racecourse in 1876 (the year the SAC was founded).

A short distance from the city's urban district, the Farm 1 site included farm facilities with views of facilities on Farm 2. Just to give a sense of where the proposed new buildings were on the North 8th Street Campus, after passing through the main gate, you would take in views of farm facilities on Farm 1 and Farm 2 on both sides of the road for a while until new buildings would come into view. In reality, however, people could not take in such views because those farm facilities were relocated when the relocation of Farm 1 and Farm 2 began in 1904 and 1909, respectively. The office managing the experimental farms had been located at the intersection of the roads extending from the main gate and south gate, which were constructed at the time the campus was relocated. It was converted into the main SAC office as the headquarters of Hokkaido University until 1966.

New buildings on the North 8th Street Campus

New lecture halls and other buildings stood in a U shape. Surrounding the front yard were a lecture hall for agriculture in the middle (front), three buildings—a lecture hall for botany and zoology, a lecture hall for fisheries, and a lecture hall for agricultural economics and agricultural policy on the left-hand side, and another three buildings—a lecture hall for agricultural chemistry, a library, and a lecture hall for entomology and sericulture on the right-hand side. These buildings were designed by Seiichiro Chujo (the father of the novelist Yuriko Miyamoto), an architect of the Ministry of Education. After those buildings were completed in July 1903 (and a lecture hall for fisheries was built in 1906), the SAC relocated from North 1st Street to North 8th Street. The campus remained here even after the SAC was elevated to university status and was later renamed Hokkaido University.

Along with the lecture halls and other buildings, the student dorm was also relocated to the new campus. The new dormitory, completed in November 1903, was at a far-off place on campus, 200 to 300 meters away from other buildings. The dorm, later named Keiteki-Ryo, was relocated twice more, each time farther away from the middle of the sprawling campus. The fact that a certain distance has been maintained from the center of campus may have resulted in the cultivation of a unique culture at the dorm.

Of all the buildings constructed at that time, the library and the lecture hall for entomology and sericulture still remain after nearly 120 years, although they have been partially renovated. They are now Registered Tangible Cultural Properties. Another Registered Tangible Cultural Property on campus is the Miyabe Kingo Memorial Building, which was the former lecture hall for botany and zoology (the main building and its east wing). The building was relocated to the Botanic Garden in 1942 to be used as the garden's main office building.

The buildings on the North 1st Street Campus after the campus relocation

Official documents state that after the campus relocation was completed, the buildings on the former campus were sold or demolished by the end of 1904.

Shosuke Sato, president of Hokkaido Imperial University (previously Sapporo Agricultural College), delivered a lecture entitled "Looking Back on My Dorm Life" at a Keiteki-Ryo Kaishikisha meeting on November 19, 1930, and talked about what had become of the buildings on the former campus. Dr. Sato said that the student dormitory was "a small building of three residences behind the youth dormitory," which indicates that the dorm was located near the North 5th West 9th area as of 1930. He also said that the lecture hall for chemistry was being used as a girls' school run by Honganji Temple, which indicates that it had been relocated to the North 16th East 9th area for use as Hokkai Girls' High School (today's Ohtani Junior High and High Schools). "The dining hall became a meeting place for military officers," he said, indicating that the dining hall, which consisted of a first-floor dining room and a second-floor study room, had been relocated to where Tsukisamu Park is today for use as a facility for Japan's 25th infantry regiment. Dr. Sato also said that the auditorium for the preparatory course (North Auditorium) "had changed direction and served as Sousei Hospital" (in the North 1st West 2nd area), and that "a small building to its southeast used to be the library reading room."

If Dr. Sato's recollections are correct, it appears that the buildings on the North 1st Street Campus were still serving other purposes as of 1930, four to five decades after their construction. Those buildings fulfilled their roles thereafter and no longer exist today, except the SAC drill hall, which is now the Sapporo Clock Tower. Nestled in a street canyon in central Sapporo, the clock tower continues to sound a bell like in the days long gone.

"The clock tower building, which was sold to the city government, Since it was used for military drills during which students kept floor would eventually collapse. But the building has been used did not have the beams that are used today. stamping their feet, it was thought that the since its repair." — Shosuke Sato

Hokkaido University HISTORY 1899-1909

1899	February	The decision is made to relocate the campus to the North 8th Street area.
	June	A groundbreaking ceremony for new school buildings on the North 8th Street Campus is held.
1901	January	Members of the 19th graduating class plant trees at the site of the new school buildings.
	June	A lecture hall for agriculture is constructed.
	November	A lecture hall for botany and zoology is constructed.
	December	A lecture hall for agricultural economics and agricultural policy and a lecture hall for entomology and sericulture are constructed.
1902	December	An herbarium room, a lecture hall for agricultural chemistry, a library reading room, and a book storehouse are constructed.
1903	July	New lecture halls and other buildings are completed, and the SAC relocates to North 8th Street.
	November	A dorm (later named Keiteki-Ryo) is constructed.
	December	A gym is constructed.
1904	March	The relocation of Farm 1 begins.
	October	The main gate, the middle gate and the gatehouse are constructed.
		By the end of this year, the buildings on the North 1st Street Campus are sold or demolished.
1906	November	The drill hall (today's Sapporo Clock Tower) is sold to the Sapporo Government.
	December	A lecture hall for fisheries is constructed.
1909	September	Relocation of Farm 2 begins.

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

01

The signing ceremony for the collaboration agreement.

Hokkaido University concludes an agreement with the City of Iwamizawa and three NTT Group companies based on government-industry-academia collaboration

Hokkaido University, the City of Iwamizawa and three NTT Group companies (Nippon Telegraph and Telephone Corporation [NTT], Nippon Telegraph and Telephone East Corporation [NTT East] and NTT Docomo, Inc.) concluded an agreement at the Iwamizawa Local Government Network Center in Iwamizawa on June 28, 2019. The agreement is aimed at realizing world-class smart agriculture and making Iwamizawa a "sustainable smart agri-city" using state-of-the-art agricultural robotics and information and communications technology (ICT) based on government-industry-academia collaboration.

Before the signing ceremony for the agreement, Professor Noboru Noguchi of the Research Faculty of Agriculture held a demonstration of autonomous tractors using vehicle robotics technology, an outcome of his research, at Hamamoto Farm in Iwamizawa. The demo attracted some 100 people, including members of the media.

During the signing ceremony, Satoru Matsuno, Mayor of Iwamizawa, explained how the agreement would achieve its aim of making Iwamizawa a "sustainable smart agri-city," followed by a presentation by Professor Noguchi about the efforts being made to use self-driving farm machines to demonstrate "near-future smart agricultural technology."

The presentation was followed by the signing of the agreement and a speech by Hokkaido University Executive Vice-President Junji Nishii, who expressed his enthusiasm. The Q&A session that followed demonstrated the high level of interest with many questions being asked about the initiatives to be undertaken, including implementation schedules.

Demonstration of the autonomous tractors using vehicle robotics.

02

Center for Human-Nature, Artificial Intelligence, and Neuroscience (CHAIN) established

Hokkaido University launched the Center for Human-Nature, Artificial Intelligence, and Neuroscience, or CHAIN, in July 2019. It will conduct interdisciplinary research and education at the intersection of humanities, artificial intelligence, and neuroscience. The inaugural symposium was held at the university's Sapporo Campus on July 23rd to unravel its vision and ambitious plans for research and graduate-level education.

At the symposium, Professor Shigeru Taguchi, the Director of CHAIN, said, "Recent developments in neuroscience and artificial intelligence have made it possible for scientists to tackle problems that have been traditionally explored in humanities, such as consciousness, emotion, and self," explaining the ever-increasing demand for the integration of humanities and science. "We would like to open up new directions in understanding 'what human beings are.' "

It's not a one-way process, however. "The knowledge and wisdom accumulated in the humanities in its long history have a great potential to inspire modern neuroscience and artificial intelligence," claimed Shigeru Taguchi. The center aims, in particular, to integrate highly philosophical ideas with mathematical and empirical scientific methods and findings.

The faculty members of CHAIN will be loosely organized into groups corresponding to four major themes — the self, consciousness, sociality, and rationality. They will collaborate with researchers from external institutions and industries including Ruhr University Bochum, University of Trento, Monash University, Caltech, and National Yang Ming University.

Graduate-level education will start in April 2020 for Master's and Ph.D. students. Participants will engage in joint interdisciplinary research on one of the four major themes. Coursework and internship programs will also be provided.

Executive Vice-President Masanori Kasahara giving the welcome address at the inaugural symposium.

Center Director Shigeru Taguchi speaking at the inaugural symposium.

An Autumn Campus

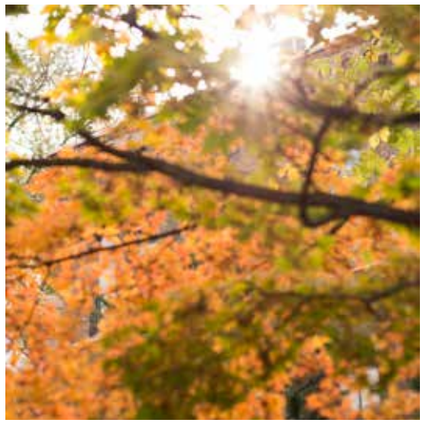
Photographer: Akihito Yamamoto

a

b

c

d

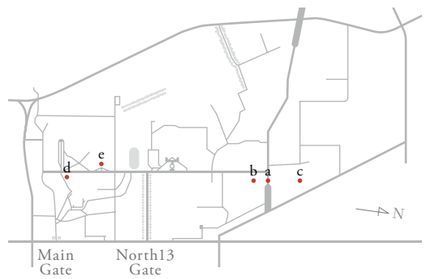


e

Even with the Japanese era name changing from Heisei to Reiwa, the seasons will continue as they have throughout history.

Hokkaido University has organized a great many public events again this year. These events, including the university festival, beer garden on the green and open campus day, bustled with visitors. Homecoming Day in September gave alumni and local residents lending their support to the university the opportunity to drop by this verdant campus and see what the university is up to.

In Autumn, the trees lining Gingko Avenue change their colors, attracting many visitors to the campus.



a. Around the North 18 Gate
b. Health Care Center
c. The Second Farm
d. Furukawa Hall
e. The Hokkaido University Museum

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