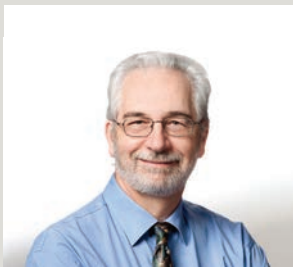


L'ŒUVRE D'ARMAND FRAPPIER

75 years of research and
training to advance health
and biological sciences

Armand Frappier was a pioneering Quebec researcher in microbiology and preventive medicine. In 1938 he founded Institut de microbiologie et d'hygiène de Montréal, the first French-Canadian medical research centre, which was dedicated to research, training, and the manufacture of biologics.

Many events transpired at this institution before it became part of Institut national de la recherche scientifique (INRS). To mark the 75th anniversary of Armand Frappier's work, we are chronicling the history of Centre INRS–Institut Armand-Frappier in six chapters written by **Pierre Payment**, a professor at the Centre since 1975.



PIERRE PAYMENT

CHAPTER 1

1933-1950



IN 1942, THE INSTITUTE WAS ON THE 6TH FLOOR OF UNIVERSITÉ DE MONTRÉAL

Source: IMHUM (1958)
Rétrospection 1938-1958

INSTITUT DE MICROBIOLOGIE ET D'HYGIÈNE DE L'UNIVERSITÉ DE MONTRÉAL

BIRTH AND FIRST STEPS: TUBERCULOSIS, VACCINES, AND THE WAR EFFORT

In 1861 Louis Pasteur disproved the theory of spontaneous generation by showing that nothing can grow in a sterile environment. All life, whether eggs, seeds, or germs, originates from microscopic organisms.

As a chemist working in the beer and wine industries, Pasteur found a link between microbes, fermentation, wine and grapevine diseases, and silkworms. His work with numerous other bacteriologists not only helped usher in a new era for the beer and wine industries but also equipped public health authorities to address the major contagious diseases rife at the time, including cholera, typhoid fever, rabies, tuberculosis, smallpox, and polio. These human and animal diseases could then be fought using antisepsis, asepsis, pasteurization, disinfection, sterilization, and vaccination.

In the early 20th century, inadequate housing, malnutrition, and poor hygiene were primary causes of disease transmission. Industrialization would help gradually improve public health through better living conditions and the introduction of power grids and drinking water and sewage systems. Hygiene and sanitation served as barriers allowing public health authorities to keep infectious diseases in check.

THE YOUNG DR. ARMAND FRAPPIER: PHYSICIAN, RESEARCHER, AND ENTREPRENEUR

In Quebec in the early 1930s, the young Dr. Frappier began his career as a physician specializing in bacteriology. His work made him acutely aware of the magnitude of the tragedies caused by infectious agents, in particular the ravages of tuberculosis. His studies and visits to major U.S. and European institutions, including Institut Pasteur in Paris, opened his eyes to the current means of combatting infectious diseases.

In 1932 he began postgraduate studies in the U.S. and Europe (England, France, Germany). At Institut Pasteur, he learned to handle BCG (Bacillus Calmette-Guérin) and returned to Quebec with the strain used to prepare the

attenuated tuberculosis vaccine. In 1933 he joined the bacteriology department at Université de Montréal, then located on Rue Saint-Denis. At the time, only medical students could take bacteriology classes, and the program was incomplete. There was no technical component, graduate or doctoral studies, or cooperation with other faculties, which limited information sharing and the training of microbiologists.

His working conditions were very poor: cramped quarters, little equipment, no blood agar to grow bacteria, and no animals to experiment or perform isolation on. He had only one technician to assist him in his work.

The lack of resources and poor environment hindering scientific advancement led Dr. Frappier to help develop a microbiology program at Université de Montréal. He played a part in the introduction of certificates (1937), the creation of graduate programs (M.Sc. and Ph.D., 1955), outreach with other departments and faculties (including Biology and Veterinary Medicine), and the creation of École d'hygiène. His openness to microbiology furthered the training of scientists, many of whom went on to work at the future Institute dedicated to the protection of public health.

CREATION OF THE INSTITUTE

In 1933 Dr. Frappier, along with a few colleagues and students, began developing what would become today's Centre INRS-Institut Armand-Frappier. He was joined by physicians, veterinarians, pharmacists, and chemists eager to learn more about the world of microorganisms.

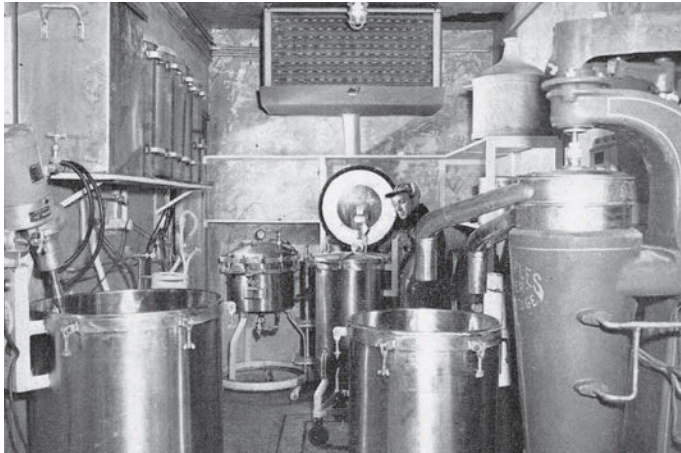
Inspired by his visits to Toronto's Connaught Laboratory, Paris's Institut Pasteur, and other facilities around the world, Dr. Frappier knew he wanted to start an institute of his own early on. He described his proposal with real social needs in mind: "... in Quebec we need to develop the field of bacteriology with a focus on many medical and industrial aspects, train experts in the field, design and deliver all sorts of public health- and industry-related services, and provide the government and hospitals with key products that are essential for a nation that considers itself modern." (*Un rêve, une lutte*, p. 111) His audacity led him to present a project that would ensure Quebec's vaccine and biologic independence, piquing the interest of the province's new premier, Maurice Duplessis. This independence and the appeal of economic spinoffs for Quebec helped rally the support of the authorities in place.

The government invested \$75,000 to create Institut de microbiologie et d'hygiène de l'Université de Montréal (IMHM), and it grew rapidly despite the hard times of the war period. Research, teaching, production, and community service were the cornerstones of the Institute. It turned out to be a great investment, since revenues grew quickly for the time: \$8,000 (1938), \$62,000 (1942), \$440,000 (1949). In 1986 the Institute had revenues of \$24,000,000. The Institute's staff grew from 8 people in 1942 to more than 300 in 1958.

The Institute was first located at Université de Montréal, where the research group worked until 1963. The premises were on Rue Saint-Denis until the Université de Montréal moved to its new campus in 1942, on Mount Royal. The Institute's researchers would maintain close ties with the Faculty of Medicine's Microbiology Department (bacteriology at the time) and many students earned their graduate degrees there under the supervision of their IMHM mentors. A number of them went on to become Institute researchers.

RESEARCH AND PRODUCTION

Epidemiology and the fight against tuberculosis were priorities for many years, but rapid advances in microbiology and immunology gave the new Institute opportunities to grow and helped it achieve an international reputation. In 1938, during the war, the Institute's researchers proved their scientific and entrepreneurial skills. There was a major need for blood derivatives to treat wounded soldiers, so the Institute quickly set up labs able to lyophilize the serums and gamma globulin preparations delivered to the Red Cross for distribution worldwide. It also produced diphtheria and tetanus toxoids and antitoxins for many years.



Freeze drying laboratories for sera and gamma globulins
Source: IMHUM (1958) *Rétrospection 1938-1958*

In 1939 the Institute purchased a farm in Laval-des-Rapides and transformed it into an annex where it would relocate its labs. Unfortunately, according to expert assessments, the property was crisscrossed with countless tunnels harboring 100,000 to 300,000 rats. Plans were made to demolish the old barn and force the rats out using poisonous smoke, and the extermination operation was a resounding success.

NEW SPACES

Work with large animals required special conditions that were hard to meet onsite at Université de Montréal, especially after the campus moved to the mountain in 1942. Some animals had to be brought to the upper floors of the university. This was quite a feat, since there was no elevator and staff had to lead their heifers up 240 steps to the 6th floor for research.



Heifers being led to the 6th floor laboratories at the Université de Montréal
Source: IMHUM (1958) *Rétrospection 1938-1958*

The fields in Laval were used to grow legumes to feed laboratory livestock, which had become essential to research and the production of biologics. Over the years, the pastures were home to hundreds of sheep, which provided their blood for various tests and the production of antisera and blood agar. The horses and calves that were raised there to produce antisera, toxoids (diphtheria and tetanus), and vaccines also enjoyed the good life in the pastures.

CHAPTER 1
1933-1950



Laval-des-Rapides Annex. Crop fields
Source: IMHUM (1958) *Rétrospection 1938-1958*

The many buildings constructed at the Laval-des-Rapides Annex attested to the institution's vitality. They were dedicated to the production of serums, gamma globulins, and antiviral vaccines for human and veterinary use.



Poliovirus production in cell culture bottles
© Musée Armand-Frappier

In 1947 the fight against polio was in full swing, but there was not yet any way to combat the viral disease. Human gamma globulin preparations were recommended for inoculation, and the Institute was able to provide the authorities with these life-saving preparations. Given the growing importance of virology and the glaring lack of knowledge in the field, the Institute created a virus research division whose work focused mainly on the epidemiology of poliomyelitis. Dr. Vytautas Pavilanis, a physician trained at Institut Pasteur, was appointed head of the division in 1948. Since 1951, the Institute has offered hospitals and doctors a viral disease diagnosis service, one of the only in Canada and the first in Quebec. Research in this department led to the production of Salk and Sabin polio vaccines in the 1950s.

Throughout the Institute's history, its researchers have closely collaborated on production activities. They provided producers with numerous solutions at a time when the culture of animal tissue and cells was just beginning and people were only beginning to have an understanding of the nature of viruses. An electron microscope acquired in 1947 served as a key piece of equipment for this work.

The young Institut de microbiologie et d'hygiène de Montréal (IMHUM) celebrated its 10th anniversary in 1948. The early 1950s was an intense time for the Institute's researchers and a period of rapid and stimulating growth.



The first electron microscope donated to the Institute (1947)
Source: IMHUM (1958) *Rétrospection 1938-1958*

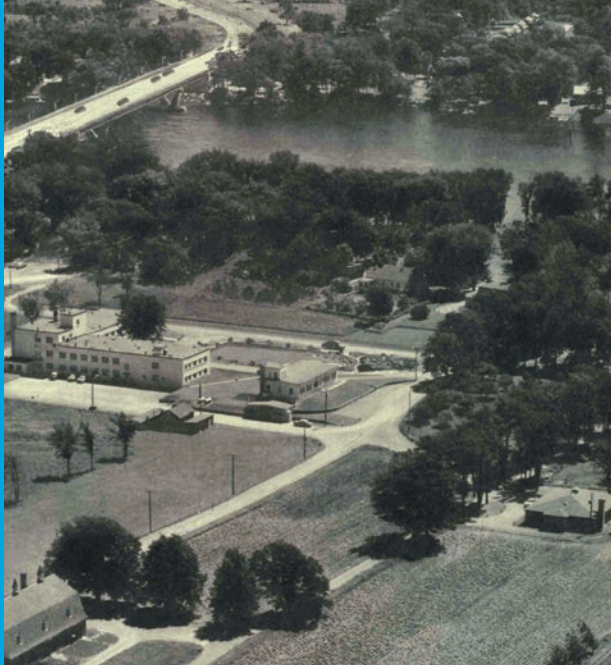
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1958 CAMPUS
OF THE INSTITUTE
Source: IMHUM (1958)
Rétrospection 1938-1958

INSTITUT DE MICROBIOLOGIE ET D'HYGIÈNE DE L'UNIVERSITÉ DE MONTRÉAL

PRODUCTION AND RESEARCH SUPPORT SERVICES

In 1958, some of the campus land on which a number of buildings had already been built, was expropriated by the city of Laval-des-Rapides and the corporation in charge of building Highway 15. The loss was offset by the purchase of adjacent property.

In 1951 construction began on a modern smallpox vaccine production lab, a mechanized statistics lab for the BCG data file, and a root cellar for preserving farm products. Another building completed in 1954 (Building 11) was used for gamma globulin production and included a very well-equipped cold lab and a pyrogen-free water plant. It was also used to purify and concentrate other biologics, including diphtheria and tetanus anatoxins and antitoxins.

The young Institut de microbiologie et d'hygiène de Montréal (IMHUM) celebrated its 10th anniversary in 1948. From the early 1950s until 1963, it was located at Université de Montréal (H Wing, 6th and 7th floors) on Chemin de la Côte-des-Neiges. As was noted in our first chapter on the 1933-1950 period (*Birth and First Steps: Tuberculosis, Vaccines, and the War Effort*), the Institute's

board acquired a farm in Laval-des-Rapides and adjacent land to the north and east in 1939 to provide for the Institute's expansion. The relatively narrow (900 ft) but rather long (6,100 ft) rectangular plot runs north to south along the Laurentian Highway 15.

VACCINE PRODUCTION

The great vaccine production adventure kicked off when the Institute received \$58,475 under a federal-provincial agreement for polio vaccine research based on the Salk method (inactivated vaccine) and a generous provincial grant of \$60,000 for the construction of respiratory virus vaccine production labs. Construction of the Laval-des-Rapides Annex polio labs (Building 12, Pavillon d'Hérelle) began in 1955, and they were inaugurated in April 1956 under the chairmanship of the Honourable Maurice Duplessis. An additional \$1,350,000 provincial grant was used to complete construction and perform vaccine production R&D.

In 1957 the Institute produced its first batches of Salk polio and Asian influenza vaccines, which were approved by the federal authorities and delivered to Quebec's health minister. That same year, American physician and researcher Albert Bruce Sabin authorized the use of his attenuated poliovirus strains for the production of what was a very commonly used vaccine in the province. Vaccine sale profits went to support the work of researchers.



Cafeteria and recreation center



Variola vaccine production laboratory



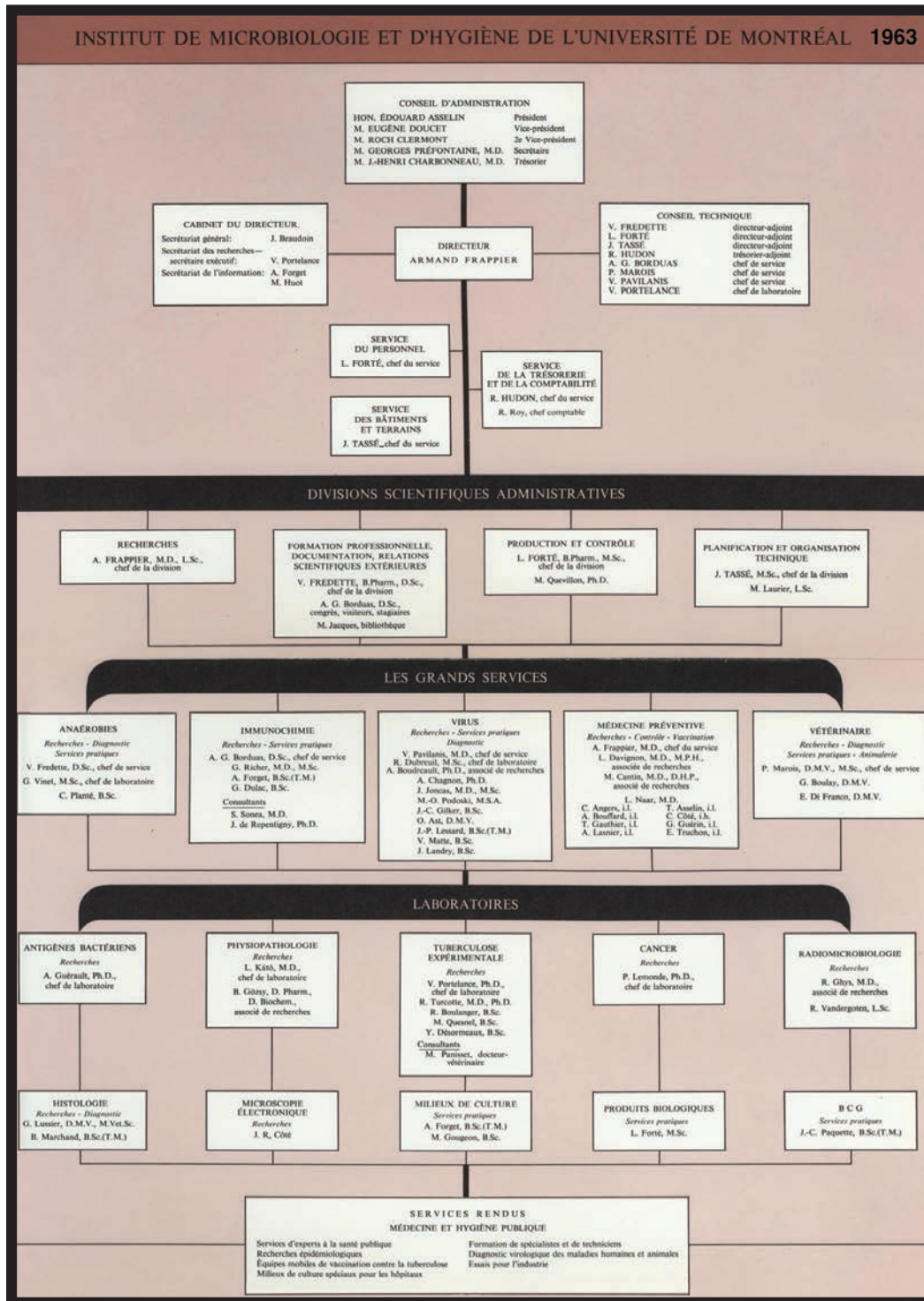
Plasma fractionation, gamma globulin, and cryogenics
Source: IMHUM (1958) *Rétrospection 1938-1958*

On the Institute's **20th anniversary** in 1958, the board authorized management to grant a symbolic award to scientific and technical staff for their contribution to the Institute's renown through the publication or communication of research. All employees received a Christmas bonus that year to recognize their achievement.

ESTABLISHMENT IN LAVAL

Many major events took place during the 1959-1963 period. In 1962 the Institute's lease with Université de Montréal was not renewed, so it decided to combine labs and services in Laval-des-Rapides. The Quebec government committed \$5 million so the Institute could continue building and setting up its labs. The final move to Laval took place in 1963, the year of the Institute's **25th anniversary**. From then on, it was completely established in its new home with modern labs custom designed for its research. This marked a new era of expansion. As Quebec's first independent research institution and one of the largest-if not *the* largest-in the province, and a Canadian leader, the Institute aimed to remain at the forefront of Canada's medical and scientific advances.

BCG vaccinations continued, mobile clinics were on the road, and over a span of five years (1959-1963) the Institute enhanced the BCG file with data from 501,445 pre-vaccination tests and 280,022 vaccinations. In the same period, the virology lab analyzed over 9,000 specimens. The continuous monitoring of enterovirus infections in the province of Quebec was a source of data that would often serve as the starting point for fundamental research.



Source: IMHUM (1963) *Rétrospection 1959-1963*

In 1962 the Institute built two animal isolation units on the north side of its campus (Buildings 25 and 27), one for small and medium-sized animals, including monkeys, rabbits, guinea pigs, mice, and hens, and the other for cynomolgus monkeys used for polio vaccine production.

A menagerie was set up near Boulevard Cartier (Building 8) to house work with the Sabin vaccine and a nearby building (Building 9) was used for work on live measles virus. The variola vaccine was produced in a small building that has since been demolished (Building 16). Researchers experimented with vaccine preparations to fight measles and common adenoviruses while continuing work on polio and influenza vaccines. Researchers were actively involved in production activities, forming a strong, efficient team that always delivered.

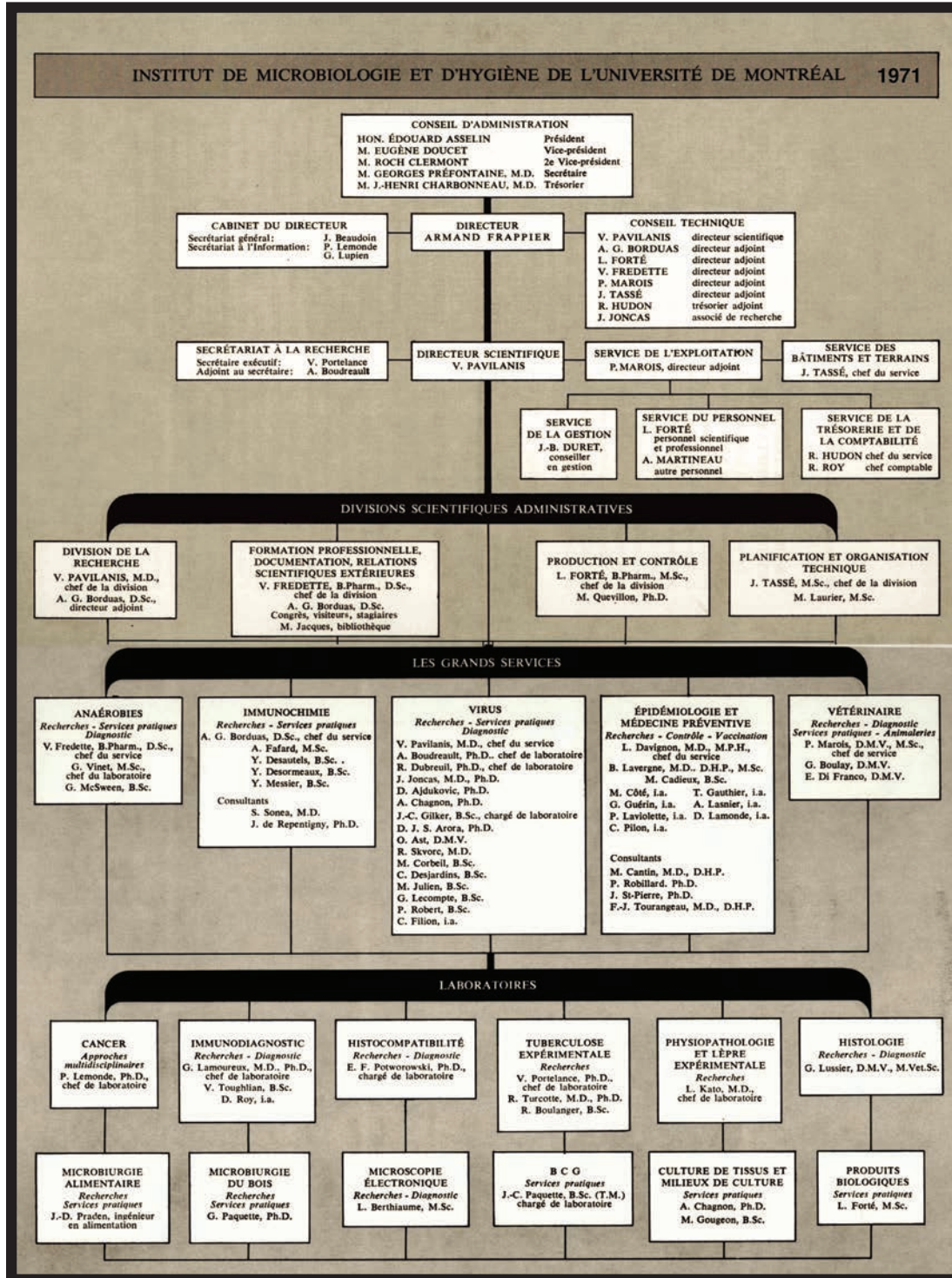
This period also saw the start of work on leprosy and the effects of BCG on leukemia. For several years, the Institute's researchers conducted numerous trials to grow murine and human leprosy bacillus. In vitro culturing of murine leprosy bacillus was the only such effort to succeed. Research on BCG effects helped firmly establish that BCG reduced mortality from spontaneous leukemia by 50% in mice and increased the lifespan of diseased mice.

REORGANIZATION AND EXPANSION

The Institute had moved to Laval in 1963, the year of its **25th anniversary**. At the time of the move, it had already planned to construct a new building to bring together researchers, but it didn't unveil Pavillon Edouard-Asselin (Building 18) until 1968, on the Institute's **30th anniversary**. Most of the Institute's research services were relocated to this building whose simple, modest architecture belied the state-of-the-art laboratories it contained.

Carefully planned earthworks and the planting of various tree species made the Institute's Laval-des-Rapides campus a green oasis in the middle of Île Jésus.

The two organizational charts on pages 8 and 10 illustrate the scope of the Institute's major reorganization in 1970. They clearly show the structure that allowed the Institute to remain competitive in all its spheres of activity. In both 1963 and 1971 you can see that both the services and production divisions were very busy, with researchers conducting the R&D so crucial to the Institute's operations.



Source: IMHUM (1971) *Rétrospection 1964-1971*



Campus circa 1970
© Musée Armand-Frappier

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CHAPTER 3

1971-1980



1980 CAMPUS
OF THE INSTITUTE

Source: IAF
1982-1984 Annual Report

UNIVERSITÉ DU QUÉBEC INSTITUT DE MICROBIOLOGIE ET D'HYGIÈNE DE MONTRÉAL (IMHM 1972) INSTITUT ARMAND-FRAPPIER (IAF 1975)

In the early 1970s, now well established at its Laval campus, the Institute was a hive of activity. IMHUM was then divided into research and service departments (see Chapter 2: *Production and Research Support Services*), a structure fully aligned with the institution's objectives. Through its operations and the hard work and expertise of its researchers, the Institute forged close ties with the community it served.

Over the course of its development, Université du Québec (UQ), which was created in December 1968 by Bill 88, included several components, most of which were introduced between 1969 and 1983, including INRS in 1969. As part of negotiations to integrate IMHUM into the UQ system, the Institute first returned to its original name, Institut de microbiologie et d'hygiène de Montréal (IMHM) in August 1972 and was officially became part of the network under this identity.

The phase initiated in 1972 and the Institute's integration into Université du Québec were marked by an intensification and diversification of goods and service production activities, the development of applied and industrial microbiology with a focus on food, and the use of natural resources. All diagnostic and preventive medicine

services included a BCG vaccination service performed by mobile teams at the province's schools, a human viral disease diagnostic service, a histocompatibility lab for patients awaiting kidney transplants, a specialized immunological diagnostic service, a province-wide veterinary viral diagnostic service, and an animal disease screening service.

After 37 years at the Institute's helm, Dr. Frappier stepped down in 1974. His successor, Dr. Aurèle Beaulnes took charge of restructuring the Institute, tackling the serious challenge of ensuring the continuity of his predecessor's work. The new organizational chart reflects this major reorganization. On June 1, 1975, the Institute took the name Institut Armand-Frappier in honour of its founder.

Highlights included the 1978 commemoration of the **40th anniversary** of the Institute's founding. The celebrations were small but very festive and served as a reminder to all of the important legacy paving the way for a promising future.

Developing research and higher education programs was a priority for the next ten years. To identify the areas most suitable for expansion, researchers with common interests were grouped together at centres, one for each research project field: bacteriology, virology, immunology, epidemiology, preventive medicine, comparative medicine, and food science. These changes were clearly reflected in the organization chart for the period.

CHAPTER 3
1971-1980

Some of Dr. Frappier's colleagues retired or passed away during these years. After the University adopted its mission, a number of young researchers were hired to ensure succession of the original team, whose remaining members were advancing in age.

The original researchers wisely recruited young researchers who could replace them upon their retirement 5 to 10 years later, thereby ensuring continuity in ongoing projects.

Several of these young researchers developed new avenues for research and later stood out for their leadership in management roles.

The 1970s restructuring introduced a major change in the relations between different groups. Under the new system, budgets were now allocated by research centre. A comprehensive study of production costs and community services was undertaken and a new marketing and sales policy was implemented. However, the new practices created silos between the various centres, departments, and operations, as they were now competing with each other for available funds.

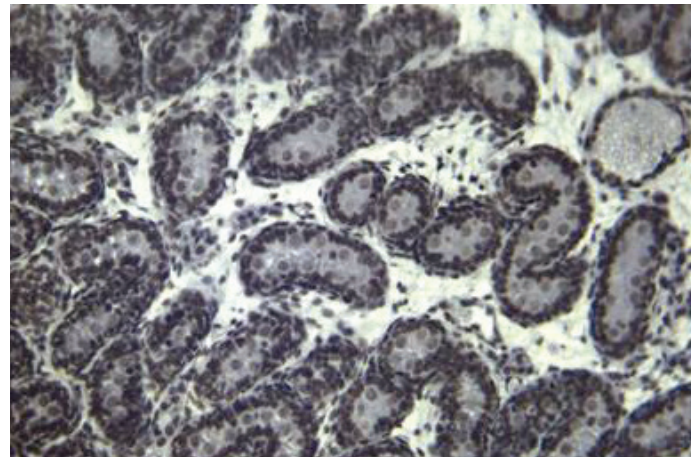
By the end of the decade, three of the five centres - virology, bacteriology, and immunology - had achieved critical mass and clearly defined their mission and objectives. Each of these centres aimed to recruit new professors. The two other centres, focused on epidemiology and preventive medicine, had not yet achieved the critical mass required to begin full operations.

VIROLOGY RESEARCH CENTRE

This centre boasted the largest group of virologists in Canada, with expertise in areas such as influenza, measles, rubella, and infectious mononucleosis. Researchers continued their work on influenza, viral infection ecology and pathogenesis, virus-cancer relationships, and chemotherapy.



© Christian Fleury



© Géraldine Delbès

Researchers' expertise was supported by tissue culture, electron microscopy, and human and veterinary diagnostic virology services. These last two services provided an endless source of research specimens and subjects.

A major program for screening antiviral activity in new synthetic molecules was created, leading to the discovery of substances with high chemotherapeutic potential against cold viruses. Clinical trials were carried out in 1979, but despite promising results and a number of patents, a lack of financial resources prevented any of the substances from making it all the way to market.

BACTERIOLOGY RESEARCH CENTRE

The centre's activities remained focused on developing new bacterial vaccines and strains with special biological properties that could one day be used to improve the quality of the environment and manufacture useful products.

Researchers continued their work on bacterial vaccines (meningitis and gonorrhoea), mycobacteria (ribosomal vaccines, tuberculosis, leprosy), cancer immunotherapy (effect of BCG), biodegradation (cellulolytic microorganisms), and bioprocessing.

The leprosy research program received many donations and grants, including a contribution from the Molson Foundation for the construction of Pavillon Hansen (Building 10).

IMMUNOLOGY RESEARCH CENTRE

This centre's research focused on aspects of the immune response to pathogenic microorganisms and cancer cells and the pathological mechanisms that impair the immune system or direct it against the host. Research areas included immune response in breast cancer, multiple sclerosis, hepatitis B, and leprosy.

The centre was responsible for two specialized labs of clinical immunology and histocompatibility, and offered both services to the community.

The clinical immunology lab offered clinicians a range of immunological methods for the diagnosis, monitoring, and treatment of human diseases.

The histocompatibility lab's activities included identifying the leukocyte antigens of patients waiting for an organ transplant, screening for cytolytic antibodies in their serum, and performing cross-matches between the serums of potential recipients and the cells of cadaveric donors. The lab still provides a 24/7 on-call service.

EPIDEMIOLOGY AND PREVENTIVE MEDICINE RESEARCH CENTRE

Research activities at this centre included monitoring infectious diseases and the immune status of populations, cancer epidemiology, early detection of carcinogens in industrial settings, cancer mortality risk assessments for copper workers, and possible cancer prevention in adults using the BCG vaccine.



© INRS Archives
Photographer: Réjean Beaudet

VETERINARY MEDICINE RESEARCH CENTRE

This centre continued working with the Quebec government, offering a growing range of veterinary virology diagnostic services, introducing new practices, and providing diagnostic reagents required by regional labs.

The Institute also focused on better adapting animal testing for research and quality control. Study areas included epidemiology and the pathogenesis of viral infections (pig viruses, Marek's disease, bovine infectious bronchitis, and coronavirus infections).



© INRS Archives
Photographer: Réjean Beaudet

OPERATIONS AND SERVICES

The Institute was unique among Quebec university institutions with its 20 human and veterinary vaccines and serums and 300 diagnostic products, bacteriological culture media, cell cultures from different animal species, and a variety of biologics such as blood and its derivatives.

The need to make the operations sector more profitable required an increase in the volume and performance of production and community services. An operations department was created in early 1975-76 with three services: production, quality control, and marketing and sales. Revenues increased through the sale of

culture media, human viral diagnostic services, tissue culture, histocompatibility for patients awaiting a kidney transplant. Financial assistance granted under a federal-provincial agreement helped mechanize and boost flu vaccine production with guaranteed coverage of production expenses.

These activities helped round out the R&D and production system, and for certain products they yielded modest revenues that were reinvested in research. However, for other products, profitability had not yet been achieved. Over the following years, many products and new vaccines were tested, but unfortunately results were mixed due to fierce competition from multinationals and steadily declining vaccine prices in the global marketplace.

Operations gradually became a burden for the Institution, and key administrative decisions had to be made.

A legally and administratively for-profit operating company, at arm's length from IAF, was incorporated on August 8, 1978, under the name IAF Production Inc. This company took on about half the Institute's production activities, i.e., the diagnostic products program.

In the years ahead, the Frappier group would have to address the major challenge of harmoniously and efficiently developing three distinct companies: Institut Armand-Frappier, Fondation Armand-Frappier (created in 1978), and IAF Production Inc.

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CHAPTER 4

1980-1989



MAIN PAVILLION
INSTITUT
ARMAND-FRAPPIER
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Photographer: Pierre Payment

THE PRODUCTION ADVENTURE COMES TO AN END INSTITUT ARMAND-FRAPPIER – UQ

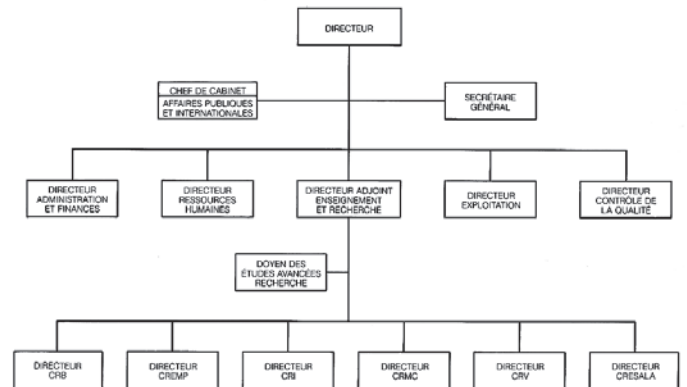
We could have called this chapter *The Milkmaid and the Pot of Milk* (after a fable by Jean de La Fontaine also known as *Perrette and the Pot of Milk*).

In the 1980s the Institute’s administrators envisioned the creation of a biotech company with sufficient revenue potential to ensure its growth, but things did not turn out the way they had expected.

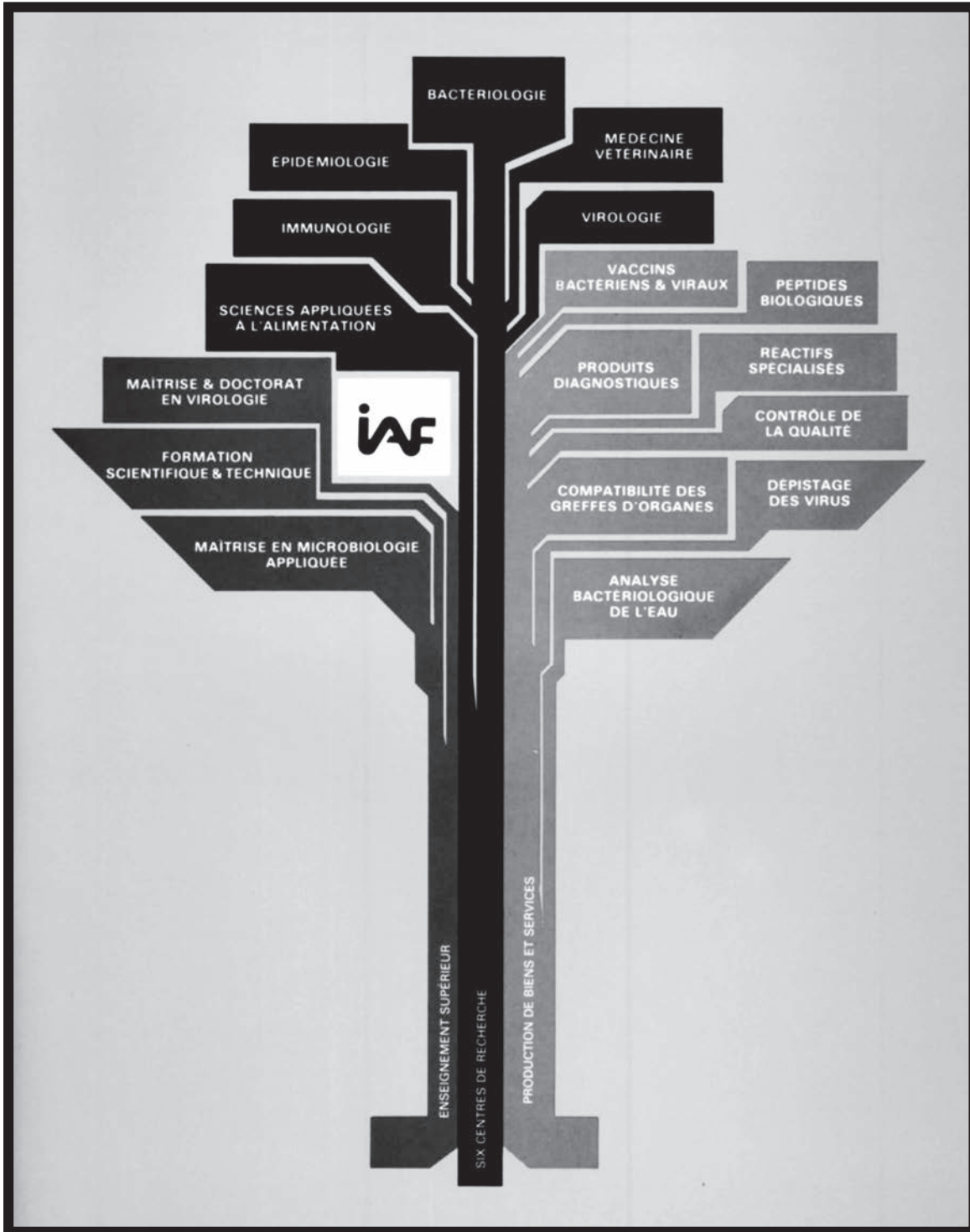
This chapter is less about scientific advances and more about the milestones achieved in this decade, some of which had major impacts. The Institute’s affiliation with Université du Québec was a source of pride for its community, even though the partnership meant significant restructuring and adaptations. Researchers continued working tirelessly but the 1980s were tough times in Quebec, especially given the 1982 patriation of the constitution, the province’s ballooning budget deficit, heated collective agreement negotiations with Front commun des syndicats, strikes, and a decline in wages (20% over 3 months in 1983).

In the early 1980s Institut Armand-Frappier (IAF) was a dual-status nonprofit as both a Université du Québec affiliate with a research and teaching mission and a company producing high-tech goods and services in the medical, biofood, and environmental fields. For many years this dual status posed no problem for authorities, since pharmaceutical industry competition was weak and Quebec wanted to maintain its independence, in particular with regard to vaccines.

These circumstances would change, shaking the institution’s very foundations, production activities took on a predominant role, which unfortunately jeopardized its future.



Organizational structure
Source: *Biennial Report 1982-1984*, Institut Armand-Frappier



The institute's management structure presented as a tree.
Source: *Biennial Report 1982-1984*, Institut Armand-Frappier

ORGANIZATIONAL STRUCTURE

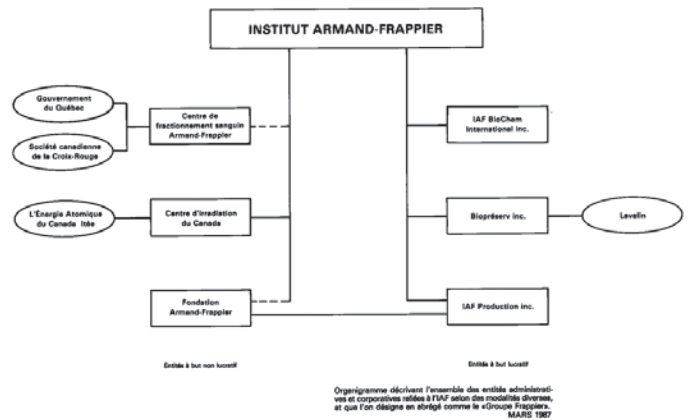
In biennial reports, the Institute’s management structure is presented as a tree (see previous page) or organizational chart with five departments: research and teaching, administration and finance, human resources, operations, and quality control. Research was now conducted at six different centres: bacteriology (CRB), epidemiology and preventive medicine (CREMP), immunology (CRI), comparative medicine (CRMC), virology (CRV), and food sciences (CRESALA).

CRESALA, which was created at Université du Québec à Montréal (UQAM) in 1972, moved to IAF in June 1982 under a cooperative agreement with UQAM and became a new unit that expanded the Institute’s research fields and its partnerships with industry, especially in the area of food irradiation.

Another arrival also shaped the Institute’s history. In 1984, in the wake of Ayerst Laboratories’ Ville Saint-Laurent restructuring, Francesco Bellini came to join Bernard Belleau and Gervais Dionne. Their research focused on lamivudine (also known as 3TC), an antiretroviral that would be essential in the fight against the human immunodeficiency virus (HIV). Between 1984 and 1985, the Institute created a biochemical products division headed by Bellini. Very quickly, in association with Institute management, the researchers-entrepreneurs set up a biopharmaceutical company that would make history in Quebec and elsewhere (MDEIE 2009).

The nonprofit subsidiary company was formed in 1986 under the name I.A.F. BioChem International Inc. with the Institute as major shareholder. Funding came from a \$13 million loan under the stock savings plan market, which was created in 1979 to promote emerging Quebec industries through equity investments from small savers. The company’s value shot up for a few years, and IAF held more than 2,500,000 shares, but as we will later see the Institute ultimately had to sell off its shares at a loss.

The 57-hectare campus now included some twenty buildings spanning over 35,000 m². By the end of 1986 the Institute had over 400 employees, including 94 scientists supported by research assistants, technicians, technical assistants, and clerical and office staff. It also hosted 75 graduate and doctoral students and at least as many interns and postdoctoral fellows. The operating budget was then set at \$28 million, with 50% coming from the production and sale of goods and services. The Institute’s research activities were grouped into seven specialized units in interrelated fields—the biochemical products division and six research centres. In 1986 the IAF entities were named Groupe Frappier.



Groupe Frappier
Source: Biennial Report 1984-1986

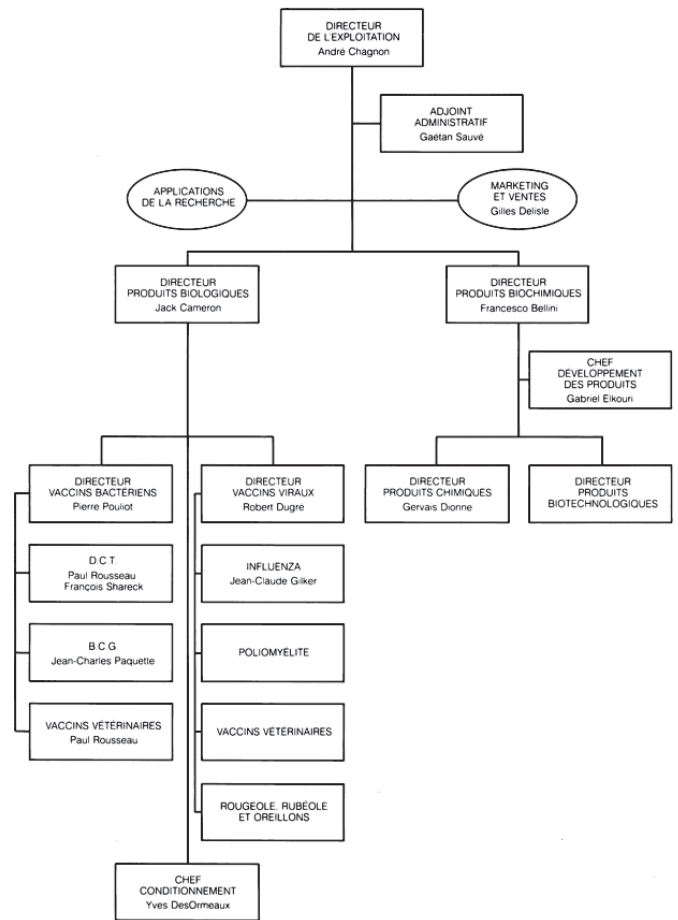
The Groupe Frappier period was marked by strong growth in biologics and diagnostics operations, an ongoing effort to reduce operating costs, and increased development of “new generation” vaccines and new diagnostic products.

In 1985 the Institute partnered with Atomic Energy of Canada to create the Canadian Irradiation Centre (CIC) and build labs on its property at the cost of several million dollars (Building 22). CIC became operational in 1987 and worked with MDS Nordion to demonstrate the safety of food irradiation and promote it on the semi-industrial scale to help businesses benefit from the technology.

In 1983, IAF, CRESALA, and Groupe Lavalin created Biopréserv Inc. to commercialize food preservation methods such as CIC’s irradiation process. The company specialized in feasibility studies and research showing the usefulness of gamma radiation and its potential applications in the areas of food irradiation, biotechnology, environment, and plant effluent and drinking water treatment.

Two building projects were developed, one to house the virology research centre and another for blood fractionation in cooperation with the Canadian Red Cross, but they were never implemented.

The Institute acquired a 1,200 m² house formerly used by Quebec’s environmental ministry near the Institute’s property at Rue Desrochers and Boulevard Cartier ouest (Building 20). This made it possible to group administrative services and free up space for research, teaching, and operations, thereby partly addressing the long-standing lack of rooms.



1984 operations division organizational chart
Source: *Biennial Report 1984-1986*

END OF COMMERCIAL ACTIVITIES

The struggling economy, Quebec's deficit, and funding cuts, quickly eroded the Institute's budget and left it in a precarious position. And to make matters worse, the ministry of education did not provide adequate funding for research institutions as university budgets were granted based on the number of students enrolled, but the Institute only accepted graduate students, so it was underfunded.

In the following years, commercial operations became less and less profitable due to marketing errors, the sale of products below cost, and increasing competition in the field of vaccines.

A growing deficit obliged Université du Québec and Institute administrators to come up with a solution to satisfy the education ministry and government. Under intense political pressure, they proposed selling the Institute's commercial operations, including shares held in IAF-BioChem International Inc. and vaccine production under the name IAF-Biovac.

The Institute had made substantial investments in staff and research to create and maintain the biochemical products division. It expected a good return from this department and the young biopharmaceutical company it helped create. The board wanted to sell operations to offset the deficit and help the Institute continue with less of a burden, but refused to sell below market price and was dissolved by statute.

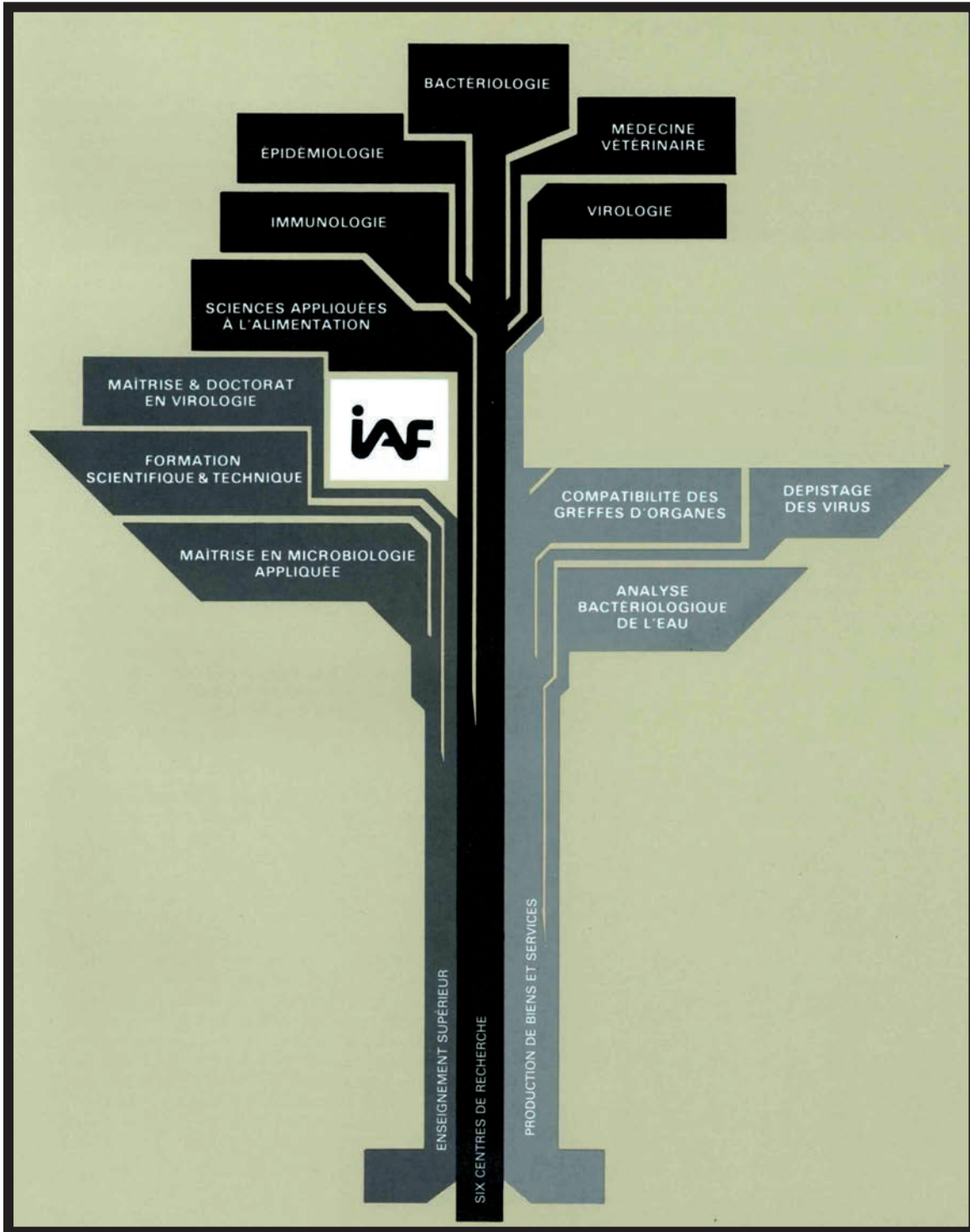
Excerpts from the Hansard of the National Assembly (December 1989 and February 1994) help shed light on these decisions:

"... when we started looking at why there were deficits we realized that the mix of teaching, research, and commercial production and distribution operations, which had always been a part of the organization, was a major source of problems ... That's why at the beginning or toward the end of fall 1998 I was retained by Institut Armand-Frappier and Université du Québec on a project to sell production assets to two outside organizations. The Frappier Diagnostic assets were to be sold to a Quebec-based company called Quélab and the vaccine production assets to the Canadian (Toronto) company Connaught Laboratories ... the memo I received from IAF-Biochem management said production had already stopped on a number of vaccines. The flu vaccine was then the only really worthwhile vaccine in terms of profitability. IAF's board decided to stop producing it on December 23 [1989]."

Claude Ryan (education minister) (*Hansard, Thursday, December 7, 1989 - Vol. 31 No. 7*)

A bill was passed on the night of December 7 and came into force on December 8, 1989. Quebec's National Assembly replaced the board with a provisional one and decreed the conditions for sale of Institute assets. The act ensured the survival of a viable vaccine production business in Quebec. It also recognized that the Institute's financial situation could not be turned around in the short term.

Shares were sold to Caisse de dépôt and Fonds de solidarité FTQ. The price was fixed at \$5.75 per share but shares traded for \$11.25 on the stock exchange. The Institute therefore received only \$12,000,000 for shares valued at \$23,000,000. What's more, the Institute saw none of the profits when shares in BioChem Pharma (the company's new name) were subsequently divided multiple times, peaking at over \$260 in 1996. The multi-million dollar loss changed the course of the Institute's history, since it led to a recurrent deficit that would never be overcome.



One always find a reason to cut a tree
Source: Institut Armand-Frappier

CHAPTER 4

1980-1989

“A severe blow affecting everyone, especially since we left the Institute burdened with the costs of its former companies’ permanent employees. So much so that even after selling its land for the creation of the science and high-tech park in Laval, the Institute still could not overcome its chronic deficit. Despite these circumstances, the Institute clung to life and learned to live with one lung as it focused on research and no longer production, which was never in its nature.”

Ferretti 1994, 252

BioChem Pharma continued its meteoric rise and was an example of success for many entrepreneurs and other biopharmaceutical and biotech companies. In 2001, British company Shire Pharmaceuticals acquired BioChem Pharma’s patents for \$6 billion and wound down its operations at the Laval science and high-tech park. Only R&D and flu vaccine production operations survived, after the takeover by GlaxoSmithKline Vaccines (GSK Vaccines).

At the end of the decade, Dr. Frappier was still with the Institute working on his memoirs, so before his death in 1991 he had seen his work weakened by the sale of the vaccine production unit and Frappier Diagnostic and the forced sale of assets the Institute held in the company that would become Biochem Pharma. Ultimately, the law of the market prevented him from achieving the dream he had kept alive throughout his working life.

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CHAPTER 5

1990-2000



MERGER WITH INRS
AND OPENING OF MUSÉE
ARMAND-FRAPPIER
© Florence Conus

INRS: A NEW VISION

INSTITUT ARMAND-FRAPPIER – UQ
(1975-1998)

INRS – INSTITUT ARMAND-FRAPPIER
(1998-)

Dr. Frappier died on December 17, 1991. He had finished writing his memoirs and, as he himself said, his work was complete.

“Nearly sixty years of research, thought, and action have made Dr. Frappier a name in the history of science in Quebec, and the scientific contribution and expertise of Institut Armand-Frappier researchers certainly helps uphold his reputation. Today Armand Frappier is thus both a personality, a researcher in history, a legacy institute, and now a key partner for bio-industrial development in Quebec and the rest of Canada.” (Institut Armand-Frappier – UQ 1995 Annual Report)

This quote gives no hint that the Institute would diverge from the course charted by its founder, but in 1998, on the **Institute’s 60th anniversary**, the process to make it part of INRS began.



Rivière des Prairies and Montreal seen from Institute grounds
© INRS Archives
Photographer: Pierre Payment

PRE-MERGER RESEARCH CENTRES

In 1990 the Institute was tasked with restructuring to focus on its university objectives of teaching and research, while maintaining its community services. To cope with government budget cuts in education and offset the shortfalls incurred after commercial operations were stripped, it set up research clusters at only three centres: immunology, virology, and applied microbiology.

The Immunology Research Centre (IRC) took on epidemiology and medicinal immunochemistry chair researchers and integrated their areas of expertise into the program. Teams worked on characterizing various immune effectors and factors regulating their response, particularly against infectious agents. Cancer development-related projects now included the etiology and prognosis of cancer and explored ways to combat the disease. The Centre broadened its research to include the synthesis and analysis of immunologically active compounds, and it continued to oversee the histocompatibility lab's operations (see Chapter 3).

The Applied Microbiology Research Centre now brought together researchers in various environmental fields including biochemistry, molecular biology, organic chemistry, bio-organic chemistry, genetics, organic microbiology, and food microbiology. CRESALA researchers were also integrated into the group. The Centre provided microbiological and toxicological analysis services and consultation services for the agrifood, pharmaceutical, and environmental industries, as well as public and broader public organizations.

The Virology Research Centre had virologists involved in human, animal, and public health programs. Ongoing projects focused on viral animal diseases (beef, pork, farmed fish, and poultry) and vaccine development. Other areas of interest included biological pest insect control and plant viruses. The Centre also provided mycoplasmaology and serology analysis services to meet agriculture, fishery, and food needs. Experts from Ministère de l'Alimentation, des Pêcheries et de l'Agriculture du Québec (MAPAQ) helped supervise these analyses. An animal pathology screening service was still offered at the time and was recognized as a Canadian reference lab.

IMPACTS OF LOSING COMMERCIAL OPERATIONS

By its decree in December 1989 (see Chapter 4), the Quebec education ministry and National Assembly stripped the Institute of its commercial operations with a view to meeting its deficits and turning its finances around. IAF-BioChem International acquired the Institute's vaccine production (IAF-BioVac), and the biologics division was sold to other companies. The commercial operations buyers retained some staff, but many permanent employees remained under the Institute's responsibility. It was quite trying for management to see surplus employees reassigned and left at the gate like this, and especially difficult to find ways to cover payroll. Although the government decree was intended to put the Institute's finances in order once and for all, the sale of its commercial activities instead left it in a precarious situation and seriously compromised its restructuring efforts.

IMPROVING THE INSTITUTE'S FINANCES: A MAJOR CHALLENGE

In December 1989, under the authority of the government and Université du Québec, the provisional board and management team overhauled its administrative structure and began to redefine the Institute's scientific mission. Since the sale of IAF-BioChem International Inc. shares brought only half the expected amount, the Institute's budget was stuck in the red to the tune of several million dollars after the transaction.

Spending cuts would not be enough, so other measures were considered, including the sale of assets on the plot where the City of Laval planned to establish a scientific and high-tech park in partnership with the Institute, which was to be its science linchpin. Corporation de développement économique de Laval (CODEL) was entrusted with promoting and developing the park, which would later become Laval Technopole. The original purpose of the park was to foster development of high-tech companies by providing them with a land bank owned by Institut Armand-Frappier or the City of Laval.



The campus in 1988 (red border) and in 2014 (green shading). The blue section is now occupied by the City of Biotech.
© Pierre Payment

After difficult months laying its foundations, the new Institute finally became independent. A new board was set up, with Claude Pichette as director. The Institute's management and board of directors made every effort to ensure the Institute's survival without jeopardizing its autonomy.

When he took office, Claude Pichette had already envisioned that Institut Armand-Frappier could become the City of Laval's science and technology university. He saw the science and high-tech partnership as a lifeline for the Institute and an opportunity for it to return to its research-production roots.

"In helping to create the park, the Institute has reaffirmed its technology transfer mission, its commitment to Laval, and its desire to contribute to the city's economic development." (Presentation to the Laval Chamber of Commerce by Claude Pichette, February 20, 1991.)

Over the years, the park grew, but very few real links were built between the Institute and the industries located there, and few Laval enterprises were created under the circumstances.

"Project proponents included three stakeholders: Institut Armand-Frappier; Laval Technopole, the agency responsible for economic development; and the City of Laval. Their divergent interests in terms of promotion and development presented a problem: Laval Technopole and the Institute put forward all the technological resources, but the former sought only to develop and promote the park, while the latter was active on all technological, scientific, and industrial levels. The City of Laval's role was limited to purchasing land vacated by IAF and reselling it to businesses wanting to relocate to the science and high-tech park." (D. Doloreux, 1999, p. 228.)

While overseeing the efforts to restructure scientific management and coordinate and promote teaching programs, Claude Pichette made improving the Institute's financial situation his main focus. The management team's objectives were clear: balance the annual budget and bring down the debt as quickly as possible. Unfortunately, however, the debt only continued to rise in the coming years. At the end of fiscal year 1994-1995 there was a cyclical (accumulated) deficit of \$8.5 million and a structural (recurring) deficit.

Ministry of education and UQ authorities were reluctant to provide the assistance needed to finally settle the Institute's financial problems, so the Institute's management team pressed the issue. In a February 29, 1996 document filed with the Parliamentary Committee on Education, it denounced the "despoilment of Institut Armand-Frappier" and demanded reparations from the Quebec government, holding it responsible for depriving the Institute of means to resolve its problems by forcing it to sell off its assets.

Although the document caused a media uproar at the time, no concrete actions were ever taken. The director informed the UQ president that: "Institut Armand-Frappier has all but exhausted any options at its disposal. We are asking only for fairness and temporary assistance to avoid what will be a permanent collapse."

INRS AFFILIATION

In May 1997 the Institute's financial position was considered so bad as to be untenable. Merging with another institution was the only way to save, uphold, and continue developing its scientific mission of teaching, research, and technology transfer. INRS was also facing a difficult financial situation with INRS-Santé in Pointe-Claire, which employed about ten researchers and had a doping control laboratory. To streamline operations, Université du Québec administrators proposed merging the two entities and making the Institute an INRS affiliate. Their missions were similar and many of their researchers already had ongoing partnerships. Among other things, the affiliation would help significantly reduce management costs, a fact that ultimately prompted Institut Armand-Frappier and Quebec's Institut national de la recherche scientifique (INRS) to join forces.

INRS-Santé operations were transferred to Institut Armand-Frappier and ongoing projects were carried out at two centres: Centre de recherche en santé humaine and Centre de recherche en microbiologie et biotechnologie. Researchers were free to choose their camp, but many were not comfortable working at either centre. Two years later, after much discussion on the scientific framework guiding operations over the coming years, the two centres were merged into a single entity named **INRS-Institut Armand-Frappier**.

The new designation was chosen over the acronym INRS-IAF to best honour the memory of the founder. Section 12 of INRS' new letters patent specifies that the name of the Laval-based component must contain the words "Institut Armand-Frappier."

The Institute's assets were transferred to INRS on June 1, 1998, and IAF then lost its status as an Université du Québec affiliate. The letters patent issued on October 28, 1998, came into effect 60 days later. While the ministry of education celebrated the "outstanding example of streamlining, which will help consolidate and strengthen research and training in the health sciences sector," the atmosphere on the ground was more stoic than festive. At the time, much of the scientific and administrative staff felt Institut Armand-Frappier had lost its identity in 1998. Henceforth, only historical references would mention its achievements under this name alone.

OUTLOOK FOR THE DECADE

While the Institute's future was hotly debated in administrative offices, campus life went on as normal. Several exciting events would mitigate the impact of the financial disaster marking the end of its days as an independent UQ affiliate.



Dr. Frappier with students on Open House day, 1990
© INRS Archives
Photographer unknown

In the fall of 1990, researchers and graduate students teamed up to ensure the first **Open House** day for undergraduates was a success. Dr. Frappier delighted many participants by attending. Guided by master's and doctoral students, visitors learned more about the research conducted at Institut Armand-Frappier and the advantages of pursuing their higher education there. The initiative would be repeated two years later and a third time at the end of the decade.

In 1992, **the histocompatibility laboratory celebrated its 25th anniversary**. As a member of the Québec-Transplant network, this community service works on behalf of hospitals to perform compatibility analyses between tissue antigens of potential donors and those waiting for an organ transplant. The service withstood all the Institute's structural changes and is still in operation today. Its analysis methods have been modernized and its business volume is steadily rising.

Also in 1992 negotiations began to set up a **workplace daycare for the science park**. The debate dragged on though, and the daycare would not be created until 2012!

In 1993, two years after Dr. Frappier's death, the government created a new Quebec award in his name. The **Armand-Frappier Award** recognizes individuals who have had a research career and contributed to the development of a research organization or worked to administrate or promote research to encourage the next generation of scientists and increase public interest in science and technology.

In 1994, the **Armand-Frappier Foundation held its first Fête champêtre** garden party and to mark the occasion created a scholarship program for Institute students. The event attracted many people from the university community, the municipal and provincial worlds, and the biotechnology sector. It was such a success that it would remain the Foundation's flagship fundraising event for many years. Over a period of nearly 20 years, the Armand-Frappier Foundation scholarship program has provided financial support for hundreds of university students and researchers.



The first Fête Champêtre in 1994 on the site of the Institut Armand-Frappier
© Ginette Mercier

Pavillon de biologie expérimentale (Building 26) was unveiled in fall 1994. It was designed to meet the latest national and international standards for animal housing and laboratory biocontainment. The addition of this building came as a relief to researchers whose work was hampered by a lack of adequate space. It was also considered a source of income since companies paid to rent space in the building and to take advantage of the researchers' expertise.



Pavillon de biologie expérimentale (Building 26)
© INRS Archives
Photographer: Pierre Payment

Musée Armand-Frappier opened in (Building 1) in December 1994 thanks to the financial support of the Quebec government, the City of Laval, Institut Armand-Frappier, the Armand-Frappier Foundation, and the initiative of Lise Frappier-Davignon, professor of epidemiology and preventive medicine and Dr. Frappier's daughter. In addition to highlighting the work of the Institute's founder, the museum's mission is to raise broader awareness of advances in biosciences research and attract youth to research careers. Today known as Centre d'interprétation des biosciences Armand-Frappier, the Museum has gradually diversified its activities, many of which are developed in partnership with Institut Armand-Frappier researchers.



Musée Armand-Frappier (Building 1)
© INRS Archives
Photographer: Pierre Payment

In 1994, the freshly renovated Building 28 began housing **Centre d'innovation technologique** (CIT), which was created by the Institute in partnership with CODEL to serve as a biotech business incubator.

In 1997, as part of what would be the final convocation for Institut Armand-Frappier graduates, Université du Québec, under the aegis of Institut Armand-Frappier, awarded an **honorary doctorate to Professor Rolf M. Zinkernagel**, who, with colleague Professor Peter C. Doherty, had received the Nobel Prize in Physiology or Medicine the previous year for their work shedding light on the process by which the immune system's T lymphocytes recognize virus-infected cells.

In June 1998, an Open House marking the Institute's **60th anniversary** attracted some 1,500 people. A few days later, more than 400 employees joined former and new students in the enchantingly bucolic setting of an Armand-Frappier Foundation garden party. The considerable turnout at these activities showed that the Institute was highly esteemed.

In October 1999, the student community recognized the Institute's new identity by holding the first **INRS-Institut Armand-Frappier Internal Conference**, designed and produced entirely by students. Thanks to its success, the event has become a tradition (www3.iaf.inrs.ca/congresiaf).

The circumstances may have changed, but the research and teaching work essential to Dr. Frappier's vision still live on.

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Water basin and garden in front of building 12

© INRS Archives

Photographer: Pierre Payment



BUILDING 18-PRF
(RESEARCH AND
TRAINING CENTRE) IN 2013
© INRS Archives
Photographer: Pierre Payment

TRANSFORMATION CENTRE INRS–INSTITUT ARMAND-FRAPPIER

The symbiotic transformation of Institut Armand-Frappier launched in 1997 continued into the new millennium. Staying true to its founding mission of conducting research and training a new generation, the Institute celebrated its 70th and 75th anniversaries in 2008 and 2013.

Under a September 2000 board resolution, INRS agreed to consolidate centres across its network. The second phase in integrating INRS-Santé and Institut Armand-Frappier activities led to the 2001 merger of all operations into a single unit named Centre INRS–Institut Armand-Frappier. The new entity would focus mainly on advancing research and developing higher education, while at the same time maintaining services to the community. Today, it continues to be recognized for its dual role, in keeping with Dr. Frappier’s vision.

POST-MERGER RESEARCH

The merger of Centre INRS-Santé and Institut Armand-Frappier benefited both institutional communities. For the teams at Institut Armand-Frappier, the merger ensured the survival and development of research and training activities at the Laval campus. As for faculty at the Pointe-Claire location they enjoyed a significant gain. More program options for students and eligibility for the Armand-Frappier grant competition helped them expand their research teams, since a part of students’ financial support could now be shared, at least for those who met the requirements.

Integration of INRS-Santé research teams into the structure of Institut Armand-Frappier triggered substantial scientific and administrative restructuring. INRS and Université du Québec administrators closely monitored the merger process and helped ensure its success.

The number of professors (45) has remained the same since the merger, but the faculty composition has changed quite a bit. Twelve of the 21 professors at the Microbiology and Biotechnology Research Centre and half of those at the Human Health Research Centre at the time of the merger are no longer with the organization.

As part of faculty revitalization, 25 new professors were recruited to meet scientific program guidelines and objectives, and new research areas were developed.

The reputation of Centre INRS-Institut Armand-Frappier scientists has grown even stronger since the merger. Centre researchers have won prestigious awards and distinctions, obtained research chairs, and regularly participate in national and international research networks, and also head leading analytical labs. Many of their former students have gone on to hold key roles in university, government, industry, and the biotech sector.

Researchers at the Centre apply their wide-ranging expertise to detect, prevent, and treat diseases, focusing their efforts on three main research areas: infectious diseases, immunity, and cancer epidemiology; environmental biotechnology; and environmental toxicology and medicinal chemistry.

Since 2001 the researchers have hosted hundreds of students in their labs, mostly graduate students enrolled in one of five academic programs in applied microbiology, virology and immunology, experimental health sciences, and biology, but also postdoctoral fellows.

Since 2005 the Centre has forged ties with researchers at INRS's Énergie Matériaux Télécommunications research centre to explore health-related nanobiotechnology applications.

TRANSITION

Support staff at both of the original entities were also affected by the transition. Some had to adapt to new environments, methods, and procedures given the new research issues and different ways of managing shared services. Many staff members drew on their on-campus experience and skills to generously help new teams integrate. Professionals from every field played a key role in developing the new research units, maintaining Centre facilities, and keeping scientific equipment in good working condition. Reallocation of responsibilities among the administrative staff of the two original units went smoothly. As for INRS head office staff in Quebec City, they had to adapt to remote management of a campus whose size, needs and local managers were unfamiliar to many of them. Step by step, however, they gradually learned to jointly lead the new entity arising from the merger, and the many changes led to a new organizational culture.



Laval Campus
© INRS Archives
Photographer: Pierre Payment

CAMPUS REVITALIZATION

The period was marked by a major overhaul of the campus, which was in serious need of a facelift. Work included new building construction, relocation of researchers, fitting up space for new teams, renovations, demolition, and improvements to infrastructure and utilities (e.g., thermal plant, computer network, waterworks, roadways, parking lots). Former INRS-Santé research teams and all their support staff remained at Pointe-Claire for several years after the merger. Links between the two groups would not be fully cemented until the 2007 move to the Laval campus. A new research and training centre was built adjacent to the main building (Building 18-PRF). The new addition, built with support from the Quebec government, made it possible to house the INRS-Santé teams in modern facilities better suited to their needs.



Building 18-PRF (research and training centre) under construction in 2006
© INRS Archives
Photographer: Sylvain Millot

Many buildings were razed, either due to obsolescence or because their original functions were no longer part of the new centre's mission.

Buildings 5, 6, 7, 8, and 9, located to the right of the campus entrance near Boulevard des Prairies and dating to 1948-1949, were demolished. Buildings 5, 6, and 9 were small two-storey homes. Building 5 housed building and equipment services. Building 6, which had long been home to the health office, housed epidemiology team members from the Immunology Research Centre (IRC). Buildings 7 and 8 were former garages once used as workshops and animal houses. Building 9 was where the first Sabin live attenuated vaccine was originally manufactured. It subsequently housed the photography and graphic arts teams on the second floor and, as of 1982, the Centre de recherche en sciences appliquées à l'alimentation (CRESALA) on the ground floor. The building was later used for administrative functions before being torn down.

Building 13, dating to 1965, housed ministère de la Santé et des Affaires sociales hygiene labs for about ten years before being used to manufacture the vaccine against Marek's disease, which is caused by a herpes virus in chickens, turkeys, and other poultry. The building was leased to IAF-BioVac for several years, then occupied only occasionally until its demolition. The land is now a parking lot.

Instead of disappearing under the wrecking ball, some buildings underwent a radical repurposing. One example is the D'Hérelle building (Building 12), which was constructed in 1955 to produce the Salk polio vaccine (inactivated vaccine). It was then repurposed to produce flu vaccine for several years, and later housed the Virology Research Centre teams. The building gradually became unsafe and had to be completely renovated. Researchers and their teams were moved to buildings 10, 18, and 27.

After the removal of asbestos insulation, the building was fully restored and retrofitted to house, among other things, archives, building and equipment services. In addition, an epidemiology unit was put in for researchers to work in an environment tailored to their needs and requirements.



Building 12 under renovation (2006)
© INRS Archives
Photographer: Pierre Payment



Building 12 today (2013)
© INRS Archives
Photographer: Pierre Payment

FACILITIES AND TEAMS SERVING THE COMMUNITY

THE BIOTECH CITY

In 2005, the Quebec government threw its support behind promoters seeking to reposition Laval's science and biotechnology park as Biotech City. The expertise of Centre researchers, the doubling of the Experimental Biology Centre's capacity, and the expertise of the world-renowned Anti-doping Laboratory were drawing cards for attracting new companies. The Quebec Biotechnology Innovation Centre expansion was provided for under this new organization launched on the Centre's campus.

LAVAL BIOTECHNOLOGY DEVELOPMENT CENTRE (LBDC)

The LBDC (Building 70) is a multi-tenant complex on the Centre INRS–Institut Armand-Frappier campus designed to meet the needs of biotech companies.

Specialized instrumentation and related services are available to all occupants. INRS acquired the underused building in 2013 to make up for a lack of lab space. The third floor, with 11 labs, will soon be fitted out for microbiology and biotechnology researchers from the institute.



The Laval Biotechnology Development Centre (LBDC)
© INRS Archives
Photographer: Pierre Payment

EXPERIMENTAL BIOLOGY CENTRE

The Experimental Biology Centre (Building 26), which was expanded and renovated in 2007 to become the National Experimental Biology Centre (NEBC), offers researchers and the pharmaceutical industry state-of-the-art facilities for work using animal models.



The Experimental Biology Centre
© INRS Archives
Photographer: Pierre Payment

HISTOCOMPATIBILITY LAB

With over 45 years of service to organ transplant patients, this lab is a testament to Centre INRS–Institut Armand-Frappier’s longtime involvement in the biomedical sector.

ANTI-DOPING LAB

INRS has long been internationally renowned in the fields of sports health and anti-doping. The international reputation for excellence of the Anti-doping Laboratory created in 1974 and today led by Christiane Ayotte undoubtedly contributed to the World Anti-Doping Agency's decision to make Montreal its permanent headquarters. Part of an international network of Agency-accredited labs, the INRS lab is the only facility of its kind in Canada and one of only three such laboratories in North America. It played a key role in the 2010 Winter Games in Vancouver, analyzing over 2,800 samples using state-of-the-art equipment.

INSTITUT PASTEUR INTERNATIONAL NETWORK (RIIP)

In 2004, the Centre became the first North American institution to join the Institut Pasteur International Network (RIIP) for global infectious disease research and training. This opened the door wide to international collaboration.

ARMAND-FRAPPIER UNIVERSITY FOUNDATION

In 2003, when INRS-Institut Armand-Frappier was celebrating the 65th anniversary of its founding by Dr. Frappier, the Armand-Frappier Foundation was celebrating its 25th, and its Fête champêtre garden party was in its 10th season. Since its creation, the Foundation has raised over \$12 million and provided for 658 scholarships for the Centre. Some of the scholarship recipients are now among the Centre's scientific staff. The Foundation also helps fund research chairs, facility upgrades, and instruments and equipment purchases.

Over the years it has supported Musée Armand-Frappier, the Biosciences Apprentice Program, and science promotional activities for diverse audiences. Drawing on 35 years of success, the Foundation expanded its mandate to serve all INRS centres in September 2012, when it became the Armand-Frappier Foundation of INRS University.

MUSÉE ARMAND-FRAPPIER

Originally created in 1992 as a memorial to Dr. Frappier's career highlights, Musée Armand-Frappier has since expanded to offer a wide range of activities for various audiences. The Armand-Frappier Biosciences Interpretation Centre's mission is to "foster a greater understanding of life sciences and inspire a passion for learning for the benefit of all."

The last few years have been rich in exciting achievements, and the Museum has attracted people of all ages, especially young people, with its fun and stimulating scientific environment. Since 1998 nearly 135,000 people have taken part in Museum activities! In addition to exhibitions, the Museum offers science camps for youth age 9 to 15, parent-child workshops for younger kids, activities at schools, libraries, and parks, presentations for the general public on social issues in science, and science cafés providing an opportunity for the public to interact with experts.

Museum staff and Centre scientists team up regularly, especially under the Biosciences Apprentices Program.

APPRENTICES IN BIOSCIENCES PROGRAM

Created in 2002, the Biosciences Apprentices Program offers Secondary III, IV and V students the opportunity to spend a whole week in a university research lab carrying out an experimental project under the supervision of a graduate student. High school students gain a better understanding of careers in science and the nearly 200 supervising graduate students to date have enjoyed a rewarding teaching experience. Young people's curiosity often helps rekindle graduate student interest in research that has lost some of its appeal due to the routine nature of experimentation. Some 500 students from over 150 high schools have taken part in this summer activity. A follow-up survey conducted in 2011 revealed that many of them have since decided to study science.

75TH ANNIVERSARY OF INSTITUT ARMAND-FRAPPIER

Thirteen years after the merger, the scientific community at the Centre INRS-Institut Armand-Frappier campus in Laval is committed to building a bright future. The main drivers of its success are a faculty focused on excellence, passionate students, skilled and dedicated support staff, a creative museum team, and a dynamic foundation.

The 75th-anniversary celebration on September 5, 2013, was an opportunity to reunite former employees and friends of the Institute and honour Frappier's work.

In concluding this historical overview, thanks are due to all who have helped carry on his legacy. Dr. Frappier would be pleased that his objectives are still being pursued by a team of dedicated researchers.



Centre INRS-Institut Armand-Frappier
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THANKS

The author would like to sincerely thank the following people:

Suzanne Lemieux for her invaluable assistance in editing and proofreading these historic texts.

Natalie Desmarais, Caroline Charette, and Jocelyne Chaput, who welcomed me to the archives and responded to my numerous requests for documents.

Michel Courcelles, who also keeps many historical documents in the library and whose memory served me well.

Julie Martineau and the Communications and Public Affairs Department for proofing the chapters and making them available online.

Maryse Tremblay, Louise Savard, and Amélie Côté for their enthusiasm in promoting the 75th anniversary.

And especially Dr. Frappier, for founding a world-class institution and making it possible for us to be here today.

L'ŒUVRE D'ARMAND FRAPPIER

Institut national de la recherche scientifique, Centre INRS–Institut Armand-Frappier
531, boulevard des Prairies, Laval (Québec) H7V 1B7
Téléphone: 450 687-5010 Télécopieur: 450 686-5501
www.iaf.inrs.ca

Membre du Réseau International des Instituts Pasteur
www.pasteur.fr
www.pasteur-international.org