

THE HUNGARIAN NATIONAL MUSEUM FOR SCIENCE AND TECHNOLOGY

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The main building of the Hungarian National Museum for Science and Technology (Országos Műszaki Múzeum) is located at 13-15 Kaposvár Street in Budapest.

The development of this museum and the formation of much of its collections have been realized through the efforts of its first Director, Professor Ferenc Szabadvány, the noted historian of chemistry (1).

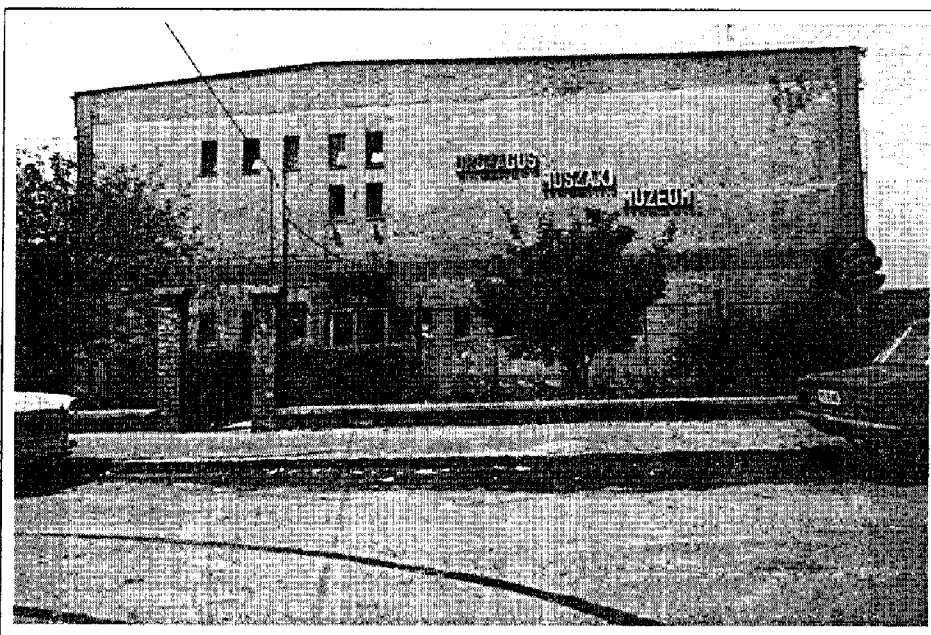
The idea of a technical museum in Hungary is not new. As early as 1807, the royal governor of Hungary, the Palatine Joseph, ordered the Hungarian counties to submit masterpieces of their industrial products. No record of

this accumulation, if it was actually formed, exists today. Many years later the nationalist patriot and reformer Lajos Kossuth, leader of the 1848 independence move-

ment and provisional governor of Hungary in the revolutionary government of 1848-49, called for the formation of a collection of industrial tools. As the result of the suppression of the independence movement, this collection was never made.

No real collection was formed until the 1870's when the National Museum established a Department of Technology, which accu-

mulated some 20,000 objects. This collection was used for technical instruction, rather than historical preservation and study. In 1889 the collection was distributed to three organizations: the Industrial Association, the



National Museum for Science and Technology, Budapest, Hungary, photo courtesy of the Museum

Technical University, and the Industrial Museum for Technology. The Industrial Association had evolved into an industrial arts school by 1910. The Museum for Technology, the logical place for the exhibits, failed to develop as a museum, and became instead a center for materials testing. Few identifiable objects from this collection remain.

Another effort to establish a Hungarian technical museum was made in the period between the two world wars, based on a personal collection accumulated by the Chief Librarian of the Hungarian Association of Engineers and Architects, Ede Losy-Schmidt. This was the Hungarian Museum for Technology, established without a building in 1935. After the partition of Czechoslovakia in 1938, this collection was transported to a building which housed a railroad museum in Kassa, in the territory annexed to Hungary. This territory was returned to Czechoslovakia in 1945, and the collection remains there today in Kosce, Slovakia.

The beginning of the present museum stems from Law-Decree No. 4/1954 of the Hungarian Presidential Council, which made provision for the preservation of "industrial relics." Under this decree, factories were ordered to preserve obsolete machines. The Group for Registration and Preservation of Industrial Relics was organized, and a storehouse for the collection was constructed in the University District of Budapest. The Group was reorganized as the National Museum for Science and Technology on January 1, 1973.

The first Director of the new museum was Dr. Ferenc Szabadváry, Professor of Analytical Chemistry at the Technical University of Budapest, who is well-known for his work in the history of chemistry. Professor Szabadváry was born September 1, 1923, in Kőszeg, Vas County, in western Hungary. His birthplace is a location of historical significance, being the place where the advance of the Turkish army toward Vienna was stopped in 1532. Perhaps because of the rich history of

his home town, Szabadváry developed a strong interest in history at an early age. It was his original ambition to become a historian(1). Instead, in response to the needs of the family business, a soap factory, he attended the Technical University of Budapest, earning a degree in chemical engineering in 1943. After the post-war Communist government nationalized the soap factory, Szabadváry joined the faculty of the Technical University as Assistant Lecturer

in general and analytical chemistry. In 1965 he completed the Doctor of Technology degree and in 1970 received the Doctor of Science in analytical chemistry.

At the time of his appointment as Director of the Museum for Science and Technology (Országos Műszaki Múzeum) in Budapest, he was Professor of Chemistry at the Technical University. He served on the editorial boards of the *Journal of Thermal Analysis* and the *Journal for Radioanalytical Chemistry*. He has also been Chairman of the Hungarian Committee of the International Union of History and Philosophy of Science and Deputy Chairman of the Committee for History

of Sciences and Technology of the Hungarian Academy of Science.

Szabadváry's specialization in analytical chemistry and his interest in history resulted in his work in the history of analytical chemistry, a field that had not previously been explored. According to Professor Szabadváry (1), the inspiration to develop this history occurred early in his teaching career, when a student asked him who first used a permanganate titration for the determination of iron, and he was not able to find the answer in any readily available text. Through his historical research he found that this technique was first described in 1846 by Frédéric Margueritte(2), an employee of the Paris gas works.

After he became Director of the Museum, Szabadváry's chemical research focused entirely on the



Professor Ferenc Szabadváry and a clock built to give the time in the world's major cities.
Clock built c. 1900

history of chemistry, especially analytical chemistry, and on the lives of the persons who made significant contributions to chemistry. A survey of the author indices of *Chemical Abstracts* yielded some 80 titles by Szabadváry in the history of chemistry. The first of these was "A Brief History of Analytical chemistry," published in 1958(3). His major work, the *History of Analytical Chemistry*, was first published in 1960 in Hungarian(4). A German translation appeared in 1966(5) and a Japanese translation in 1988(6a).

The English translation by Gyula Svehla was published in 1966(7) and was reprinted in 1992(8). Szabadváry's other major work, the biography of Lavoisier, was translated from German by Professor Ralph E. Oesper(9) of the University of Cincinnati, where it was published in 1977(10). Another book, *History of Chemistry in Hungary*, a collaboration with Zoltan Szokefalvi-Nagy, was published in 1972(11).

It was the *History of Analytical Chemistry* that earned Professor Szabadváry the 1970 Dexter Award of the History of Chemistry Division of the American Chemical Society. He was the first continental European to receive this award. Since he was unable to travel to the US to receive it, the award was sent to him via the Hungarian Ambassador. Receipt of the award and the international recognitions which accompanied it generated a turning point in Szabadváry's career. As the son of a capitalist manufacturer, he had been labeled a "class enemy" by the Communist Party, which ruled Hungary at the time. For this reason the local Communist Party section had kept him from receiving his doctorate, although he had met all the academic criteria for the degree. These obstacles to his advancement were removed by the prestige of the Dexter Award. In 1991 the new government of Hungary awarded him the Széchenyi Medal, the highest Hungarian scientific achievement(1).

Under Professor Szabadváry's leadership, the Museum has accumulated a collection of some 12,000 objects, which include 3,100 electrotechnical items, 2,100 precision mechanical and optical devices, 900 mechani-

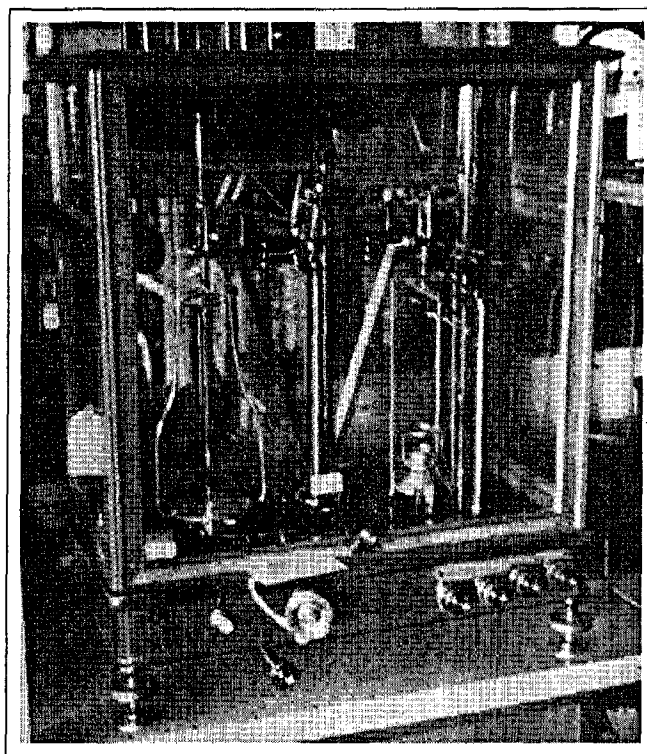
cal engineering objects, 700 items relating to the history of photography, and 600 measuring instruments. The archive collection has some 1,600 items. Of these, the map collection comprises items from the seventeenth century to the present time, including the original maps on river control and canalization dating from the nineteenth century. The photograph collection has some 2,500 items. The library contains some 13,500 volumes. The facilities of the archives and the library are avail-

able to scholars undertaking research in the history of science and technology. In addition to these facilities, there are workshops for the restoration of artifacts held by the museum. There are 27 full-time and 14 part-time employees.

In 1984 a new and larger storehouse for the museum's collections was built at the present location. This building also contains the archives, the library, the workshops, and the administrative offices. Traveling exhibits to be sent to fairs, international expositions, meetings of professional societies, and the like are prepared at this location.

The building also houses the editorial offices of *Technikatörténeti Szemle* (*Review of the History of Technics*), the Museum's journal, and *Periodica Polytechnica*, the journal of the Technical University of Budapest, of which Professor Szabadváry was editor.

A small number of cases along one side of the main hallway contain the limited number of exhibits at this facility. Some of these exhibits portray the accomplishments of nineteenth-century Hungarian inventors, some of whom independently invented items for which credit is generally given to better-known persons in other countries. An example is the case of Ányos Jedlik, who invented the self-excited electrical generator in 1861, five years prior to its independent invention by Werner von Siemens. It did not occur to Jedlik, a Roman Catholic monk, that there might be a practical or commercial



Early analytical balance without weights, Vienna, 1910

application for his invention. One of the other exhibits depicts models of nineteenth-century farm machinery invented by Americans. The most unusual exhibit is a century-old picture of a match factory, constructed entirely of the factory's products.

Of chemical interest is the exhibit of balances. A large additional number of balances remains in the storehouse. These include various microbalances and early examples of automatic and electronic balances. As an analytical chemist, Professor Szabadváry has also provided an extensive collection of volumetric glassware.

In addition to the location in Budapest, the Museum has three other facilities. A permanent exhibit entitled "The Hungarian Industry" was established in 1986 in the Széchenyi palace at Nagycenk in West Hungary. Count Istvan Széchenyi (1791-1860), in whose palace the exhibit is located, was a statesman who promoted industrial development in Hungary during the first half of the nineteenth century, and who in 1825 founded the Hungarian Academy of Science, endowing it with the income from his estates. A second permanent exhibit presents the history of phototechniques. It is located at the Forte Photochemical Works in Vác, north of Budapest. A collection of computers is stored in a facility owned by the museum in South Hungary.

The Ministry of Culture, which administers all the museums in Hungary, had promised in 1970 that an exhibit hall for the Museum of Science and Technology "would be constructed under the next five-year plan." When the building was not forthcoming, Dr. Szabadváry discovered that the Minister of Finance had added two letters to the planning document, changing the word for *plan* to the plural, and thus extending the promise to the indefinite future. A site for the future museum has been reserved, however, in the territory of the future university campus in Lágymános in south Budapest. An exhibition hall of 2,500-3,000 square meters of exhibition surface is to be built at this site, while the stores and offices are to remain at the present location. Government financing has still not become available.

Professor Szabadváry retired as Director of the Museum on December 31, 1993, but remains an active scholar of the history of science and especially of the history of chemistry. He was succeeded as Director by Dr. Éva Vámos, who had served as Deputy Director of the Museum for the previous five years. Dr. Vámos is also a prominent historian of science who is particularly noted for her contributions to the history of women in science.

REFERENCES AND NOTES

1. The description of the Museum, its contents, and its history, as well as biographical data on Professor Szabadváry, derive from a visit to the Museum by the author of this article, on October 11, 1993.
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9. Ralph Edward Oesper (1886-1977), Professor of Analytical Chemistry at the University of Cincinnati, was the recipient in 1956 of the first Dexter Award for his contributions to the history of chemistry.
10. F. Szabadváry, *Antoine Laurent Lavoisier: The Investigator and His Times, 1741-1794*, R. E. Oesper, translator, University of Cincinnati Press, Cincinnati OH, 1977.
11. F. Szabadváry and Z. Szokefalvi-Nagy, *A kémia története Magyarországon*, Akadémiai Kiadó, Budapest, 972. 367 pp.

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