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akadémia



HISTORY

OF THE SLOVAK ACADEMY OF SCIENCES



HISTORY

OF THE SLOVAK ACADEMY OF SCIENCES



Adam Hudek

Building of the Presidium of the Slovak Academy of Sciences



Source: Archive of SAS

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Source: Pavol Novák

Introduction

In 2023, the Slovak Academy of Sciences (SAV) is looking forward to presenting a host of celebrations commemorating its 70th anniversary. Milestone anniversaries are rightfully a cause for reflection and an apt time to look back on seven decades of accomplishments and struggles. The SAV is a relatively young institution compared to most European academies, however, its contribution to the improvement of cutting-edge science and research in Slovakia has been significant. The Academy and all its employees through the years deserve an enormous amount of credit for raising the level of Slovak science to European standards after decades of lagging behind. Currently the largest scientific institution in Slovakia, SAV carries out fundamental and applied research in a wide range of technical fields, natural sciences, humanities and social sciences. Moreover, the Academy avidly seeks to integrate Slovak advancements into the broader global development of science and research through a host of international projects and collaborations.

The following brief overview aims to bring the history and developments of SAV and its predecessors to a broader, contemporary readership in an accessible way, from the very beginnings to the present day. The history of such an institution is often difficult to grasp without fully comprehending its historical ties and connections, which in this case, cannot be separated from the history of Czecho-Slovak society or the past of the country in which they took place. Contributions to Slovak, as well as global science, can only be realistically assessed against the background of the past seventy years of events, struggles and progress. At the same time, the history of SAV offers insight into the hidden but passionate struggle for knowledge, for which scientists in Slovakia fought in the face of often significantly adverse and uncooperative conditions.

The beginnings of institutional research in the region

The Slovak Academy of Sciences is often perceived all too simply as merely a Soviet import. In fact, plans to establish a top non-university institution for science and research in Slovakia appeared long before the communist regime ever came to Czechoslovakia. Many different types of science academies were established around Europe in the mid-17th century, with most of them still in existence today. Similar efforts to establish a „learned society“ began to appear among educated people in Slovakia from the 18th century, until eventually a serious attempt was made by well-known polyhistorian Matej Bel in 1735, which he called Societas litteraria, a project that was ultimately unrealized.

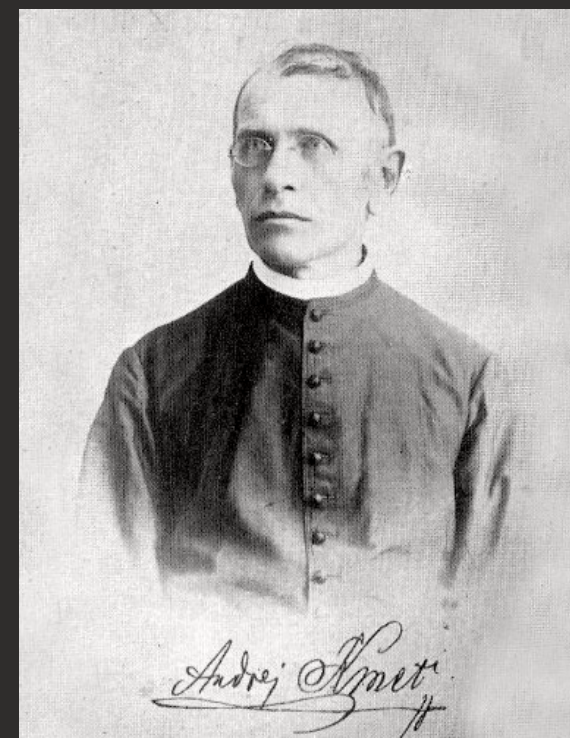
In 1831, the first formal meeting of the Hungarian Academy of Sciences took place, an organization gradually built up from an initial, foundational donation made by Count **István Széchenyi** in 1825. This establishment soon became the most important scientific institution in the whole of the Kingdom of Hungary. Initially, however, within the framework of the Hungarian national movement, the Academy's focus was mainly on cultivating the Hungarian language, publishing textbooks and formulating terminology and so for those serious about developing their own national academy of sciences, the institute at this stage of development fell far short of expectations.

Founded in 1863, Matica slovenská was meant to play the role of an academy in the Slovak environment, at least partially. However, due to a lack of experienced scientists, it was not possible to establish an institutional base for organized research activities. Matica was soon discontinued by the Hungarian government in 1875.

At the end of the 19th century, science enthusiast and Catholic priest **Andrej Kmeť** prepared a plan to establish a Slovak Academy of Sciences, possibly inspired by Emperor Franz Joseph's Czech Academy of Sciences, Language and Arts, which came into being in 1890. Unfortunately, Kmeť's plan had no hope of succeeding within the Hungarian environment of that time. In the end, it was possible only to establish a museum in Turčiansky Svätý Martin, and the Slovak Museum Society was founded instead of a research academy. A few regional associations also operated in the area of today's Slovakia, employing mainly doctors and natural scientists, regardless of nationality, which carried out a range of activities and a large amount of research work in addition to promoting the wider popularization of science.

Substantial progress finally came during the short period of the first Czechoslovak Republic (1918-1938), which was much more favourable to the development of Slovak national science and culture. Slovak society quickly caught up with what had been missing in the past. It was in this period after 1918, that the current national institutions of science and research got their start, including the Slovak Academy of Sciences. Comenius University opened first in 1919, and Matica slovenská was revived with a renewed ambition to create a significant and meaningful scientific institution, though its research departments were focused primarily on humanities – history, linguistics, ethnography, literature and art.

In 1926, the Šafárik's Learned Society was founded on the premises of Comenius University. Named after the prominent Slovak Slavist, its activities were also mainly centered around social sciences and humanities, with natural sciences represented only by medical research as Slovakia lacked the necessary higher technical and scientific education. In some aspects, the learned society—and also partly Matica—resembled modest versions of the academies of science in surrounding countries. However, the rapid development of science and culture in the country soon led to the creation of such a scientific institution in Slovakia as well.



Source: wikipedia.org

Andrej Kmeť

Catholic priest, polyhistor, founder and first chairman of the Museum Slovak Society.



Building
of the Slovak Academy of Sciences and Arts

The Slovak Academy of Sciences & Arts 1942-1953

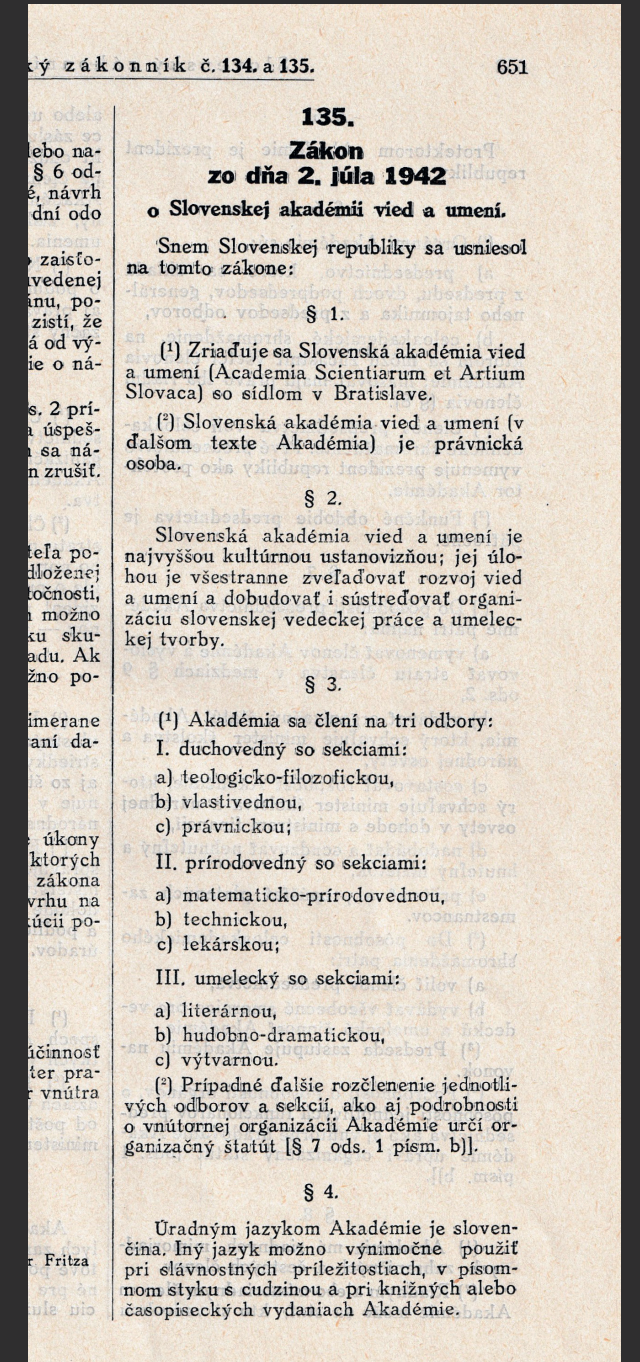
The Slovak Academy of Sciences and Arts (SAVU) was established after the dissolution of Czechoslovakia, during the first Slovak Republic (1939-1945), which was a vassal state of Nazi Germany. The main architect of SAVU was the well-oriented and well-educated linguist Ľudovít Novák. The initiative to fund an institution coordinating scientific and artistic life in Slovakia did not come from the political sphere, but from scientists at the Slovak Learned Society, the 1939 successor of Šafárik's Learned Society, which had been dissolved on the order of the authoritarian regime of the Slovak state.

Minister of Education and National Enlightenment Jozef Sivák, Chairman of the Senate Martin Sokol, MPs Emil Boleslav Lukáč and Pavol Čarnogurský, as well as influential publicist Konštantín Čulen were the biggest supporters of the Slovak Academy plan. They saw the Academy as an institution that would „complete the national unity of Slovaks,“ something every advanced European country must have. However, the SAVU project faced strong opposition among prominent politicians and scientists. Critics claimed that Slovakia was not in need of any more scientific institutions after the newly established Slovak College of Technology and Matica slovenská.

Even so, Ľudovít Novák managed to garner enough support and in July 1942, the Diet of the Slovak Republic approved the initial Act on the Slovak Academy of Sciences and Arts and the first scientific researchers joined the Academy in the spring of 1943. President Jozef Tiso was appointed formal protector of SAVU, but was only marginally involved in its prosperity. Chemistry professor **František Valentín** became the first President, with Ľudovít Novák holding the office of General Secretary. The Academy was based in Bratislava and featured linguistic, historical, geographical and literary departments, and also an astronomical institute located in the observatory building at Skalnaté Pleso in the High Tatras.

During the years of the war, SAVU struggled with funding. Less than a third of the planned one-hundred scientists were hired, most of them only for external cooperation.

The Act on SAVU.
Source: Archive of SAS



Fierce competition with Matica slovenská further complicated the situation, resulting in some very modest scientific outcomes. At the beginning of 1945, SAVU employees were evacuated from Bratislava due to advancing Soviet troops at the beginning of 1945. They returned in May, but now reported to the Commission for Education of the restored Czechoslovak Republic.

Despite the circumstances of its creation, neither the existence nor the work of SAVU was ever questioned by the Czechoslovak government. The Academy benefited greatly from the fact that it was not under any significant ideological pressure from the regime of the Slovak Republic. Although persons considered loyal to the government of the Slovak state were appointed to its leadership, there were also scientists as well as ordinary employees who cooperated with the anti-fascist resistance. The survival of SAVU hinged mainly on the pragmatic interests of post-war Slovak politicians, who used the institute in the argument for equal opportunity for Czech and Slovak people in the restored republic. In the minds of Slovak politicians, the Academy was meant to aid in catching up economically and culturally to the Czech Lands. As communist MP Fraňo Kráľ declared in November 1945, *„Our nation, in its new legal conditions which allow it to fully develop its cultural life, needs this institution, because great tasks are currently waiting for it.“*

First, it was necessary to separate the organization from its wartime roots. At the beginning of 1946, the Academy was reorganized „on a people’s democratic basis“ in order to remove any traces of continuity with the institute before 1945. The old Act on SAVU was first abolished, and only then a new Act was adopted,



Secretary General of SAVU
Mikuláš Bakoš was instrumental
in its development in the early
post-war years.

Source: Dušan Teplan

formally re-founding the entire institution, though all property and staff were automatically transferred. However, due to the tense political situation in Czechoslovakia, the consolidation could not be completed. President Edvard Beneš never appointed Academy members who were subsequently to elect its

Presidium, leaving SAVU to operate in an extraordinary mode. The key position of General Secretary of SAVU was performed by literary theorist Mikuláš Bakoš.

Even the second adaptation of SAVU did not have sufficient credentials to function as the top institution of Slovak science, despite being defined as such in the law. The research took place exclusively in the field of social sciences and was focused mainly on national studies, while technical fields, natural sciences and medical institutes existed only in future plans. The Academy functioned mainly as a coordinating workplace with its most significant outcomes merely editorial activity and the publishing of scientific journals.

The February 1948 seizure of power by the Communist Party of Czechoslovakia (KSČ) meant a fundamental change in the development of science in Czechoslovakia. The communists declared that “society only needs highly ideological science” to assist the development of a socialist society and as such, any demands for the autonomy of scientific institutions or freedom of research were labelled as reactionary. Research was to be an integral part of the detailed planning process because as communist ideologues liked to say, scientific institutions were supposed to function in the same way as factories. It was believed that only employees willing to fully submit to the ideological demands of the new regime would remain at the institutes, which in practice meant adopting the ideology of Marxism-Leninism.

Continuing activities of the Slovak Academy were closely related to the development of the Czechoslovak socialist dictatorship within the Soviet sphere of influence, its history mirrored the changes of the communist regime in Czechoslovakia, and its representatives were drawn into controversies regarding the policies of the ruling regime in “crisis periods.”

Immediately after the political transformation in 1948, no significant changes took place at SAVU. Marxist science practically did not exist in Slovakia and so the new regime could not replace “ideologically unsuitable” scientists. Thus, instead of reprisals or purges, the Communists attempted to persuade the scientific community to accept the principles of Marxism-Leninism. Most agreed, if only formally.

SAVU personnel had the advantage of being outside the strictly controlled university teaching environment. In fact, Communist Party authorities focused more on the process of educating a new generation of university students. Purges did take place at universities and in 1948, a program of education and re-education was adopted at SAVU in an attempt to increase the number of “socialist scientific employees.”

At the IX KSČ Congress in May 1949, Chairman Klement Gottwald outlined the “general line of building socialism.” He emphasized the importance of creating an intelligentsia; a class and ideologically connected with the people, raised in the spirit of Marxism-Leninism along with dialectic

univ. prof. Ing. Dr. František Valentin v. r.,
rektor Slovenskej vysokej školy technickej,
prorektor Slovenskej univerzity,
predseda Akadémie,

univ. prof. D. Dr. Alexander Spesz v. r.,
dekan Katolíckej bohosloveckej fakulty SU,
podpredseda Akadémie,

prof. Dr. Ján Bakoš v. r.,
býv. dekan Evanjelickej bohosloveckej fakulty,
podpredseda Akadémie,

univ. prof. Dr. Ľudovít Novák v. r.,
predseda Slovenskej jazykovednej spoločnosti,
generálny tajomník a hlavný redaktor
spisov a časopisov Akadémie,

Dr. František Hrušovský v. r.,
poslanec Snemu Slovenskej republiky,
predseda Duchovného odboru,

univ. prof. Dr. Emanuel Filo v. r.,
rektor Slovenskej univerzity,
predseda Prírodovedného odboru,

univ. prof. Dr. František Šubík-Žarnov v. r.,
básnik, člen Štátnej rady,
predseda Umeleckého odboru.

P. S. Posielajúc Vám úctive verný odpis žiadosti celého predsedníctva Akadémie, prosíme Vás zdvorile o láskavé vybavenie našej žiadosti v čo najkratšom čase, podľa možnosti do konca januára t. r., aby sa mohla i u Vás suma venovaná Akadémii odpočítat' od daňového základu pri daňovom soznaní na r. 1943. Táto možnosť je totiž nezmeniteľne zaistená samým zákonom o Akadémii, a to odsekom 1 § 11 zákona zo dňa 2. júla 1942 č. 135 Sl. z., podľa ktorého „Dary, odkazy a venovania v prospech Akadémie sú oslobodené od všetkých verejných daní, dávok a poplatkov.“ Za Vašu čínorodú priazeň Vám vyslovujeme v mene celého predsedníctva Akadémie už vopred čo najúctivejšiu vďaku.

Na stráž!

Za predsedníctvo Akadémie

Ing. Dr. Frant. Valentin
univ. prof. Ing. Dr. Frant. Valentin,
predseda.

Ľudovít Novák
univ. prof. Dr. Ľudovít Novák,
generálny tajomník.



Štúrova Street, Bratislava.
President of the National
Assembly of the Slovak Republic
Ivan Gašparovič unveils
a commemorative plaque
to mark the 50th anniversary
of the founding of SAVU.

Source: Archive of SAS



Request for donations
from SAVU, 1943.

Source: Archive of SAS

tical and historical materialism. In 1950, the IX Congress of the Communist Party of Slovakia (KSS) defined the Party's general line in the field of science and arts. Further development of SAVU was to prioritize technical, medical and natural sciences and social sciences should focus on the indoctrination of the population towards Marxism-Leninism. In this way, the KSČ and KSS congresses can be considered the beginning of the "Sovietization" of Czech and Slovak science and research.

Prominent Marxist intellectual and poet, Ladislav Novomeský, who was also former commissioner of education and member of the KSS leadership was given the task of translating Party demands into reality at SAVU, however at the time, he was fighting accusations of "bourgeois nationalism." His arrest on February 6, 1951, cast suspicion on the entire organization and triggered a wave of purges under the mantra of a "purification of SAVU from enemy elements." A number of employees were forced to leave the Academy, replaced by young scientists who came in greater numbers with a duty to enforce "Marxist-Leninist work methods."

Communist Party leadership then decided on a fundamental institutional reconstruction of science and research in Czechoslovakia, to be more in line with the Soviet model. A compromised SAVU, which according to Party leadership "has not become a socialist-type academy, neither in terms of work nor staffing," was replaced by a new institution with a subtle name change: the Slovak Academy of Sciences. From 1952, SAVU management was tasked with helping in the preparation of its establishment.



A letter sent by President of the Republic Antonín Zápotocký for the opening ceremony of the Slovak Academy of Sciences. The letter was read by Igor Hrušovský, the corresponding member of the Czechoslovak Academy of Sciences and the academician of the Slovak Academy of Sciences.

Source: Archive of SAS, 6 June 1953.

The beginnings of SAV

The plan was to create two new scientific institutions in line with the state's asymmetric model: the central Czechoslovak Academy of Sciences (ČSAV) and the accompanying Slovak Academy of Sciences. ČSAV was intended to be the equivalent of the Academy of Sciences of the Soviet Union, and SAV was based on the model of the Soviet Union Republic national academies. In both institutions, a strong emphasis was placed on natural and technical sciences, which were to be coordinated at the national level.

Leaders of the Slovak scientific community along with some political support managed to gain autonomy for the future SAV, which was founded as an independent academy within the ČSAV. There were plenty of reasons for such a decision, the most important lay in the belief that a policy of rapid modernization in Slovakia would require a specific approach in the case of science and technology development. The future SAV was meant to focus primarily on the economic development and progress of Slovakia, as Party leadership considered the balancing of economic differences with the Czech part of the republic to be the most effective way of easing persistent problems in Czech-Slovak relations.

The Slovak Academy of Sciences was established by law on June 18, 1953, as the top scientific institution in the country, bringing together the most respected scientists in Slovakia. A ceremony was held at the National Theatre in Bratislava a week later. All institutes and employees from the former SAVU as well as several others that had previously belonged to different ministries were transferred to the new organization.

President of SAS Ondrej Pavlík receives the Smolenice Castle – House of Scientific Workers from František Kubač, President of the Slovak National Council, 28 June 1953.

Source: Archive of SAS



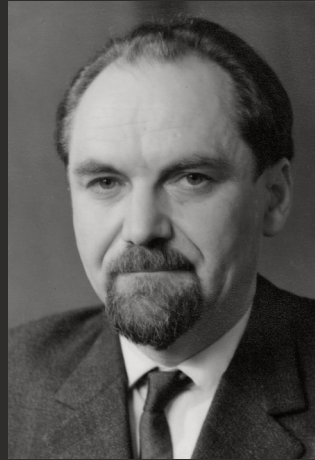
It was clear long before the establishment of SAV that **Ondrej Pavlík** would become its President. Though an expert in pedagogy, his main qualifying criterion was a lengthy membership in the KSS, plus the fact that he had been involved in the organization of Slovak scientific life since 1945. Pavlík was a zealous executor of KSČ education, science and culture policy, though he did care about the development of science and research in Slovakia and worked heavily for the establishment of SAV as an autonomous institution. Acutely aware that the advancement of Slovak science was unthinkable under the rigid application of communist ideological and personnel principles, at the meeting of the KSS Central Committee in January 1953, Pavlík unequivocally rejected the „sectarian attitude towards the Slovak intelligentsia“ which was typical of the fight against „bourgeois nationalism.“

Vice-Presidential positions were given to renowned personalities in the science community: virologist **Dionýz Blaškovič**, metallurgist **Jozef Čabelka** and physicist **Dionýz Ilkovič**. Other founding figures of Slovak science were appointed as the first members of the Slovak Academy of Sciences: orientalist **Ján Bakoš**, veterinarian **Ivan Brauner**, endocrinologist Ladislav Dérer, mathematician **Juraj Hronec**, philosopher **Igor Hrušovský**, mathematician **Štefan Schwarz** and chemist **Jozef Vašátko**.

In the early years, the development of SAV happened relatively spontaneously. Scientific workplaces were not created based on a clear plan, but rather according to the experts available in Slovakia. However, the leadership of the Academy respected the Party directive that the main emphasis would be on natural, medical and especially technical sciences. SAS management fought against the idea that basic research should be concentrated only in ČSAV. Most basic natural science and technical research institutes in SAV were thus only established in the second half of the 1950s. The majority of early research focused on solving immediate and specific Slovak economic and social problems. A typical example was the endocrinological research led by **Julián Podoba**, who studied the causes of the outbreak of thyroid disease in Slovakia. An examination and study of around 160,000 people led to the introduction of iodized table salt throughout Slovakia.

Other significant results include the continuation of research begun in the previous period, like work on an atlas of the night sky compiled in 1947-1948 by **Antonín Bečvář**, director of the observatory at

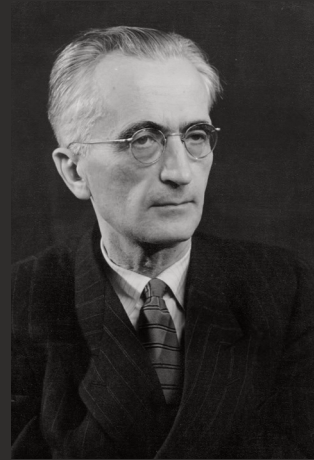
The first academicians of SAV



Ondrej
PAVLÍK



Dionýz
BLÁŠKOVIČ



Dionýz
ILKOVIČ



Jozef
ČABELKA



Jozef
VAŠÁTKO



Ladislav
DÉRER



Štefan
SCHWARZ



Igor
HRUŠOVSKÝ

Source: Archive of SAS

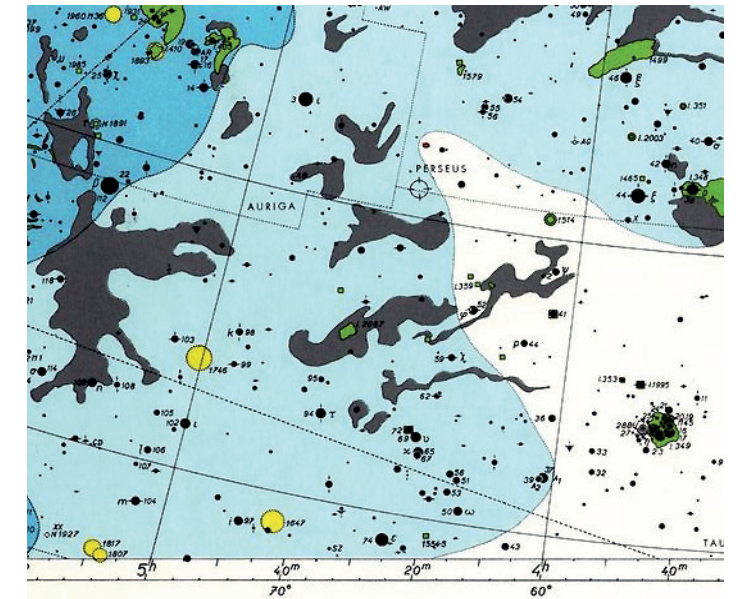


Observatory at Skalná Pleso, High Tatras.

Source: Archive of SAS

The most important celestial chart, which was used in observatories around the world in the second half of the 20th century, the *Atlas Coeli Skalná Pleso 1950.0*. Author: Antonín Bečvář.

Source: Archive of SAS



Skalná Pleso. His *Atlas Coeli* was used in observatories all over the world in the second half of the 20th century. During the 1950s, work was devoted to improving and updating previous versions.

The first five years of the Academy were a period of rapid growth, notwithstanding President Ondrej Pavlík's request for dismissal from his post in 1955 for political reasons. He was replaced by the more conformist and obedient Marxist philosopher **Andrej Sirácky**, who was also Rector of Comenius University.

At the end of 1953, the Academy boasted of 36 scientific institutes and 584 employees, growing to 46 institutes and roughly 1,500 employees in 1955. The peak of the first period came in 1958 when the number of institutes reached 51 and around 150-170 employees were hired annually. The increase in university-educated employees was much more modest, however, and universities were unable to meet such growing demands for graduates in all areas of economic life. The fact that SAV was a new institution was also reflected in the age distribution of its employees, with the vast majority between 25-30 years old. In most cases, directors of the institutes primarily considered expertise in the recruitment of new employees. Although, Party representatives at the Academies continuously emphasized that class and political criteria must play as important a role in the admissions process as scientific concerns, the cadre policy at SAV was not under the same scrutiny as at universities.

Leaders of ČSAV did not make any attempts to intervene directly in the operation of the Slovak Academy and respected its autonomy. Regular joint meetings of both institutions took the form of an information exchange rather than directive planning of research projects. However, the rela-

tions of SAS with universities and colleges became more complicated as educational institutions were undergoing changes that systematically worsened the conditions for scientific activity. As the reverse was happening at SAV, a sense of injustice was growing at the universities. The then-state policy of forced sacrifice by higher education institutions in favour of SAV became the basis of a long-term, strained relationship between these institutions. On the other hand, in the 1950s, Slovak institutions of science and research were considerably personally interconnected, with such intermingling gradually declining only in the course of the following decade.

Political crisis in the communist bloc in the mid-1950s, especially the 1956 uprising in Hungary, shifted the position of top representatives of the KSČ towards the „socialist intelligentsia,“ who were no longer considered supportive of the regime but rather a source of liberal and opposition sentiment. At the end of 1957, KSČ leadership launched „class and political reliability checks,“ which also concerned ČSAV and SAV employees. Those politically or class „unsuitable“ who held their positions only thanks to their expertise were forced to leave the Academy, to be replaced by a new generation of loyal scientists brought up in the socialist spirit. In the end, checks at SAV only affected a relatively small number of scientists, but for almost two years they senselessly drained the institute of energy and funds.

From centralization to a federation

The end of the 1950s brought an important change in the development strategy of SAV. The period of “vital growth” was replaced by a plan for the conceptual and effective development of scientific institutions, with the goal of the Academy contributing more significantly to the industrial development of the state. The turn of the decade was characterized by an effort to correct the errors of the founding period and establish a long-term concept for the development of Slovak science. This applied also to foreign relations. SAV concluded agreements on cooperation with the academies of sciences of socialist countries and negotiations on common research projects began. These contracts formed the core of international cooperation for SAV in the following decades.

Under pressure from the Ministry of Agriculture, SAV lost its agricultural research institutes in 1959 and all workplaces became part of the Slovak branch of the Czechoslovak Academy of Agricultural Sciences; a total of 14 institutes and 950 employees. One positive development was the start of construction on the future SAV premises at Patrónka in Bratislava, which was primarily an investment in the development of preferred technical and natural sciences.

Growing centralization tendencies in the republic, culminating in the adoption of a new constitution in 1960, also influenced the direction of SAV. Under the leadership of Antonín Novotný, the Presidium of the Communist Party demanded more effective coordination and a greater contribution from science and research towards to the economic development of the state. At the end of February 1960, Party leadership issued a resolution “On the new arrangement of relations between ČSAV and SAV”, which signalled the end of autonomy

for the Slovak Academy. Officially, this step was justified by the successes of Slovak science, which was to participate more in tasks of national importance. SAV would become an „organic“ part of ČSAV in the near future, a development symbolically confirmed by the election of a new President. At the end of 1961, one of the most important Slovak scientists, director of the successful Institute of Virology of the Czechoslovak Academy of Sciences – notably located not in Prague but in Bratislava – **Dionýz Blaškovič**, became SAV President. As one of the founding figures of both academies, Blaškovič became a symbol of their strong connection.

However, it soon became apparent that exaggerated centralization plans could hardly be realized. ČSAV management was not interested in managing the Slovak Academy in the directive manner envisioned by the creators of the unified system of scientific and research institutions concept. In addition, centralization efforts provoked consider-

able resistance in the Slovak scientific community, albeit mostly hidden. The Presidium of SAV in cooperation with some representatives of the KSS managed to support a new Act on SAV, which stood in addition to the ČSAV Act, leaving SAV the status of „a national scientific institution.“

In the end, both academies chose from the centralization process what was advantageous for them. One important positive for the development of Slovak science was that research cooperation between the two academies opened to a much greater extent. Relationships within the university environment began to improve and a trend to cooperate as equal partners became more and more visible.

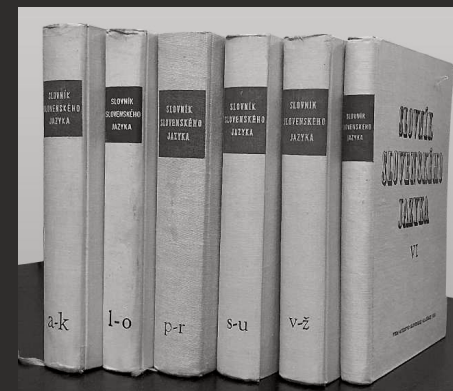
In the first half of the 1960s, plans to improve the stagnant Czechoslovak economy relied heavily on technological innovation. The emphasis on science, modern technology, automation and scientific rationality was omnipresent. Cybernetics, a field in which the Eastern Bloc had fallen behind, was elevated to a key position in the plan to

streamline the economy. Sociology went from a “bourgeois fad” in the 1950s to the forefront as planners began to realize the value of analysing fundamental social phenomena. Regarding social sciences and humanities, the former emphasis on pure propaganda quickly gave way to critical scientific research.

From the end of the 1950s, subjects and publications with lasting scientific value began to appear in greater numbers. A six-volume *Dictionary of the Slovak Language* was created under the guidance of Štefan Peciar at the Institute of Linguistics, and a five-volume *History of Slovak Literature* was also published. Work also began on an ethnographic atlas of Slovakia. A younger generation of historians, such as Ľubomír Lipták, Július Mésároš and Jozef Jablonický, came to the fore in historical science and began to rewrite the prior, Stalin interpretation of Slovak history, while the director of the Institute of Art Theory and History, Marián Vároš, published key works on Slovak art history. There were also synthetic works

on the history of Slovak music, edited by Ladislav Burlas and Ladislav Mokřý, as well as theatre histories prepared by Milena Cesnaková-Michalcová, Ladislav Čavojský, Alexander Noskovič and Emil Lehut.

At the turn of the 1960s, research in natural and technical sciences also took off due to the strengthening of the personnel and organisational structures of several research institutes combined with substantial support from the state. Among the most important examples is the Mathematical Institute, where the internationally recognized Slovak school of graph theory was established under the leadership of Anton Kotzig, and the theory-of-semigroups era is associated with the name of Štefan Schwarz. The Institute of Physics also underwent rapid development thanks to the research of Július Krempaský, Viera Trnovcová and Mária Hartmanová in solid state physics. The field of nuclear physics, under the leadership of Juraj Šácha, was identified as an area that necessitated not only research but also significant application.



A six-volume Dictionary of the Slovak Language was created under the supervision of Štefan Peciar at the Institute of Linguistics.
Source: Archive of SAS



Milan Lazár, Director of the Institute of Polymers of SAS, discusses current research with Kuzma Andrianovich Andrianov, Academician of the Academy of Sciences of the USSR.
Source: Archive of SAS



Michal Hubka performing an experimental operation with the new heart pump, 23. 11. 1960.
Source: Archive of SAS

Important groups of scientists worked on galvanomagnetic phenomena, superconductors and thin layers at the Institute of Electrical Engineering SAV. Established in 1963, the Laboratory of Polymers became an institute in 1967 with its first director, **Milan Lazár**, devoted to development of the field of research in Slovakia. The Institute of Chemistry eventually developed into a top organisation researching carbohydrates and cellulose with a focus on improving efficiency

in the sugar industry, something of great importance to the Slovak economy.

Cutting-edge research took place at the Institute of Measurement Science, where a team led by **Juraj Bolf** designed and constructed a device for extracorporeal circulation to be used in Eastern Bloc countries. This subsequently contributed to the first heart transplant in Eastern Europe, which was carried out in 1968 in Bratislava and led by car-

diac surgeon **Karol Šiška**. Other significant achievements of Slovak science include the development of the RPP-16 computer at the Institute of Technical Cybernetics as well as a program to clarify the function of the endocrine glands and their regulation in the postnatal period led by endocrinologist **Ladislav Mach**.

In this highly productive period, several SAV institutes developed a wide range of maps of the territory of Slovakia covering: geo-



Corresponding member of the SAV Tibor Kolbenheyer, rector of the Technical University in Košice, who worked in the field of geophysical methods, in conversation with Dr. Pavel Cagnar, the Quaestor of the Technical University, and Mikuláš Petrašovič, head of the planning department of the Technical University, 3 May 1962.



A significant achievement of Slovak science was an explanation of the function and development of the endocrine gland and its regulation in the postnatal period, completed under the leadership of endocrinologist Ladislav Mach.

Source: Archive of SAS

morphological, mineral deposits, tectonics, road networks, hiking trails, groundwater flow, the Danube basin and outbreaks of various viruses. The Division of Geophysics of SAV performed seismic assessments, necessary for construction projects like the nuclear power plant in Jaslovské Bohunice.

Liberalizing tendencies in Czechoslovakia combined with growing contacts with Western countries raised optimism among scientists about the further development of science and research in the country. However, the economic problems of the state significantly dampened the development plans of both academies creating a paradoxical situation; new opportunities were opening for the

Czech and Slovak scientific communities but were limited by a lack of funds. The Presidium of SAV therefore joined the efforts of the ČSAV Presidium to cooperate more actively with the government in solving the economic problems and challenges. Both academies refused to continue to passively accept plans drawn up by the “Party and the government,” demanding to participate directly in their preparation.

In 1965, mathematician Štefan Schwarz was elected President of SAV and led it throughout the entire liberalization period. At the end of 1966, SAV boasted 44 scientific institutes and 2,556 employees, the large majority of which openly supported

the reforms of the Prague Spring, concerning mainly the issues of freedom of scientific research, the self-administration of scientific institutions, the rehabilitation of scientists affected by the purges and the federalization of not only Czechoslovakia, but also ČSAV. These goals were expanded upon in the Academy’s Action Plan, based on which preparation of a new Act on SAV began.

The primary objective of the scientific community was to gain the greatest possible freedom for their work. Scientists demanded the removal of bureaucratic and ideological restrictions that reduced the effectiveness of research. A typical example is the isolation of Czechoslovak science from trends in capitalist countries. From 1966, the number of SAV employee trips to the West increased significantly, which allowed researchers to make comparisons to their situation at home through personal experience. Soon, voices calling for fundamental reforms at scientific institutions, and also within the communist regime as a whole, grew stronger. A major step for SAV and its leadership in 1968 was the effort to adopt a new Act on the Academy as quickly as possible, meant to reflect the present-day democratization and liberalization tendencies

as well as the expected new position of SAV within the framework of the planned federalization of Czechoslovakia.

A meeting of Czech and Slovak scientists at the SAV conference centre in Smolenice at the beginning of March 1968 is generally considered to be the place, where for the first time, Slovak experts put forward their demand for the immediate federalization of the state. The meeting was attended by **Andrej Sirácky**, lawyers **Felix Vašečka** and **Ladislav Košťá**, philosopher **Július Strinka**, director of the Institute of Economic Research **Andrej Lantay** and historian **Samo Falťan** from SAV. The future president of Czechoslovakia and general secretary of the KSČ, Gustáv Husák, was also in attendance, at that time without a political position but as an employee of the Institute of State and Law. The expert capacity of SAV employees often meant entry into politics, with several members appointed to various government and Party positions. Others took advantage of the lifting of censorship and spoke out on current issues as intellectuals in mass media. Notable are Historian Ľubomír Lipták’s essays from that period, which remain relevant today.

Scientists demanded the removal of bureaucratic and ideological restrictions that reduced the effectiveness of research.

SAV during the period of normalization

The invasion of Warsaw Pact troops into Czechoslovakia on August 21, 1968, marked the end of the reform process and ended any plans to change the status of SAV. Instead of greater research freedom, a period of purges and ideological control began. The leadership of the KSČ, already under Gustáv Husák in the fall of 1969, swept drafted laws on ČSAV and SAV off the table and in the spring of 1970, changes in the spirit of “Normalization” were approved. These enabled ideological purges and direct control of the functions of both academies by state and Party authorities. Instead of election by the Presidium, though often only a formality, a strict appointment principle came into place. Party leadership directly appointed politically amicable persons to crucial positions in SAV and dismissed those inconvenient to their cause.

SAV remained part of ČSAV formally, but was financed and controlled by the government of the Slovak Socialist Republic (SSR). ČSAV, consisting of only Czech workplaces, fell under the federal budget though the planning of financial resources for science and technology remained coordinated. There were no significant differences between the two academies in basic indicators; however, ČSAV received significantly higher volumes of western currency, which meant that it had better opportunities to purchase equipment from the West. This alone put the technical and natural science institutes of SAV at a significant disadvantage.

In the years 1970-1972, large-scale purges were carried out at SAV as the Academy was identified as one of the epicentres of „anti-socialist and anti-Soviet tendencies.“ The task of the Presidium, headed by cardiac surgeon **Karol Šiška**, was to remove employees „who did not have the political, moral, or professional prerequisites for activity in

such an important ideological institution as the Academy.“ Almost all SAV staff were forced to undergo personnel checks, with Party apparatus having the final say. The Academy lost 426 employees from a total of 3,600 due to purges and escapes to the West. As a rule, top scientists in their most productive age emigrated abroad, which meant a significant, long-term loss for Slovak science and society as a whole. Emigres included the first director of the Institute of Physics Arnošt Kessler, mathematicians Alexander Rosa, Ján Ševčík and Juraj Virsik, chemist Daniel Belluš and art critic Eduard Toran. All continued their activities at prestigious universities or other research institutions in Germany, Canada, Great Britain, Australia, Switzerland or the USA.

At the end of the first half of the 1970s, SAV was a thoroughly „consolidated“ institution. All expressions of dissent were suppressed and publication was under strict control. The Academy and



Outgoing President of the Slovak Academy of Sciences, Štefan Schwarz, with his successor Karol Šiška (centre) and Deputy Prime Minister Štefan Sádovský, 8 June 1970.

Source: Archive of SAS



Vojtech Filkorn (left), Vice-President of the Slovak Academy of Sciences, congratulates the newly appointed President of the Slovak Academy of Sciences Vladimír Hajko, 29 April 1974.

Source: Archive of SAS

its representatives had become a loyal part of the “Normalization” establishment as evidenced by, among other things, the smooth organization of a mass event aimed at rejecting the demands of Charter 77.

After the „consolidation process“ ended, a new period of growth and development began. In 1974, physicist **Vladimír Hajko** was appointed President of SAV, directing the Academy until 1989. Under his leadership, the Academy saw the largest number of employees and scientific institutes in its history. Among the most supported fields were microelectronics, cybernetics, materials research

and machine mechanics, which were intended to support the development of Czechoslovak electro-technical, engineering and metallurgical industries. About half of the research tasks within the SSR and 16% in the whole of Czechoslovakia fell to SAV.

The binding norm for SAV activities was the state plan for basic research, taking into account the ideas of the central state and Party authorities on the current “social order.” Research was intended to lead to the modernization of industrial plants, the strengthening of export activity and improvement of the quality of consumer goods. The gener-

al tendency of socialist science development was the convergence of basic and applied research. Individual institutes were to focus primarily on the needs of the “production sphere,” with the Academy cooperating with the most important industrial enterprises in the SSR. The greatest scientific result of that period was the chemical transformation of carbohydrates, discovered in 1971 by Vojtech Bílik from the Institute of Chemistry. The so-called **Bílik Reaction** was successfully commercialized in 1973 and is still in use today.

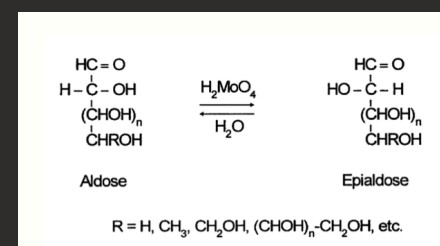
Considerable thought was put into the efficient use of raw materials, the development of agriculture, disease prevention, protection of the environment and the advantageous use of opportunities offered by rapidly developing computerization. The Institute of Technical Cybernetics became the fastest-growing institute of the Academy and its largest workplace in the mid-1980s.

Significantly limited contacts with the West were replaced with a deepening of cooperation within the Eastern Bloc. In the USSR, a plan was created to build scientific teams capable of cooperation with other socialist countries, eventually accounting for almost 60% of the Academy’s international research capacity in the mid-1970s. SAV coordinated on nuclear research at the international centre of the Joint Institute for Nuclear Research (SÚJV) in Dubna near Moscow, as well as an integrated program for the peaceful use of outer space, Interkosmos. At the Institute of Animal Physiology and the Institute of Animal Biochemistry and Genetics at SAV, research was conducted in the field of space biology, specifically the possibility

of breeding Japanese quail in a zero-gravity environment. Koloman Bod’a and Marian Juráni were the key figures of this research.

At the end of the 1970s, SAV activities were affected by deteriorating economic conditions in Czechoslovakia. The Academy was forced to limit imports of equipment and devices, spare parts and scientific literature from capitalist countries. As a result, at the beginning of the 1980s, the Presidium declared that the institutes were insufficiently equipped, the equipment was outdated and there was a lack of information on developments in science and research happening in the rest of the world. The gap in science and research development between Czechoslovakia and capitalist countries grew every year, a fact that could not be disguised in any way and was actually acknowledged openly and publicly by scientists and representatives of the Communist Party.

The answer to such issues was the idea to construct large scientific centres meant to improve cooperation in related scientific branches, shorten the time needed to solve planned research tasks and concentrate available funds to laboratories with cutting-edge experimental technology. Six research centres were established, focusing on physiology, electrophysical research, biological-ecological sciences, veterinary medicine, chemistry and geosciences. The new role of social sciences was the production of synthetic works and the forecasting of economic and social development. Plans envisaged the fostering of economics in particular, sociology, Marxist philosophy and psychology. Preparation of a societal development prog-



Top: Academician Vojtech Bílik.
Bottom: The general scheme of Bílik’s reaction, the discovery of which allows the simple preparation of previously hard-to-find, rare carbohydrates.

Source: ChemZi 13/1 (2017)



Workers involved in space research: from left – A. Dzhodenchukova, technician H. Gese from the USSR and Š. Pintér from the Geophysical Institute of the Slovak Academy of Sciences, 16 March 1972.

Source: Archive of SAS

nosis up to the year 2000 was one of the most highly anticipated projects of SAV.

At the beginning of the 1980s, SAV operated with 4,400 employees and 48 scientific institutes. However, only 25% were scientists with the rest being „service personnel.“ Despite efforts at diversification, 77% of research capacity was in Bratislava. The facilities of earth and space sciences, technical and mathematical-physical sciences were maintained by 16 institutes with 1380 employees (31.5%). There were 1760 employees (40%) at 16 institutes of chemical, biological and medical sciences and a total of 765 employees worked in 16 social science institutes (17.5%). The increasing average age of SAV employees also became a growing problem.

From the second half of the 1980s, political elites in Eastern Bloc countries increasingly felt the need for more fundamental changes. The answer was a “perestroika” program presented by General Secretary of the Communist Party of the USSR Mikhail Gorbachev with the objective of democratizing and decentralizing the exercise of power along with limiting the directive central planning of economics. These alterations also affected the organization of science and research in socialist countries.

Despite the apparent strictness of the normalization regime, gradual changes regarding the makeup of scientists were noticeable at SAV. After the initial „ideological offensive“ subsided in the first half of the 1970s, SAV management was dedicated to increasing the quality of science education as a way of solving the growing generational issue and a more professional, less ideological approach to the evaluation of scientists began to prevail. In 1983, newly elected member of the Presidium



Viliam Plevza, director of the Institute of Marxism-Leninism of the Central Committee of the KSS, openly criticized the dominance of mediocrity at SAV and the reliance on established procedures. Visions of rejuvenating the scientific community, dynamizing and streamlining basic research soon appeared with great urgency in development plans at the beginning of the second half of the 1980s.

Research was preferably oriented towards new products and technologies with minimal requirements for western funding, and investment resources directed towards the most favourable conditions for production growth and eventual export. Science was defined as a „productive force,“ and support was given primarily to the applied research that was expected to bring immediate profit. These new rules enabled some institutes to generate their own income from cooperation with the manufacturing sector. However, SAV workplaces still devoted more than 80% of their work time to basic research.

With the onset of “perestroika,” the Presidium of SAV began to negotiate with KSS leadership on democratizing changes in the Academy. In 1988, the Vice-President of the Academy, philosopher **Vladimír Cirbes**, spoke openly about the significant downsides of the function and organization of sci-

entific work at SAV, an argument he supported with current sociological research. He mentioned the apathy of workers, violations of the principle of originality of scientific works and the deliberate distortion of research results. However, proposed solutions were only cosmetic in nature and did not even equal a return to 1967 standards. None of this mattered in the end as the collapse of the European communist regimes and the changes after 1989 presented SAV with a whole new set of challenges.



The building of the institutes of social sciences of the Slovak Academy of Sciences on Klemensova Street in Bratislava.

Source: Archive of SAS

Foundation stone for the construction of the Centre for Biological and Ecological Sciences of SAS in Nitra, 28 January 1986.

Source: Archive of SAS



SAV in the early 1990s

In 1989, SAV had more than 6,000 employees working in 47 institutes, including well-respected scientists recognized abroad, members of opposition groups for whom the Academy was a safe haven, and also servants of the normalization regime. In November of 1989, most SAV science workers joined the ongoing protest led by students and artists, and a few employees even worked for the leadership of a new political force – the Public Against Violence. Among the most active were Fedor Gál, Peter Zajac, Milan Šútovec and František Šebej. František Mikloško also worked in SAV before leaving in opposition. Mikuláš Huba was prominent in the environmental movement, which became the Green Party, and Jozef Šimúth was active in the renewed Democratic Party.

Strike committees were formed in almost all institutes, which escalated into an all-academic Strike Committee of SAV demanding that the discredited members of the Presidium resign, that a dialogue be started between the representatives of the citizen initiative and the governing bodies of the Academy, and that measures be taken urgently to de-ideologize science research. The Scientific Council was subsequently established, a self-governing body of SAV which elected a nine-member organizational committee headed by physicist Silvester Takács. Based on the committee's activity, the Slovak National Council approved an amendment to the Act on SAV in January 1990. At this point, the Academy had definitively ceased to be a privileged representative of the Slovak scientific community, but rather simply one of the many scientific institutions in Czechoslovakia. These changes allowed the Scientific Council to elect a new Presidium and for the first time in its history, the President of the Academy was not proposed or confirmed by the communist party or any other political organiza-

tion. In January 1990, the office was filled by new management headed by endocrinologist **Ladislav Mach**.

Changes also took place in individual SAV institutes as well. As one of the first resolutions, the Presidium adopted a selection procedure for institute directors and criteria were established for the most objective, apolitical assessment of the institutes' activities. For the first time, individual evaluations of the scientific workers were carried out at SAV according to internationally recognized criteria in terms of the production of scientific research and international acclaim. Due to rehabilitation efforts, scientists forced to leave the Academy for political reasons returned. SAV began to intensify contacts with foreign scientific institutions, often on the basis of joint projects. It was also clear that under the new conditions, the question of the relationship between ČSAV and SAV must be answered as soon as possible.



Demonstration by SAV employees
at Patrónka, November 1989.
Source: Archive of SAS

All these changes took place under increased economic pressure from a diminishing science and research budget. From 1990, the number of employees of the Academy steadily decreased to roughly half the level of 1989. Rationalization by management also meant the end of the mammoth science centres of the 1980s and the termination of seven institutes based on an accreditation carried out in 1992.

At the end of 1990, the Presidium of the Academy created the SAV Grant Agency, the first ever institution to fund science based on a competition of research projects according to the Western

model. In 1996, the Agency was transformed into the Scientific Grant Agency – VEGA, which is still active today. The availability of grants fundamentally changed the financing of institutes as they had been receiving only minor contributions from the state budget, which covered wages and a part of the basic operations. Roughly 40% of institute costs were funded by the grant system, which went directly to specific, competitive projects. The new financial situation forced the transition of 28 institutes and joint workplaces into a contributory form of management. These institutes would now obtain a third of their budget through commercial activities; however, almost no companies in Slovakia were interested in cooperation with the research sphere.

At the beginning of the 1990s, both ČSAV and SAV fought attempts at closure as they were perceived as privileged creations of the communist regime.

Critics did not realize that similar institutions existed outside the Eastern Bloc and that the Czechoslovak and Slovak academies, like those in Poland and Hungary, had followed on from institutions that were established before 1948. The existence of SAV was further threatened by financial cuts. Its budget fell by 70% in 1992 compared to 1989, the most of any surrounding post-communist country. Nevertheless, at the time of the dissolution of Czechoslovakia, the Academy managed a relatively successful transformation from a directive-managed organization to a modern, self-governing scientific institution.

At the end of 1990, the Presidium of the Academy created the SAV Grant Agency, the first ever institution to fund science based on a competition of research projects according to the Western model.



Meeting of the SAV Grant Agency.
Left, Vice-President of SAV Baltazár Frankovič, 15 May 1991.
Source: Archive of SAS



SAV in an independent Slovak Republic

The situation in the Slovak Republic in the first half of the 1990s was characterized by political instability and in the second half of the decade, by non-standard government leadership, which put Slovakia into international isolation.

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The last, ceremonial meeting of ČSAV took place on December 16, 1992. At the beginning of 1993, based on territorial principles, the Czechoslovak Academy was divided in two: the Academy of Sciences of the Czech Republic and the Slovak Academy of Sciences. From the first of the year, like the new states, SAV had to manage its acceptance at the international level. Thanks to the activity of the Presidium led by endocrinologist **Branislav Lichardus**, in the first year of the independent SR, the Academy managed to sign 27 international bilateral agreements, and the participation of SAV

researchers in international projects within the framework of European Community and NATO grants grew. However, a continuing critical financial situation significantly hampered further development.

Physicist **Štefan Luby** became president of the Academy in 1995, heading it for the next 15 years. Thanks to the growth of the Slovak economy in the years 1995-1997, the Academy felt some relief financially. It became possible to stabilize the number of employees and improve workplace conditions, at least temporarily. The next phase of development was to be characterized by the partial revival of scientific potential, the reform of post-graduate studies and the identification of research priorities in the form of a long-term strategy. However, it all took place slowly and with greater



President of the Slovak Academy of Sciences Branislav Lichardus presents the Award of the SAV.
Source: Archive of SAS



Vice-President of the Slovak Academy of Sciences František Hanic welcomes the expert group delegation of the European Community for Science and Technology, 4 October 1990.

Source: Archive of SAS

lutions to the increasingly urgent organizational and financial problems of the Academy, and a new Act on SAV was only approved in 2002, after ten years of waiting. It was a modern Act, which meant acceptance of its status as a scientific-research institution, an emphasis on self-governance and regulation of its relationships with universities.

However, 2002 was also characterized by a lack of funds. Academic officials constantly pointed out that the real funding of science is not in line with the commitments of state science policy. Criticism also came from the EU. In terms of support for science and research, Slovakia increasingly lagged behind neighbouring countries and for a long time was the only Visegrad 4 country whose spending on science decreased. In comparison, the Czech Republic directed about eight times more financial resources to science than Slovakia. The lack of funding significantly accelerated the departure of scientific workers from SAV to better-paid positions in the private sector or foreign scientific institutions and the Academy began to have problems recruiting new employees.

difficulty than in neighbouring countries due to negative trends in Slovak politics deepening after the second election victory of the Movement for a Democratic Slovakia in 1994. Organizations whose employees were critical of the government, which was also the case with SAV, were punished by administrative harassment and attacks in the government-controlled media. Part of the effort to weaken and punish the Academy was an unsuccessful proposal to transfer its institutes of humanities to Matica slovenská.

In 1998, the fourth parliamentary elections after the fall of the communist regime were held in the Slovak Republic, which came with considerable expectations. The era of „illiberalism“ was over, which decisively influenced internal political development and direction of the state's foreign policy. As part of the effort to gain international acceptance and entry into international structures, the new government took on several international commitments in support of science, research and education. The grand, optimistic expectations held by the scientific community were soon replaced by disappointment, however, as there were no so-

President of the Slovak Academy of Sciences Štefan Ľuby welcomes astronauts Ivan Bella and Michal Fulier to the Academy, 1999.

Source: Archive of SAS



Slovakia's entry into the European Union (EU) in 2004 was a key point for further developments within SAV, and as such, the Academy played an important role in a range of related activities. At the request of the government, the Institute of Slovak and World Economy prepared an analysis of the economic impact of joining the Union, SAV institutes held conferences related to integration and director of the Institute of Ethnology Gabriela Kiliánová took part in a discussion dinner in Berlin where the new EU member countries were introduced. The Scientific Secretary of the SAV, historian **Dušan Kováč**, gave lectures on Slovakia in Munich and Milan and on the eve of Slovakia's accession to the EU, nine prominent personalities of Slovakia delivered speeches and offered wishes at a ceremonial gathering in the historical building of the Slovak Republic, including three representatives from the Slovak Academy of Sciences: physicist **Vladimír Bužek**, ethnologist **Gabriela Kiliánová** and chemist **Jozef Noga**.

EU membership has made it easier for the Academy to become involved in European projects, which is crucial as funds from these sources are often the only opportunity to make improvements, and in some areas, even eliminate the issue of chronically insufficient funding from the state. The Academy has been successful in this regard before, especially in the fields of material physics, nanotechnology, microelectronics, powder metallurgy, micromechanics, gene technologies and ecology. In 2004, the number of approved projects in the 6th EU framework programs (with the participation of organizations from SAV on research teams) grew to 56, with the largest numbers coming from the Institute of Physics, the Institute of Informatics, the Institute of Landscape Ecology, the Institute of Zoology and the Institute of Electrical Engineering, while the most projects were ventures from the Nanotechnology, Life Sciences and Sustainable Development programs.

Transformačná odysea

From 2007, management of the Academy began to consider transformation into a legal-economic form of public research institution according to the model of Slovak universities and the Academy of Sciences of the Czech Republic. SAV would thus gain the opportunity to use its property for business purposes as well as in the field of science and research. Under the leadership of new SAV President virologist **Jaroslav Pastorek** elected in 2009, a commission was created to address the issue of a suitable economic model, which produced the *Proposal for the Transformation of SAV*, with the aim of transitioning it to a form of a public research institution. At that time, few expected that implementation would eventually take more than ten years.

The Academy was busy tackling other challenges at the same time, mainly concerning improving relations with universities and the private sector. SAV scientific organizations established cooperation with all colleges and universities in Slovakia, increasing the number of joint workplaces to 50 in 2010, most focusing on problems related to natural sciences and engineering. In 2010, twelve centres of excellence established by the SAV Presidium were in operation, with the aim of supporting top applied research in the Slovak Republic, and twenty Academy workplaces solved specific problems based on contractual cooperation.

However, as Štefan Luby stated, in contrast to neighbouring countries, cooperation on research projects with small and medium-sized Slovak enterprises did not function well in Slovakia, with businessmen generally supporting research only if it was accompanied by state subsidies. Foreign companies operating in Slovakia did not move development centres to the region either. As a re-

sult, business investments in science and research in Slovakia stagnated. Even today, the application of innovations by domestic manufacturers is limited by the Slovak economy's excessive dependence on foreign investments. A substantial part of the scientific output of SAV thus ended in useful application abroad, or is based on contracted research.

Despite the persistent absence of a state science policy and a stable system of funding, SAV continued to progress, improving the infrastructure significantly in the period of 2007-2015. It became possible to ensure better conditions for the work of research teams and the process of training doctoral students was improved. Despite such above-mentioned limitations, several applied research projects were launched in cooperation with the private sector, which resulted in the construction of new research centres and university parks, including: the Applied materials research and University Science Park for Biomedicine in Bratislava, the Research Centre of Progressive Materials and

Technologies in Košice and the Biotechnology Laboratories in Šarišské Michaľany. The number of bilateral agreements with foreign partners also grew, numbering 62 in 2010. The Academy was extremely successful placing research teams in accepted European projects – in 2008, the success rate reached 25%, two and a half times higher than the European average.

In the first decade of the 21st century, SAV produced internationally recognized research results. At the Institute of Inorganic Chemistry led by Vladimir Malkin, Olga Malkin and Jozef Noga, a quantum-chemical program called ReSpect was developed, the most efficient program in the world for calculating the magnetic properties of compounds with heavy elements.



The Gold Medal of the Slovak Academy of Sciences was awarded to Eberhard Borsig (Institute of Polymers of the SAS). Three scientists from the Institute of Anorganic Chemistry of the SAS received Medals of the SAS for the Promotion of Science – Dalma Gyepesová, Jana Madejová, Olga Malkina and Vladimír Malkin, 19 October 2016.

Source: Vladimír Šimíček



Peter Samuely's team from the Centre of Low Temperature Physics at the Institute of Experimental Physics of SAS: Peter Samuely, Jozef Kačmarčík, Zuzana Pribulová, Pavol Szabó. The team was awarded the Scientific and Technical Team of the Year Award in 2012 for significant contributions in the field of high-temperature superconductivity research by means of experimental confirmation and elucidation of the mechanism of two-medium superconductivity.

Source: www.vedatechnika.sk

The excellent scientific team of Numerical Modelling of Seismic Movement. From left: Martin Gális, Peter Moczo, Miriam Kristeková and Jozef Kristek from the Institute of Geophysics consisting of SAS.

Source: Peter Moczo



A study by Peter Samuely, Pavol Szabó and Jozef Kačmarčík from the Institute of Physical Electronics on so-called double-gap superconductivity, published in the prestigious American journal Physical Review Letters, received an unprecedented positive response and is among the most cited Slovak scientific works in the world.

A team of workers from the Institute of Geophysics consisting of Peter Moczo, Jozef Kristek, Martin Gális, Miriam Kristeková developed a complex method for numerically modelling seismic movement in structurally complex environments, which is one of the best in the world. The employees of the Institute of Materials and Machine Mechanics of SAV, under the leadership of František Simančík, achieved excellent results in the field of pressing powder mixtures based on aluminium alloys, which are already being used in the industry.

Persistent problems with consistent state support for science and research as well as the dependence on European sources of funding resulted in efforts to change the structure of SAV after 2010. The Presidium, led by J. Pastorek, advocated for the merging of several smaller institutes into larger units which would be more financially stable and stand a better chance of securing large European projects. However, J. Pastorek served less than two years of his second term as inappropriate political involvement in the 2014 presidential elections and a lack of clear communication with the SAV Assembly led to a proposal for his dismissal. It was approved by the Assembly in December and chemist **Pavol Šajgalík** was elected as Pastorek's suc-

cessor. The Presidium continued the trend of supporting the creation of larger workplaces despite a negative perception within SAV, sparking a process that significantly shaped the development of the Academy in the following years.

The new SAV leadership prioritized efforts to increase the low success rate of Slovak scientists in obtaining prestigious grants from the European Research Council (ERC), where Slovakia ranked among the least successful EU countries. This was also one of the reasons for launching the SAS-PRO program, and subsequently SASPRO 2, with the aim of creating conditions to attract top-level foreign scientists as well as successful Slovak researchers working abroad. At the same time, the Presidium began work on a scheme to enable the creation of entire research teams, as had been the case for years in the Czech and Hungarian Academy of Sciences. It was launched in 2022 under the name Impulse.

In 2015, the SAV 2020 document was approved, updating the basic mission of the Academy as a non-university research institution. SAV defined itself as an organization conducting research in areas that are „innovative, demanding in personnel or research infrastructure, developing innovative technologies and diagnostics,“ focusing equally on „current global challenges“ as well as on „national-regional-culturally oriented research and protection of cultural heritage.“

One of the main tasks of the Presidium under the leadership of P. Šajgalík was an analysis of the



First meeting of experts for of the Slovak Academy of Sciences scientific institutes, Bratislava, 18 July 2016. SAV President Pavol Šajgalík welcomes the committee of foreign experts and members of SAV.

Source: TASR – Pavel Neubauer

conclusions made by the evaluation of institutes from 2016, the first such independent assessment exclusively by foreign experts of scientific research institutions in Slovakia. The Institute of Polymers and the Institute of Ethnology were rated as top institutes from the perspective of the European research domain, and a further 30 organizations out of 57 were „at a good European level.“

Following the data obtained during the accreditation process, a performance-based funding model

was adopted in the SAS, similar to the model that had been in place for years at universities. Its aim is to ensure a distribution of the salary fund that better reflects the institutes scientific achievements and performance. The merging of institutes continued at a rapid pace, which was supported by both the international accreditation panel and the newly created international advisory board of SAV in their conclusions.

The year 2018 held great expectations for the most fundamental change in operations of SAV since 1989. After several years of preparation, in September 2017, the National Council of the Slovak Republic (NR SR) adopted an Act on the transition of SAV to a public research institution (v. v. i.); however, the conversion never came to fruition. Over the course of 2018, despite the efforts of SAV, the Ministry of Education blocked the entire process. In September 2018, the NR SR adopted an amendment to the Act, based on which the Academy's research institutions once again became state budget or contributory organizations, and as such, problems resulting from a lack of flexibility in the use of financial resources and hampered cooperation with the business sector continued to persist.

In spite of such issues, in the framework of basic research, scientists and SAV institutes took part in more than 40 projects in the Horizon 2020 scheme and other prestigious European programs such as ERA.NET and COST. Domestically, the Slovak Research and Development Agency remained the decisive tool for project funding. The Academy was its most successful applicant, with SAV projects accounting for about 20% of submissions under general calls with a success rate of about 30%. Efforts to strengthen cooperation with universities also continued. In 2019, SAV signed memorandums of understanding and close cooperation with Comenius University, Slovak Technical University, Pavol Jozef Šafárik University, Technical University in Košice and the University of Veterinary Medicine and Pharmacy in Košice.

A new government coalition formed after the 2020 elections restarted the transformation process in active cooperation with the SAV Presidium. It was a fresh opportunity to complete the transition of the Academy into a modern research institution with a quality infrastructure. In view of the extremely low state investment in science and research, the simplification of cooperation with the private sector and the possibility of obtaining additional resources for research was crucial. In 2021, the Presidium led by P. Šajgalík completed all the necessary steps for a smooth transformation. The Academy's organizations successfully transitioned to a legal form of public research institutions on January 1, 2022, after a lengthy and demanding administrative and organizational preparation process.

SAV defined itself as an organization focusing equally on „current global challenges“ as well as on „national-regional-culturally oriented research and protection of cultural heritage“.

SAV in 2022

The COVID-19 pandemic demonstrated the social utility of the SAV institutes research abilities fully. The Biomedical Research Centre was involved primarily in the fight against the disease, playing a key role. Mathematicians, sociologists, ethnologists, anthropologists, psychologists and scientists from the field of social communication, the state and legal experts also helped solve issues associated with the spread of the virus and the social consequences of the epidemic. The activities of scientists thus became much more visible in society, providing significant assistance for the decision-making sphere and self-governing structures of the state.

By the end of 2021, SAV was comprised of 48 organizations, including 45 scientific institutes and scientific centres with 2147 employees in total. Every year, about 450 doctoral students study full-time at SAV, including almost 30% from abroad. According to sociological surveys, the Academy has long been among the most trustworthy institutions in Slovakia, while its employees sit on a number of advisory boards of state administration bodies and organizations involved in solving current problems in society and the challenges of public life. They also take the role of experts in international and European organizations such as the European Commission, OECD, WHO or NATO.

Despite notorious, long-term issues like the significant underfunding of science compared to most EU countries and the lack of a long-term science policy strategy, the Slovak Academy of Sciences has increasingly succeeded in asserting itself in the European research area and remains the largest and most successful science and research organization in Slovakia.

Looking to the future, a significant challenge remains in the transformation of SAV organizations into public research institutions enabling multi-source funding and cooperation with the private sector. The change has already taken place legally, now it will be important to monitor how organizations take full advantage of the benefits offered by the transformation. There is no doubt that the main focus of the Academy will continue to be basic research, but the form of a public scientific institution also enables better cooperation with the applied sphere, which will contribute to improved funding of institutes and increased potential for broad cooperation in basic and applied research, including international support.

During its seventy-year existence, SAV has faced many challenges and overcome numerous problems, managing not only to survive, but above all, successfully develop Slovak science. This alone should guarantee that the Academy will continue to be successful in the world of new and demanding challenges that scientific research is set to face in the coming decades.

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