THE INSTITUTE OF SPELEOLOGY AND ITS ACTIVITY

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Hungarian karst and cave research had been concerned with setting up a speleological institute from 1929. However, Kadić's idea came to be realized nearly half a century later, in 1975. Over the past 15 years the institute was severally abolished, reorganized, renamed, its function redefined. In 1981 the Speleological Department of the Institute for Environmental Protection, and as of 1st January 1986 the new Speleological Institute started work as an independent unit of the National Office of Environmental Protection and Nature Conservation. The scope of its activity and jurisdiction was considerably expanded compared to its predecessors. Besides cave conservation and documentation, the Institute has administrative and control functions concerning the utilization, research and public attendance of the caves and besides it supervises and coordinates the other activities of geological nature protection. It controls the tasks of environmental protection related to open mining within the nature conservation areas of some 600,000 hectares, it sees to the cadastral survey of geological-geomorphological values, to the professional supervision of public caves and sites of geological demonstrations, and to the organization and realization of research projects. From 1st January 1988 the Institute of Speleology works as a department of the Ministry of Environment and Water Management, otherwise unchanged.

The *personnel* of the Institute of Speleology numbers seven including mainly specialists of speleology with qualifications in the earth sciences (geography, geology, hydrogeology, cartography) and an administrator. As the staff is small for the wide range of tasks and certain specialties are not represented in it, a permanent external staff have been engaged. The mining engineer, biologist, mineralogist, electrical engineer, archeologist, physicist and various laboratories help us by occasional contractual work. The Institute is in direct contact with several authorities, academic and university research places.

The main reasons underlying the occasional reorganization of the Speleological Institute derive from regrettably decisive circumstances not devoid of personal aspects either.

1. The changing evaluation of the "genre" and institutional system of environmental protection, of its role and performance.

2. Due to the traditions of Hungarian environmental protection, the attitude of the controlling and executive apparatus is centered around animate nature, interpreting the concept of ecology rather narrow-mindedly.

3. The protection of geological nature has no traditions similar to the conservation of living nature in Hungary. The authorities ignorant of speleology (and nature conservation, for that matter) regarded the caves as natural formations for sports and hobby activities for a long time.

Most recently, however, the daily practice of nature and environmental protection has adopted a new attitude to caves as a result of the rise of certain damage and risks, the gravity of the problem of karst waters and the emergence of some spectacular sites.

The main lines of research are powerfully influenced by the fact that the Institute of Speleology belongs to environment and nature protection. The high-priority research projects include (with special regard to speleological tasks):

A) Creating the information system of the speleological, geological conservation of nature.

1. Preparing the cave cadaster of Hungary with the concomitant documentation.

2. Surveying the geological-geomorphological values in the areas already protected or requiring protection.

3. Registering the active and abandoned open mines in areas already protected or requiring protection.

4. The complex information system of the karstic region of Rózsadomb (Buda Hills, Budapest).

5. The complex analysis of caves under increased protection.

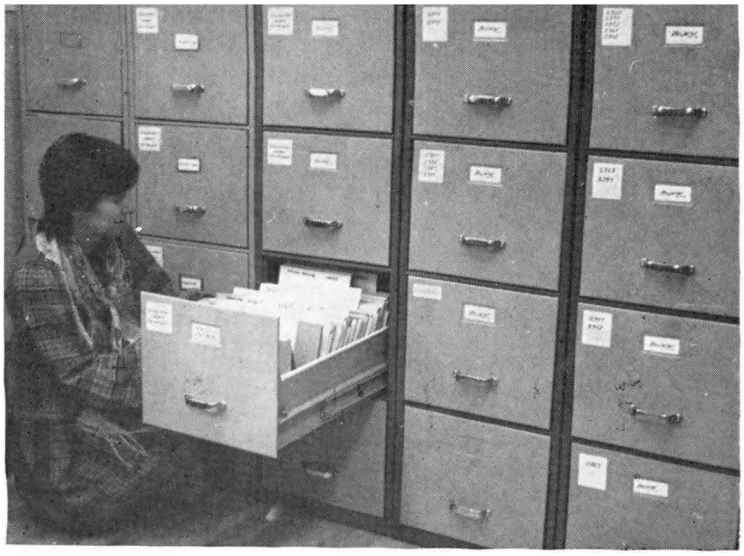
B) Caves as indicators of the management of the surface environment:

— Study of passage links under surfaces of various land use (urban area, forest, karstic, arable land); examination of the interaction of natural circumstances and anthropogenic processes, with special regard to some caves of the Aggtelek Karst and the hydrothermal caves of Budapest.

— Study of the quality parameters (chemical, bacteriological and mycological characteristics) of dripping-oozing waters, water-flows and soils, the exploration of connections, research of the tendency of change (at 40 observation points in the 5 cave systems under Budapest and as standard measurements in the Vass Imre Cave of the Aggtelek Karst).

— Studying the quantity and composition of the bat species in the caves, monitoring the changes under the surfaces of various land use (Gerecse, Bükk, Buda Mountains).

— Examination of the effect of various extracting methods (mining, exploding) on the formations and encasing rocks of caves in (and under) the active mines (Beremend, Esztramos). Study of the intensity of deterioration processes.



Hungarian Cave cadaster in the Institute of Speleology

C) The ecological aspects of cave protection and use. (A study of the factors and processes promoting or hindering, or concomitant with cave use.)

1. *Tourism.* Researching the emergence and prevention of cave flora (chemical and mechanical intervention, possibilities of prevention, follow-up of biological changes).

2. *Speleotherapy*, its climatological implications.

Registering the bioclimatological factors and processes (change of the aerosol composition of caves under different types of loading; monitoring the regeneration processes of climatological, chemical, bacteriological and mycological parameters; liability tests, flow measurements in caves under polluted urban areas and in public caves, etc.

The Institute of Speleology is a central institution of the protection of nature and the environment. Accordingly, the researches planned, carried out or financed by the Institute must serve the aims of nature conservation and environmental protection. Most of the studies highlight concrete questions preparing decisions on actual problems. However, karst and cave protection, and nature conservation in general can less and less do without the findings of *basic research*, to carry on which is increasingly hopeless with the dwindling of funds.

Let us refer to a few measures taken as a result of the listed research programmes.

1. The caves requiring increased protection were defined, case studies, development projects and protective investments were designed and ordered on the basis of the *cave cadaster.*

The information of the *cadaster of mines* enables research to work out recultivation projects, to expose illegal waste dumps, to get to know new biostratotypes, geological (mineralogical, paleontological) sites, to protect indirectly the karst waters.

2. As a result of research findings concerning the hydrothermal caves under Budapest in communication with the surface and the spring zone along the Danube, strict bans and restrictions on building were introduced in the most affluent housing area of the country.

3. On the basis of a complex analysis of caves and mineral formations in active mines, protective stoops were designated, the explosive techniques were replaced, and the ethical, professional, legal and financial problems of minerals found there began to be settled.

4. Climatological examinations related to *speleotherapeutic utilization* enabled the elaboration of a system of conditions approved by the Health Ministry that make strict conditions binding for human experiments including a year-long complex natural science test series (basic and special climatic parameters). Most recent studies seem to call for the revision of some "axioms" in connection with speleotherapy.

5. One outcome of researches on *tourist caves* is that 8 of the 10 public caves of Hungary are being reconstructed now. New lighting equipment will be installed as part of the technical renewal.

Upon the professional guidelines of the Institute, some 30 endangered caves are being looked after and reinforced for protection at the moment. Our fellow workers are all members of the leadership of the Hungarian Speleological Society whose activities we support financially, too, within our means.

(The research work of the Institute of Speleology carried out or coordinated in 1986—88 is described in more detail separately.)

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