

SCIENTIFIC PUBLICATIONS

/ABSTRACT/

Karst and Cave Morphology

Lénárt, L.: Complex speleological investigations in the Lótrás-Vizes Cave /Marcel Loubons Caver's Club/. The author defended his university doctoral thesis written about the complex investigations in the Lótrási-Vizes Cave. The short report contains the main items of the thesis.

Dr. Szunyogh, G.: The theoretical investigation of the dissolving of spherical notches of oaves /FTSK Speleological Section/. In the caves of thermal-water origin several spherical cavities are to be found, having very narrow entrances, markedly on the lower side. Their creation may have an explanation by the ascending vapour of the thermal water pond and precipitating on the cool walls of the cave, thus dissolving rock-material /Müller, 1974/. The present paper deals with the cinetics of the process. For quantitative analysis the principle of mass and energy conservation was used, and the heat-transfer plus heat conduction law and the hydrocarbonatio dissolution equation were applied. It turned out that the radius of the spherioal cavity is proportional to time elapsed and to the square root of temporeature, and also with the 6th power of the CO<sub>2</sub> content of air. The velocity of the expansion will decrease by the increase of the cavity. A cavity of 1,5 m diameter will be created in about 17000 years, if temperature of vapour is T = 60 C<sup>o</sup>, and 85000 years in case of T = 20 C<sup>o</sup>. In the last case the velocity of the growth will be 30  $\mu$ m/year at the beginning of the development of the niche. Toward the ond of the process it will be only 4  $\mu$ m/year.

Csajka, F.: The determination of the initial time of dripstone erosion /Alba Regia Speleo Group/. The high CO<sub>2</sub> content of the Alba Rogia Cave is explained by the fact that the cave was locked-up by nature for a long time. By the counting-back of the quantity of the CO<sub>2</sub> amount produced during dripstone creation, the beginning of dripstone-erosion was detormined as for being 11 thousand years.

Dr. Veress, M.: The research work on the Hárskút Plateau /Jenő Cholnoky Speleo Group/. The paper is dealing with the karstic depressions, their functioning and geomorphological mapping and evaluation thereof. For the measuring the changes of the dimensions of karstic depressions some methods were developed, just recently a photogrammetric approach.

Kárpát, J.: Morphogenetical characteristics of the Acheron-well Cave /Acheron Caver's Club/. The paper reports about the topographical and geological characteristics of the cave discovered in 1983. Besides the analysis of the genesis of the cavity-system which developed along the bedding-plane between dolomite and sandstone, the paper is dealing with the formation of limonite-stalactites originating from the decompositi-on of the pirite of the covering strate-series.

### Geospeleology

Szabó, Gy.: The paleomagnetic investigations of some specimens originating from the sediment-fill of the Pálvölgy Cave /Imre Gábor Bekey Speleo Group/. There are no data available about the synchronity, the correlation of sediments occurring in different levels of the cave. Thus the possibility of paleomagnetic correlation-investigations was suggested. In the recent first phase the applicability and the hindrances of the method has to be proved. The analysis carried out on 6 specimens may be the basis for further investigations.

Gutter, I.: The mineral-petrological investigation of some specimens of the Pálvölgy Cave /Imre Gábor Bekey Speleo Group/. The investigation of the liquid and gas-inclusions of mineral precipitations to be found in the cave offered new opportunity for the better knowledge of the circumstances under which they came to being. On 20 specimens were such investigations carried out at the Mineralogical Institute of the Eötvös Loránd University /Budapest/. By the investigations of the inclusions two phases of characteristic solution-systems could be distinguished: one of higher temperature /min. 150 C°/, having volcanic origin and a second one less contaminated and alkali-bicarbonatic. The investigations gave new evidences for the investigations of precipitation forms not yet interpreted.

Mrs. Takács - Bolnór, K.: Sediment investigations of the Gypsum-corridor of the Pálvölgy Cave /Imre Gábor Bekey Speleo Group/. A new, 2,15 m deep part of the cave profile - explored on the base of a hand-augered hole - was investigated by sediment-geological methods. Ten specimens were analysed in details regarding grain-size, carbonate-content and the elutriation-residuals of 5 samples were investigated in the form of microsections. On the basis of grain-size total curves the sortedness-coefficient could be calculated and the velocity of flow of the settling media could be estimated, being max. 25,2 m/hour and in average 1 to 2 m/hour. Grain-size and carbonate-content shows periodical repetitions in the sediment-sequence.

Németh, T.: Profile and filling-up material investigations in the Alba Regia Cave /Alba Regia Speleo Group/. The data reported about the exploratory work carried out since several years is including descriptions of cave profiles and sediments plus the characteristics of strata-sequences.

Dr. Kerek, I.: Chemical investigation of the characteristic formations and sediment-samples of the Cserszótoma-j-well Cave /Acheron Caver's Club/. Data could be obtained by the atomic-absorption test of 5 rock-, resp. sediment-fill samples collected in the cave.

Keszthelyi, T.: Derivatograph applied for speleological investigations /Alba Regia Speleo Group/. The short paper gives a report on the principles of thermal analysis /derivatography/ and some practical examples are shown for the demonstration of the application possibilities in speleology.

#### Karsthydrology

Izápy, G.; Maucha, L.; Gádoros, M.; Cser, F.: Investigation of springs of Jósvalő and surroundings /Ferenc Papp Karst and Speleological Group/. The systematic chemical analysis of the water of springs of Jósvalő and surroundings lasts for four years already. On the base of the first three years authors derive important hydrological characteristics about water temperature, water quality relations, water-transport and the connections thereof.

Czakó, L. - Szentesi, P.: Investigation of the waters entering and passing through the Diabase Cave /MHSZ Skin-Divers Club Debrecen/. The group carried out water discharge measurements in the Diabase Cave /Bükk Mountains/ between the 15th of January 1978 and the 1st of March of the same year. It could be stated that the waters entering the cave at low levels are contaminated bacteriologically by the septic tank of the nearby tourist's hostel. The water occurring on the higher levels of the cave is on the other hand suitable for the water-supply of the hostel.

#### Speleoclimatology and Physics

Dr. Szunyogh, G.: Thermal changes in the air of caves in the period of the start of air-circulation /FTSK Speleological Section/. The author derives theoretically some functions in the paper, which offers the opportunity for the estimation of the bulk volume of unknown caves on the base of meteorological measurements. The base of such estimations is in the fact that the atmospheric pressure of the open air and the air in the cave will be equalized the slower the bigger the cave is. A further possibility is offered by the fact that, during the period of pressure-equalization the parameters if the air flowing out of the cave /i.e. velocity, temperature, etc./ are changing. By theoretical physical methods the author has determined the functions describing these changes and by the mathematical analysis thereof the effect of the bulk volumetry / $V_B$ / caused on the form of the mathematical functions.

Mrs. Kárpát-Fehér, K.: Climatic observations in the Szomló-hegy Cave /Acheron Caver's Club/. The basic parameters were investigated in correlation of their distance-function from the entrance following the main transcurrent air-drafts. Low temperature was caused by the air-masses cascading down through the elevator-shaft and because of the strong cooling-down of the surface outside of the cave.

Mrs. Kárpát-Fehér, K.: Climatological observations in the Cserszegtömaj-well Cave /Acheron Caver's Club/. During a continuous 100 hours lasting stay in the cave temperature- and air-moisture-content of the cave was observed. The investigations extended to the observation of the temperature-changes in the camp-hall and in its dependency on the number of persons being present.

Kárpát, J.: CO<sub>2</sub> measurements in the Cserszegtömaj-well Cave /Acheron Caver's Club/. About the CO<sub>2</sub> content of the cave full-year data-series are available from several points. CO<sub>2</sub> content is increasing in a direct correlation with the distance from the cave entrance, the average being 0,7 to 0,9 volumetric percent.

Dr. Kerek, I.: Radio-activity measurements in the Cserszegtomaj-well Cave /Acheron Caver's Club/. On the base of dose-performance measuring instrument investigations the particle number is 100 to 400 particles/cm<sup>3</sup> times minute. This value is about 4 to 12 times more than that of the value obtained on the ground-surface of the terrain.

Dr. Kerek, I. - Kárpát, J.: Anomalies experienced during psychrometrical investigations in the CO<sub>2</sub> containing atmosphere of caves /Acheron Caver's Club/. The errors of measurements of CO<sub>2</sub>-rich cave atmospheres were checked on the base of laboratory and field-observations - thus giving information regarding the execution of vapour-content measurements and also in case of the occurrence of gas-components.

Szolga, F.: Alpha-activity, temperature and CO<sub>2</sub> investigations in the Alba Regia Cave /Alba Regia Speleo Group/. The data of alpha trace-detections lasting since three years already, the mensual temperature measurements and CO<sub>2</sub> investigations are reported by the author.

Dr. Somogyi, Gy.: Results of the experiences of trace-detecting radon measurements in the Lótráti Vizes Cave and the Anna-Travertine Cave /ATOMKI, Debrecen; Marcel Loubens Caver's Club/. By the leading of the author a report is given about the preliminary results obtained in two caves and summed-up about the research based on the investigation methods which are already wide-spread in Hungary.

#### Biospeology

Eszterhás, I.: New contributions to the knowledge of the fauna of the Alba Regia Cave /Alba Regia Speleo Group/. Carrying on with the "equal-collecting" work and trapping by ethylenglycol: 313 animals were caught, belonging to 33 species. From these 8 species are novelties for the cave in question. Until now 178 species could be detected in the Alba Regia Cave.

Koosis, A.: Complex karsthygienical investigations /Alba Regia Speleo Group/. By the leading of the author investigations were carried out on human parasitic skin fungiae, the microbiological statues of the air in the cave and the microscopical mushrooms.

Gulyás, I. - Zentai, F.: The analysis of the microbiological investigations in some caves of the Tés-Plateau /Alba Regia Speleo Group/. As a total from 52 sampling spots of 16 objects 33 fungus species could be identified. Among these 11 *Penicillium* species and 4 skin-dwelling fungi do occur.

Mrs. Kiss-Ignác, Zs.: Microbiological investigations of the air of the Pálvölgy Cave /Imre Gábor Bekey Speleo Group/. Along the microbiological investigations of the Pálvölgy Cave: bacteriological- and fungus cultures were investigated. In the samples collected in that part of the cave where there is access for visitors: no infective bacteria could be traced and non-infecting ones only in a small amount. The fungus-breeding investigations traced 3 mould fungus species /*Penicillium*, *Aspergillus*, *Mucor*/ and the possibility of having been introduced by human activity could not be excluded.

### Speleo-Technique

Csepregy, F.: Tensile test machine investigation of some technical devices for cavers /VITE Diogenes Speleo Group/. The mechanical parameters used in international praxis are not applicable on devices produced officially or by individuals. The author carried out tests on the durability of some strap-belts and "xylophons" /wood and cable ladders/.

Zontai, F.: Technical developments '83 /Alba Regia Speleo Group/. One great achievement of the A.R.S.G. are the numerous instruments of high practical value, by which karst- and speleological research is highly promoted. In 1983 22 instruments were constructed: 6 are for chemical analysis, 5 for bacteriological investigations, 4 to aid speleological exploration, 1 for general purposes and one for cave-mapping.

### Speleo-Cartography

Kárpát, J.: Possibilities of increasing the accuracy of cave-maps /Acheron Caver's Club/. The paper is dealing with the compounding of errors of cave polygons, the means of decreasing such errors and with the principles of adjusting of errors.

Kraus, S.: What can be and what ought to be deciphered from our cave-maps? /FTSK Speleological Section/. The text is that of a former presentation of the author, in a more completed form and is dealing with the following questions: Is there a possibility to depict a cave in a map? The longitudinal profiles and the omniscient cross-sections. The information-content of large profiles. Demands in terms of accuracy and dimensions. Sketch, base-map /"blue-print"/, work-map. Observations, representation of data obtained by investigations.

Kárpát, J.: The pseudo-three-dimensional representation of the Zabföld Cave /Acheron Caver's Club/. The geometrical and technical principles of a method depicting also non-regular cave-wall surfaces in a correct shape and demanding graphical means too are presented by the author on practical examples.

Holl, B.: Construction of models of caves in a rendition of "space-nets" /pseudo-three-dimensional image-net/ /Acheron Caver's Club/. By surveying numerous horizontal and vertical-plane profiles /cross-sections/ similarly to the principles of the plastic-effect image there is a possibility to produce an anaglyphic image - the paper deals with the basic mathematical and geometrical principles.

Holl, B.: Surveying horizontal water-cut notches and their graphical presentation /Acheron Caver's Club/. A possible new method for the graphical rendition of surveyed cave notches and remnants of notches is presented by the author on practical examples.

### History

Berhidai, T.: History of the explorations of the Kopolya Cave-system /N. Hungary/. /Acheron Caver's Club/. The paper gives a summing-up of the explorations of the Kopolya-Cave and surroundings, from 1955 up to to-day and gives a sketch about how the not-yet-known cave and connections to the Kopolya-chimney ought look like.

Dr. Kerék, I.: Report with B. Kovács J, the owner of the Cserszegtomaaj-well Cave about the history of the discovery of the cave /Acheron Caver's Club/. The owner of the plot - who took part in the explorations too - was asked about the sinking of the hand-dug well in the wall of which the cave was discovered.

Kárpát, J.: Contradictions in the history of explorations of the Cserszegtomaaj-well Cave /Acheron Caver's Club/. On the base of documents found just recently it could be stated that the length of the cave reached already in 1953 1000 m, so the explorations of the year 1965 could be only re-discoveries.

#### Karst- and Cave Protection

Morschl, N.: Natural-protection problems of caves in Hungary /Acheron Caver's Club/. The final report submitted at the university gives a definition of caves natural preservation, the history of legal measures in connection with oaves, laws dealing with cave-protection, the system of cave-preservation and also praictival problems are touched upon.

Hegyi, E. - Koch, Z.: The effects of the use of agricultural chemicals on the Tés-Plateau /Alba Regia Speleo Group/. The thesys submitted at the Janus Pannonius University is analysing the effect caused by the chemical metters used on the Tés-Plateau in terms of karstwater-household.

#### Other

Thieme, A.: Who should be the leader of a speleo-group? /VMTE Diogenes Speleo Club/. The author is systemizing the tasks of group-leaders, the aspects of election. The three most important demands are: good relations to the professional supervisors, to the sports-organizations and with the own group. Within the latter the task is to render unity in organization, leading and pedagogical-sociopsychological factors.