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SCIENTIFIC PAPER

CAVES, AS TOURISTIC ATTRACTIONS IN HUNGARY: ADVENTURE, HEALTH, CULTURE, ECOTOURISM

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Abstract: *Hungary offers abundant opportunities for discovering the mysterious world of caves. In Hungary there are around 4100 caves; although only a small number of them are open to the public, they offer a variety of attractions. As they are an important part of tourism, switching them, exploring them and making them accessible for a wider audience generates interest for visitors from different parts of the country. The adrenaline releasing sports offers us new ways of coping with stress, and has had an increasing importance in our lives in the 21st century. Discovering these underground miracles presents a new challenge for travelers. The interest in caves exploded in the 20th century, when ecotourism, longing to get back to nature, and the goal of improving one's health became leading motivations for travelling. The present research is aimed at surveying, to what extent students of the recreation department are familiar with the opportunities provided by cave tourism and how up-to-date their related knowledge is. The following work introduces opportunities in cave tourism and intends to expose upon gaps in the related marketing strategy.*
The research questions are the following: Are students familiar with opportunities of cave tourism? What services do the caves they know offer? Are they up-to-date in cave-related news? On what forums do cave tourism appear?

Method: Document analysis Survey research (n=200)
Some results: Unfortunately, Hungarian experts are unfamiliar with opportunities offered by caves. Cave walks are the mostly known by student respondents. Forums are not up-to-date concerning caves.

Keywords: *cave, active tourism, adventure*

INTRODUCTION

Caves are natural underground spaces formed in rocks, which are big enough for a human to enter and which extend at least 2 m, underground. The science of exploring caves is called speleology. The formation and development of caves is a complex process, in which multiple factors are present. The largest caves of Hungary are a result primarily of karsts forming processes. Karsts features, a range of different speleothems, are extremely varied in them.

There are 3 particular types of caves in Hungary. The first type is a spring cave in which a spring erupts inside the cave, then leaves the cave through one of the entrances and appears on the surface. In the second type of caves a single stream or cave river flows and the cave has one single entrance and an exit between which there is a gradual slope, these formations are called stream caves. The third type is sinkhole, which are generally vertical shafts. Hungary offers tourists a wide range of caves, therefore switching, exploring and exploiting them generates a high number of visitors countrywide.

Szabolcs Leél-Őssy, president of the Hungarian Karsts and Cave Research Society (MKBT) said in an interview to Info Radio in 2011 that there are still undiscovered caves in Hungary, though deep underground, and as an example he mentioned Cat Cave (Macska-barlang) which has recently been discovered in Pilis Mountain, the currently explored length of which is 6 km. When the first official caving company was funded in Hungary, less than 20 km of all cave passages in the entire country were known – at present it is more than ten times that. In the second half of the twentieth century there was a rapid growth of interest in caves and from the 1950s onward, a number of karsts caves were explored in Aggtelek as well as in Bükk Mountain (Leél-Őssy Szabolcs, 2011). As an alternative tourism, there are numerous opportunities to visit caves in Hungary. A strong interest in caves was raised in the twentieth century as ecotourism, a longing to be among nature, and health became primary motives of tourism.

The present article intends to highlight that caves are visited by an extremely low number of tourists, a fact which may also be attributed to the lack of related knowledge and information on the part of the experts. Furthermore, the study introduces the development of caves, the wide variety of features, and the numerous ways in which they can be exploited by tourism.

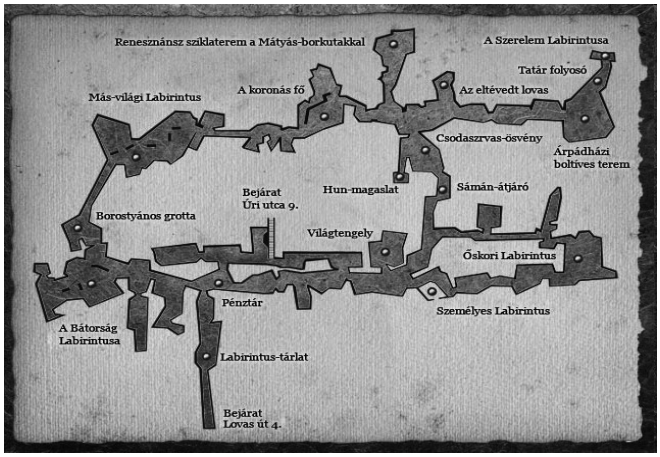


Image 1: Labyrinth of Buda Castle (resource: welovebudapest.com)

THE DEFINITION OF BRANCHES OF TOURISM

A segment of *leisure tourism* is *active tourism*; this is a philosophy of travelling which combines adventure, ecotourism, as well as cultural aspects of an exploring trip. Active tourism is not exhausting, it is compatible both from ecological and a social point of view, plus it offers a high quality of leisure program. The goal of active tourism joins together recreation and education, enriching the tourist and suppliers, as well as the destinations visited by the tourists. Active tourism and ecotourism have numerous common features, but active tourism also includes elements (activities) of adventure tourism[1]. Cave tourism is a great opportunity for participating in the active tourism as well.

Caves which are categorized as protected natural asset are visited by guided groups of tourists who have the opportunity to get acquainted with natural treasures and the values of cultural history all while they relax in an active way. The provision of barrier-free access for visitors with reduced mobility requires significant transformation of the natural conditions. Safety features are conform with European standards. Electric lighting is needed if natural light does not enter (e.g. Baradla Cave, Anna Cave, Szemlő-hegyi Cave).

Image 2: Accessible passage in Baradla Cave (resource: www.barlangtura.hu)

1 http://www.active-tourism.com/HomeFrames.html (letöltés ideje: 2012. április 03.)

Visiting nearly intact protected caves with a small guided group is an example of *green tourism*. In such caves no transformation of natural conditions is permitted and no electric lighting is used. Visits require ability to move and outdoor clothing (e.g. Vass Imre Cave, Rákóczi No.1 Cave).

Image 3: Natural formation (resource: www.barlangtura.hu)

Adventure tourism refers to guided tours for small groups in relatively undisturbed, protected caves for the purpose of seeking adventure and active relaxation. The provision of the conditions of the visit does not require any transformation of nature, only a safe passage (steps, ladders, handrails) is installed. The cave tour with crawling and climbing requires the ability of moving, physical endurance and basic caving equipment (lighting, helmet, wetsuit).

Although caving is an extreme sport, it has much more to offer: a region of caves may not only be famous for 'overall trips', they may also profit from their vaporous air and from introducing their unique geological history. However, profound research is needed to measure all that is given by caves while being able to make profit from them. The sterile, free of dust environment of caves is an important asset in healing tourism too. Thermal water arriving from deep underground generally contains a significant amount of dissolved chemicals, such as carbonic acid and sulphuric acid, which are able to form pits

from joints. When karsts water and ground water mix, the process of mixture corrosion can be explored, this contributes to the formation of the cave.

Benefiting from the climatic aspects of a cave which qualifies as a medicinal cave (medical attendance provided for those visiting with therapeutic purposes in order to alleviate and/or eliminate health complaints and pain) requires a significant transformation of natural conditions. A pavement providing a safe walking passage, electric lighting and a rest area are installed in order to facilitate the patients' stay. Gergely Ferenczy, referent of speleology of the directorate of Bükki National Park stresses that though the caves are unique places of geological demonstration, aspects of environment protection need to be focused on.

There is a small number of so called hospital caves the climatic facilities of which (the special ion content, high relative humidity of the air, the lack of dust, the special radiation, the metabolism of the fungi habiting the caves, the lack of stimuli) facilitate the healing of respiratory illnesses. Moreover, the healing effect of caves is stronger than more alpine hospitals and resorts. The authors believe that this unique opportunity is the only solution for many respiratory problems and must be exploited.

Image 4: Climatic healing venue (resource: www.barlangtúra.hu)

In Hungary Dr. Endre Dudlich was the first expert who pointed out the healing effect of caves and suggested further research. In his opinion caves may become a part of heeling by providing aerosol therapy[2], albeit the caves' air additional advantages is giving to patients is not fully known yet. Accordingly, Dr. Erika Balaicza believes that for recreational and healing purposes the active fluvial caves *(Aggtelek, Jósvafő, Abaliget, Miskolc-Tapolca, Tapolca)* are the most valuable. For instance the caves of Tapolca were explored during World War 2, some bomber made detonations there. In case of this cave, the authorities certified the healing effect in 1969. In Hungary only 3 caves have similar curative benefits, Tapolca, Abaliget and Béke Cave in Jósvafő.

On one hand, Tapolca offers to the visitors with not only passive relaxation, but the time underground is spent in order to strengthen the healing effect, combined with such kinds of activities as relaxation, yoga, music, electrotherapy and expectorant exercises. On the other hand, experts aim at decreasing worries and uncertainties linked to disease, and intend to reflect upon weaknesses or deficiencies in the patients' lifestyle which may have led to disease.

In *mass tourism* cave bathing is a popular recreational activity in Hungary. In the summer season outdoor sunbathing facilities are provided for visitors as well as indoor thermal pools, combining preventive and recreational purposes (e.g. Miskolctapolca Cave Bath).

Image 5: Miskolctapolca Cave Bath (resource: www.termalfurdo.net)

Education has an important role in tourism, and a cave is a perfect site for this function. Baradla Cave has a long educational history. Numerous visitors arrive with the aim of studying, but other fields of tourism are almost neglected. For example the underground geography lessons are more and more popular, visited by school classes in autumn and spring. In recent years the number of team building events has also increased, says Szilárd Regős, tour guide at Pál-völgyi (or Mátyás-hegyi) Caves.

2 belégzőterápia

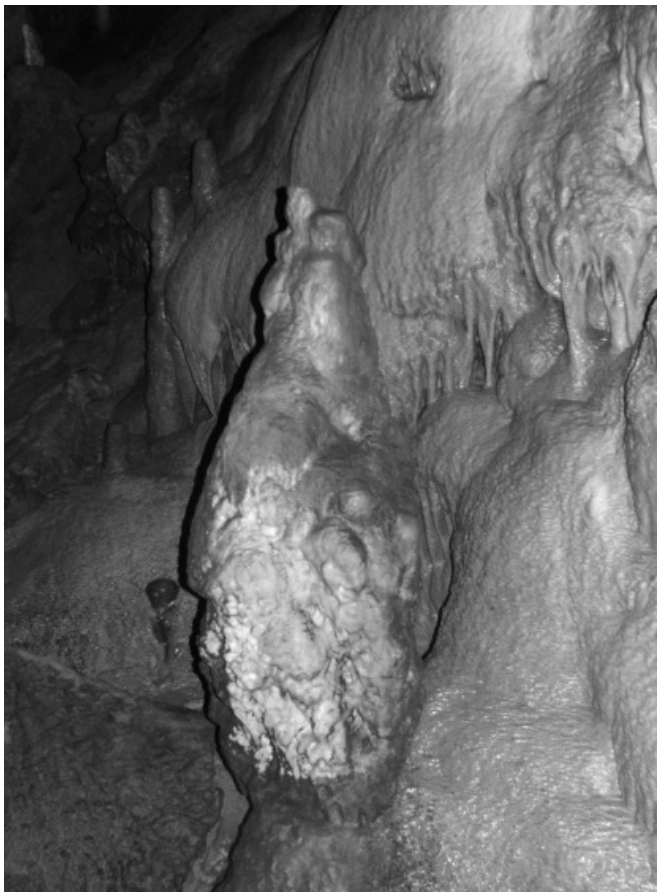


Image 6: Penguin dripstone (resource: www.dzs-z.hu/galeria)

LEGENDARY HUNGARIAN CAVES

There are many legendary Hungarian caves. In general, their names contain words like 'dragon', 'devil', 'robber', 'scamp', 'rogue', 'solitary' and 'king'. The legends linked to them are pretty old and most of them are impossible to track. In the past the legends were spread by word of mouth, but in the last two centuries they were consciously collected. These legends inspired not only cavers, but also famous Hungarian litterateurs. The most well-known collection which contains legends of certain caves, titled Folk legends (Népregék, népmondák) was put together by Mihály Tompa in 1846.

Altogether 8 dragon caves are known in Hungary in volcanic stone (Kisapáti, Rónabánya, Ecseg, Szuha, Fony (2 caves), Drégelypalánk and Parád). The most famous one is Szent György-hegyi cave, firstly mentioned by György Gyurkovits in his work Latin in 1737, and also referred to by Mátyás Bél in his study, titled Notitia (1742). Károly Lukáts wrote in 1943 that the hill was named after Saint George, who killed the dragon in the cave situated between the North and West sides of the hill. People recollected that in Winter time a thick wall of vapour could be seen above the dragon's home, which is the exhalation of the dragon (in reality, it was caused by the differing temperature of the cave and outside air). There is currently a Dragon Ice cave situated differently in Hungary, it is not the same cave mentioned by Gyurkovits and Bél.

Image 7: Dragon-hole (Sárkány-lyuk) in Fony (resource: Országos Barlangnyilvántartás (National Cave Index))

Most caves, to which the legend of witches, devils or hell is linked, are karst caves. Local people named the drives 'devil holes' and believed they were the entrances to hell. In Hungary 3 volcanic (Kapolcs, Regéc and Hegyesd) and 11 karsts devil or witch caves can be found. The best known legendary devil or witch cave is situated in Kámor (Börzsöny Hill), the legend of which was recorded by József Végh in 1994. The legend said that near to the Kámor Peak a witch lived in her hut. The village sent a delegation to investigate the situation, but the woman did not speak to them and hid in her hut. The men thought her behaviour verified her being a witch and set the hut on fire. When the hut burnt down to ground, a cave was discovered behind it. Thus they never knew if the woman had died or survived, but hikers regularly refer to have seen her spirit in the surrounding forests.

Image 8: Entrance of the Kámor rock (resource: National Cave Registry (Országos Barlangnyilvántartás))

RESEARCH

The research we described below was initiated in January, 2012 at Semmelweis University (Budapest), Faculty of Sport Sciences. The target group was the students of the tourism and recreation faculty. The research was aimed at surveying the up-to-date knowledge of future sport experts according to the facilities linked to cave tourism. The research regarded Hungarian university students as future experts.

Having analysed the results, we are highlighting measures by which cave visitation could be increased, and pointing out the faults which have a negative influence on the popularity of cave tourism. Our aim is to introduce assets and deficiencies of related marketing strategies.

The research questions are the following:

- What services do the caves respondents offer?
- Are respondents up-to-date in cave-related news?
- On what forums does cave tourism appear?

The following hypotheses were based on the above research questions:

- Experts do not know the accessible caves of Hungary.
- Future experts do not know on what touristic purposes caves can be visited.
- Touristic interest in caves may be raised by adequate advertising.

METHOD AND SAMPLE

Data to the empirical research were collected via document analysis and survey research. Respondents were university students of physical education and recreation. Documents were analyzed in unit with the survey questions. Answers (n=200) were analyzed with a focus on research questions and preset hypotheses.

RESULTS

Caves in Hungary have been regarded legally protected assets since 1961; their protected status does not need to be proposed. The need for overall protection is explained by the historical and natural value and economic importance of caves. Without being protected by law, they may be destroyed for years. The exploration of cave branches gives experts an opportunity to study the structure of different layers of rock and the unique paleontological and archaeological fossils they hide. Minerals and special cave features give information on geologic epochs. Caves are inhabited by species adapted to the unique environment. The microclimate is apt for healing certain respiratory and locomotor disorders. As dwellings and burying places, scenarios of legends and tales, caves have always been part of the history of mankind. By ex-leg definition, a cave is a natural underground space the longitudinal axis of which exceeds 2 m. In Hungary around 4100 caves are known, 145 of which are under reinforced protection. The National Cave Registry, for which the National Environment Conservation and environment Protection Department of the Ministry of Rural Development is responsible, contains the most important data of caves.[3]

Caves open for tourism have 3 categories:

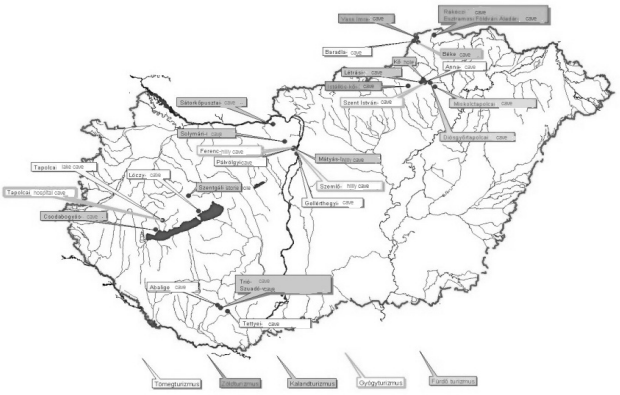
1. Rope cave: most caves belong to this category. Special equipment and knowledge are necessary; cavers need a certain level of experience to be able to descend.
2. Horizontal caves: no vertical tunnels can be visited with basic caving equipment and basic caving knowledge.
3. Accessible cave: no caving equipment and knowledge are needed, open for tourists (in small number).

It is important to know that the average temperature is around 10°C, relative humidity is around 90%. In certain caves visitors must crawl in wet, muddy passages, climb across waterfalls and the water is around 5°C, clothing must be chosen respectively and eventually a wetsuit is needed. As mentioned before, all caves are protected areas; any harm in them is strictly punished. Visitors arrive by car or train and take a walk afterwards. Most cave visits are a day long, but if necessary, several small caves can be visited in a single day. Caving can be practiced throughout the year, in some caves however, a longer, rainy period causes difficulties. The most ideal period for trips is after permanent frost has arrived as water levels are the lowest that time, but approaching caves in altitudes might be problematic due to deep snow.

3 KVVM 2007 http://www.termeszetvedelem.hu (Retrieved: 25 May, 2010)

The analyses of motivations show tourists choose their destinations. The caves of Hungary give a chance both for shorter and longer tours.

As for their depth, 97 caves reach 50m, 3 exceed 200m. Motivating factors are the uniqueness of cave sites, a desire to improve health, the special acoustic experience of concerts in caves, sport, adventure, and extreme challenges.



Picture: The statistic of the caves from tourist aspect (resource: Magyar Turizmus Zrt., 2010)

SURVEY ANALYSIS

200 students took part in the survey research; all were between the ages of 19 and 35 years old. The proportion of female to male was 132/68. Answers show that all respondents participate in sports in their free time. 20 female and 26 male respondents said they have already completed cave trips, both walking and crawling. No respondent were said to have participated only in a crawling trip. The first visit to a cave is for many people a walking trip. In our experience those who like facing extreme challenges are not attracted by crawling trips.

Multiple answers were also offered to the question: 'Do you know how caves can be used in tourism?' It is conspicuous that in the 'other' category no respondent mentioned cave baths and healing caves even though Hungary is abundant in them. Our caves might be profited from in many ways, varying from ecotourism to simple holiday tourism. Unfortunately, the answers also confirm that caves are unknown for most people.

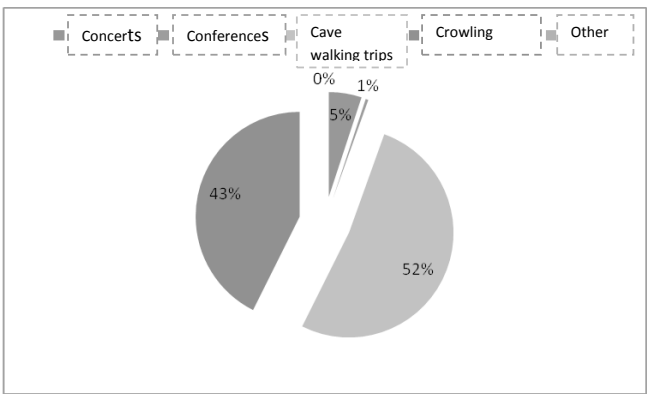


Chart 1: The use of the caves

An open question was asked which intended to investigate how many famous Hungarian caves respondents knew of. We were surprised to realise that, apart from the caves in Budapest and Aggtelek, no other caves were named.

When wording the question 'For which reasons do you visit caves?' we predicted that respondents were motivated to visit caves. All respondents claimed a desire to become familiar with natural resources. Introducing the unique natural assets of caves is a task of education. All our BA respondents, however, took part in a walking trip as part of their studies. No respondent chose the 'other' category, though we deliberately eliminated culture and healing from the possible answers.

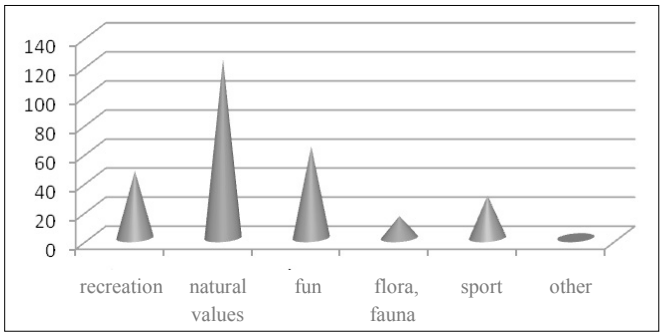


Chart 2: Reason of the visitors

Respondents generally surf for information on caves on the internet (81 %); however information is also spread by friends (26%) and clubs (2%). One-day or even shorter visits are most common. In the case of longer visits, campsites and pensions are favoured. This fact may show that the willingness to spend money on cave tourism is low.

The explorations of the Mátyás and Pálvölgyi Cave occurred at the end of 2011 and these routes become the longest cave system in Hungary. However, 84% of respondents ticked Aggtelek Caves as the longest cave system, which fact may show that news concerning caves scarcely spreads.

Various answers were given to the question on the most characteristic features. Most answers were karst features, dripstones, or dripstones and other features were listed together. The wide range of answers shows that a significant proportion of students of similar Hungarian educational institutes are familiar with the attractions of caves.

PUBLICITY OF CAVES IN TOURISM

In order to achieve its marketing goals, Duna-Ipoly National Park has requested membership in the European Geoparks Network, the proposal is under evaluation. In case of a positive decision, the national park automatically becomes a member of the UNESCO Geoparks Network. Membership is advantageous primarily from a marketing point of view as the 33 members mutually advertise each other.

A small number of campaigns popularising cave tourism appear on the internet, but fail to appear on social networks (facebook, myspace, twitter, iwiw - Hungarian social network, etc.) Experts are aware that updated information continuously

shared on these sites might attract a higher number of visitors.

Several proposals and projects aim at a joint popularisation of Slovakian and Hungarian caves, and a fund of half a million Euros from the European Structural Fund is being spent on the campaign. In Slovakia the Slovak Environmental Agency, in Hungary the Duna-Ipoly National Park are the applicant members. The border areas of the two countries are examined not only from the aspect of nature, but also as a touristic product too.

AFTERWORD

Processes generated by natural powers (e.g. earthquakes, volcanic activity, wind, water and varying conditions of temperature) - which shape the surface - have an important role in the formation of caves, since gradual deterioration is also a part of their history. However a lifetime is generally too short to sense the effect of the above mentioned processes, except for those of eruptions and earthquakes. Noticeable alterations are always caused by humans. The total destruction of caves may occur as a result of opencast mining or road construction, but these activities also endanger caves by modifying natural drainage.

Improper sewerage and waste management, overuse of chemicals and waste storage are hazardous both for caves and karsts water as well. Further hazards are the collection of minerals or archaeological fossils, tourism-related abuse and pollution, throwing away litter, smutting.

Hungary's caves are owned by the state and directed by national park directorates. Results show that all three hypotheses were proven. Caves will be more interesting for people if they become more accessible tourist products. Measures need to be taken in order to provide students more information, and also to protect caves, since all impacts carried out for financial profit harm caves and the environment. The right balance must be found between further exploration, in line with sustainability, and exhibiting the unique underground flora and fauna of caves. A goal of cave tourism must be introducing the diversity of caves in order to multiply the number of visitors, which may best be realised via advertising campaigns.

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