

WHAT'S NEW IN CAVES AND KARST

– Elery Hamilton-Smith

THE CONTEXT

Our ancestors thought about caves as a place for the gods – so there were caves as sacred sites. Hunters entered caves to seek the support of the gods for their success, and others saw them as the right environment for meditation and worship.

Occasionally, people entered caves as a curious phenomenon which they sought to understand. But more generally, caving as we know it started off with outdoor adventure, curiosity and challenge. Most cavers in the early days started off with a focus on the caves as a geological phenomenon. However, they almost inevitably recognised them as also being receptacles which held some interesting contents.

But, they generally gave little attention to other aspects of the karst system within which the caves had evolved. Thus, they simply maintained a deep interest in the caves and often ignored aspects of the caves other than the geomorphology and geology. Regrettably, this has been a persistent view and still arises today.

SCIENCE AND HOLISM

But in Eastern Europe, the karst had long been a topic of scientific research (Shaw 1992, Kranjc 1997). That research had drawn upon many aspects of karst which demanded multi-disciplinary attention and in some areas, had moved towards a holistic view of the karst as a complex and dynamic system. I first became really aware of this when I visited the Plitvice Lakes of Croatia in the 1960s.

An important and seminal paper by Yuan Daoxian (1988), presented to the Congress of the International Association of Hydrology, provided a formal description of the holistic perspective. In Australia, this was taken up by Kevin Kiernan and his team in Tasmania and by myself, partly because of my experience in Croatia.

Rolan Eberhard (1994) provided a nice brief overview of the holistic perspective by describing karst as being a ‘...system incorporating component landforms as well as life, energy, water, gases, soils and bedrock.’

THE AUSTRALIAN RE-THINKING

The holistic perspective was perhaps the first major shift in our own thinking about karst.

Australia has been indeed fortunate in having such a great diversity of karst systems, including:

- Soft rock limestones including syngenetic karst (White 2000),
- The immensely complex hard rock systems of New South Wales,
- Ancient, now exposed, coral reefs,
- Karst in quartzite and other siliceous rocks, and
- A variety of pseudokarst systems

This has provided a valuable starting point for re-thinking and the evolution of new ideas.

Big domes at Naracoorte and other upper South-east sites where caves with flat ceilings had collapsed provided a characteristic cross-section and an improved understanding of collapse (Grimes et al 1995). Even more, the big domes of some other sites, including the Nullarbor, not only reinforced our thinking about collapses, but drew our attention to the hypogene karst, where rising thermal waters had carved out some of the caves (Klimchouk 2007). In turn, our expeditions to the Nakanai karst of New Britain drew attention to the giant shafts which characterize that region and are probably the most spectacular hypogene karst of the world.



L to R: Andy Spate, Elery Hamilton-Smith and Miles Pierce in Elery's Library.

The Nullarbor and various other Australian sites also provided a remarkable example of the important role of Microbiota in karst development (Northrup & Lavoie 2004). The most recent applications of this realization have developed in China, where the restoration of desertified karst has been enhanced by microbiotic cultures.

Most recently, Armstrong Osborne has established that Jenolan Caves are (at present) the oldest open caves in the world. This was part of the realization that examination of floor sediments gave dates which are inevitably much less than the age of the cave itself. Armstrong (2000) realized the potential of palaeokarst dating and that is now yielding totally new evidence on speleogenesis.

TURNING TO CAVE MANAGEMENT

Australia has played a key role in the enhancing the quality of cave management. It all started with the late Roy Skinner and the first ever conference

on management of cave tourism (Hamilton-Smith, 1973). The Australian (then Australasian) conferences soon expanded to encompass management of all aspects of karst. Then this provided the basis for John Watson and myself to establish the IUCN Task Force on Caves and Karst and hence to enhance management quality right across the world (Watson et al 1997). Today, protected area management is essentially about sharing power and responsibility and the involvement of stakeholders.

Tourism may still include guided tours but it now also includes unguided tours, discovery tours and

a whole range of shared experiences. More importantly, managers are now coping with developing positive site-sensitive responses to sustainability, climate change and a horde of other global issues.

Although we have a remarkable percentage of the world's great lava caves, we have not yet given them enough attention, nor developed programs which pay special attention to them, but with Undara and the Kanawinka Geopark we are now well poised to move ahead.

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COMING EVENTS

This list will simply list events of special interest to cave managers and cavers. If you are interested in any listed events, contact Prof. Elery Hamilton-Smith for further details at <elery@alphalink.com.au>.

2010: April?	Official Opening – New Glowworm Cave Visitors Centre, Waitomo, New Zealand.
2010: April 12–16	4th UNESCO International Conference on Geoparks, Langkawi, Malaysia.
2010: April 11-16	Healthy Parks, Healthy People, Melbourne.
2010: April 16–19	2nd Global Geotourism conference, Kuching, Sarawak.
2010: April 21–29	ACKMA Annual General Meeting ‘Week’, Gunung Mulu WHA, Sarawak.
2010: April 27–30	Karst Hydrology, protection and landscapes, Malaga, Spain.
2010: May 8–16	Speleohungary Centennial Conference.
2010: July 12–14	14th Australasian Bat Society Conference, Charles Darwin University, Darwin, NT.
2010: July 25–28	13th Cave Guides Gathering, Wellington, New South Wales.
2010: Aug 2–6	NSS Convention, Essex Junction, Vermont.
2010: Aug 4–8	Cuba Speleo Society 70th Anniversary Conference. Also Latin America and Caribbean Federations meetings.
2010: Aug 7–10	Pre-conference excursion to Lava fields of Western Victoria
2010: Aug 12–17	14th International Vulcanospeleology Conference, Undara, Queensland
2010: Aug 24–25	Parks Forum Conference, Sydney, New South Wales.
2010: Aug 29-Sept 3	International Society for Subterranean Biology Conference, Postojna, Slovenia.
2010: October 20–24	International Show Caves Congress, Liptovský Mikuláš, Slovakia.
2011: Easter	Australian Speleological Federation Conference, Chillagoe, Queensland.
2011: April	Central American Congress of Speleology, Coban, Guatemala.
2011: May 8–13	19th ACKMA Conference, Ulverstone, Tasmania
2011: July 18-22	NSS Convention, Glenwood Springs, Colorado, USA.
2012: May	ACKMA Annual General Meeting ‘Week’, Cango Caves, South Africa
2012: June 25-29	NSS Convention, Greenbrier Valley, West Virginia, USA.
2013: May	20th ACKMA Conference, Waitomo Caves, New Zealand