

Eras at Arm's Reach

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Forget idly lying about on the beach or in the garden – nowadays many of us are increasingly spending our weekends walking or jogging, taking our holidays hiking round mountains and visiting the seaside, lakelands, and forests. If you find rambling an enjoyable and thrilling pastime, why not try “geotourism” – experiencing the beauty of inanimate nature the smart way?

We must have all pondered similar questions at some point in our lives – why are mountains found in some places but not others? Why did a waterfall form at this point in the river and not another? Why are lakes the shape they are? How are ravines and caves formed? Unlocking the secrets hidden away in rocks and exploring the processes shaping the Earth's surface are the central tenets of geotourism, a relatively recent discipline in geology and earth sciences in general. Geology faculties at numerous universities across the globe are currently educating scores of future geotourism specialists, trained to help us better understand our own planet's history stretching back hundreds of millions of years; they are being taught about the geological processes that shaped it in the past and the geomorphological processes that are creating new landscapes today.

They are meant to exhibit skill at explaining such things to non-geologists: in other words people who do not normally spend their days studying the records of eons past, written in the rocks all around us. The geological knowledge amassed by scholars over the last two hundred years enables geologists to interpret information recorded in rocks; these particular geologists are trained to act as interpreters of this information for all interested laypeople. One only has to think a bit about the composition of any everyday object to realize it is made up of elements directly derived from minerals forming the various types of rock beneath our feet. Once one acknowledges this, it is only a short step to think-

ing about the history of how those minerals were first formed in the distant past. Geotourism aims to help active tourists better understand our planet.

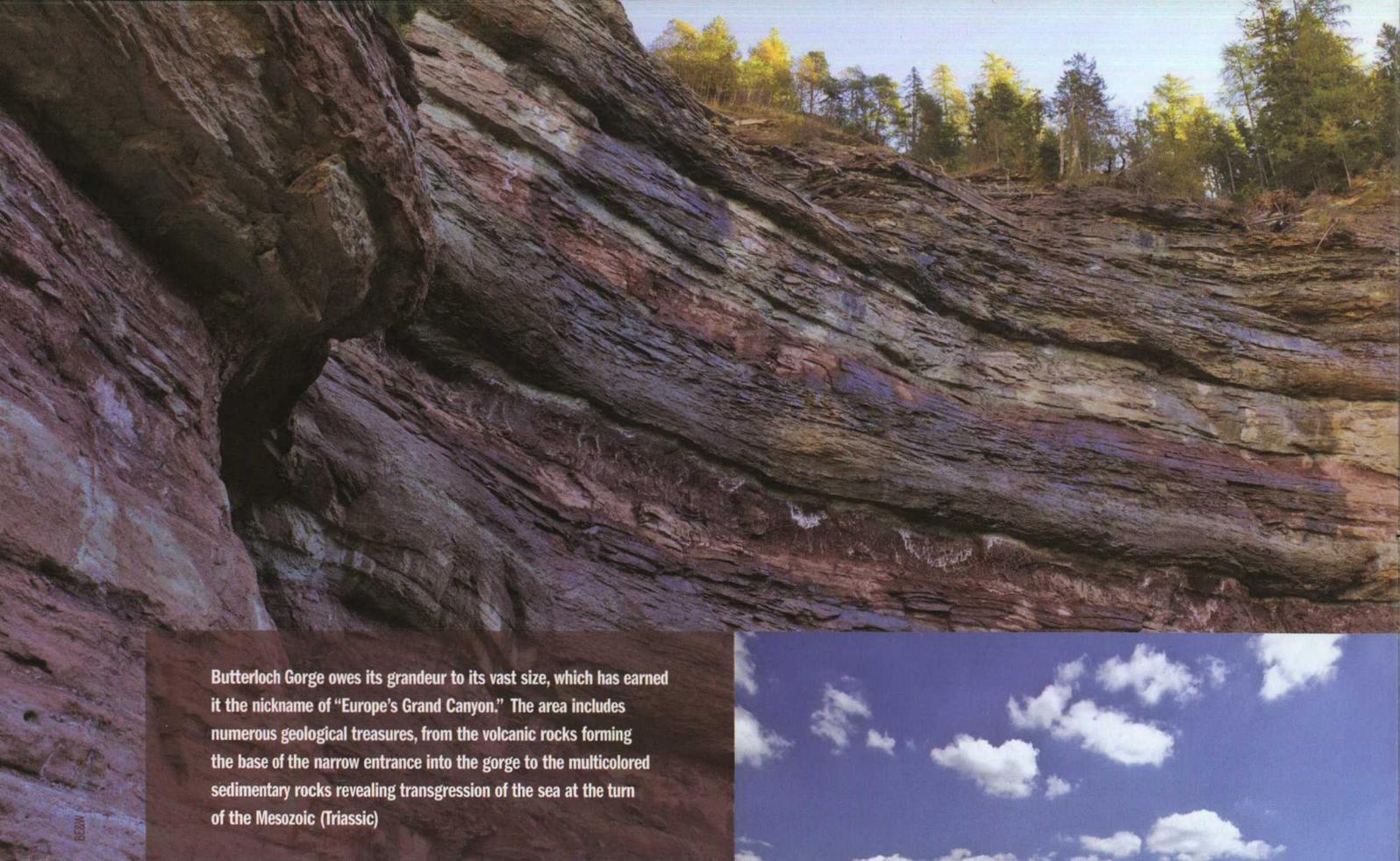
Let's get out there!

Our extensive understanding of Earth's early history is put on display in natural history museums all over the world, most of which have departments dedicated to geology and paleontology. Surely, though, experiencing that history in the great outdoors rather than within the confines of museum walls is far more effective, and may even prove to be a magical experience. Seeing rocks and fossils in situ, combined with some basic geological knowledge, offers an excellent way of appreciating the fascinating beauty of this inanimate world. Perhaps this is why geoparks are rapidly gaining in popularity all around the globe. Spectacular geological sites are being widely advertised and promoted as vast “laboratories,” presenting the life of our planet in a way that's accessible to all.

Efforts to set up and regulate geoparks of all sizes have gained a formal framework: UNESCO has appointed an agency especially to monitor the process of their cre-

**Location of Langkawi Island in Malaysia
International UNESCO Geopark Conference,
Langkawi Awana Porto Malai**





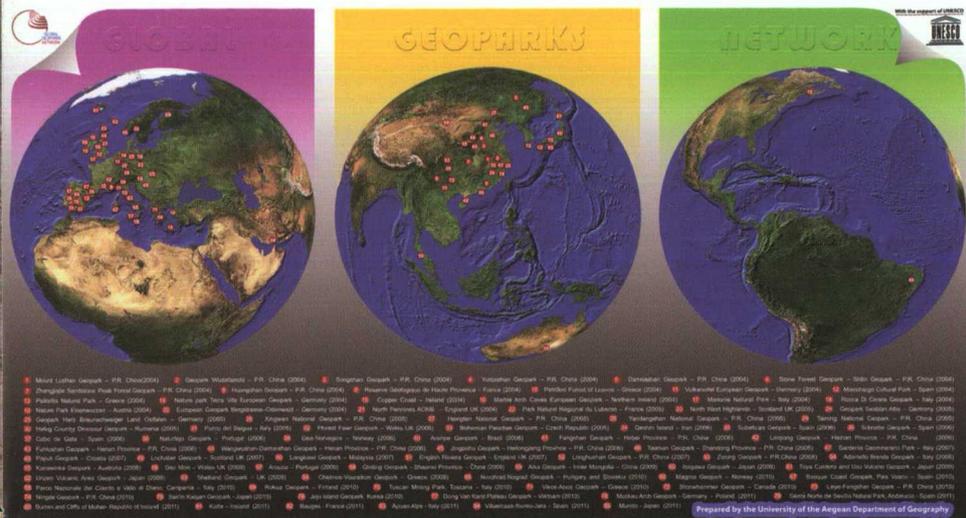
Butterloch Gorge owes its grandeur to its vast size, which has earned it the nickname of "Europe's Grand Canyon." The area includes numerous geological treasures, from the volcanic rocks forming the base of the narrow entrance into the gorge to the multicolored sedimentary rocks revealing transgression of the sea at the turn of the Mesozoic (Triassic)

ation on the European scale as part of the European Geopark Network (EGN) and globally through the Global Geopark Network (GGN). Geoparks are defined as locations that have been specially prepared for tourists in regions of particular geological significance. These areas can be home to one or more objects of interest from the perspective of various branches of geology.

An excellent example is the Butterloch (Bletterbach) Gorge in South Tyrol in northern Italy. The massive, steep walls of the canyon reveal bed after bed of sedimentation: the stratigraphically lower sediments show evidence of terrigenous influence, while the upper sediments were largely formed in a marine environment (this process is known as transgression). Fossils present in the strata reveal a dramatic shift in marine fauna at the boundary of the Paleozoic and Mesozoic. This is one of the few locations around the globe showing clear evidence that the greatest biological disaster in Earth's history took place at the transition from the Permian to the Triassic. By comparing marine fossils from the Permian with those from the Triassic, we can clearly see how much the two worlds differed, to the extent that fossils collected from the two periods show very few similarities. This is interpreted as a major extinction event (known colloquially as "the great dying"); comparisons with other rocks of the same age found elsewhere in the world reveal a similar effect, which means the phenomenon occurred on a global scale. It was the most significant of the five major extinction events revealed by the fossil record: it is estimated that up to 95% of marine fauna did not survive the transition from the Permian to the Triassic (Paleozoic/Mesozoic). And, if you visit Butterloch Gorge

Janoslaw Ramucki/Muskau Arch Geopark Association

So far, Poland is home to just one EGN geopark: the Muskau Arch Geopark, spanning the border between Poland and Germany



Map of geoparks around the globe. Global Geopark Network (GGN)

and literally touch the boundary between the Permian and Triassic layers, you can experience the magic written in the rocks for yourself.

This was one of the main motives for creating the Butterloch Geopark, including construction of the necessary exhibition and museum infrastructure. The investment was developed with the participation of local authorities; it currently serves as a venue for many environmental events attracting scores from visitors from home and abroad. From UNESCO's perspective, the site is incredibly important, as its popularity serves to validate the geopark concept and encourages its extension to other regions and locations; the engagement of local communities in the implementation of the project and its ongoing success confirms this.

Another prominent example is Langkawi Island in Malaysia, which includes several conservation areas. The whole of Langkawi has geopark status, with several geotourism trails laid out on the island itself and on the surrounding waters. Several thousand people are employed at the geopark, and two schools on the island provide education in tourist services.

Guilty of neglect?

Butterloch and Langkawi are just two of the dozens of successful geoparks around the globe trying to meet the growing demands of inquisitive tourists fascinated by the world around them. So far, Poland is home to just one EGN geopark: the Trans-Border Muskau Arch Geopark, spanning the border between Poland and Germany. Unfortunately, therefore, we are trailing behind many European countries that have been actively implementing the concept in practice. However, several Polish universities offer geotourism courses, so it is likely that their graduates will be instrumental in making future geotourism initiatives a reality.

However, this is just one facet of the problem. In recent years, geotourism has become an important branch of the tourism industry. Observing meetings of international geotourism and geopark organizations, I am surprised to note that geographers, tour organizers and financiers are becoming actively involved in the promotion of geoparks in

Geotourism in Poland and abroad

their countries, even though they might not be fully aware of what secrets truly lie hidden in the rocks. They are, on the other hand, aware of the parks' great financial potential. Are we, geologists working in Poland, guilty of neglect here? Given the vast extent of geological treasures found in our lands, is our inability to put the idea of geoparks into practice putting us to shame? In spite of all the positive initiatives in Poland – undergraduate courses, specialist magazines (such as “Geoturystyka” published by the AGH

University of Science and Technology), geology picnics held on occasions such as Earth Day, geology competitions for children and young people (such as those run by the PGI-



Map of geoparks in Europe. The European Geopark Network (EGN)

was founded in 2000. Its aim is to protect geological diversity, promote geological heritage, and support sustainable development of cities and regions across Europe. The network originally included four regions; it has been extended by a further 59 regions from 21 countries. The Global Geopark Network (GGN) is a similar organization for geoparks around the globe

NRI) – there is a sense of insufficient coordination, which makes it difficult for Poland to compete in the international market. Fortunately, there are initiatives aiming to create new geoparks (such as the Trans-Border Pieniny Geopark in Poland and Slovakia, the Saint Anne Mountain Geopark, the Sudetes Geopark, and so on) – I remain hopeful that they will open in the near future. ■

Further reading:

More information (in Polish) on the existing and planned geopark initiatives in Poland available at:
<http://www.pgi.gov.pl/pl/geoturystyka-lewe-kopalnia.html>