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North West Highlands Geopark Report Published

Issued by the Sutherland Partnership *Source:www.highland.gov.uk*

The North West Highlands Geopark, which covers much of North West Sutherland and Coigach in Wester Ross, is celebrating publication of its report on the 7th European Geoparks Network Conference, which it hosted.

This exciting development comes hard on the heels of recent Geopark successes in winning funding from the Scotland Rural Development Programme (SRDP) and from Awards for All – and even more recently, from The Highland Council's North, West and Central Sutherland Ward Discretionary funds.

The Geopark's new keynote report, "Landscapes and People – Earth Heritage, Culture and Economy", was launched in Tongue during a recent visit of The Highland Council Convener Sandy Park and Chief Executive Alistair Dodds. It will be used to help guide Geopark work over the next three years.

The report document contains articles from a wide range of eminent contributors, including Scottish Government minister Mike Russell, prominent members of the European Geopark Network and the British Geological Survey, SNH Chairman Andrew Thin, and senior representatives of Highland Council and the Crofters' Commission. Geopark Steering Group Vice-Chairman Alasdair Wood (Scourie CC) said, "This forward-looking and valuable report will help our Geopark to harness our geology and landscapes for the good of tourism, community activity and local enterprise. We are grateful to our contributors, and to Dr Issie MacPhail and her collaborators for editing and producing such an excellent "oadmap" for future Geopark activity."

Councillor George Farlow, a member of the Geopark Steering Group, agreed. "With a full-time Geopark Officer – Dr Fiona Mackenzie – now in post, the Geopark has immense potential to help promote and publicise the North-west Highlands. With world-class geology, landscapes and wildlife – to say nothing of our vibrant community spirit and local culture – we have a huge amount to offer. This report will help the Geopark to capitalise on that."

Thanks for reading this newly redesigned newsletter. While the format has changed, it will still keep you up to date on events within the Global Geoparks Network. You are receiving this newsletter as you have expressed an interest in suggestions for the next issue, please feel free to contact:

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Psiloritis Geopark Revalidation

The revalidation of Psiloritis Natural Park for continuing its membership to the European and Global Geoparks Networks took place with great success on 22 and 23 of June.

The evaluators, Mrs Elisabeth Pickett from the North Pennines Geopark, England and Claudia Eckhardt from Bergstrasse – Odenwald geopark, Germany had the chance to meet the members of the Management Committee, Majors of the area, and many other people related to tourism and accommodation, visited many of the infrastructure and out door facilities of the Park, walked through the “Mygias Trail” at its official opening to public, and discussed with the staff of Geopark and AKOMM.

The final decision will be taken during the next meeting of the Coordination Committee of European Geoparks that is going to be held in Naturtejo Geopark, Portugal on September 14th – 16th, 2009.

From June 15 to 16, the delegation from Xingwen Geopark had an investigation and communication in Stone Forest Geopark in Yunnan Province under the leadership of Qi Ming who was the director general of Xingwen Geopark Administration. Additionally, a twinning agreement was concluded between these two geoparks.

On June 15, a special symposium was held between the delegation and the officials concerned from Yunnan Stone Forest Geopark Administration, where Li Zhengping, the director general of Stone Forest Geopark Administration, introduced the basic condition, interior management, geopark planning, development status, revaluation and other matters in detail. Furthermore, two parties discussed their cooperation in such fields as geoscientific research, scenic area planning, marketing operation and personnel



Xingwen Geopark ©Zhao Hongshan



Stone Forest Geopark ©Stone Forest Geopark

Twinning Agreement between Xingwen Geopark and Stone Forest Geopark

exchange. The delegation saw into the development, construction, marketing, last revaluation and other things related to Stone Forest Geopark.

In the morning of June 16, Qi Ming and Li Zhengping signed the twinning agreement on behalf of these two geoparks respectively in the meeting room of Yunnan Stone Forest Tourist Center. In the afternoon, the delegation inspected the geomuseum, information monitoring system and other construction achievements in Stone Forest Geopark.

Stone Forest Geopark and Xingwen Geopark have many similarities in



Li Zhengping (second from left) and Qi Ming (second from right) are signing the twinning agreement

some aspects including geological formation and structure, so signing the twinning agreement is quite beneficial to their mutual learning and common development.

Lochaber tourism campaign steps up

Source: www.pressandjournal.co.uk



LOCHABER'S campaign to increase public awareness of the area's geology and its great outdoors won ministerial blessing.

Environment Minister Roseanna Cunningham was on a fact-finding visit on the first day of the European Geopark Festival to hear about efforts being made to preserve its landscape.

She travelled to Lochaber Rural Complex at Torlundy, near Fort William, to discuss initiatives being undertaken by various organisations including Lochaber Geopark, the Nevis Partnership, Sunart Oakwoods and the Outdoor Capital of the UK project.

The minister told delegates: "The Lochaber Geopark is a fascinating project which, together with the North-West Highland Geopark, is dedicated to protecting the area's geological heritage and promoting sustainable development.

"Together with the local authority, Highlands and Islands Enterprise and a host of environmentally-focussed groups, much is being done to preserve the character of this unique area."

She was told that one of the latest initiatives was a proposal to extend the existing 1,350-mile International Appalachian Trail in the US with several hundreds of miles of paths in Scotland.

The existing US trail stretches from Maine to the Canadian provinces of New Brunswick, Quebec, Prince Edward Island, Nova Scotia and Newfoundland and Labrador,

connecting two countries, five provinces, one state, and the English, French and Celtic cultures of North America. A delegation from the Appalachian Trail is visiting Lochaber to promote closer links since ancient Scottish mountains and the American range were born from the same geological source.

Lochaber Geopark's project officer Keith Hoole said: "There is a huge amount of interest in this visit and we believe it is a wonderful opportunity to further our aims of promoting the Highlands on the global stage and to also publicise the International Appalachian Trail here".

Trail president Dick Anderson said: "The long-term goal is to locate sections of the trail in all the countries or regions that were once part of the ancient Caledonian-Appalachian Mountain range".

Huangshan Geopark Creates an E-database of Geoscientific Research Journals

Source: *Huangshan Geopark*

Since Huangshan Geopark joined the Global Geoparks Network, the management office of Huangshan

Geopark has cooperated with the No.332 geological brigade of Bureau of Geology and Mineral Exploration of Anhui Province, Chinese Academy of Geological Sciences, China University of Geosciences, National Geopark Planning and Research Center and other scientific research institutions in geological research of Huangshan to ascertain the process of formation and evolution of granite geological landform in Huangshan basically. Besides, they have fixed the leading position of Huangshan granite geoheritage landscape in Chinese granite landscape, on the whole, through the comparative research of topographical landscapes.

In order to enhance the level of geoscientific research of the Geopark and improve its abilities of self-oriented innovation and independent research, its management committee cooperated with Chongqing VIP Information Co., Ltd. in utilizing the server of its information center to create an e-database of geoscientific research journals after recruiting the geological master graduate last year.

The e-database consists of 475,026 PDF-formatted research papers from nearly 500 geoscientific journals over the period 1989-2009. Its site link is available on portal websites of the management committee and Huangshan Geopark respectively. Interior users of local area network of the management committee can download and share these papers. With the progress in scientific research, the e-database will be updated 6 to 8 times every year in future so as to keep up with the latest development of geological research. Its creation has provided professionals concerned with good research conditions and study platform and will drive the progress of Huangshan Geopark in geoscientific research greatly and facilitate its scientific development.

Geopark conference success

Source: www.thisissouthdevon.co.uk

WILDLIFE experts and geologists have come from across the South West to attend a conference which promotes good practice in managing Torbay's wildlife and geology together.

The conference took place as part of the English Riviera Geopark festival thanks to the work on The Nature of Torbay, Torbay's wildlife and geology action plan.

Mel Border, co-ordinator of the English Riviera Geopark, said: "The festival is part of European Geoparks Week, an annual summer celebration to promote the geology and landscapes of the 34 UNESCO European Geoparks.

"The environment of the Bay is spectacular and this conference was a great opportunity for us to showcase how we are working together for the greater good of both our geodiversity and biodiversity." Alex Scholefield Torbay's biodiversity officer said: "The plan has been in action for two years now and it is incredible what we have achieved in the Bay in this time."

Cabinet member for community services and chairman of the Torbay Biodiversity Partnership, Cllr Dave Butt, said: "It was very enjoyable chairing such an informative conference in Torbay. The Bay's Geopark status puts us on the international stage as an important heritage destination."

Some 60 delegates met at the Riviera International Centre before taking a Geopark cruise to see for themselves some of Torbay's internationally renowned geology and range of wildlife.

14-16th September 2009

2nd Circular

8th European Geoparks Conference

Organizers

The 8th European Geoparks Conference will be organized by Geopark Naturtejo and Idanha-a-Nova Municipality, with the support of the remaining Naturtejo municipalities: Castelo Branco, Nisa, Oleiros, Proença-a-Nova and Vila Velha de Ródão.

Program

The 8th European Geoparks Conference will comprise general sessions and thematic oral sessions with invited speakers and selected oral presentations and poster sessions related to the main objectives.

	14th	15th	16th	17th
Morning	Opening of the registration desk	1st European Geoparks Tourism Fair/ Feira Raiana	Conference Work Sessions	Departure to the Field Trips
Afternoon		Conference Work Sessions	Conference Work Sessions	
Evening	Idanha Film and Internet Festival Medieval Ice breaker Dinner Public Opening of the 8th European Geoparks Conference/ Idanha Film and Internet Festival (Penha Garcia Ichnological Park)	Luisa Amaro Concert/Idanha Film and Internet Festival/ Feira Raiana	Idanha Film and Internet Festival: Castle Party/ Feira Raiana	

More information of 2nd Circular: www.geoparknaturtejo.com

1st European Geoparks Fair

Source: Geopark Naturtejo Meseta Meridional

The 1st European Geoparks Fair will coincide with the VIII European Geoparks Conference, to be held in Idanha-a-Nova in September 2009. This Fair brings to Idanha-a-Nova more than 20000 people from Geopark and surrounding

communities, the people from the Borderland. This will be the best time to try a "borrachão" and "jeropiga" with our people.

More information:
<http://www.geoparknaturtejo.com/>

Juyan Sub-park

Covering an area of 88.2 km², the Juyan Sub-park lies in Ejin and consists of four scenic areas. i.e., the Juyan Lake, Black City Ruin and Popular diversifolia Forest Scenic Areas. This sub-park has the vast Gobi, boundless desert, clean Juyan Lake, reputed Popular diversifolia Forest, mysterious Black City Ruin and the notable Dongfeng Space Center. Therefore, the Juyan Sub-park is a perfect combination of desert, Gobi, lake, Popular diversifolia Forest, historical relics and modern space technology.

Museum of Alxa Desert National Geopark

The Museum of Alxa Desert National Geopark, with a construction area of 2,203 m², was completed in September, 2007. Its outline is designed in the shape of sand dunes, the museum composed of the prologue hall, exhibition hall, resources hall, meeting hall, VIP hall, visitor center and the room for scientific popularization. Through a lot of ways, such as photos, interpretation, electronic equipment

display, interactive items and specimen exhibition, this museum is successful in displaying the various geoheritage types, natural beauties and unique cultural history in the geopark.

The major monument of the geopark is 20.07 m high, and the auxiliary monument is 16.09 m high, which looks like a graduated ruler. There is a square of the geopark covering an area of 53,000 m². The Service Center covers a construction area of 1,864 m², containing an Aid-Support Station and a Reception Center. This museum is well equipped and can provide services including accommodation, aid and support, tourism, restaurant and entertainment.

Exhibition Hall and Information Center of Tengger Sub-park

The exhibition hall and information center of Tengger Sub-park in the Alxa Desert National Geopark is seated on the second floor of Bayanhot Stadium, which opened to the public on September 16, 2007. The exhibition hall is the microcosm of Tengger Sub-park, covering an area of 700m², where visitors could

get to know the basic information and geological significance of the Tengger Sub-park. All exhibits fully demonstrate the geoheritage features, biodiversity, mineral resources and cultural relics in the Moon Lake, Tonghu Lake and Alunbulage Scenic Areas through the ways of photos, pictures and specimens.

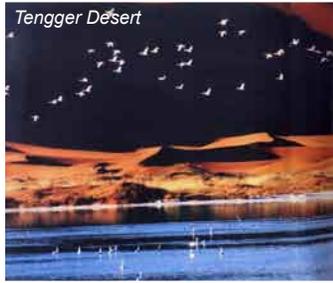
Exhibition Hall and Information Center of Juyan Sub-park

The exhibition hall and information center of Juyan Sub-park, established on September 18, 2007, is located in the Dalai Hub Town and covers an area of 266m². It shows the geoheritage, cultural history and space technology in the different scenic areas in Juyan Sub-park in the way of pictures with corresponding interpretation, and provide related information about the sub-park to visitors.

Badain Jaran Desert



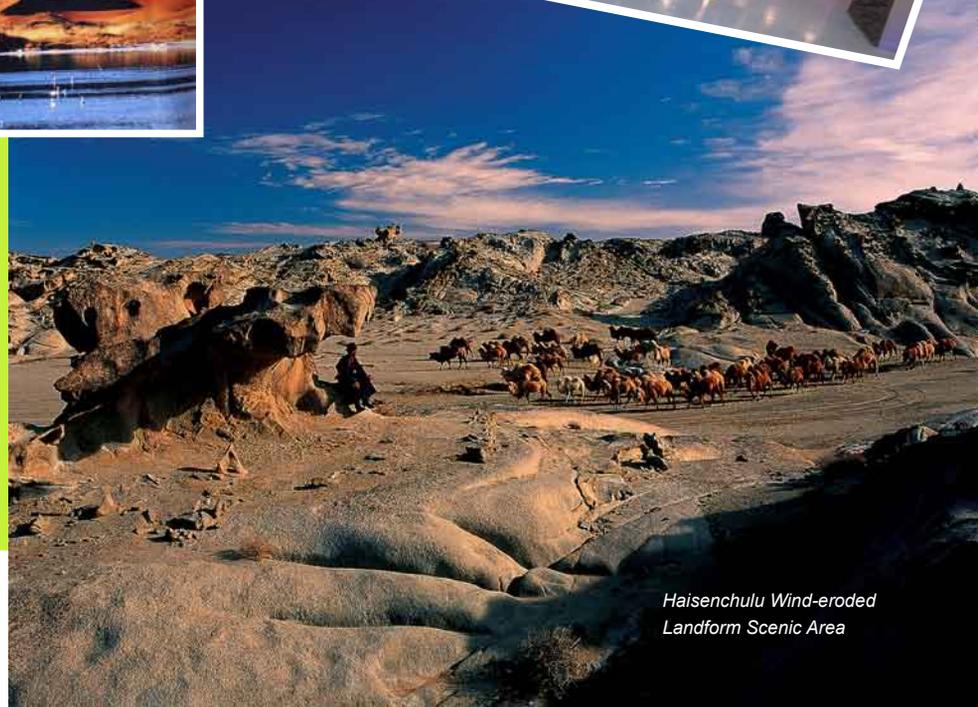
Tengger Desert



Alxa Desert Geopark Museum



Mt. Mandela Rock Painting



Haisenchulu Wind-eroded Landform Scenic Area



On June 28, experts in geopark, Richard Watson and Pasquale Li Puma, started their second-station field expedition in China, i.e. Qinling Zhongnanshan Geopark in Shaanxi Province, after their field investigation on Alxa Desert Geopark was over.

© Li Hui

Experts listened to the work report from Qinling Zhongnanshan Geopark concerning its application for a global geopark over three days. They also inspected such scenic zones as Cuihua Mountain, Li Mountain and Taiping as well as Xi'an Museum of Natural History with emphases on the museum construction, indicative

Expedition to Qinling Zhongnanshan Geopark by Experts

and explanatory plate construction, roads, tourist service facilities, application materials and other matters of the Geopark. Meanwhile, experts acquainted themselves with the history, culture and folk customs and practices of the place where the Geopark is located through the visit in Terracotta Warriors and Guanzhong Folk-custom Arts Museum. Moreover, they entered homes of local peasants to gain knowledge of the economic benefit and local living improvement resulting from the Geopark. Experts offered proposals for the future development of Qinling Zhongnanshan Geopark in conclusion. In their opinions, Terracotta Warriors and the Geopark

should be linked so effectively and closely that the tourism resources can be used to the utmost extent in view of the fact that Terracotta Warriors is an important tourism scenic spot under Qinling Zhongnanshan.

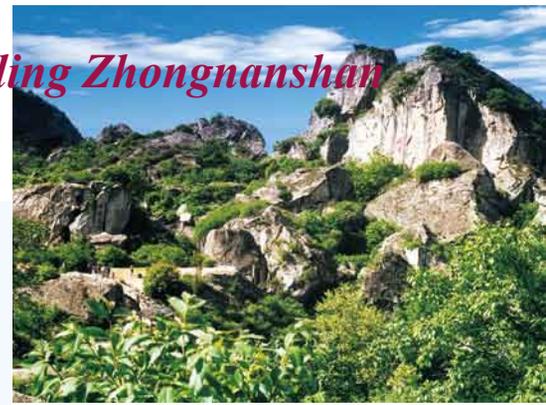


Introduction to Qinling Zhongnanshan Geopark

Ancient pagoda in Xi'an



Stretching from east to west and located in central China, the Qinling Mountains (Qinling Mts.) are one of typical continental composition orogenic belts in the world and represent the major amalgamation zone in China continent. Therefore, it has been an important natural boundary of geology, geography, ecology, climate and even culture between north China and south China. The Qinling Mts. possess the geological peculiarities out of the global common characteristics. Abundant, typical and integrated geological phenomena of the orogenic belt and basin-mountain structures in the Qinling Mts. have interested geologists at home and abroad. The Qinling Mts. have become an ideal laboratory for geoscientists and an excellent museum for tourists because the Qinling Mts. contain rich scientific information of modern geological frontier and numerous geological relics characterized by its long-evolved history, complicated tectonics, various rock types, splendid landscapes and abundant mineral resources. It is noteworthy



that the complete geological records generated during the plate collision and assembly between north China and south China have been well preserved, and moreover the northern foot of the Qinling Mts. where the Zhongnanshan Geopark is situated is an adjoining area between the typical orogenic belt and the rift basin. So, the Zhongnanshan Geopark certainly reflects the scientific contents of the orogenic belt and exhibits marvelous landscapes.

Location of Zhongnanshan Geopark

Lying 25 km to south of Xi'an, the capital city of Shaanxi province, the Mt. Zhongnanshan is geographically located in the middle portion of the Qinling Mts. It falls in the region of 107°37'E-109°49'E and 33°41'N-34°22'N. The geopark covers an area of 6,638 km², of which the major geological relics are about 2,184 km². Based on geological and landscape features, the following five style parks have been recognized in the geopark. They are: the park of Mt. Lishan rift-horst tectonics; the park of Mt. Yushan arc-type granite ridge and peaks; the park of Mt. Cuihuashan slides; the



Revalidation mission in Qinling Zhongnanshan geopark © Li Hui

park of Mt. Bingjingding ductile shear zone and structural migmatites and the park of Mt. south Taibai suture zone and Quaternary glaciers.

Type of Zhongnanshan Geopark

Tectonic—geomorphological type geopark

Main geological relics of Zhongnanshan Geopark

Inside the geopark, relics of the orogenic belt, rift basins, basin-mountain structures and Quaternary geology are characteristic.

1. Orogenic geological relics

The Zhongnanshan Geopark greatly exhibits the characters of the Qinling orogenic belt. The major orogen-related relics include various strata, rocks and structures formed during the plate subduction, collisional orogenesis and intracontinental multi-phased tectonics. These relics can be mainly observed in the Mt. Yushan, Mt. Bingjingding and the Mt. southern Taibaishan.

Stratigraphical relics: the Danfeng group contains the relict early Paleozoic-Indosinian oceanic crust slices, arc ophiolite mélangé and sedimentary prime. Also, the strata of the Daogu basin strata and overlying intermountane basins as well as the rock records of the trough-arc-basin system of the Qinling orogenic belt are well preserved in the geopark.

Lithological relics: there are different types of rocks occurring in the different tectonic regimes. These rocks include intrusive, volcanic (sub-volcanic), metamorphic rocks and the combination of two different migmatites. The Paleozoic-Mesozoic magmatic rocks of basic-intermediate-acid types are extremely developed on both sides of the plate subduction-collision zone. The I-, S- and IS-type granites can also

be seen. The anatectic volcanics are new-phase eruptive rocks and sub-volcanic rocks (cryptoexplosive breccias) developed during the Mesozoic intracontinental orogenic processes.

Structure relics: the various types of subduction-collision orogenic structures and intracontinental orogenic structures, including deep rheological structures, ductile-brittle structures at medium-deep-medium-shallow levels such as compressional, extensional, shear, strike-slip faults and folds. There are also plenty of superimposed macro-micro structures as well as rift, basin-mountain and horst – grabens.

These typical geological relics completely record the evolution of the Qinling orogenic belt and the stratigraphical development, and provide evidence and materials for further study of the composition, structure and dynamics of the Qinling orogenic belt during multi-phased orogenesis.

2. Quaternary geological relics of mountain slide

The Mt. Cuihuashan has the third-largest post-Holocene mountain slide relics in the world. The volume of the mountain slide is about 300 million m³ and in an area of 5.2 km².

The biggest collapsed block is 89,640 m³ and No.1 in size in China. Other geomorphological types, like mountain slide free-face, collapse accumulation, dammed lake and collapse cave can be seen here with complete appearances

Quaternary glacier relics

The Mt. Taibaishan (elevation: 3,767m) is the highest mountain in east China. It develops 10 to 100 thousand years old (named Taibai glacial age) glaciers. The well-preserved glacier relics of glaciated,



The Mt. Taibaishan

drift and periglacial landforms are definitely significant for study of paleoclimate change and paleoglaciation in the Quaternary in China, and in east Asia as well.

Lantian Ape Man site

In 1963, the Chinese Academy of Sciences discovered Lantian Ape and other 38 kinds of animals fossils including megalantereon, stegodon, sambar and leptobos which was named Lantian Gongwangling



Fossil of Lantian Ape

vertebrate fauna. The fossil of Lantian Ape skull found in the Gongwang hillside is as old as 1.15 million years, the Lantian Ape mandible in the Chenjiawozi village 750,000 years old, while the stone wares and tools unearthed in the Gongwang hillside is dated 1.327 million years.

Cenozoic fault relics

The Cenozoic great fault at the northern foot of the Qinling Mts. actually indicates the southern boundary of the Weihe rift. It was initiated in the early Cenozoic and has since then been activating. The fault plane of the fault is almost

vertical, its southern block (the Zhongnanshan mountain), also the footwall keeps moving up and the northern one (the Weihe basin), the hangingwall continues to go down. Based on the geological and borehole data, the vertical movement marked by the bottom of the depression of the Weihe basin and the planation surface on the top of the Taibaishan peak has been measured as 13 km since middle-late Cretaceous (ca. 100 million years). The present relative elevation from the Weihe basin to the top of the mountains has been around 3,000 meters. What a wonder! The east-west trending fault has now formed a series of fault facets and cliffs in the front of the mountains along which a number of hot springs are distributed.

The Henglingyuan, Bailuyuan, Shaolingyuan and Shenheyuan are in juxtaposition and tilted in east and dip west. They represent typical loess yuan landform formed under the control of the secondary faults in the Cenozoic Weihe graben basin. Their stretching is wave-like as look north from the Mt. Zhongnanshan.

Horst block of Mt. Lianshan

The Cenozoic Lianshan mountain horst type block structure--The Mt. Lianshan is a horst type block inside the Weihe graben basin featured by its steep northern fault and southward dip. As a result, its north side has uplifted and looks splendid.

Ecological and biological environment

The southern slope of the Mt. Zhongnanshan belongs to the subtropical humid zone, and its northern slope is in the temperate subhumid zone. The Mt. Zhongnanshan also marks the northern limit for the evergreen broadleaf trees and subtropical plants. Zoogeographically, it lies in the transition area of the Oriental realm and the Palearctic realm in the world 6 animal faunas,

and adjoining area of the flora-fauna in north, central China, Tangute, and Hengduanshanmai regions. Here has a complete biological vertical lineage, which is the important gene storage of the warm temperate zone in east



Asia. Some rare animals such as panda, crested ibis, rhinopithecus, gold hair budorcas live and plants like kingdonia grow in the geopark.

Historical and cultural remains

The special geological settings have enabled the uplift of the highest mountains in east China and the extensive development of the richly endowed Weihe basin. Tracing back to 1.327 million years ago, during the Old Stone Age, our ancestors had begun to live at the foot of the Mt. Zhongnanshan. Hence, this piece of land has initiated and cultivated the Chinese civilization. It is a place where human beings and nature have been harmoniously living together. Also here is a birthplace and cradle for Chinese poem and gardening culture. There are 12 national key cultural relics in the region, of which the Lantian Ape Man site, the Shangyu ancient path, the Ziwu plank road, the royal gardens and palaces of Zhou, Qin, Han and Tang Dynasties as well as a variety of temples and the Lantian jades are representatives of humanity civilization resources in the Zhongnanshan Geopark.



Terracotta Warriors

Isles make case for Geopark status to assessors

Source: www.shetlandtimes.co.uk

Shetland's bid to become part of the Global Geoparks network is well under way, and as part of the selection process two European assessors visited to determine whether the isles have what it takes to gain the coveted status.

Dr Marie-Luise Frey and Dr Babbis Fassoulas met with local communities and visited areas of geological interest before attending a civic reception at the Museum and Archives.

Speaking at the reception were local councillors Rick Nickerson, Bill Manson and Jonathan Wills, who in their short speeches summed up the importance of geology to Shetland in a wide range of areas, including heritage and culture, education and economics and tourism.

Mr Nickerson said that the importance of geology to Shetland's people throughout the ages could not be underestimated, influencing things from bird species through to place names. The possibility to become part of the Geopark network would be, he said, "the last piece in a fantastic story".

Dr Wills pointed out the importance of Shetland's environment to tourism, emphasising that around three quarters of visitors to Shetland come to the isles for the environment. He gave praise to the work of Rubina Barton in getting Shetland's Geopark bid to this point and said he was "very much looking forward to hearing the verdict".

There are currently 58 Geoparks, in 18 member states. As part of Shetland's bid to become a part of this network of geological heritage spots, the Shetland Amenity Trust and Geopark Shetland Working Group have developed projects to protect and promote Shetland's heritage and

