Natures Exotic Gift

The Caves of Meghalaya

Frazer Simpson

Expedition Camp

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Photographs contributed by : Mr Brian Dermot Kharpran Daly

Script writing & Data Collected by : Mr Brian Dermot Kharpran Daly

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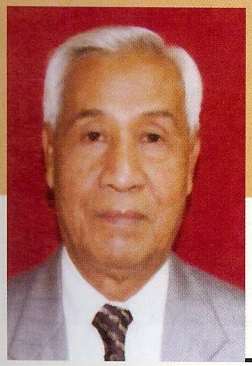


Foreword

Meghalaya is richly endowed with the gifts of nature. While its dazzling vistas and rich traditions continue to draw visitors from far and wide, today the State also figures in the world map for the enigmatic embellishments of its amazing cave systems.

Slowly gaining popularity as one of the best caving regions of the world, the caves found in Meghalaya holds a number of distinctive records. Until recently, nothing much was known about the caves of Meghalaya. However, with the sustained intervention of the Meghalaya Adventurers Association (MAA) the hidden mysteries of our subterranean were unraveled for the world to marvel.

In view of the kindling interest in caving in the State, it was felt that the publication of this monograph entitled Caves of Meghalaya will further draw attention to the cave systems that are found in Meghalaya and at the same time enthuse people to take ride on nature's endowment.

I hope that the readers going through this monograph will find it a pleasant and insightful reading experience.

Shillong
6th September, 2006

6/9/06

(J.D. RYMBAI)
Chief Minister Meghalaya

Message

Hundreds and thousands of feet below the earth's crust, far from human view, lies meandering passages, waterways, spectacular sights in the form of stalagmites and stalactites, and rumbling waterfalls. Those who have explored the innermost depths of Meghalaya marvelled at the sights which greet them while exploring the caves that are abundantly found in different parts of the State.

Therefore, in an attempt to present a holistic picture of the State, following a series of books on different facets of the land and people that is Meghalaya, this time around this department has made an attempt to illustrate the richness of the State, in so far as caves are concerned.

The pictorial monograph on the *Caves of Meghalaya* has been carefully designed to incorporate as much information as possible to quench people's growing interest on caving and it is hoped that this endeavour will be found useful by the readers.

Shillong
11th September, 2006.

11/9/06

(E.D. MARAK)
Minister
Information & Public Relations
MEGHALAYA

From the desk of Arindam Som, IAS
Commissioner & Secretary Information & Public Relations, Meghalaya

Introduction

Meghalaya is reputed to be one of the store houses of ancient and historic caves. These magnificient manifestations, standing through the wrath of natural evolutions for centuries together on earth, have long been the subject of intrigue and awe. As on date, more than one thousand caves have been discovered in the State, most of which boasts of a range of distinctions but unfortunately most of us are totally oblivious of this wealth that we possess. Therefore, in an effort to shed more light on the labyrinth caves systems located in this beautiful State, the latest monograph of this department on the *Caves of Meghalaya* depicts these subterranean structures in all their glory.

By attempting to profile this vast inherited natural wealth of Meghalaya, we hope that our readers will be presently surprised to discover that among others, the State boasts of housing the world's longest cave, the *"Krem Lait Prah-Um-!m,* with more than 22 Km of its length mapped, at Nongkhlieh II aka, Jaintia Hills District and the country's longest sandstone cave, ka *"Krem: Mawkynthiang",* ranging more than 3 kms in length, located at Lum lawpaw at Nongnah, West Khasi Hills District. The presence of these caves in our State has placed Meghalaya as one of the greatest caving regions in the world.

Caves with their individual inherent moulds can provide' enormous scientific resources, which can throw much light on the nature of events through centuries. Another interesting area of study would be of the different creatures inhabiting the caves, i.e "Cave Life" and the varied phases of evolution they have gone through to adapt themselves to the inner precincts of these awe inspiring formations of natural phenomenon. May be in the near future we can bring to our readers details of this interesting aspect as well.

I must convey that this publication with its detailed information may have been difficult without the contributions and support of Mr. Brian Dermot Kharpran Daly, the founder member, and General Secretary of the Meghalaya Adventurers Association (MAA), an organisation established in the year 1990. The MAA, which took up exploration of caves only from the year 1992, is the only such organisation in India, which is actively pursuing this area of work. During the last 14 years the contribution of this organisation in this field is no doubt commendable.

I hope this edition of our publication will not only make interesting reading but also provide further information on the land mass of our State. We will consider this publication an achievement if we can attract and inspire people from other parts and the country and the world, who harbour interest on the subject, to visit Meghalaya.

Shillong
12th September, 2006

(Arindam Som)

Publisher's Note

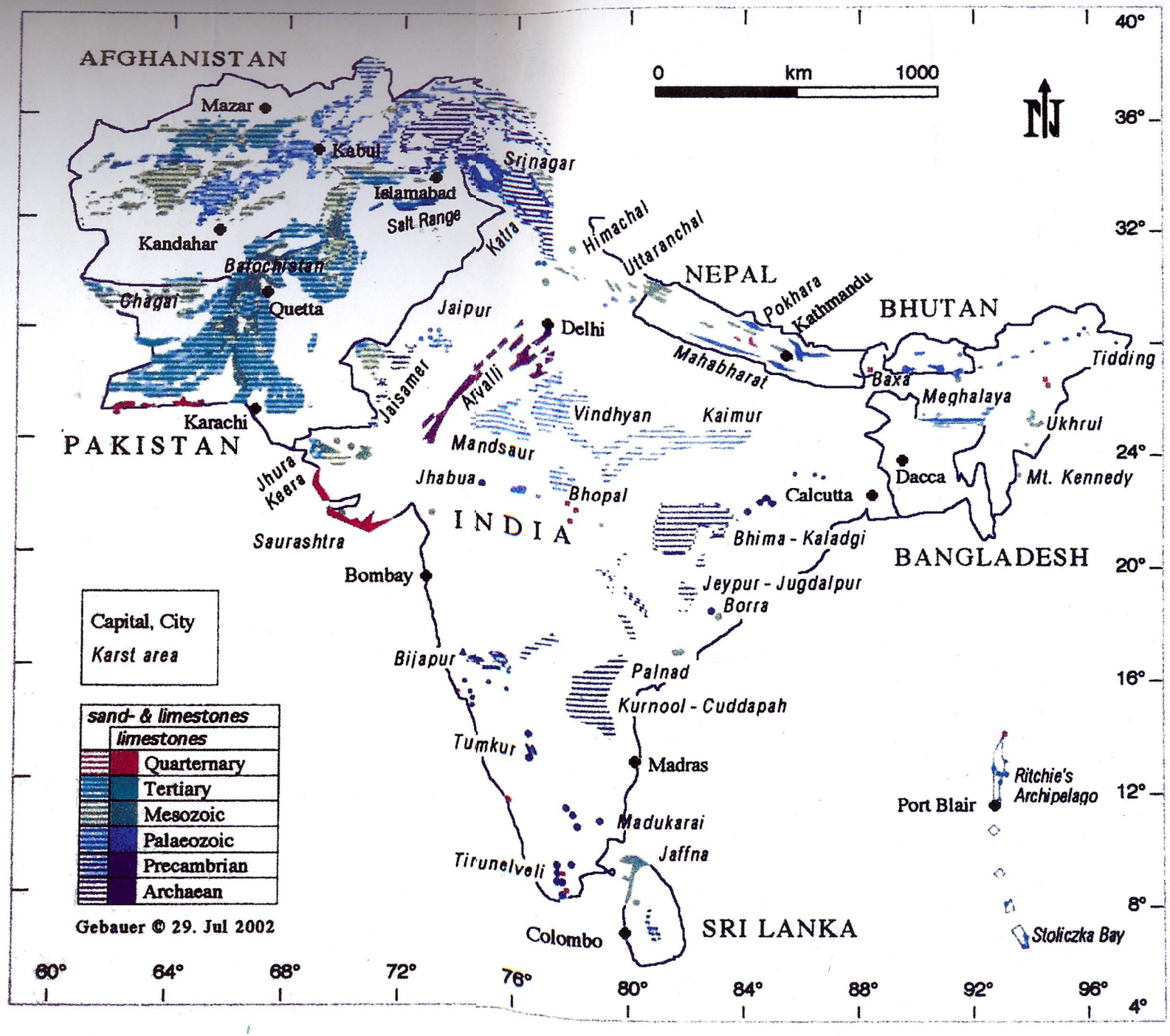
The "Caves of Meghalaya", is the eight edition in a series of pictorial monographs. This edition focuses exclusively on the intricate cave system of Meghalaya. After much planning and preparation, it is my immense pleasure that this edition is finally ready for publication.

In the recent past, the caves of Meghalaya have figured prominently in the media, arousing much interest from various quarters to discover more about the rich natural wealth buried thousands of feet below the ground. Therefore to satisfy this curiosity, the present monograph is designed to give our readers a detailed account about the caves accompanied with breathtaking photographs. Laced with interesting facts, I hope that this effort will be a great boon to cave enthusiasts and the public at large.

For breathtaking life to this monograph, we are grateful to the writer, editors, publisher and all the staff who had worked in tandem and shared their expertise to enable to us to bring out this valuable publication.

Shillong
12th September, 2006

(P.S. Dkhar, MCS)
Director
Information and Public Relations, Meghalaya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Ritchie's Archipelago
Port Blair
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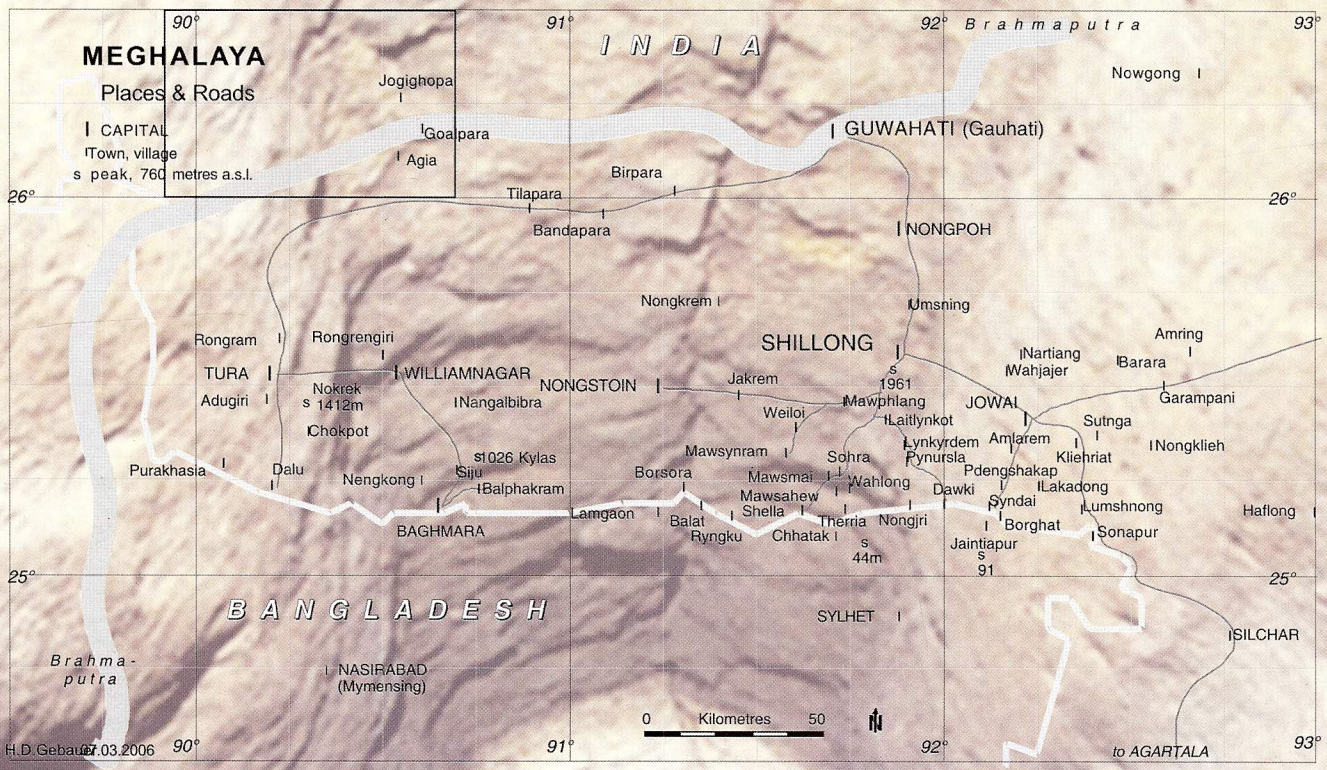
Meghalaya

Places & Roads



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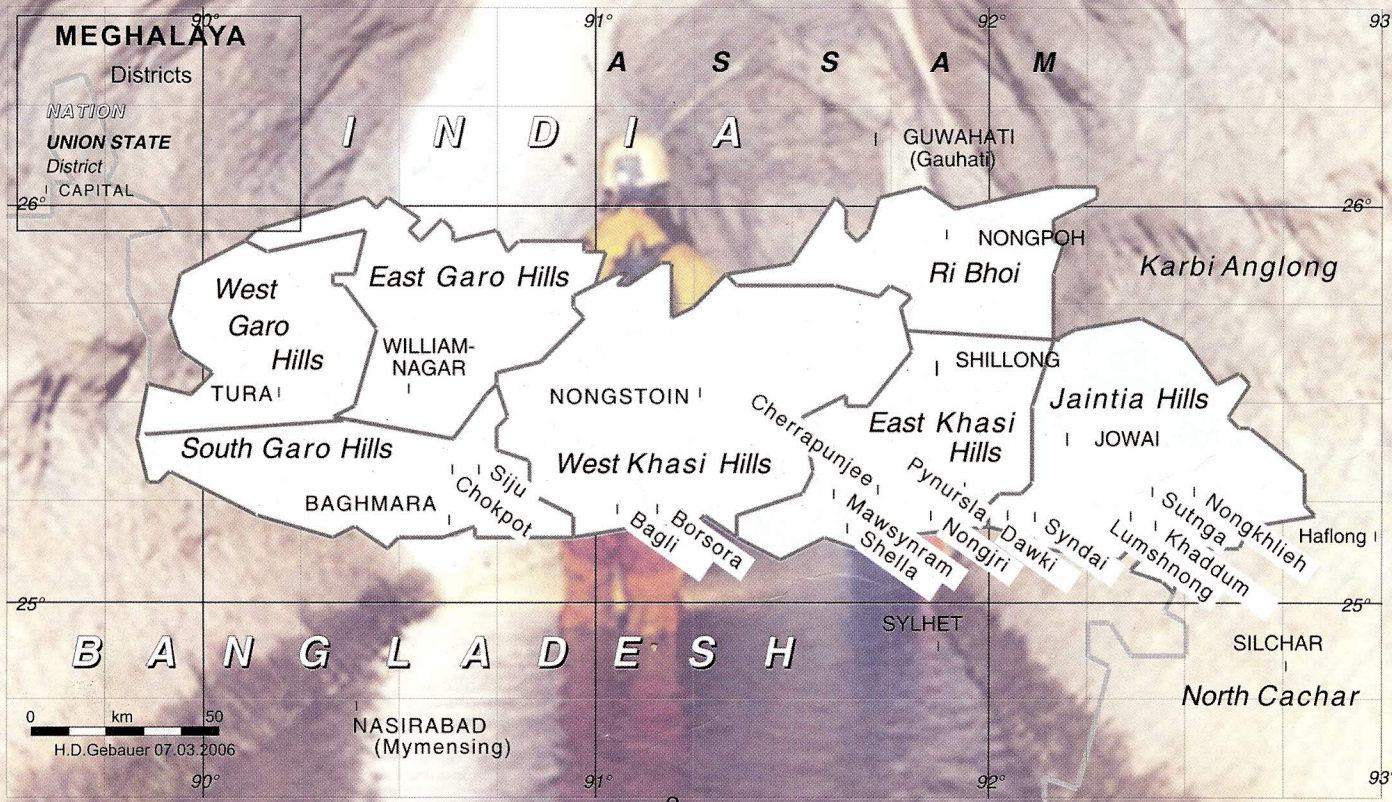
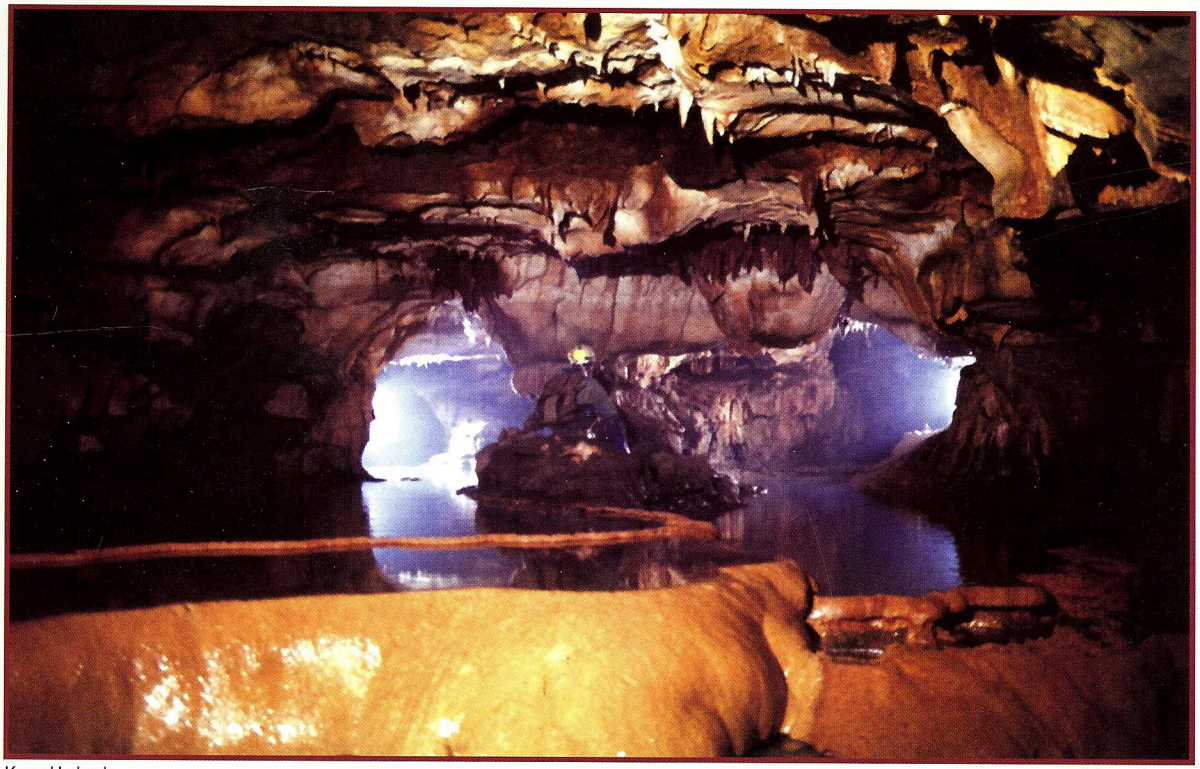
Districts



The Caves of Meghalaya



Krem Umkseh

Simon Brooks

Preamble

Nestled within the coordinates 25.0 degrees to 26.15 degrees of Latitude north and 89.45 degrees to 92.47 degrees of Longitude east and bordered on the north and east by the State of Asom and on the south by Bangladesh, lies Meghalaya, one of India's smallest States, with an area of only 22,429 square kilometres. This little Indian State inhabited by three main tribes, the Khasis, the Garos and the Jaintias, is blessed with a salubrious climate, rich fauna and flora, a beautiful terrain of plateaus, cliffs and canyons and the world famous rain-bearing clouds from which the State got its name. Probably, the best place to look at Meghalaya would be from the plains of Bangladesh where, from the flood-prone plains and stifling heat one could look up and see the lush green hills and cliffs rising up to the cool and invigorating climate which is ever so inviting. However, what is unique are, the numerous subterranean passages that run in and out of the hills. Meghalaya has literally thousands of caves and caverns, most of which are yet to be explored and more, still to be discovered. It is a paradise for speleologists and scientists alike. With the existence of high grade limestone, an elevation and the world's highest precipitation, the conditions for the formation of caves are just ideal.

Meghalaya has been of interest to the caving fraternity for many years because it was known that there were extensive deposits of limestone, (Oldham 1854, La Touche 1889, Mathur & Evans 1964, Dutta et al. 1970, Singh 1995, etc.), a depth potential of up to 550 meters and a hot monsoon climate with the world record for precipitation: 26,461 mm/year (Matthews & McWhirter 1994). To the caver, all in all a delightful mix.

Caves are Nature's work of art. With the skill of a master craftsman and the patience of infinite time, Nature has carved a delightful world of subterranean passages and chambers resplendent with all the glories that only Nature can bestow.

They are places of worship and reverence to many. To some they are abodes of ghosts and evil spirits.

Philemon (1996) evokes a mixed feeling: *"A walk through the ....womb of earth evokes a contradictory mixture of sensations; the moisture on the dark walls, and in the darker crevasses, combined with a tickling tang of dead ozone; the spasmodic vibration of nascent life, and the wafting odour of rotting bats; the mute silence of impregnated darkness, and the gentle water; the self indulgence of the wanton emptiness and the stony gravity of the dead ends."*

It has to be acknowledged that the knowledge and information of the caves of Meghalaya owes a lot to the untiring and enthusiastic efforts of the Meghalaya Adventurers' Association, who worked in close collaboration with foreign cavers from Europe and the U.S.A., under the project "Caving in the abode of the clouds." In the space of twelve years, they have registered and recorded over one thousand caves in the State, out of which just about 520 caves have been explored and mapped (some only partially), yielding a total cave passage mapped to 280 km. The potential for the discovery of many more caves is enormous. Meghalaya today, is one of the world's hotspots for caving. The zeal and dedication of those who were involved in the exploration of these caves is indeed a blessing to the State of Meghalaya and the country as a whole. Amongst the many foreign cavers who were involved, mention must be made of Simon Brooks of Orpheus Caving Club, Derbyshire, U.K. and Daniel Gebauer of Germany, a noted India Caver.

Geology

Meghalaya started as a coral island rising from a tropical ocean swarming with sharks. The birth of the island, however, was not a smooth and easy process but rather a succession of dramatic events, where parts of the land were uplifted only to sink before rising above the sea again.

Limestone was deposited on whatever part was under water, while rivers from the inland brought sand to the coast, building up sandstones and burying mangrove forests doomed to become coal.

Some sections of Meghalaya experienced uplifting and downthrusting several times, accumulating over the times up to five cycles of nummulitic limestones which alternate with sandstones or laterally pass into each other:

Kopili Formation: Kopili alternations,
Shella Formation: Prang Limestone,
Shella Formation: Shella Formation: Narpuh Sandstone,
Shella Formation: Umlatdoh Limestone,
Shella Formation: Lakadong Sandstone,
Shella Formation: Lakadong Limestone,
Shella Formation: Therria Sandstone,
Shella Formation: Therria Limestone,
Langpar Formation: Langpar Limestones and Shales.

At several stages, certain parts of Meghalaya were uplifted to considerable heights on the plateau. Here survive until today the sedimentary rocks as remnant erosional outliers (monadnocks), e.g. at Lum Iawpaw (circa 1000 to 1216 m asl).

Over large areas of the Shillong Plateau there are outcrops of sandstones which may be marginal facies of either of the three limestone bands of the Shella Formation, or may be one of the intervening sandstones, or even the basal Langpar Formation. In the absence of fossil evidence, subdivision is difficult or impossible, and for convenience, it seems necessary to retain as a purely lithological term the old name Tura Sandstones of Medlicott (1869).

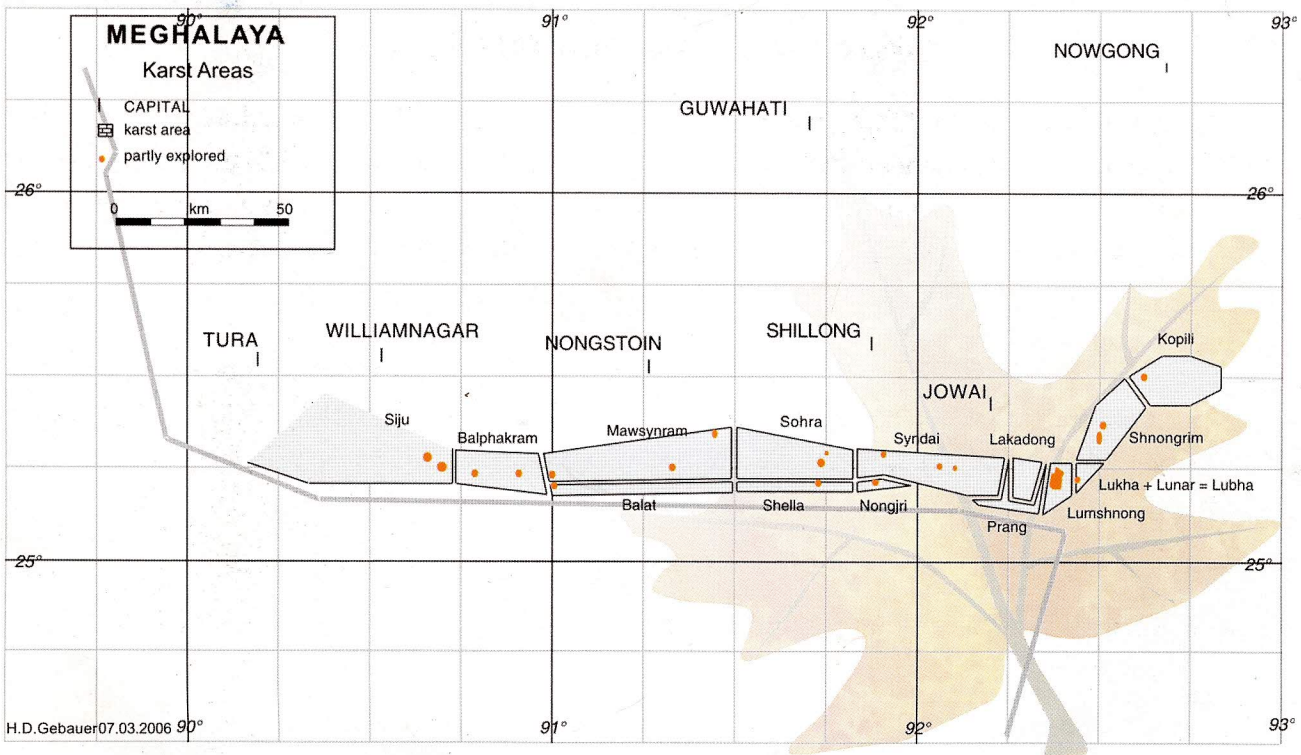
Karst & Cave Areas

Caves are normally formed in sedimentary rocks especially limestone. In Meghalaya they are developed in an almost 300 km long belt of diverse sedimentary rocks occurring along the southern and south-eastern borders of Meghalaya and Mikir Hills. The Khasi Hills, Jaintia Hills and the Garo Hills all have their fair share of caves.

The Khasis have a legend that explains the geology and formation of the karst areas of Meghalaya:

"U Ramhah died on the hill-side alone and unattended, as the wild animals die, and there was no one to regret his death. When the members heard of his death they came in a great company to perform rites and to cremate his body, but his body was so big that it could not be cremated, and so they decided to leave it till the flesh rotted, and to come again to gather his bones, but it was found that there was no urn large enough to contain them, so they piled them together on the hill-side until a large urn would be made. While the making of the urn was in progress there arose a great storm, and a wild hurricane blew from the north, which carried away the bleached bones of U Ramhah, and scattered them all over the south borders of the Khasi Hills, where they remain to this day in the form of lime-rocks, the many winding caves and crevices of which are the cavities of the marrowless bones of the giant." (RAFY 1920 reprinted 1985:119).

Meghalaya Karst Areas



KHASI HILLS

The limestone belt of the Eocene Shella Formation follows the southern border westwards from Nongjri area through Shella, Mawsynram and into the Langrin area.

Between Therriaghat and Shella river, three (Upper, Middle, Lower Sylhet Limestone) bed gain a thickness of 200 m. Between Shella and Bholaganj (N25°11' to 25°13' and E091°41' to 091°47') four limestones run East-West along a monoclinal flexure and plunge steeply (55° to 75°) against the Dawki fault. The Middle Sylhet Limestone band is widely exposed in the area and about 65 to 100 m thick. The Upper Sylhet Limestone band is 30 to 60 m thick and overlain along the southern margin by steeply dipping sandstone and conglomerate beds of the Kopili Formation of Oligocone to Miocene.

In the neighbourhood of Cherrapunjee (Sohra) at Lum Lawbah and Mawsmai, the Lower Sylhet (Lakadong) Limestone is composed of a 9 m thick basal dolomite underlying an 18 m thick upper limestone.

To the east of Cherrapunjee several scattered patches of Lower Sylhet limestone occur on the Syndai Plateau, near Nongtalang and near Pynursla and Lyngkyrdem area.

JAINTIA HILLS

In the Jaintia Hills, the Shella Formation of the Jaintia Group shows richest development within an area of 200 square kilometres between Jadukata river in the west and Lukha river on the east where the belt comprises all the three prominent (Lower, Middle and Upper) Sylhet Limestone members with two intervening clastic sandstone beds (Middle and Upper Sylhet Sandstones).

Further north, and at higher elevations, only the two lower bands are found in the vicinities of the Lakadong-Umlatdoh Plateau (25° 11':E092°16') and Lumshnong village (N25°11':E092°23'). Two isolated outliers of the Lower Sylhet Limestones occur to the west of Sutnga while extensive occurrences of karstified limestones are found on the Shnongrim and Nongkhlieh ridges bordering the Litang (Litein) valley.

At Khaddum (N25°09':E092°27'), where the rivers Lubha and Lunar join to form the Lukha, the limestone belt swings towards north and extends with the immediate dying out of the lower and middle bands. A single, 80 m to 90 m thick limestone band composed of Prang (Upper Sylhet) Limestone transgreding into underlying Garampani Limestone (Kopili Formation) continues via Umthe, Nongkhlieh and then across the Kupli river into Garampani.

GARO HILLS

Here, the Upper Sylhet Limestone occurs in a narrow but more or less continuous belt along the southern slope of the Tura Range. In the Simsangre valley, around Siju (Siju Arteka: N25°17':E090°43'; Siju Songmong N25°18': E090° 43'), the 90 m high sequence of Upper Sylhet Limestone can be subdivided into basal 25 meters of earthly and marly limestones which are topped by 75 m of hard, massive bands and cliff-making bands.

Smaller deposits of limestone have been found near Rongrengre (N25°34':E090°33') and Jarkhre Rongthak along the Simsang valley and also along Darang Era Aning in the west Darengre coalfield (N25°24':E090°27').

Speleo-History Of Meghalaya

Most of the obvious caves in Meghalaya have been entered for some distance by the local people. One of the caves at Syndai, probably described as "Brahmine cave of Sylhet" by Walters in 1820, was used by the Jaintia Rajas to keep their families secure during times of war.

Only in 1827, a certain Captain Jones measured a length of 1.607 m in a "*Bhuban Cave*" (not identified) and on 9th December 1828 the Misters Walters, Campbell & Terraneau surveyed another *"Bhuvan Cave"* (Krem Lymput) which till today is visited by the local people of Nongjri village every alternate year during their tribal religious festival.

In the same year Hamilton (1828: East India Gazetteer.- vol. 2: 426-427) notes a certain "Boobooan Cavern" has been explored as far as a mile by Captain (F.A.?) Lister, etc. and in May and April 1829 Captain Lister, commanding the Sylhet Light Infantry, put his caving experience into practical use and penetrated into the cave hideouts of the Khasi insurgents (Pemberton 1835 reprinted 2000: 225, 247; Mackenzie 1884 reprinted 1995: 223; Lahiri 1954 reprinted 1994: 102).

Under British rule several sites of speleological interest were noted. On 22nd May 1832 Mr. W. Cracroft (Officiating Agent to the Governor General since August 1831), Mr. Furnell and Col. Watson and Mr. Rhodes found on Lum Lawbah near "Chirra Punji" an *"extraordinary natural well* [where] *a stone thrown into fell into water at the end of about three seconds from dropping it"*. By then, Mr. Furnell had already discovered a large cavern with gypsum crystals near Sohra or Sohrarim (Cracfort 1832).

By 1840 relates Captain Fisher, formerly Superintendent of "Kachar and Jynta" (Cachar, Jaintia), to the "Cavern of Booban" in a way which takes it for granted that this cave is well known to the reader of the *Journal of the Asiatick Society of Bengal* (Fisher 1840: 814-815).

A few years later appears Lieutenant Yule (1844: 616), of the Bengal Engineers, to be the first who recognized karst: four sinking streams near Cherra, of which one (Krem Mawkhyrdop?) vanishes in a cleft below a limestone cliff. In the early June of 1850 recorded the botanist Joseph Dalton Hooker (1854-1855 reprinted 1980, 2: 280) "*nummulitic limestone, worn into extensive caverns*" at " *Terrya*" (Therria) and "*considerable caverns penetrating the limestone at Churra Poonji* (Cherrapunjee, Sohra)". Thomas Oldham (1859: 145) reported sinkholes at Lakadong and noted in 1856 (Oldham 1859: 135-138) the existence of caves at Mawmluh and Mawsmai near Cherrapunjee.

In 1867 Henry H. Godwin Austen (published 1869), incharge of the Topographical Survey, observed pot-holes and cave resurgences in the Eastern Garo Hills near Nongkulang, Nongumlai and Rongsiang river valley. In November 1867 he discovered the underground drainage of the Chibak River via the Kutabram sink to the Gabir Rugsir.

In 1875 Mr. Sanderson, who was on an elephant catching operation, in his function as Superintendent of the Government Kheddas, came upon the entrance of Dobhakol (Siju) where he spent the whole day. At the furthest point he reached, he left a message in a bottle which was found 47 years later at a distance of 1190 m from the entrance by Stanley Kemp and B.N. Chopra (1924: 8).

The Dobhakol at Siju was also visited in 1917 by R. Friel, the Deputy Commissioner of Garo Hills who made the first collection of cave fauna.

1922 saw the most comprehensive scientific project ever undertaken in India, which was organized by Kemp and Chopra of the Indian Museum, Calcutta. During their three weeks exploration of the cave, about 1200 m of the passage was mapped, its water courses were negotiated by swimming with petrol lamps, the sumps were attempted with the aid of electric torches, samples of rock were collected, fish were caught and bugs collected. It remained the longest cave of India until 1981 and it still remains the most researched cave in India.

From 1922 onwards most of the early cave explorations were of an informal nature conducted by inquisitive scientists like Shiba Prasad Chatterjee (1936) between 1928 and 1932 and Knut Lindberg (1949, 1960) in 1947 or resident British Army Officers (Allsup 1939.04.17, 1934; Roberts 1949) and odd casual visitors (R.N. De 1932, 1936 Gebauter 1980).

It was only in April 1992 when the Meghalaya Adventurers' Association first started to explore caves. This was followed by a team of four British cavers, led by Simon Brooks, following up on information provided by Daniel Gebauer. Two years later, Simon Brooks and Daniel Gebauer with 6 other british cavers again visited Meghalaya and mapped 14.5 km of cave passage.

After a meeting between members of the Meghalaya Adventurers' Association and the British-German Team of 1994, cave explorations from 1995 onwards took a more fruitful turn. Since then, cave explorations in Meghalaya, have been held annually. This collaboration has benefited all the cavers, both domestic and foreign.