FARNHAM GEOLOGICAL SOCIETY

Mr. Taylor

NOVEMBER 1988 NEWSLETTER

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Welcome to the second edition of the Society's rejuvenated Newsletter. For this issue we are indebted to Cath Clemesha, Daphne & Cliff Tarbox and Jill Brash for providing us with accounts of trips they have undertaken to various parts of the country. The success of the Newsletter depends upon you, the Membership, providing the material. So, if you have been on a recent field trip, visited a site of geological interest, or have any other news or views you would like to share, please get in touch with the Newsletter Editor, David Caddy.

THE TALE OF THE ICHTHYOSAUR

PART 1

We had enjoyed Dave Taylor's May 1987 trip to the Peak District and North Yorkshire Coast so we decided to spend more time at Whitby, mainly fossil hunting. The tides were suitable on the August Bank Holiday, so Wally and I invited interested Members to join us. Eleven of us journeyed up to Yorkshire, and stayed at the Carhill Hotel again. This time, I think everyone had hot water!

The idea was that we would suggest interesting localities and, together with Dave's handouts, everyone would decide where they wanted to go. In the end, almost everyone, almost every time, came with us.

On the first morning we stood in the mist under the Whitby East Pier, waiting to get onto the beach. Once there, we wandered along picking up some good ammonites and small brachiopods. Most of us lunched at the Fish Restaurant in the Old Town. In the afternoon, in warm sunshine, we walked along Whitby West beach towards Sandsend. There wasn't much to pick up, but it was a pleasant stroll. In the evening we went to the Spa Theatre for some seaside variety. Our fame (notoriety? Ed's note) went ahead of us as our host had told the compère we were coming and we were announced to the audience. It was rather embarrassing!

On Sunday the aim was to go to Port Mulgrave and Staithes. As the suitable tide was late morning, we went first to Kettleness, which had been an alum and iron ore mine, on a headland north of Whitby. It is quite an interesting place historically. We weren't expecting to find many fossils. Marjorie, coming upon what looked like a row of knuckles in the shale, suggested that Robin, her husband, might like to investigate. They were, of course, part of the tail of an Ichthyosaur. Realising what had been found, we all dug up and down the line and uncovered about six feet of vertebrae. What were we to do with this marvellous find? We felt that we ought to report it to the curator at Whitby Museum. We were very conscious of watching eyes from the cliff path above us, so we nonchalantly covered up the Ichthyosaur, casually marked the spot, and left.

Our next stop was Port Mulgrave, a little further up the coast. There is a steep path down to the beach, some 300 feet below the cliff top. The path had been improved with wooden steps, compared to the muddy scramble when I first visited the site in 1982. There is a harbour from which iron ore, mined inland, used to be shipped. We had a picnic lunch then wandered up and down the beach. There were plenty of squashed harpoceratid ammonites, and a few pieces of Jet were found. There was a constant patter of small fragments of shale falling off the vertical cliffs, so most of us kept well away. Wally walked nearly to Staithes in search of ammonites in nodules, which we had found on a previous trip. He found plenty of pecten bivalves.

By the time we had finished here it was too late to go to Staithes, so we went back to Sandsend were a fellow hunter had told Rose we should find carnelian (a red botryoidal chalcedony). We spent a pleasant hour or so sifting the shingle through our fingers and did, in fact, find a few small pieces of carnelian. It turned out later that we should have been looking somewhere else, nearer the cliffs.

In the evening we rang the museum curator. At first he was off-hand, saying that there are often shale concretions the shape of vertebrae. However, he agreed to see us the next morning. When he saw the vertebrae he said it was, indeed, from an Ichthyosaur. We were surprised when he said that we could dig it out, as we had found it. He would be interested to have details of locality, size etc., later. Six of us went back to Kettleness and removed the covering. Further searching uncovered part of a rear paddle, but no sign of the other one. We photographed it from all angles and, after Robin had numbered all the vertebrae, we carefully packed it and transported it home. We had a farewell lunch at the Fish Restaurant and set of for Farnham. The journey down the M1 took 8 hours, due to hold-ups.

PART 2

As the section of the tail that we found was lying undisturbed on a bed of shale we had to go back and look for the rest of the skeleton. Robin Outlaw, Colin Brash, Wally and I went up again the first weekend in October. For weeks we had been saving cardboard boxes and newspaper to wrap the bones, made out a large grid to record the bones found, and prayed.

We arrived at Kettleness at about 3:30 p.m. After a preliminary look, a plan of action was made and exploratory digging took place. The results were not hopeful. Our host at the Carhill Hotel made a great fuss of us and discussed our find and our hopes.

Next morning was spent digging trenches across the area where the Ichthyosaur body might be. There seemed to be a fault just where we had stopped digging the time before, and there was loose earth were the body should have been. After 2½ hours of digging we reluctantly decided that we were not going to be lucky, or famous. The body may possibly have been removed when the area was a working quarry, eroded away, or possibly still exist several feet down if it lay on the downthrown side of the fault.

We had our lunch at Runswick Bay, sitting in hot sunshine under the sea wall. We poked about in the boulder clay, finding some interesting erratics. We got to Staithes this time, but didn't find anything much, except a café selling cream teas!

Our host was most sympathetic about our disappointment, and thought we needed constant attention at dinner. It turned out that he had mobilized Yorkshire T.V., the local press, and heaven knows who else, to interview us and publicize our finds. He probably would have set himself up as a centre for Ichthyosaur hunting.

Next morning it was raining quite hard and the men went went fossiling on Port Mulgrave beach. I sat in the van and watched a steady stream of students on a sponsored walk along the Cleveland Way. They didn't seem to mind the rain.

We had a tedious journey home, with several hold-ups on the A1 and M1.

P.S.
We started preserving the bones by brushing away the surplus shale and then coating with a polyurethane varnish, on the recommendation of a palaeontologist from the Natural History Museum. Then, after much discussion, it was decided by the Committee to donate the tail to the Bristol City Museum for their display of 'sea dragons' next year, and then for study. They will preserve and mount the material and store it under suitable controlled conditions. We will have an opportunity to see the finished Ichthyosaur tail next year by arranging a Society trip to visit Bristol City Museum.

Cath Clemesha (February 1988)

FIELD EXCURSION TO THE WEST MIDLANDS
(29th April - 2nd May 1988)

On Friday 29th April 1988 with two children, Jonathan and Christopher, 17 adults, and our leader Paul Olver, the party set off for Solihull to look at the geology of the West Midlands.

We left at 5 p.m. from Farnham and our driver quite wisely decided to avoid the motorways as much as possible, taking a route via Oxford and Banbury. We had an hour stop on the way to refresh ourselves and arrived at the hotel by 10.15 p.m., having seen very little traffic.

Woke up Saturday morning to a dank, dismal, dreary day. As breakfast was from 7 a.m. there was no rush, and people strolled in when they liked. The coach left on time at 9 a.m. with everybody putting on their boots and wondering if the day would improve. We took the M62 and headed towards Dudley. The fog on the motorway did not look like lifting. Our first destination was Hailstone Quarry in the Rowley Hills. This quarry, like so many, is being used for roadstone and exposes basalt/dolerite and Etruria Marls belonging to the Upper Carboniferous Series. There are several intrusive masses of basalt outcropping within the bounds of the South Staffordshire Coalfield in the Rowley Hills. The 30m thick Rowley mass is intruded into the Upper Carboniferous Etruria Marl Formation. It is crudely columnar-jointed throughout and shows good spheroidal weathering.

As we descended into the quarry the fog obscured the impressive view that we should have had looking down. But despite the fog we were rewarded by seeing the bottom junction of the Etruria Marl and the basalt, which had been discovered only two weeks before our arrival and which would soon be lost as the quarry is back-filled. Everyone tried to get as close as possible to see this junction, but alas poor Joan Prosser stepped on what looked like firm ground, and soon began to sink. Shortly afterwards young Christopher decided to take a short cut to reach his mum and he also began to sink. Both recovered quickly.

After leaving the quarry, our next stop was to meet the wardens at the Saltwells Nature Reserve, who were to take us around. Here we saw a Silurian inlier in the middle of Carboniferous Coal Measures, with Red (Downtonian) Marls, Temeside Shales, Downton Castle Sandstone and Upper Ludlow Beds, where some of the Bone Bed was found. We did not have to move the coach to reach food as the pub, called the Saltwells Arms, was adjoining the reserve.

In the afternoon, the weather had improved and the sun was shining, and we went to Wren's Nest, Dudley. The expectation here was trilobites. We first went to the new exposure which the Nature Conservancy Council had dug out to expose the full succession of rocks to be found in the area.

In Central England there is no record of any sediments of Ordovician age, and the earliest Silurian is also absent. The lowest known beds being of upper Llandovery Series. Most of the basal beds of this series are sandstones, succeeded by shallow water siltstones and mudstones. At times the sediment supply diminished sufficiently for limestone to be formed and reefs developed. Here at Wren's Nest it is possible to see the Wenlock Series of limestones and shales as well as the Lower Ludlow Shales.

With all eyes down we started our journey around the edge of the Wren's Nest. The trilobites seemed to be hiding from us, but all other kinds of fossils were being found, such as bryozoa, crinoids, corals, brachiopods and gastropods. Paul kept a reasonable pace and allowed the party time to look. We went up past the caverns, which are now fenced off because of the danger, from which limestone was mined and then transported via canal. We completed our journey around Wren's Nest still without any success in finding trilobites. The coach was in sight when Wally Stedman said that he knew where they could be found. With fingers crossed, he showed us the way. After a few minutes a piece was found and, before long, most people had found a specimen; TRILOBITES AT LAST! Now we could go back to the hotel.

Sunday morning appeared to be the same as Saturday, cloudy and showery. But after a good breakfast we set off to find the site behind the bus station at Rubery. When we arrived, the bus station had disappeared only to have been replaced by a fly-over; but the outcrop that we wanted was still there. At the close of Cambrian times much of Eastern Wales and Central England was uplifted to become dry land. It was not until the middle to late Llandovery that the sea again transgressed across the Midlands. Therefore, there is an unconformity, with Silurian Rubery Sandstone sitting unconformably on the Cambrian Lickey Quartzite. We were able to see this unconformity. Some fossils were obtained from the Rubery Sandstone.

We left Rubery to make our way towards the next quarry, and on the way we were to stop for refreshments. Most unlike Paul, we arrived at the Bull's Head, Furnace End, five minutes before the pub opened. Soon as the door opened we all piled in. This was a lovely old public house and is a listed building. Some of the locals were dressed in Cowboy outfits and apparently gathered quite regularly. After this enjoyable stop we set off for Windmill Hill Quarry, Nuneaton.

On arrival Paul did his usual out and quick away. The rest of us, seeing the sun felt very complacent and left our wet weather suits in the coach, and then followed Paul. He led us first into a sea of slurry. He about turned and said that the quarry had changed since he was last there and tried another route, which was successful. This quarry consisted of the Precambrian Caldecote Volcanic Formation, which was laid down at the same time as Precambrian rocks found at Charnwood, Anglesey and Brittany. These were overlain by the Hartshill Quartzite Formation of the Lower Cambrian Comley Group.

Various kinds of volcanic rocks were found, as well as black calcite crystals. When I produced a piece of rock and showed it to Paul and asked him if it was malachite he replied, "not in this quarry, it must be fluorescent paint". Not believing him, I went to Lothar Neubert who agreed with me. Presently, Wally found a piece of chalcopyrite which confirmed that copper was present. Paul gave in and said that yes it was malachite; several pieces were eventually found.

Because we were all so intent on looking at the rocks, nobody noticed the weather. Suddenly, over the edge of the quarry, a dark cloud appeared. We all started back to the coach, but too late; the heavens opened with thunder, lightening and hail. By the time everyone got back to the coach we were all drenched and our coats and trousers could be wrung out. The ladies decided to take off their wet trousers and put on their wet weather overtrousers instead. The men were made to stay outside of the coach, as it had now stopped raining, while this operation was performed. Afterwards, some of the men decided to do the same. Thank goodness it was the last stop of the day. Back at the hotel it was a rush for the baths, followed by a drying out of the clothes on the radiators before the morning.

Monday, packing day, and on to the coach for a 9.30 a.m. start. It was raining. Our first stop was Southam Cement Quarry, which is in the Blue Lias of the Jurassic System. By the time we arrived it had stopped raining. Not to be caught a second time, we all put on our wet weather gear. The walk up to the quarry was very slippery. Paul suggested that we did not go right down into the quarry because of the stickiness of the shales. We all hunted around and found some brachiopods, ammonites, *Nautilus*, *Liostrea* and bone.

Just as we were leaving to go back to the coach, Cath Clemesha stepped on to a piece of ground which looked solid. However, it was not, and stuck fast, Cath began to sink. Rescue came and out Cath popped, but alas, try as Wally might, her boots gradually disappeared from sight; perhaps to be found some day by future geologists. Thus, Cath had to walk back to the coach, BOOTLESS.

In the afternoon we set off for our last visit of the weekend, to Hornton Quarries, Ratley where we saw the Marlstone Rock Bed and Hornton Stone of the Lower Jurassic. This stone is used for both building and ornamental purposes. This quarry was very dry and the rocks were very rich in fossils, many of which were infilled with calcite. We all had an enjoyable time collecting before we made the final part of our journey home. Thanks must go to Paul for leading this very exciting and enjoyable weekend, and to Wally & Cath for the excellent hotel (not including the bar!) that they found.

Daphne and Clifford Tarbox (May 1988)

As part of the May 1987 field trip to the North Yorkshire coast, the journey back was broken by a visit to the Creswell Crags SSSI. The following article is about the Quaternary archaeological history of the Creswell Crags area. The article was originally printed in the newsletter of the local Archaeological Society.

CRESWELL CRAGS

Creswell Crags, near Worksop, Derbyshire, and seven miles north of Mansfield, have been occupied at various periods in Palaeolithic, Mesolithic and Neolithic times.

The Magnesian Limestone, of which the Crags are made, was originally laid down as shallow water shelfal limestones with patch reefs in the Late Permian (c.250 million years ago). It was later dolomitised; that is, some of the calcium carbonate was replaced by magnesium carbonate, accompanied by a change to a closer packed molecular structure resulting in the development of vugular pores in the rock. Over time, the action of water has enlarged these pores to form caves. Later, during the Ice Ages, glaciers and a river cut down through the rocks, leaving a row of caves on either side of a small gorge. Early man took advantage of these convenient shelters.

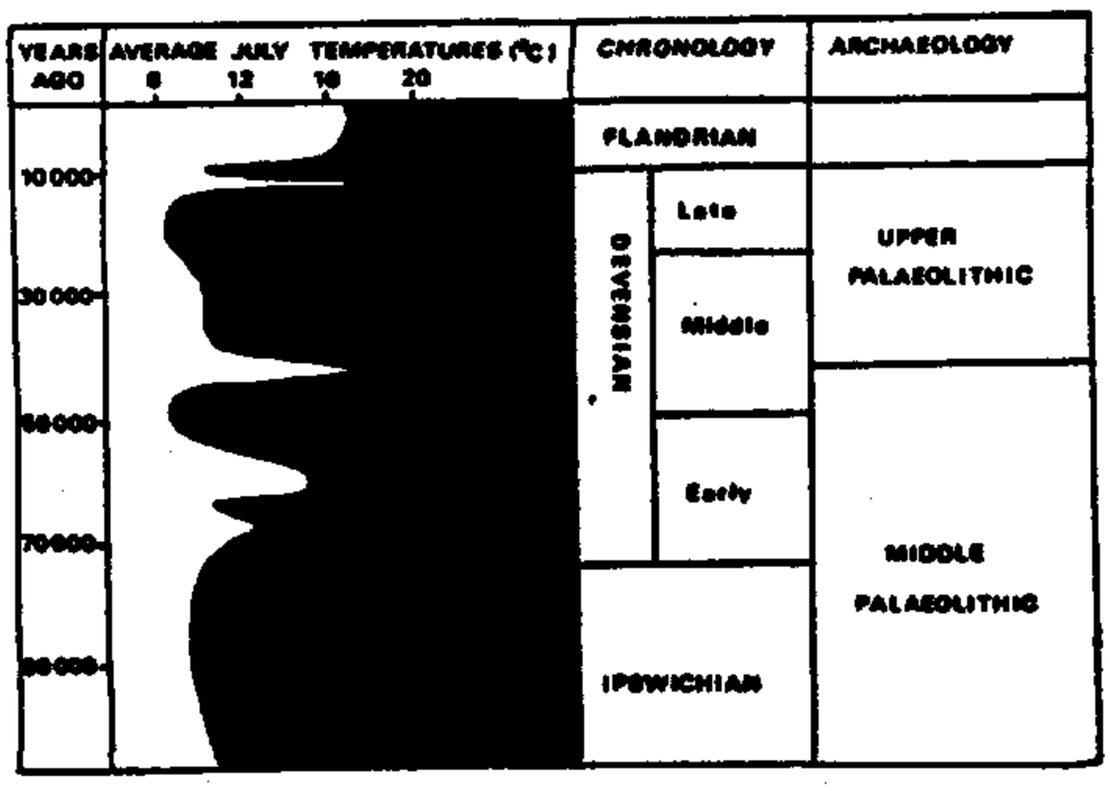
The idea that prehistoric man lived mainly in caves is probably wrong. There would not have been enough suitable caves to go around. Remains have been found in Spain of tents made from mammoth bones and tusks covered with skins, no doubt wooden uprights were used as well. Caves, however, if deep and dry enough were the more desirable residences in the tundra conditions south of the Quaternary ice sheets, and the caves at Creswell were high up in the property stakes.

The Victorians began excavating at Creswell with great enthusiasm in 1862, and many parties worked here in the latter part of the 19th century. Robert Laing, in the 1880's, found leopard bones here, since mysteriously vanished. He removed several feet of sediments from a small cave, cleaning it out completely, all evidence lost. The Reverend Magens Mello, one of the inimitable Victorian clergymen, worked in many of the larger caves. Apparently he would sit outside the cave with a table and chair, deciding which bones to keep and which to throw away. No one knows how many clues to the past were put on the scrapheap!

Much more careful scientific work has been done in this century; Garrod 1926, Armstrong 1931, Kitching 1963, Jackson 1967, Campbell 1977. From 1978 Rogan Jenkinson has been in charge of the research at Creswell Crags. In the excavation of Dog Hole Fissure, under Jenkinson's direction, each layer has been measured, dug and sifted; large numbers of listed and identified artifacts have added to our knowledge of Palaeolithic times.

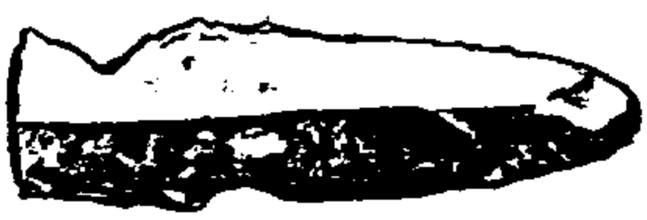
The main occupants of the caves over the millennia were animals. Bears, leopards, cave lions and wolves were among the tenants.

The last ice age, the Devensian, started 70,000 years ago, stopping man from crossing into Britain. About 43,000 B.P. (before present) the climate ameliorated during an interstadial period (Upton Warren Interstadial), so that the ice sheets retreated.



Neanderthal Man (*Homo sapiens*) moved north to Britain. He occupied Creswell, leaving behind core stone axes made from the local Sherwood Sandstone Formation (Early Triassic) pebbles. The ice returned again and Creswell was abandoned to the animals.

Another interstadial began in the early Upper Palaeolithic period (Middle Devensian) in 30,000 B.P. giving an open landscape with clumps of juniper, birch, pine and willow. Horses, reindeer, red deer, giant Irish deer, bison and woolly rhinoceras roamed the land and could be hunted for food; competing for the food were wolf, fox, lion, bear and hyena. Man came back across the landbridge from France between 27,000 to 26,000 years B.P. This time not Neanderthal Man, but *Homo sapiens sapiens*. Creswell Crags again entered the property market to give them shelter. They left many artifacts behind; scrapers, awls, and long slender unifacial leaf points, all made from flint, bone and ivory tools, including a bevel based ivory point with engraving, were found.



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6

7

30-27,000 years ago

6 Point
8 Blade
7 Laurel leaf point

In 23,000 B.P. ice advanced again and although Southern England was not covered by ice it was not a hospitable land and man returned to the Continent until the end of the Devensian ice age.

By 13,000 B.P. (Lake Windermere Interstadial) the climate was becoming warmer and man came back to Creswell Crags. So much has been found from this time that it is called Creswellian. The landscape was still tundra, with woodland in sheltered places. Horses, reindeer and elk were the chief sources of food. Possibly horses and cows were herded but, from the bones, horses were the main food. A large hearth was found in one cave surrounded by burnt and broken bones.

The tools of Creswellian man were much more sophisticated: angle backed blades, steeply retouched awls, scrapers and leaf points in flint. Bones were used for tools, including needles, harpoons and what might have been part of a bow have been found in abundance in late Palaeolithic caves.

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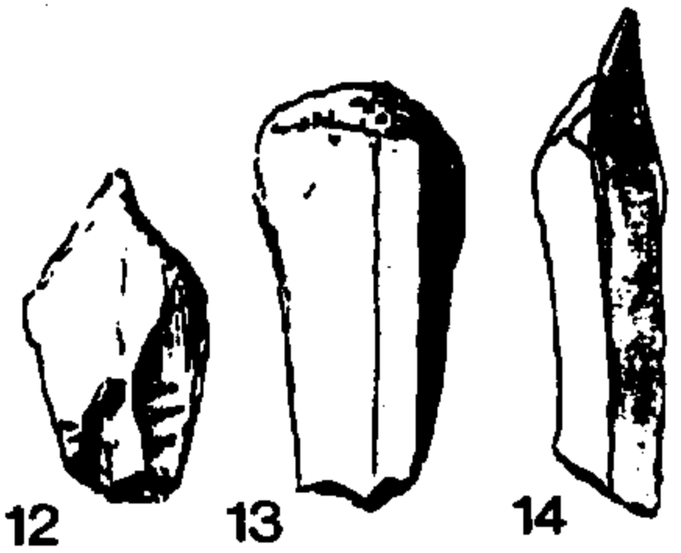

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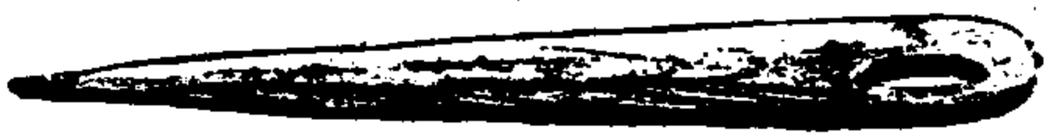

10

13-11,000 years ago

8 Horses head engraving
9 Decorated bone
10 Bone needle
12 Penknife point
13 End scraper
14 Creswell point

Some artifacts were decorated. Although Britain never produced the superb cave paintings of Spain and France, some engraved line drawings show artistic talent. The finest example from Creswell is the Horse's Head found in Robin Hood's Cave. It is engraved on the rib of a herbivore and is possibly *Equus przelwalski*, which was widespread then, but is now extinct. Another engraving, found in Pin Hole Cave is the so-called Dancing Sorcerer; it shows a man with a goat's head mask and is similar to a cave painting in France.

Creswell Crags were used by Neolithic, Iron Age farmers and also by the Romans for storage.

Present day Creswell Crags is a fascinating place. There is an excellent visitor centre, with books, pamphlets, displays and a video. To walk around the gorge and look in the caves gives some idea of how life was for the hunter-gatherers of the Palaeolithic.

Jill Brash

CORRIGENDA

On page 1 of the March 1988 Newsletter, on the thirteenth line from the bottom of the page - the name of Dr. Jan Hawkes was erroneously given as Dr. John Hawkins.

REFERENCE LIBRARY

The following items have been received into the Reference Library and are available to Members for loan:

1. Field Trip Notes; Sedimentology and Stratigraphy of the Mendips, 3rd-5th October 1986.

2. Field Trip Notes; Carboniferous of the Peak District and Jurassic of North-East Yorkshire, 23rd-29th May 1987.

3. Field Trip Notes; Southwest Scotland, 19th-26th August 1988.

4. Proceedings of the Geologists' Association for 1986 & 1987.

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