Farnham Geological Society

(A Local Group within the Geologists' Association)

NEWSLETTER SEPTEMBER 1993

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MEMBERS CORNER

The committee of the **Farnham Geological Society** wish to convey their deep sympathy to Marybeth Hovenden on the sudden death of her husband Brian at the end of June 1993.

We are glad to welcome Melene Barnes' return after a spell in hospital after suffering a fall.

The membership are greatly indebted to Hugo and Aubrey Lamdin-Whymark for arranging the Societies' display at the 1992 Annual Reunion of the Geologists Association. For this years Annual Reunion the FGS intends to show specimens from several South American countries provided by Peter Cotton and Kate Jemmett.

Many thanks to Marybeth Hovenden for the very polished report on last May's field trip to the Southern Weald.

Cath Clemesha kindly provided most of the material for the report on last year's North Devon field trip. She also provided the book review on Geology and the Local Museum by Simon J Knell and Michael A Taylor.

Your Editor hopes that Gryphaea arcuata may continue to remain "right side up"!

NEW VENUE FOR 1994

After many years of meetings on the second Friday of each month except August, the **FGS** have had to leave the Farnham Adult Education Institute. Our new venue is the **Farnham Central Club**, 13 South Street. It is conveniently located opposite the Sainsburys car park where there should be plenty of space available for our usual Friday gatherings.

NORTH DEVON FIELD TRIP 2-5 OCTOBER 1992

Twenty-two members attended the field trip and had the pleasure of renewing the acquaintance and enjoying the hospitality of Chris and Sally Cornford at the Hallsannery Field Centre at Bideford. We left Farnham at 0855 in cool fresh weather aboard a coach driven by Ian the son of Martin who was our driver on the 1990 French field trip. After a comfort stop at Membury Services the coach pulled up at Taunton Dean Services on the M5 for lunch. Marjory Outlaw met us here and joined the party.

As we travelled west the weather became cloudy with rain at times. At 2.30 pm in Ilfracombe we met our leader Chris Cornford who had brought Elizabeth Matthews from Hallsannery and also Pat and Colin Wilson who had motored direct from Totnes. Now that our group was complete we got down to the serious business of examining rocks on the beach.

The Ilfracombe rocks divulged a wealth of information. "Way up" criteria were established, feeding burrows and tension gashes filled with vein quartz revealed the area to be a delta considered to be Devonian in age. The promenade round the cliff goes through an anticline which was convenient for studying the cleavage/bedding relationship and varied abundance of quartz-filled tension gashes.

We rejoined the coach in the Bus Park by the harbour at 4.40 pm and went straight to Hallsannery, missing the Brittadon felsite quarry as we had to be there by 6 pm for sherry. Over sherry we met a young German couple, Christian and Leike. She is a geographer and he, a geologist who got his Ph.D on Carboniferous rocks from this area. After an excellent dinner Chris Cornford outlined the plan for the weekend, after which our famous Scrabble addicts were at it again!

Saturday morning we left in strong wind and blustery showers for Woolacombe via Barnstaple. Woolacombe Beach is a splendid broad strip of sand two miles long backed by sand dunes mostly grassed over. Towards the south end there were some interesting Pickwell Down Sandstones which were supposed to be rich in feldspar. Some were stained purplish with ferric iron,
others greenish with ferrous iron.

It was a strenuous walk into the wind back to the coach but fortunately the rain had stopped. Lunch was taken in the coach at the car park.

Baggy Point was our next destination. Most of the party clambered down a steep rough path to the lower cliff looking for a particular limestone layer 1-3 inches thick rich in small fossils which Chris found. This winnowed shelly limestone horizon contains a rich assemblage of stunted fossils; gastropods, brachiopods, bivalves, orthocone cephalopods and crinoids. The fossils all appear to be black in colour. The rest of the rocks of the Baggy Beds were fluvio-deltaic sandstones and silty shales. Though it was fine and sunny a black cloud was

coming up fast and so seven of us decided that a cream tea in the dry was better than a soaking from the inevitable rain.

From there we drove along the road skirting the massive dunes of Saunton Sands. We walked to the beach and saw a splendid unconformity; Upper Devonian Lower Carboniferous Pilton Shales (shallow marine sandstones and silts) overlain on raised wave-cut platform by pre-glacial raised beach deposits of carbonate cemented sands. There were fragments of barnacle beds 10,000 years old. We then went further along on rough very slippery rocks to see the "piece de resistance", a magnificent boulder of red granite. This boulder was between the silt and limestones and the lowest part of the cemented "head". It weighs about 8 tons and looks to be about 7'X 7'X 7' of very handsome reddish granite or granodiorite. Chris said it came from Norway and the problem is how it got there. One can only suggest that it was dropped from a floating iceberg calved from a Norwegian glacier.

There was no time to look at cherts in Swimbridge quarry but we got back just in time for dinner. Afterward Chris showed slides of his trip to China and with it a discussion of Sunday's visits.

Sunday was dry and the afternoon very sunny. We proceeded south along the A39T and 50 minutes later arrived at Bude carpark where we purchased leaflets and brochures at the information centre. After leaving the coach at Penhalt Cliff carpark (map ref 188005) we walked down a steep cliffside path to Millook Haven where the standard photo of the Crackington formation is found in all geology text books. These spectacularly folded turbidites and shales are Upper Carboniferous in age. Marybeth found a 3 inch layer o shale rich in small goniatites. The 300 foot climb back to the coach gave us all a good appetite. Many paused to admire and photograph three splendid parasol mushrooms (lepiota) growing in the scrub near the cliff edge. Lunch was taken by the coach with fine views of Widemouth sands to the North.

Our final visit was to Upton, just south of Bude, where we scrambled for a mile over ribbed rocks that headed straight out to sea. The beach cliffs were spectacular but we were all glad to reach a zig-zag path to the cliff top at Efford Beacon (201056) and walk back to the coach along a grassy cliff top path.

After an excellent dinner at Hallsannery we examined rock thin sections through a petrological microscope.

There were good sunny intervals on our last morning. We went eastward along the A361T towards S. Molton to visit Bamfylde mine (740327) to collect copper, iron and manganese minerals from the old mine dumps. Next stop was just beyond Heasley Mill (738322) and spent a morning "fossicking". Lunch was taken there, livened by numerous young pheasants eating corn from feed dispensers. Here we bid goodbye to the Wilsons, Marjorie Outlaw and Elizabeth Matthews.

Then on to South Molton to do an interesting circular tour on foot to find the toilets. South Molton is a pleasant little stonebuilt typical country market town.Our return to Farnham which we reached at 6.17 pm was uneventful.

This was the last field trip organised by our Field Secretary, Peter Cotton. The Society owes him a great debt of thanks for the many enjoyable and successful visits he has arranged.

EAST SUSSEX FIELD TRIP

May Bank Holiday

Blue skies,hot sun, the smell of garlic in the cool woods; beaches, brick pits, chalk downs; good food, friends. Scrabble. the view over the sea and Palace Pier from the bedroom window; these are some of the abiding images that recall the East Sussex field trip for me.

We journeyed to Brighton on the Spring bank holiday by coach. At dinner in the Queens Hotel we were introduced to Rory Mortimore, our leader for the three days. A local man, his knowledge of the region and involvement in the engineering problems of the Lewes to Hove Trunk Road, and his special own subject, Chalk, were to contribute greatly to everyone's enjoyment. Stewart Ullyott was there to assist him.

The plan of study over the three days was ideal. Moving sequentially around the Paris Basin we began with the Ashdown Beds near Bexhill-on Sea, and a platform covered with dinosaur trackways! Thick-lobed bivalves and irony sands indicated a deltaic lithology. We heard about the complex tectonics that underlie this area, had lunch in a Burwash pub, then examined spoil heaps at the Mountfield Pit (gypsum) at Robertsbridge.

So many forms of gypsum, and such a history to this enormous mine- we shall have to have a display case on this subject one day. Walking through garlicky woods nearby was a cool relief, and some of us collected Jurassic fossils midstream at a solitary Jurassic exposure - a distant inlier from beds in Durlston, Dorset.

On the second day, we began at a vantage point inland and north of Brighton to hear a most interesting exposition of just a few of the problems involved in road building through chalk. Our leader has been involved in interpretive research, teaching his engineering students at Brighton Polytechnic (now Brighton University) through active field work concerning road and tunnel engineering in this area. Slope stability, drainage, dissolution pipes and costs all enter the arena of problems.

We then travelled north-east and at the Keymer Brick Pit were introduced to Andrew Ross, a doctorate student, who passed round his own specimens of crocodile skin, fish vertebrae, coprolites, and long plates from a turtle's back, among many others, before we were let loose to find our own fossils in the Weald Clay.

After a barbecue pub lunch, we moved up the sequence(and several miles north) into the Freshfield Lane (clay) Pit. Passing kilns and stacks of multicoloured bricks, we came to a fossil horizon with much the same colouring. Then down a mercifully shaded lane, we entered a second pit partially filled by a slimy lake, there to discover many fern and insect fossils. Back in the yard, I was particularly interested to see the special firing method used here, somewhat different from the clamp kiln at the Kymer Brick and Tile Works of the morning.

The afternoon grew late, it was a long trip back to the coach, and the intense heat of the coach seemed unabated. Small wonder, then, when setting off in the coach for Brighton none of the party were very lively or alert. We wanted cool drinks, a swim and dinner! The fact that one of our companions had been left behind only gradually dawned upon us! Mortification, only relieved some hours hence, when he made his way back by ingenuity (and train) to rejoin our party. [Editor, may we be forgiven?]

^On the third day we began our exploration of the Chalk, where a wave-cut platform was exposed at low tide. We observed fractures and conjugate faults, *piddock burrowing*, and branching burrows called thalassinoides and chondrites. We pondered upon flint formation and the Milankovich Cycle as we walked to Old Nare Point.

After lunch at Glynde we tackled the SSSI called the Southern Grey Pit within sight of Lewes. Our group walked to the far end of a huge quarry face and worked our way back along it, up the sequence, finding many fossil markers. Rory told of the fight to save this site from development, so important as it is the last and best section for identifying Mantell's fossils, classics of the South Downs. We were all pleased with our finds, as our leader exclaimed over each one, and it was pleasing to see his enthusiasm rewarded with a *fine specimen* of a nautiloid.

Three cheers, then, for our Field Secretary, Peter Cotton, and for the **weather**, and for super field trips such as this one. Now if you'll please excuse me, I'm off to finish reading Bully for Brontosaurus, by Stephen Jay Gould, -- Highly recommended! See you on the next field trip.

Marybeth Hovenden

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BOOK REVIEW

Geology and the Local Museum, by Simon Knell and Michael Taylor, published by HMSO. £9.95 soft back.

David Caddy has bought this book and thinks that it might be of interest to members of the Society. Although it is aimed mainly at the non-geological museum curator there are useful chapters on, for example, curation, storage, labelling, display and prevention of damage to specimens, all of which could be of use for arranging our modest collections.

It highlights the problems of humidity - too little or too much (silica gel can be used to reduce humidity). Light can affect labels, consolidants and some minerals as well as atmospheric pollution such as tobacco smoke and fumes from certain wood preservatives.

There are sections on the damage caused by incorrect cleaning techniques, pyrite decay, special care of specific minerals and nine appendices, including useful addresses.

If any interest is shown we might buy a copy for the FGS Library. It is up to you!

Cath Clemesha

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REPLY TO GRYPHAEA ARCUATA

1. The creature was probably "hull down" on the sea bed.

2. It is found in Lower Lias clays, i.e. in deep water well beyond tidal currents.

3. Gryphaea larval stage would have cemented the L. valve onto a solid surface, stone or shell, and would eventually break free by its own weight.

4. Gryphaea has no "foot" so it is inert on the sea bottom and cannot alter it's position - in other words it cannot "turn over".

5. The valves could open by relaxation of the single adductor muscle. The internal ligament or resilium then pushes the valves apart at the front or "free" end. If the creature was upside down and the adductor relaxed the much greater weight of the L. valve would force the free end of the R. valve (operculum) into the mud, thus clogging the gills and suffocating the creature.

6. The presence of so many Gryphaeas up to their maximum size and no change in the clay matrix suggests that this was a living and not a death assemblage. In other words most died of old age.

7. If you take a piece of string under an inverted L. valve the point of balance is about the middle, ie. the umbo and the free front edge of the shell would be dipping equally in the mud - not much use for the creature. As the creature gets older the umbo remains the same size and weight but the point of balance shifts further forward and the angle changes - illustrated by the growth lines.

Editor

REPLY TO ANON

I've read the poem many times
To find the author of the rhymes
Should I refer
To "him" or "her"?
For Tony talked on copper mining
Puffs of air, then metal shining,
So did he toil
By midnight oil?
Jill and Colin paid attention,
Crystals clear, they'd like to mention
They might unite
This work to write.
Janet showed her slides on travels
She's keen on lavas, sands and gravels
And surmised
How dinosaurs died.
Peter plays on words for fun,
And he was there in ninety-one
Has hew made quotes from last year's notes?
This student dreams of gemstones bright
And learnt that emeralds fade in light
But doesn't pass
Remarks in class!
So in the end, it seems to me
The hand that penned was Mary-B?

Printed by enthusiastic members of the Farnham Geological society.

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