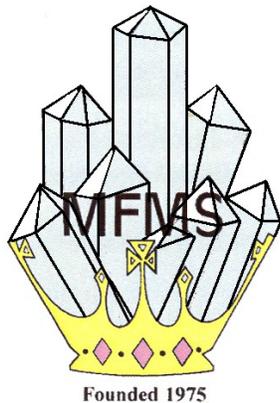


Occasional Erratics



Newsletter of the
MEDWAY FOSSIL AND MINERAL SOCIETY
www.mlms.org.uk

No. 01 December 2013

The editor of this edition of the MFMS Newsletter was Nick Baker

Cover picture

The front cover is of the River Medway, showing the M2 and HS1 bridges, viewed from Wouldham Common. June 2013

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Editor's Notes

As a new editor, I would like to take this opportunity to thank Dave for all the sterling work he did in producing *Flint and Fossil*. I have applied a new name partly because this is a new venture, not just for me but also for the newsletter. I am having to produce two different formats: one for the website, originating as A4 and this one at A5—if need be, a postal-friendly size!

Looking through Dave's notes of two years ago, I was reminded how strange it was when my interest started over 50 years ago. Firstly, it was 19 years before I met anyone else who was interested. Made worse by a family who were anti evolution and viewed my interest with suspicion. So, where to get printed information other than the local library or (not so local) museum? Compared with today, things went slowly. Common specimens were found that were never identified for quite a few years. There were slow book-search companies, often expensive, which have now been superseded by fast entities such as abebooks.com. But there were curious pathways - joining the YHA and a newssheet called *Hostelling News*, where I saw an add for something called the *Nationwide Geology Club*, run by someone called Chris Darmon, who introduced me to parts of the country, which I would not have otherwise visited. And in the *Nationwide* there was someone called Jim Greenwood who directed me to the *Kent Geologists' Group*. That was 30 years since the start of my interest. But, it was after a major crisis of interest that I decided on a complete change of course – aided by A. J. Rundle, and so the micro world opened up. I was told by another that such things would require a 'half-decent' microscope, and anyway, it would wreck my eyesight. Well, I couldn't afford a decent microscope, so I took the original advice and paid half price for a 'half-decent' one! As for my eyesight, any problems for me are likely to be caused by genetics rather than usage.

It is a strange thing about collections. Over a long time they become a sort of life record, especially if you have made a note of when a specimen was found, as well as its location. In a lot of cases I can remember the day (even the weather) across 50 years - must get out more!

Nick Baker.

G. A. Festival of Geology

This year the Festival was held on Saturday 2nd November 2013 at the University College, London Gower Street. It was free entry and open from 10.30am to 4.30pm.

Last year, 2012, I was unable to attend so the MFMS wasn't represented at the Festival. I had already prepared and arranged the display for last years show and so I decided to use this layout for the 2013 show. The title for the MFMS exhibit was, 'Fossils From the London Clay' - not really much of a surprise anyone!

Having loaded the car, Martin and myself had a good trouble free journey to Gower Street and arrived there about 8.30. We found our two tables for the display and managed to set it all up by about 09.45. Tony and Betty Mitchell, who were also helping on the stand, arrived about 09.15.

Every time we have exhibited the MFMS display at this show we have been located in a different place in one of the three halls and this year was no exception. In my opinion this year's location has been the best so far. Sidcup Society had their two tables next to us and, across the hall, the Essex Society had their display. This is the first time for a number of years that the Essex Society have put on a display at the G A Festival - good to see them there again.

As the show opened there were plenty of visitors and as the day wore on there were plenty more. I think it's the best attended show that we have had in the last 5 or 6 years and also there seemed to be a lot more children attending this show. Our display attracted a good amount of interest and attention, and Martin, Tony and myself were kept busy, so much so that I wasn't able to get around to looking at the other exhibits until about 3.00pm. The halls were all full of displays showing, fossils, minerals, stonecraft, books, maps, geological equipment, jewellery and much more. Quite a few of the displays were from other societies like the MFMS. The middle hall housed the Discovery Room where Rockwatch was located, catering for geological activities for children and parents. Also throughout the day there were four geological talks arranged for visitors to attend.

We were kept busy right up to the end with people still trying to look at the display even as we were packing it up. Martin and I managed to get away by about 05.15pm and made good progress up until about three miles from Blackheath. Apparently, they were going to hold a firework display on the heath that evening and we got caught up in the traffic – a journey which should have taken about an hour eventually took us about two hours.

Apart from the journey home, the show was very good with plenty of interest in our MFMS display. We also managed to sell six of the London Clay books, which was an added bonus. The other good thing about the show is the fact that you are able to meet and chat to friends, people from other societies and other collectors that you haven't seen for a while. It certainly was worth the time and effort.

David Rayner

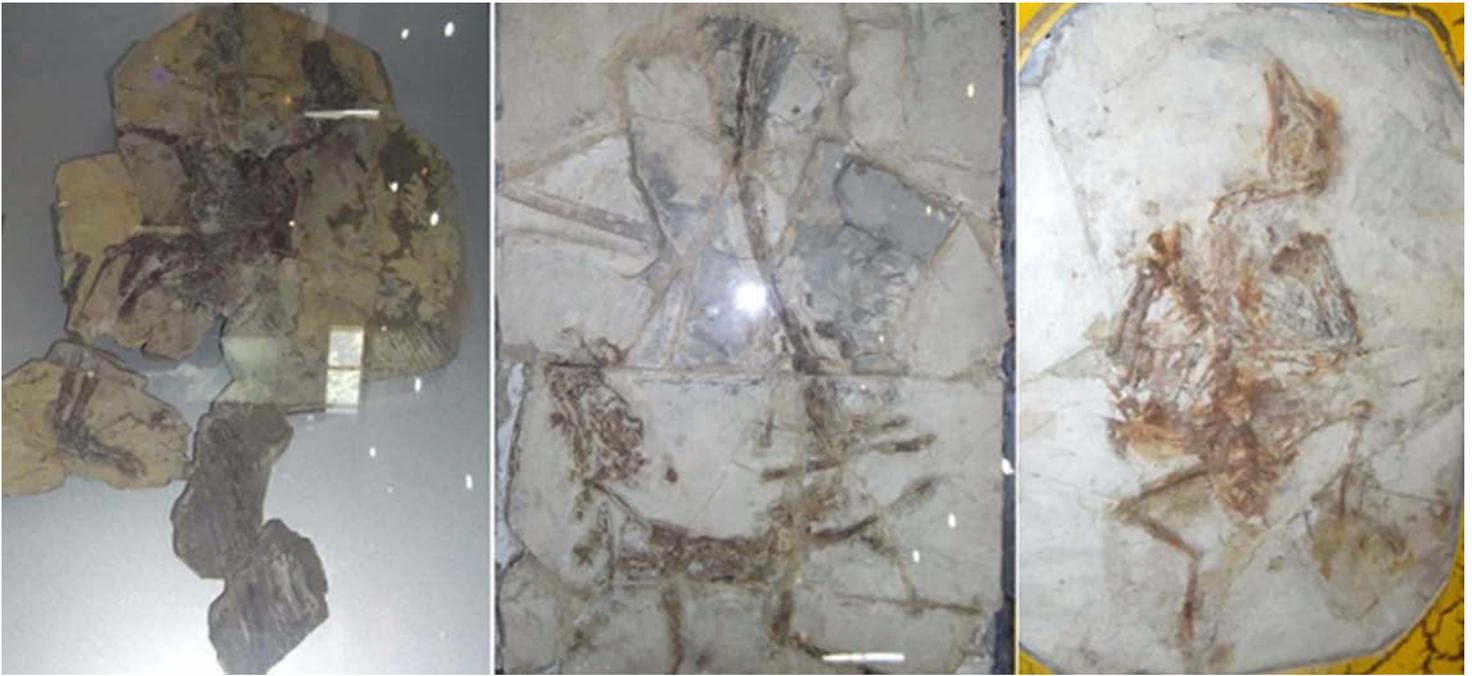
The Beijing Museums



I have been fortunate to travel to Beijing several times, the first on a holiday and then on two business trips. The holiday Judy and I did was the classic whistle stop tour of China covering all the main sites, Terracotta Army, Shanghai, Yangtze etc. with very little spare time. But we did get a free afternoon in Beijing on the last day and so I talked Judy into going to the Natural History Museum. This is next to the Temple of Heaven and fortunately this was a short walk from our hotel so was very convenient as well.

Upon entering the museum there is the hall of Dinosaurs with some very spectacular [real] mounted skeletons. (Unlike our own Natural History Museum where most of the skeletons are casts of originals elsewhere). There are fossils of all the 'classic' Chinese dinosaurs, *Mamenchisaurus*, *Tsintaosaurus*, *Tarbosaurus*, and *Tuojiangosaurus*. The next hall has superb full size reconstructions.

However probably the most interesting fossil display is that of the feathered dinosaurs and birds. On show are the really classic specimens that have been found in recent years.



The rest of the museum is the usual mix of stuffed animals and dioramas but is nevertheless OK. But it is really the unique and real specimens on display that this museum is worth visiting if you are ever in Beijing.

I next visited Beijing for work in 2012 and 2013 and on the second trip went to visit a couple of other museums. The first was the Palaeozoological Museum. Very similar in many respects to the Natural History Museum but nowhere near as large. It too has on display a number of real dinosaur skeletons and also the dino-bird fossils.

Another slightly different museum is the Geological Museum. This has a much wider range and includes a number of halls with minerals and rocks as well as fossils. The displays here are much more informative (or would be if I could read Chinese!). But there are enough captions in English to understand what it is all about. One hall is all about the geology of the earth, concentrating, quite understandably, on China. There is a good section about earthquakes and on display is the ancient mechanism for detecting the direction of an earthquake that I have seen in a number of books on geology. It consists of a pot with dragon's heads, each one loosely holding a ball and the whole thing surrounded by bronze frogs. The idea is that even a distant earthquake will cause a ball to drop into a frog's mouth, and which one tells the direction.



In addition to the three earth science museums, Natural History, Paleozoological and Geological there are a large number of other museums. The most important is the China National Museum which is situated right next to Tiananmen square. This museum is free but in typical Chinese fashion you queue up at one of a dozen booths to be issued with your free ticket. Then queue up at one of a dozen gates to have your ticket stamped. Then you enter through the door where someone checks that you have a stamped ticket! They could do away with all this and simply let you walk in!

Anyway this museum is really huge and it is basically a Chinese British Museum! On display are fantastic archaeological finds from all over China. What is particularly striking is the intricacy of some of the bronze work bearing in mind it dates from thousands of years BC. When we were still using stone tools!

If you do have free time when in Beijing this is probably the one museum to have a look around as it contains objects that cannot be seen anywhere else in the world, except Taiwan. In Taiwan there is the National Palace Museum where the nationalist Chinese deposited all the treasures that they took with them when they fled mainland China. These artefacts are actually more splendid than those in Beijing.



Another non-geological museum of interest is the Ancient Observatory Museum. This is just what it says, an ancient observatory located on top of one of the old city wall towers. There are very large astrolabes and many other astronomical devices all made in the middle ages that were used for making measurements of the heavens. Many of these measurements were made for astrological purposes but nevertheless they were made at a time before western astronomy really existed.

The last and smallest museum I will mention is the Wangfujing Paleolithic Museum (see next page). When they constructed part of the Beijing subway they discovered many paleolithic artefacts and eventually exposed an entire habitation layer. To their credit they then re-planned the construction to preserve a large part of the layer and built a museum around it. The museum is in the underground corridor that leads to from the subway station to Wangfujing street, one of the main shopping areas of Beijing. It shows the layer and has many stone artefacts and bones on display.

Garry Woodall



Exploits in a Chalk Pit

By Anne Padfield

Years ago when I worked as an Engineering Geologist, I was tasked with a geological survey and ground investigation of a cliff face and adjoining land on top, of a chalk pit containing a certain very well-known shopping centre. I arranged to meet the key holder for access to the site, by key and coded gate lock. I arrived well before the appointed time and waited and waited and waited. The key holder didn't show and offered no explanation later when I contacted him. A good start!..... Eventually I got the key and was able to come and go as I pleased. Well, up to a point. The wooded section at the south western end of the site was soon deemed 'out of bounds' as it was apparently over-run with dormice. However, every time the ecologist came to look at the dormice nesting boxes, she never found a living thing, except me.

Much of the external perimeter of the site was covered in thick scrub as well as trees, which eventually gave way to open quarry benches, descending into a vast pit, with lakes of 'blue water' and of course the shopping complex and associated infrastructure. An additional dedicated bus route was to enter the pit from close to the south western corner (yes, the dormice end) and descend to the shops, via the benches and south eastern corner, in a zig zag fashion 'a la South of France'. After an initial 'Walkover Survey', I had contrived a cunning plan. I needed to do some boreholes, some trial pits and some detailed geological face diagrams. A bit of chalk strength testing and rock mass geometry would nail it.

I set about collecting my geological data, but soon discovered I needed an assistant to chop down the jungle like (mostly buddleia) foliage with a machete. Several days later I had traversed the extent of my cliff section, just like Angelina Jolie, looking for her 'Tomb Raider' tomb. There was, however, one section that was too high for me to check in detail, as I could only see the top half of it through binoculars. Rope access geologists were sent in later, as this part of the cliff was the narrowest for the bus and therefore a priority investigation site. They asked me to learn abseiling for the task, but I declined (dis) gracefully.

I arranged for the drilling rig with operatives and back hoe excavator (JCB) and driver to come and excavate the boreholes and trial pits, avoiding dormouse corner of course. This wasn't as easy as it sounds, with big trees in the way and overhead power cables and pylons. Eventually, having decided where to dig, the boreholes were completed, but not without effort. Every flint horizon when cable percussion bore holing in chalk is potentially a damaging obstacle. Some layers of flint are impenetrable and can cause damage to the boring equipment. This is even more problematical when pile driving steel clutch piles, as a colleague of mine did on another job, without first having a ground investigation to establish the depth of the flint layer, resulting in 'wonky' piles.

Flints aren't a problem in trial pits, but digging trial pits with a JCB back hoe, does disturb the ground which is counterproductive if you want to build there, so you have to site pits to one side of your construction, unless you're installing concrete foundations. My construction was going to be a road so that limited the siting of the pits. Much of the time everything went well, except for one day when I was sent a very young, inexperienced and silly male JCB driver, who decided he was going to show off, on the steep, very slippery chalk ramp slope (it never let up raining). When chalk is trafficked or manipulated a lot, it turns to the consistency of putty. He nearly tipped the JCB over the edge and I had to 'send him off'. It was too sticky to continue safely anyway.

I returned to the office after taking the GPS positions of the holes and marking them on my plan, which was fairly easy as there were many site markers, only to find our old GPS of the time was about 2 to 3 meters out of position in each case. In those days GPS weren't as good as they are now, with one of my trial pits being positioned apparently, 'in a lake'! I carried out 'point load' strength testing on my chalk samples to compliment the 'in borehole' strength tests we also carried out and took saturation moisture content tests of the chalk samples, to ascertain their porosity and water absorption potential. I plotted stereo nets from my 'dip and strike' data, to determine the geometry of the joints, faults and bedding planes in the rock mass of the cliff. My face diagrams, data and soil profiles revealed the presence of unfavourable joint sets and many solution features filled with soft orange clay, all set to lubricate and assist the slipping of any unstable rock. Cliff face slope re-profiling, stabilisation, soil/rock bolting and netting would therefore be required to make safe, with catch fences around the base.

My job done, I handed the keys over to the 'off road driving' outfit who would be temporarily using the site before the bus route was built, warning them not to provoke the wrath of the ecologist with any dormouse habitat damaging action. I am told that dormice don't like to walk on the ground, preferring to jump across the tree/bush tops, like squirrels (or monkeys). This presents a problem when their habitat is dissected by a road. The project finally completed I went to have a look and suspended at tree top height across the divide was a precarious (from the dormouse's point of view as well as mine, I'm sure) net and rope, tunnel dormouse bridge. I wonder if they ever used it. That's if there ever were any dormice in the first place. Anyway, ten years later, the bridge has vanished along with the elusive rodents.

The Lenham Beds

A possible mode of formation

Nick Baker

The Lenham Beds are found at isolated localities on the North Downs, the main sites being just to the north of Lenham, but sites also occur between Harrietsham and Charing. Some observers suggest these occurrences can be seen countywide, from Well Hill, near Chelsfield, to Paddlesworth, northwest of Ashford. The beds comprise infillings of solution pipes within the Chalk. The material is generally red or brown ferruginous sands and clays, with ironstones and flint. Occasionally dark, manganese-rich clays can be observed, the manganese often staining some of the flints. It is within the ironstone that the main interest in the Lenham Beds is found, in the form of fossils. These are casts or moulds of bivalves and (rarer) gastropods. Very occasionally, echinoids, corals, worm tubes, brachiopods, as well as rare fish vertebrae and scales. Some of the most common fossils are seen in the photographs below.

For a long time there was much discussion as to the age of the fossils, with the main argument being between Pliocene and Miocene. The similarity with the Coralline Crag of Suffolk was noticed from the start, and because that formation was thought to be Miocene, so it was decided that the Lenham fauna was of the same age. A revision of the Coralline Crag to Pliocene resulted in the same for Lenham. Much of the fieldwork published in the 20th century lists the Lenham ironstones as Pliocene, but examination of the floor of the Antwerp docks in the 1960s, revealed a fauna almost identical to Lenham, the Antwerp material having long been considered as of Miocene age.

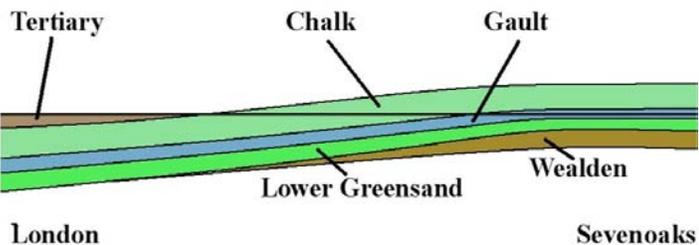
But these discussions raised a problem. The Lenham beds are rarely found below 180 metres (OD), while the age of the fauna (if at the Plio-Miocene boundary) would be around five million years. Various authors quoted the idea of a marine invasion, which (if it occurred) must have been at least 200 metres higher than today.

Yet this invasion appeared to have left no other evidence. The problem was made worse when survey officers discovered blocks of ironstone, containing Red Crag fossils, at Netley Heath, in Surrey. So, now the >200m high-stand was as little as two million years ago. There was no evidence for a glacial melt, and certainly no tectonic variations over such a short time, nor (on the other hand) was there evidence for so late a tectonic rise of the Wealden Dome.

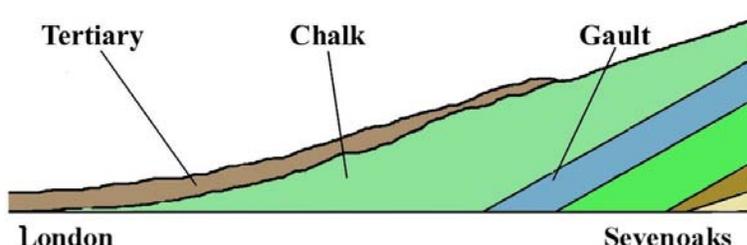
Over various parts of The Weald, the Pleistocene deposits often contain constituents that originated some way from the immediate location. At the Netley Heath site, blocks of Lower Greensand sandstone and ironstone can be found along side the 'Red Crag ironstone'. Wealden and Lower Greensand ironstones are often found on the summit of the North Downs. At an excavation in gravels (on Chalk) near Ridley, eroded Gault fossils were found. Prestwich, in the 19th century, coined the name Southern Drift for these occurrences. One possibility is that these items came from the Lower Cretaceous, as outwash, when it was still higher than the Chalk, during a thaw in the peri-glacial conditions.

But material, such as Red Crag, would require a Northern Drift, given our current knowledge. Various authors have cited the possibility of glacial action, as a transport of the Red Crag and Lenham Beds but, given the initial low altitude of the original deposit, this seems unlikely. But another explanation does involve glaciation – indirectly. These Northern Drifts could occur as outwash while Kent and Surrey were in a state of down-warp due to the sheer weight of ice to the north. 200 metres can quite easily be achieved. One strong objection would be that the originating ice would have to be relatively unaffected by the down warp in order for the outwash to occur. The following figures offer an explanation with that objection in mind. Put simply, the altitude of the North Downs would be reduced by isostatic adjustment during nearby glaciation. Deposition could occur during a thaw, prior to re-uplift.

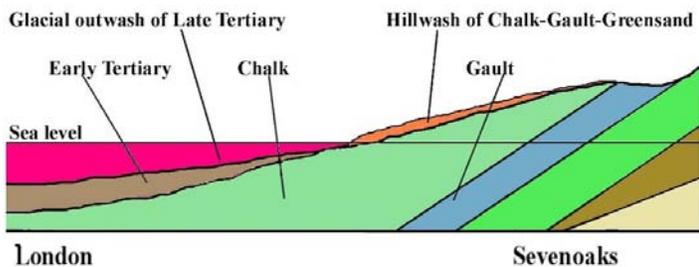
1. At the beginning of the Tertiary, the Chalk had undergone uplift and erosion. This was followed by a down-warping that allowed the deposition of Tertiary deposits, mostly on Upper Chalk, but occasionally on strata as low as Middle Chalk.



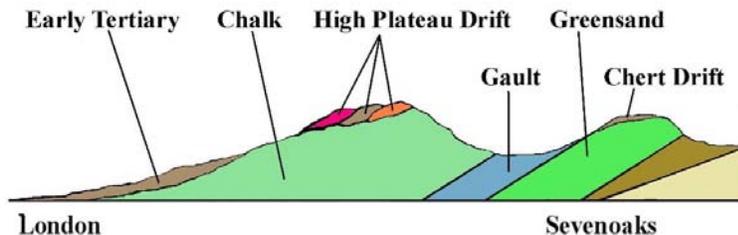
2. Extensive uplift occurred across the Weald during the Miocene. The Tertiary was elevated across the northern side of the Chalk outcrop. This was the likely situation at the end of the Pliocene.



3. Isostatic adjustment during glaciation (to the north) caused a down-warp of the Weald area. This would still have been in place at the start of an inter-glacial. Outwash from glaciers deposited a 'northern drift' of Late Tertiary material, while eroded Chalk-Gault-Greensand was deposited on the Chalk slopes.



4. After further erosion we arrive at the present day. The High Plateau Drift and Gravels contain contents from the Lower Cretaceous, Upper Cretaceous (Flint), Eocene sands and pebbles, disturbed Red Crag and Miocene-Pliocene ironstone. The drifts have been emplaced no earlier than the Anglian glaciation and many perhaps as recent as the Devenzian.



Some Lenham Fossils

Ditrupa subulata



Ditrupa subulata



Cardium sp.



Cardium sp.



Astarte mutabilis



Andara diluvii



Some Lenham fossils

Penopea menardi



Papillicardium papilosum



Papillicardium papilosum



Papillicardium papilosum



'Nucula' sp.



'Natica' sp



A new find on Sheppey

For some long time, there has been a fossil drought from the London Clay of Sheppey. Recently, however heavy rain and rough sea, following a long dry spell has resulted in new cliff falls and some new material has been appearing. At the end of October some of 'the lads' went down to Warden Bay and along the beach towards Minster on the lookout for something exciting.

Paul Wright collected a small nodule with some shiny black markings on one side, and popped it into his bag for future reference. When washed it turned out to be a couple of molar-like teeth sticking out of a bony plate. It was brought to the club and created some excitement as it was obviously mammalian and seemed very similar to the John Bruce lower jaw fragment of *Hyracotherium leporinum* illustrated in the book, London Clay Fossils of Kent and Essex, and comparable to the upper jaw found by Tony Vale at Tankerton.

Photographs were taken the following week and emailed to Jerry Hooker at the Natural History Museum. He replied at once, very enthusiastically, stating that it was indeed *Hyracotherium* and 'only the fourth specimen of upper teeth from the London Clay' but that there were subtle differences between this new specimen and *H. leporinum* from Herne Bay including Tony Vale's upper palate from Tankerton. The teeth are the upper right second and third molars.

A few isolated teeth are known from the Paris Basin but specific identification is 'a bit dodgy'. They are somewhat fragmentary and smaller than *H. leporinum* and, though definitely *Hyracotherium*, cannot be assigned a specific name. He considers that *H. leporinum* is a British species, evolving after the London Clay Sea separated us from Europe. The American specimens are also a bit different but this example may help determine the amount of interspecific variation to be found here, and therefore if the American *Hyracotherium* is indeed a separate species.

Another interesting point, that Jerry does not completely reject, is that the Sheppey seeds are generally considered to originate from large continental rivers flowing from the south. In Margaret Collinson's book the modern distribution of the London Clay seeds is given as about 73% tropical and semitropical but the rest as temperate and even a few [6%] northern temperate. If the British *Hyracotherium* species is confined to Britain, having arrived before the London Clay Sea separated us from the continent, some of the seeds could have come from further north in Britain along with the *Hyracotherium* specimens.

Tony Mitchell



A Geological Foray to Folkestone

Paul Wright



Hosted by Fred Clouter, a total of 9 MFMS members assembled on a bright and breezy day at 11.30 above East Wear Bay. Fred gave an overview on the lie of the land once we reached the beach and quickly surmised that area around Copt Point would afford the best collecting due to sand covering the best exposure of the Gault beds. The previous day's rain left the clay in a rather sticky state to say the least, but it didn't form flows onto the beach. Collecting was carried out amongst the boulders on the beach or on the cliffs themselves. As the tide went out we were able to get to some of the exposed beds including one identified as the Mammilatum Zone.



Ammonites are always the main focus of most people and understandably so, due to some of the examples possessing a mother-of-pearl or pyritic "gold" lustre. As half term was still underway a lot of collecting prior to our visit had occurred; this meant we would have to work a bit harder to find something significant. Paul found a perfectly preserved Echinoid in the lower chalk to kick the day off, in the clay he found a solitary coral, several gastropods, a handful of scaphopods and several belemnites over 4cm long.



Ken and Carol ("new boys"), enjoyed the company and were having fun getting plastered in clay and Ken in particular was delighted with a final collection that largely mirrored Paul's box of "help yourself chuckites"! He did provide a nice collection of bits for the grandchildren. Andy, Keith and Tony prepared themselves for a good day on the beach by visiting a café and consuming an English breakfast. Between them they found a number of different ammonites in reasonable condition. James managed find a small piece of a crab to add to his collection. Ann, as well as looking for fossils, was absorbing all the information she could about this collecting site prior to her hosting a forthcoming visit to this very place.

Overall everyone seemed quite pleased with their finds, but it didn't really reflect the potential this site has to offer. Another day may prove different....Thanks Fred

Trip to Peters Pit - May 12th 2013

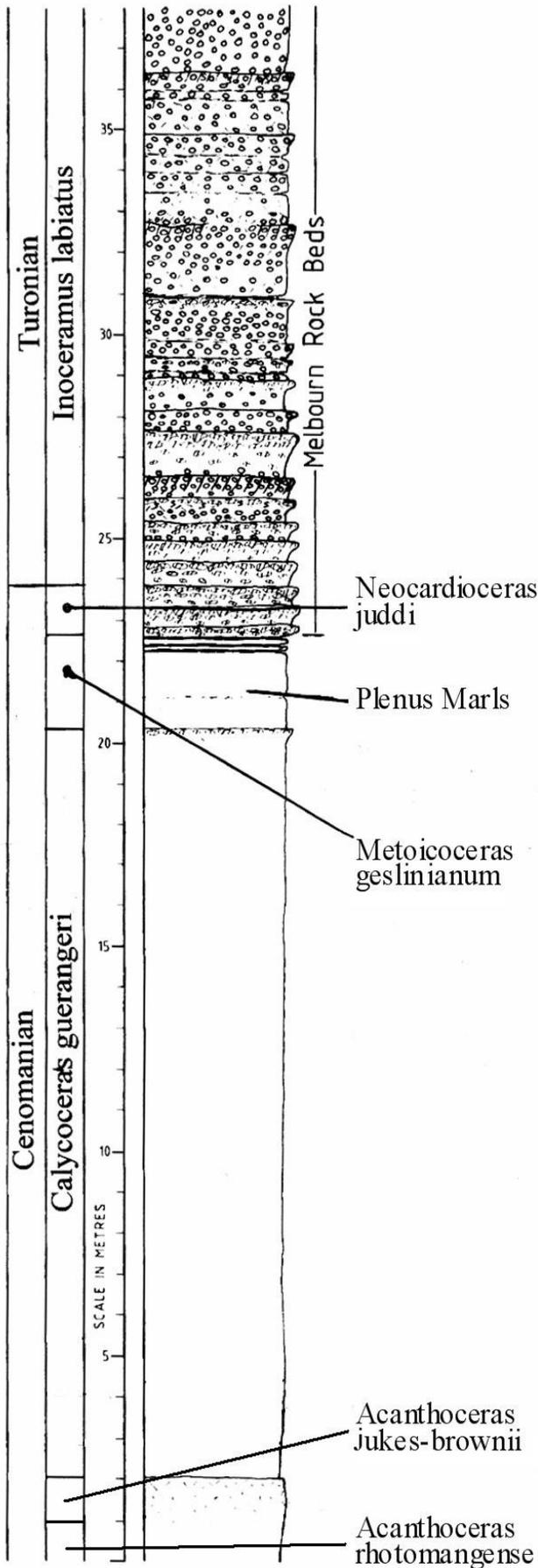
Nick Baker

Six of us gathered at the pit to look for fossils in the Chalk. The pit is situated just south of Wouldham village. Although the pit is scheduled for development, the work is on hold at the moment. The pit exposes the upper part of the Lower Chalk and the lowest beds of Middle Chalk – mostly the Melbourne Rock Series. The Lower Chalk is not very fossiliferous, compared with the lower beds at Culand Pit. It is, however, noted for its fish and reptile remains. At the top of the Lower Chalk, the Plenus Marls form a conspicuous feature – named after the belemnite *Actinocamax plenus*. Above the Plenus Marls, the Melbourne Rock is a hard, nodular formation, usually packed with *Inoceramus*.

I mentioned to Garry that the fish remains were not likely to be found, but about an hour into our search Garry announced that he had ‘found something’. It was the fish shown in the photograph below – almost complete. We also found some small echinoids in the Lower Chalk – possibly *Discoidea*, but the Melbourne Rock yielded most of our finds – quite good specimens of *Inoceramus* and *Rhynchonella*, as well as fragments of ammonites – possibly *Neocardioceras*.

This pit probably provides the most accessible exposures of the Plenus Marls in Southern England – most coastal exposures are now covered over. I hope it is possible to preserve it. I took a sample of the clay seams in the marls for micro-fossils. We looked at the rest of the Middle Chalk and then came away, just before the rain arrived.

My thanks to Paul Wright for organising permission for our visit.



A roundup of the autumn term

This year the term began on September 11th, with an activities evening, which was a chance for everyone to bring in their own speciality. I played truant and so nobody was assailed with my micro slides. But, on the 18th Tony gave a demonstration on the best methods of photographing fossils, which was a good excuse for me to bring some photos of fossil thin sections. The next week the subject was bony fish, and then October 2nd, brought another of our geological period themes. We had reached the Ordovician. So, plenty of trilobites, graptolites, and all the time the rumble of volcanoes. The next week the subject was quartz, in all its varieties. On October 16th the subject was recent finds and then on the 23rd Fred Clouter gave an illustrated talk on Cambodian Temples.

Our AGM was on October 30th. Joe was elected on to the committee and I volunteered to prepare this letter. We also proposed to inaugurate a weekly raffle, whereby the winner has half of the takings and the rest goes to group funds. The fact that I have since won twice in three weeks is pure coincidence!

The fossils found on the Folkestone field trip, on November 2nd, were brought along as the subject on November 6th. On the 13th Chris Duffin gave a talk on the American 19th century palaeontologists Cope and

Marsh. He finished with a little ditty called *There are n wheels on my wagon*, where n has a range of 0-4 and is inversely proportional to how far you have progressed through the song!!

On the 20th John Taylor gave an illustrated and very informative talk on minerals, both ore and rock-forming. On 27th the subject was 'trace fossils'. Now a substance or object does not have to have hard parts in order for it to be preserved. Perhaps just chemically different. Some items start out as decidedly soft. On Dec 4th we reached the Silurian in our period themes. So, still with trilobites, graptolites, crinoids and corals. And a very messy volcanic area in Southwest Wales.

We break up for Christmas on Dec 11th with our Christmas party. So I leave you with our program for the first part of next year. Not all the slots have been filled, but will be nearer the date.

Nick Baker

Jan	15	Activities evening	All members
Jan	22	Tips and Tricks	Tony and others
Jan	29	The Silk Road (1)	Tony
Feb	5	I.O.W Display	All members
Feb	12	Portable Antiques Officer	Jennifer Jackson
Feb	19	Devonian	Tony and others
Feb	26	Fossil Reptiles	All members
Mar	5	Calcite Talk	Anne P.
Mar	12	The Silk Road (2)	Tony
Mar	19	Calcite Display	All members
Mar	26	Aspects of New South Wales Coast	Ann B
Apr	2	Fossil Birds and Mammals	All members
Apr	9	Glaciations UK	Anne P and Tony
Apr	16	Chalk Display	All members
Apr	23	Activities evening	All members
Apr	30	Lower Carboniferous	Tony and others
May	7	Discussion Q and A	All members
May	14	Scott, Glossopteris and the Beacon Sandstone	Nick
May	24	Saturday Field Trip to Foulmead	
May	21	Geomorphology	Anne P and Tony
May	28	Fossil Plant Display	All members
Jun	4	TBA	
Jun	11	TBA	
Jun	18	Fjord Country	Anne P.
Jun	25	Portable Antiques Officer	Jennifer Jackson
Jul	2	TBA	
Jul	9	Upper Carboniferous	Tony and others
Jul	16	EOT Party	All members