

Additional Newsletter—

Medway Fossil and Mineral Society—5th May 2020

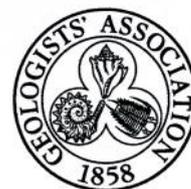


So here we are. We thought it would be weeks and then they talked of months. And now the end of the year—possibly— I'm hoping not. And just how important will our little meetings be considered? I mean, it's not a question of two metres. More like centimetres for us. It just ain't possible otherwise. So, I'm just wondering how we get back. But we have to. That supposed new normal. No, it can't be all-embracing. In fact no embracing. It will function to an extent, but being human is dependant on interaction, and often close interaction. Brian's description of MFMS as high entertainment at 33p an hour cannot function at a separation of two metres. I'm certain we cannot do meetings by Skype. At. Least, not in the way we are used to. So, really we do have to get to a point where the country has to have a technology giving a widespread knowledge of just how far Covid19 has infected the wider community, both nationwide and local, and have some security in that knowledge. Otherwise society cannot function. Some predictions sound dire. One hopes that the future will come from another direction. And suffering has come not just from a virus but from having to take our concentration away from other medical problems.

If your geology is based very much on collecting and fieldwork, then there can be a danger, in the current circumstances, of losing sight of the subject. For me, there is a lot of research calling from an existing collection—so I am perhaps fortunate in that respect. Things got shoved in boxes. Then stacked. So digging down again is like Christmas. In this 'lock-down' I am used to operating alone but this is turning out to be something else. Another dawn, another sunrise, another day.

But, to work. I have wandered out of the county—to Sussex, for the frontispiece. **Ashdown Sandstone cliffs near Hastings.** I think the gap in the cliff is Ecclesbourne. I have an article from Gary—Fossils in Heraldry. Then there's me—A solution to the *Echinocorys* question, Cement, a strange field trip. I'm still thinking about it, but will have stopped by the time you read this.

(Nick— Editor)



A possible solution to the *Echinocorys scutata* question (Nick Baker)

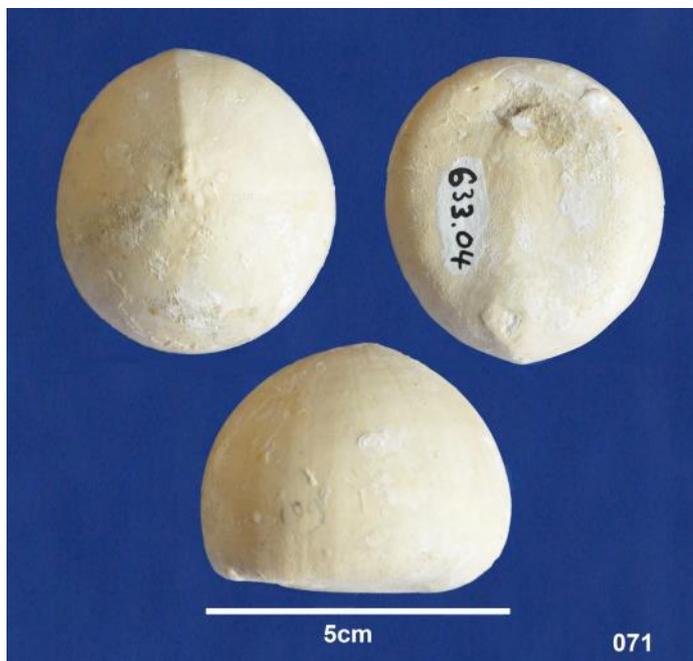
According to my knowledge, research into a genus such as *Micraster* is well-established, beginning with Dr Rowe, of Ramsgate, in the 1900s. Similar judgment could be said of *Holaster* or *Conulus*. *Micraster* goes through at least six species, yet *Echinocorys*, with perhaps the same degree of variation, seems to stick with one identified species—*Echinocorys scutata*. The variation within this one species is, in some cases, recognised as sub-species or varieties.

Echinocorys, like *Micraster*, is largely confined to the Upper Chalk. I have found none in the Middle Chalk (Lower Turonian) but it is well-established in the *Planus* zone (basal Upper Turonian). In *Fossils of the Chalk*, specimens have been found in the *Lata* zone (Middle Chalk) of Suffolk. So it seems likely that *Echinocorys* evolved from a genus such as *Conulus* in the Middle Chalk. The population seems to be stable through the Upper Chalk, save from what appears to be an *Echinocorys* 'event' at the top of the *Planus* (*Normanniae*) zone. That level having abundant and often large specimens.

The specimens in my collection seem to fall into four possible varieties. The drawings in the first edition of *Fossils of the Chalk* (pp232-233) are difficult to interpret, even while the shapes may be recognised. So, I have decided to classify the specimens according to the zone in which they were found. I have photographed 10 specimens. The morphological tendency across time seems to be from rounded dome to pyramid. So, first of all, in the **Lower *Planus* zone**



In the same zone some of the specimens take on a definite pointed summit when viewed from the side. This feature seems to have gained them the name *Echinocorys*



The specimens are generally oval and about 5cm in length. In side view the dome is rounded, with no sign of a pointed apex. The specimen on the left is from the *Planus* zone at Trottscliffe, Kent (632.01—300)

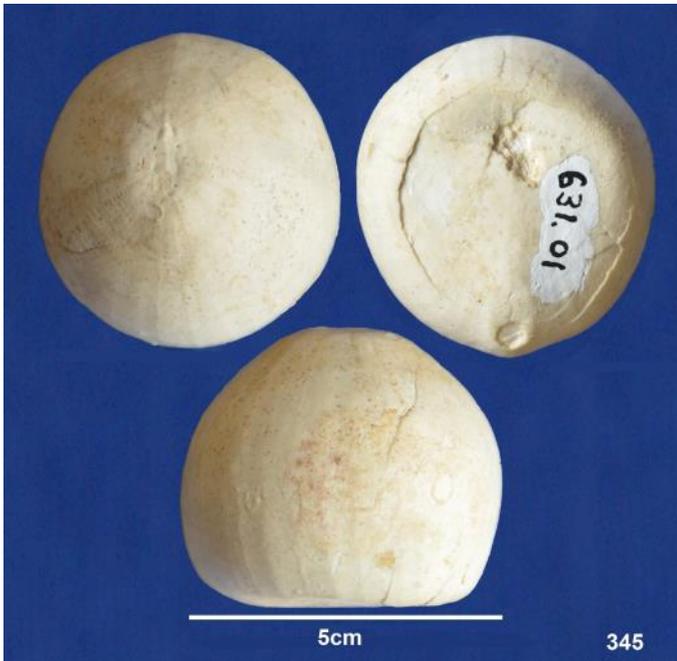
At the level of the *Echinocorys* 'event', in the **High *Planus* zone**, similar specimens can be found. The photo below is of a specimen from Boxley Hill, Kent (632.082 –247). I think the name *Echinocorys scutata gravesi* can be applied



scutata elevatus. From above they appear to be almost rounded.

The feature of the angular summit continues upwards into the Thanet Chalk, where definite pyramidal forms occur and it is difficult to see where *elevatus* no longer applies.

The specimen on the left is from the **High *Planus* zone** at Thurnham, Kent. (633.04– 071)



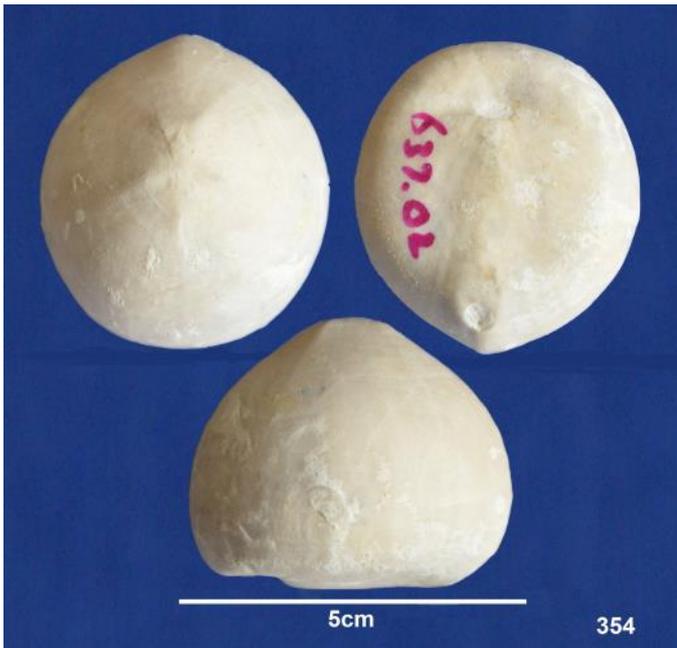
The specimen to the left has the features of *Echinocorys scutata elevatus*. While there is a tendency towards an apex, the summit shows a flattening around the genital plates. There is a definite roundness when seen from the vertical. The specimen is from the *Echinocorys* event in the High *Planus* zone. The specimen is from Stalisfield Green, nr Charing, Kent (631.01–345)

***Decipiens* zone**



The angular summit continues into the *Decipiens* zone but the specimen on the right appears more oval from above. The specimen is from Langdon Bay, Kent (633.16-174)

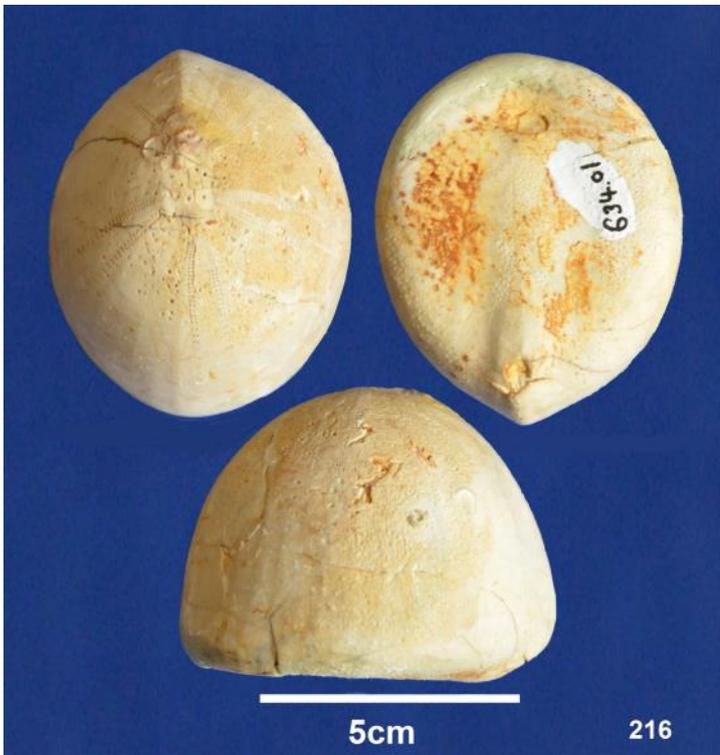
***Coranguinum* zone**



The specimen from the *Coranguinum* zone at Cliffe, Kent, see left shows similar features but with raised genital plates, which I have labelled as *Echinocorys scutata pyrimedus*. (637.02-354)

The specimen on the right is similar and from Greenhithe, Kent, but has suffered some damage, which may result in the flattened appearance of the genital plates (634.02-358)

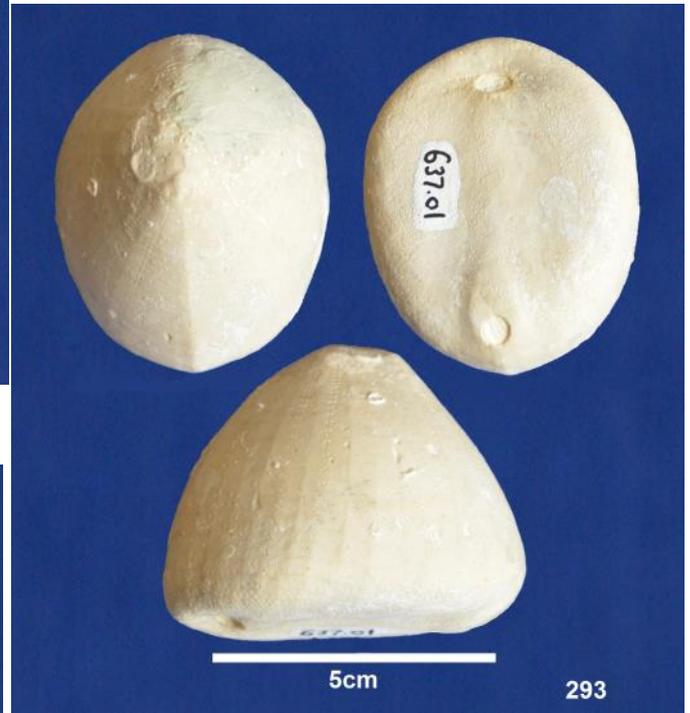




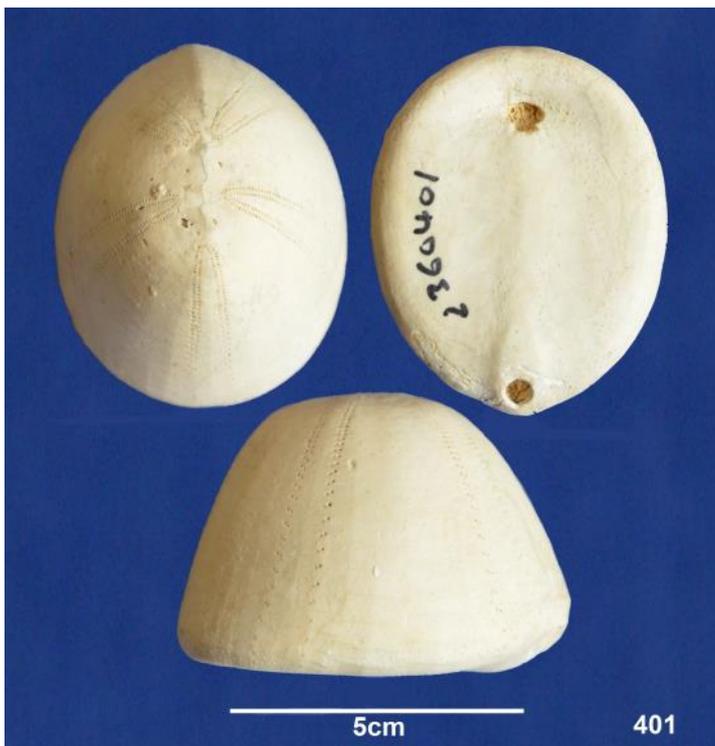
The large specimen on the left is from Cliffe, Kent, from the *Coranguinum* zone. In this the genital plates appear to merge into the slope of the test. The term *elevatus* can probably still be applied (634.01-216)

***Socialis* and *Uintacrinus* zones**

Below is a similar specimen from Palm Bay, Thanet, from the *Uintacrinus* zone. In spite of the slight flattening at the genital plates, this is still within the description of *elevatus*, (637,01-293)



***Pilula* zone**



The final specimen is from the *Pilula* zone at Friars Bay, Peacehaven, Sussex. Note the much increased flattening of the summit, which indicates a trend towards *Echinocorys scutata tectifformis*. This variety is also recorded from the *Uintacrinus* zone of Thanet. (2360-401)

So in summary. The evolution of *Echinocorys scutata*, in the Kent Chalk zones, seems to run from a low dome to a pyramid type, culminating in a flattened apex. Variations continue, subsequent to the *Uintacrinus* zone in counties outside of Kent. The profile of these can be seen in *Fossils of The Chalk*, although it is difficult to see an evolutionary line.

- Echinocorys scutata gravesi*
- Echinocorys scutata elevatus*
- Echinocorys scutata 'pyrimeadus'*
- Echinocorys scutata tectifformis*

- Planus* zone
- Planus* zone to *Coranguinum* zone
- Coranguinum* zone
- Socialis* and *Uintacrinus* zone

Swanscombe _ Coalbrookdale of the Cement Industry

Nick Baker

A visit by the KGG to the cement works at Northfleet, in 1996 and an article in *Bygone Kent*, published a decade or so before, prompted me to consider the history of the Portland Cement industry in Kent. The area of North West Kent, close by London's south-eastern suburbs, can be considered as the cradle of the modern cement industry. Production began in the Swanscombe area around 1840 and cement works rapidly spread along the Thames and Medway valleys, so that by 1880, 75% of the world's supply of Portland Cement came from the Kent works. At first, the Medway and Thames rivers (linked by the Higham-Strood canal) provided the supply lines for the industry. This was rapidly succeeded by the South Eastern Railway Company, which built the North Kent line to Strood and Maidstone, in the 1840s.

A visitor to the Swanscombe area, as late as the 1960s would have been confronted by a landscape heavily dominated by chalk pits, some over a sq.km. in area and up to 60m deep. The works at Northfleet was the largest in Europe, with a capacity of up to 3 million tonnes per year. With the recent development of Thames-side there were plans to transfer operations by upgrading the Holborough works, at Snodland. However, both areas have been subject to the development of domestic dwellings, which is very much dominant policy.

At Northfleet, some of the 1840 furnaces could still be seen in the 1990s and the area has been of considerable interest to industrial archaeologists. The industry brought relative prosperity to this part of Kent in the 19th century, and many otherwise rural villages have streets of rather 'Northern-style' terraced housing. Along the Thames, Greenhithe, Swanscombe, Northfleet, Gravesend, Chalk, and Cliffe all expanded. On the Medway, Strood, Cuxton, Halling, and Snodland expanded on the west side. On the east side. Borstal, Wouldham, Burham, and Eccles grew to a lesser extent due to the absence of the railway. None, the less, the Bluebell Hill works had a long history. The village of Eccles cannot be seen on the 19th century maps but the growth of the village provided much of the work force for the lower quarries at Bluebell Hill and the vast cement works to the southwest of Eccles village. An uncle of mine was born at Eccles and worked in the industry. The first half of his life was spent at Eccles and the second half at Aylesford. He moved about a mile, but in between he went to sea and was wounded in the Battle of Jutland. As a teenager he was employed in the early excavation of the 'new' Culand Pit.

The agricultural slump of the 1860s and 70s provided many refugees to the industry. Some also went to Shepherd Neame



Brewers, which made sure that the numerous ale houses in the cement villages did not run dry. Cement production was hot and dusty work.

Visitors to the works at Northfleet were impressed at the sheer size of the operation, ranging from the quarrying operation, to the 200m long rotating kilns. Safety has greatly improved over the years. In the past, fatalities were not uncommon. There was always the danger of falling into hot cement dust, but what was probably the worst fatality befell some poor unfortunate at Lee's works, at Upper Halling. The winch slope can still be seen connecting the upper and lower levels of the quarry to the south-west of the Black Boy pub. One day, an operative fell 'meat mincer' style, into the gearing while a fully loaded wagon was going down the slope. To this day the ghost of the worker is said to haunt the quarry—and may have been seen by Yours Truly on one dark December dusk (but that's another story)!

The picture shows the Greenhithe area in 1984, viewed from Swanscombe Hill and looking towards the Thames Estuary. At least three cement works can be seen.

The earliest works at Swanscombe did not have tall chimneys, but threats of legal action by the Admiralty initiated the construction of tall smoke stacks. Apparently the smoke was a navigation hazard on the Thames.

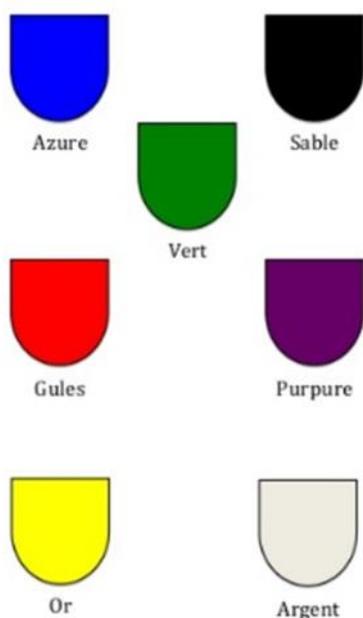
It could be said that the Cement Barons were good employers- even to the point of providing some housing for the workers, but in one case, charity was a little self-motivated, and it back-fired. Thomas Bevan was elected as Liberal Member of Parliament for Gravesend, in 1880. However, somebody shouted "foul". It was noticed that all of Bevan's work-force had been given a paid holiday on election day. Bevan was disqualified.

FOSSILS IN HERALDRY by Gary Woodall

The art of heraldry began in the Middle Ages primarily as a means of identifying knights in armour whose faces were usually obscured by a visor. The arms of each knight would be borne on his tunic covering his armour and on his flag so he could easily be recognised during the battle. Gradually rules developed around the style and colours of the coats of arms, these being controlled by Heralds and the art developed a language of its' own based on old French. The colours used were standardised as follows, Azure (blue), Vert (green), Gules (red), Sable (black) and Purple (purple), Or (Yellow) and Argent (white). This limited range was to avoid confusion between shades of similar colours.

Early coats of arms tended to be quite simple, crosses were especially popular. But as the number of arms granted by the heralds increased they became much more complex. Once the military need for arms ceased as fire-arms began to dominate the battlefield, making armour redundant, they still continued and indeed expanded to permit towns and boroughs to be granted them.

Now some towns are known to have a particular association with a fossil, Whitby immediately springs to mind with the legend of St Hilda truning snakes to stone, actually ammonites. So when the town was granted arms in 1935, they included 3 ammonites. The full description of the arms (called a blazon), is:



"Barry wavy of ten argent and azure, three serpents coiled proper" (Barry wavy simply means 'wavy lines' and the serpents are ammonites..)

Another town nearby Whitby, Scunthorpe, has its own notable fossil the Gryphaea bivalve, and so when that town was granted arms in 1936 they followed the lead of Whitby and included two Gryphaea in the arms.

"Vert a Chain offive links in fesse between in Chief two Shells (Gryphoea incurva) and in base a Garb Or" (Fesse is a line across the middle of the shield.)

The only other town in Britain that I have found with fossils on its arms is Dudley, location of the famous Dudley Bug trilobite. So it was only proper that when arms were granted in 1957 the blazon was:

"Gules on a Fesse engrailed Argent between in chief on a Mount Vert a representation of the Keep of Dudley Castle proper the sinister Tower ensigned with a Long Cross Or and in base a Salamander in Flames also proper a Trilobite between an Anchor cabled and a Davy Lamp all of the First."

In these arms several special images are shown, Dudley's famous castle, a lamp and an anchor representing local trades.

The salamander which in heraldry is notable for being born in a fire and had for centuries been the mark of blacksmiths.



In addition to the shield and crest some coats-of-arms include supporters were only granted for royalty, the queens arms have the lion of England and the Unicorn of Scotland as supporters. But in more recent times countries and some towns have been given supporters usually an animal with some connection to the town. Maidstone is the location where one of the earliest Iguanodon fossils was found in 1834. So the arms which were originally granted in 1619 were additionally given supported in 1949, the blazon becoming:

"Arms: Or a Fesse wavy Azure between three Torteaux on a Chief Gules a Lion passant guardant Or. Crest: Issuant from a Mural Crown Or a Horse's Head Argent gorged with a Chaplet of Hops fructed proper, Mantled Azure doubled Or.

Supporters: On the dexter side an Iguanodon proper collared Gules and on the sinister side a Lion Or collared Gules."



Hamlet and the Skomer Volcanics Nick Baker

Note—this item was originally written for non-geological scientists.

I just wanted to mention a little geological anecdote. It might seem to be a candidate for ‘fake news’ but I am assured that it is not so. The *Geologists’ Association* was founded in 1857, so now 163 years old—and is open to both amateur and professional membership. Throughout each year there is a program of ‘field trips’, mostly in the UK but occasionally further afield. Back in the 1990s, one such UK trip took a small party to the coast of Pembrokeshire, and one day in the trip, Skomer island was visited. Now, in the British Isles, the rocks on the west side are much older than on the east. Also, much of the volcanics are to be found on the west side. Skomer island is largely old lavas inter-threaded by some sediments of roughly the same age.

Now for many years, the lavas were thought to be the same age as those in the Preseli Hills, about 20 miles to the north. When radiometric dating of the rocks became possible, the Preseli rocks were calculated to have come from volcanos at 480 million years before present (BP). It was assumed that the Skomer Group was of the same age. A gent by the name of Dr Zeigler was not happy with that assumption. Now, there are hard rock geologists (volcanics) and soft rock geologists (fossils and sediments). Dr Zeigler was of the latter. Now Dr Zeigler had studied the fossils in the cliffs on the coast neighbouring Skomer. It was known that they formed a similar assemblage to those found in the rocks around Llandovery. Those sediments were known to have been laid down at around 435 million years BP. Dr Zeigler then took his researches on to Skomer and confirmed that the same fossils could be found in the sediments there as those on the main-land. Not only that, some of the sediments had been baked by the lavas—so the lavas must have been even younger. Dr Zeigler organised a dating of the lavas on the island, which came up with 425 million years BP (+/- 5%). Dr Zeigler wrote up his report and the next edition of the local geological maps were suitably amended.

And so it was that our little party, from the GA arrived on the island, clutching a copy of Zeigler’s report. Now it was July, so not cold but it was one of those days of advection fog*, which you get on that coast, most notably when everywhere else is in heat wave. So, there they are on the island with a visibility of about 30 yards. The name ‘Zeigler’ was coming up frequently in their conversation, when suddenly, the man himself appeared from behind a boulder. He was slightly up-slope and so the effect was like that of the ghost on the castle ramparts in the opening scene in the Olivier version of *Hamlet*. Zeigler seemed to be descending through the fog and two of the party fainted!

Well, everybody recovered, and to continue the Shakespeare connection—*All’s well that ends well*. But for me, not so, because I was 10 when I saw that film and that scene on the castle ramparts was quite one of the most scary, and affected me for quite some time.

* radiation fog is also available—some of the readership of this were meteorologists. !!

A little personal history.

Nick Baker

My father must have struck people as a very peaceful and demure man, at least in the presence of my mother and sister. But when with his mates, a completely different character emerged. His favourite watering hole was *The Oak*, on Widmore Road, east side of Bromley, en-route to Chislehurst. He usually had to make do with one pint, but some of his (better-heeled) friends would prime him with 'whiskey-chasers'. One evening, in 1948 or 49, he came out of the pub and pushed a passing cyclist off his bike. Now, the event was seen by a copper, and it is said that, at that time, there was a copper every 400 yards (police whistle distance). So Father was arrested and taken to the police station, where he spent the night in a cell. The cyclist was not injured and did not press charges. Father was given a caution, since he had no 'previous'. I did not know of the event until after my father's death, over 30 years later. Such things were never spoken of in some circles. Nor did we know of the Communist-Party literature and membership of 40 years that we also discovered after his death. It was quite an achievement, since my mother and sister were forthright Tories. But, you would have thought that the fact that he took in *Reynolds News* once a week just might have indicated something!

As in life, so in science—the evidence might be staring at you !



I am obliged to add the following, to all those members of the Medway Fossil and Mineral Society, who receive this communication by direct email or by post, under the provision of the General Data Protection Regulation (2018)

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The editor of this Additional MFMS newsletter was Nick Baker

Cover picture

Ashdown Sands, Hastings (1980)

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