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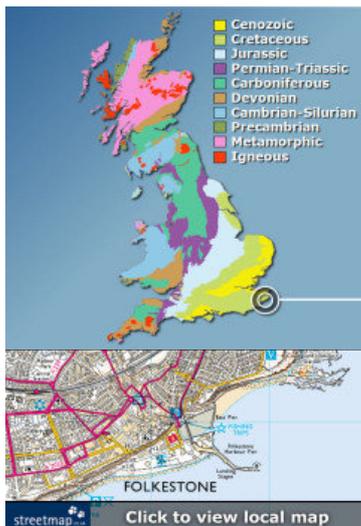
Written and designed by Roy Shepherd ©2011. Special thanks to my wife Lucinda Shepherd, friend Robert Randell and various experts for their support.

Contact details



Folkestone (Kent)

Location maps



Location summary

Geological period

Early Cretaceous epoch (Albian stage)

Approximate age

c.110-105 million years

Fossil diversity

Ammonites, belemnites, shark teeth...

Supply of fresh material

High

Dangers to consider

Falling rocks, rising tide... [read more](#)

Equipment needed

Small probing tool

Protection status

This location is designated a [SSSI](#)

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How might the Folkestone area have looked 108 million years ago?



Introduction

Folkestone is a large coastal town in Kent, located a short distance west of the famous white cliffs of Dover, and is home to over 53,000 people. The town is fringed by rocky and sandy beaches, east and west of the harbour respectively. Fossils can be collected from the rocky beach and cliff base throughout the year. Access is good, although families with young children may find the terrain challenging.

The earliest rocks at Folkestone date from the Albian stage of the Early Cretaceous epoch, approximately 110 million years ago (mya), and were deposited within a shallow marine environment. These sandy rocks, known as the Lower Greensand, are eroded from the fragile cliffs east of the town, where they form a rocky beach extending for 1km around the headland at Copt Point. Overlying the Lower Greensand is the dark-grey coloured Gault clay, and it's from this later (younger) marine sediment that Folkestone earns its reputation for fossils.



Left: Parking is available along The Stade - a narrow road which runs along the top of the harbour.



Right: An arched promenade provides access to the cliffs.

Parking is available along The Stade - a narrow road running along the top of the harbour. Food and refreshments are also available, including several good pubs and mobile restaurants.

Access to Copt Point (and beyond) is made along the arched promenade which extends from the harbour to the eroding cliff face (see above-right). The photo also shows the famous Martello Tower (painted white on the hilltop). The tower is one of many similar structures built in the early nineteenth century to defend the country from invasion by the French at that time.

The geology of Folkestone

The cliffs and foreshore east of Folkestone harbour reveal a fascinating prehistoric past dating from 110-105 mya (Albian stage of the Early Cretaceous epoch). During this time a warm sea, rich in flora and fauna, extended across South and South East England; Great Britain itself was located at a more southerly latitude (40°N), approximately where the Mediterranean Sea is today.

The rock succession at Folkestone records the 'middle' Cretaceous flooding of southern Britain (marine transgression). During the Early Cretaceous, Britain was a floodplain environment (above sea level). During the 'middle' Cretaceous, sea levels rose globally. Southern Britain was flooded from the southeast, receiving progressively less land-sourced sediment as sea-levels rose and the land disappeared. The Lower Greensand, which appears in the lower half of the cliff towards Copt Point and on the foreshore beyond (see figure 1 below), represents the initial marine stages during the Early Albian, when the land was still present and erosion of this land supplied the sands.

Sand is naturally derived from areas of high erosion, usually in relatively close proximity to a beach or within a river. Unlike finer particles of silt which may remain suspended within the water column and travel a greater distance, sand settles to the seafloor relatively quickly and is only transported further by strong tidal currents. The sandy composition and distribution of the Lower Greensand across the region reveals a moving shoreline (due to the marine transgression described above).

The Lower Greensand contains few delicate fossils, the most common fossils are large, thick-shelled molluscs, robust enough to withstand the strong currents and disturbed waters associated with a near-shore environment.

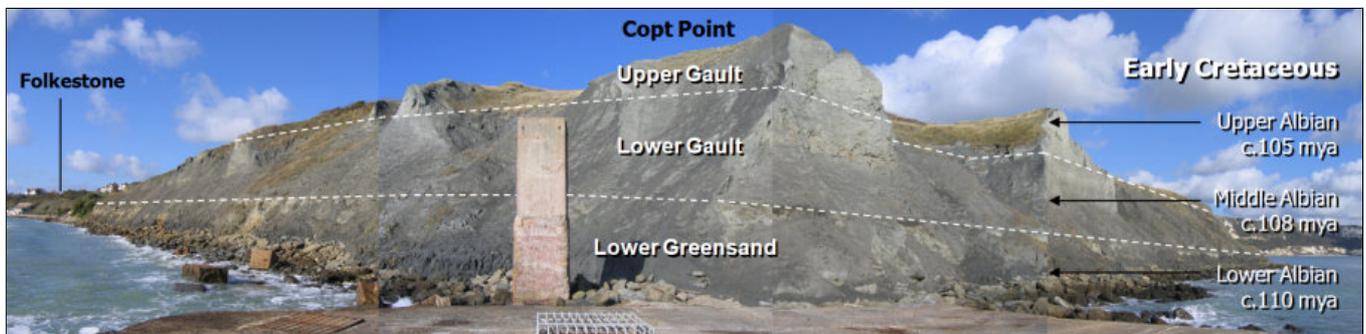


Figure 1: The geology of the cliffs east of Folkestone harbour, beneath Copt Point and beyond towards Dover in the East.

Resting conformably above the Lower Greensand at Folkestone is the Gault clay, a finer sediment transported further from land as sea levels continued to rise at the beginning of the Middle Albian c.108 mya. Only fine silts could be carried this far from land. The abundance of delicate, thin-shelled benthonic fauna (creatures living on the seafloor) is further evidence of relatively calm, undisturbed conditions. The Gault is divided into Lower (earlier) and Upper (later) sub-stages, and represents the greater proportion of the cliff face, see figure 1 above.

Continued flooding removed the land altogether in the Late Cretaceous, such that the only material left accumulating on the sea floor was the skeletons of marine plankton - resulting in the formation of the Chalk, exposed in the cliffs east of Copt Point (see figure 1 above, far-right).

Where to look for fossils?

The cliffs and foreshore east of the town are subjected to intense and sustained erosion from a number of forces, in particular the sea which breaks apart the fragile sandstone and clay ([read more](#)). This continuous process reveals fossils in situ and among the foreshore boulders on a daily basis, especially following periods of stormy weather.

Fossils can be found throughout the Lower Greensand and Gault, although the latter yields a far greater variety and volume of finds, and is the subject for the remainder of this investigation.



Left: Searching for fossils at the base of a low gradient section of the cliff-face. **Right:** Ammonites and other fossils can be found within the Gault clay.

There are three areas where fossils from the Gault can be found: at the base of the slumping cliff, loose among the boulders, and at certain times (following scouring conditions) in situ within the exposed clay on the foreshore east of Copt Point.

Please note that this location is designated SSSI status, which requires visitors avoid digging directly into the cliff and foreshore; fossils can be found exposed in situ as shown above-right.

The base of the cliff (shown above-left) is the best place to find Gault fossils, here the overlying clay has slumped over the underlying Lower Greensand, burying the latter from sight. Ammonite shells, bivalves and a range of other marine fossils can be found protruding from the surface, and are easily collected by hand. The quality of the fossils, especially the finer details, are best preserved if the specimen is collected directly from the clay.

Fossils can also be found loose among the boulders on the foreshore. At high-tide and during stormy conditions in particular, the soft clay is washed away, leaving the harder, more resistant fossils behind. These fossils (mainly fragments of ammonites and benthonic fauna) accumulate among the small spaces between the boulders.



Left: DF event participants search for fossils among the boulders. **Right:** A fragment of *Pictetia astieriana* ammonite shell with suture marks visible.

The photo above-left shows participants on a Discovering Fossils event searching for fossils among the boulders. Despite being exposed to the damaging forces of the sea, many of the loose fossils are surprisingly intact; however many are also broken into smaller fragments. The photo above-right shows a beautiful fragment of ammonite shell, the suture marks (see [ammonites](#)) are clearly visible on the outer surface.

As with all coastal locations, a fossil hunting trip is best timed to coincide with a falling or low-tide. For a relatively low one-off cost we recommend the use of Neptune Tides software, which provides future tidal information around the UK. To download a free trial [click here](#). Alternatively a free short range forecast covering the next 7 days is available on the BBC website [click here](#).

What fossils might you find?

The fossils within the Gault clay at Folkestone reveal a complex marine ecosystem, rich in life, in particular bivalves and cephalopods (ammonites and belemnites). The ammonites occur in a variety of shapes and sizes, including several species with uncoiled shells. Other common fossils include bivalves, gastropods, shark and fish teeth/bones, crab carapaces, goose barnacles and bryozoans.

Below are a selection of common finds made over several visits to Folkestone. The volume of fossils is usually sufficient that most visitors will find several complete or partial ammonites, belemnites and bivalves; fish, shark and crab remains are still common, but to a lesser extent.



Left: A nearly intact *Anahoplites planus* ammonite, found within the Gault clay at the cliff base.



Right: A small *Euthoplites* ammonite, found loose among the foreshore boulders.



Left: A small unidentified ammonite from the Gault clay.



Right: A small unidentified pyritised ammonite found within the Gault clay.



Left: An uncoiled *Hamites* ammonite shell fragment, found within the Gault clay at the cliff-base.



Right: A fragment of an *Hamites* uncoiled ammonite shell, found loose among the foreshore boulders.



Left: An *Hamites* uncoiled ammonite shell, found within the Gault clay. **Right:** A *Neohibolites* belemnite guard found among the foreshore boulders.



Left: A *Notopocorystes broderipii* crab carapace found loose among the foreshore boulders. **Right:** A *Dwardius* shark tooth.



Left: A complete *Pectinucula pectinata* bivalve found in situ within the Gault clay. **Right:** A complete *Birostrina concentrica* bivalve.



Left: A small unidentified gastropod, found in situ within the Gault clay. **Right:** A *Gyrodes gentii* gastropod from the same location.



Left: A small unidentified fish jaw **Right:** An unidentified fish vertebra.



Left: A *Protosphyraena ferox* fish tooth found within the Gault. **Right:** After a gentle clean the tooth is shown.



Left: A small *Cretiscalpellum unguis* goose barnacle valve. **Right:** A bryozoan.



Left: The internal surface of an echinoid shell fragment, found within the Lower Greensand. **Right:** A large gypsum crystal, found loose on the foreshore.

Tools & equipment

It's a good idea to spend some time considering the tools and equipment you're likely to require while fossil hunting at Folkestone. Preparation in advance will help ensure your visit is productive and safe. Below are some of the items you should consider carrying with you. You can purchase a selection of geological tools and equipment online from [UKGE](#).

Steel point: In some instances it's not necessary to use a hammer and chisel to remove the matrix surrounding the fossil. Sometimes all that's required is some careful precision work using a steel point. This is particularly relevant with crumbly matrix, where chiselling may otherwise shatter a fragile fossil.

Hand lens: A hand lens enables the fossil hunter to enjoy the finer details of the specimens they find. It's often remarkable how well preserved some of the most intricate structures can be. We recommend a lens with x10 magnification that folds away into a metal casing to protect it from damage.

Strong bag: When considering the type of bag to use it's worth setting aside one that will only be used for fossil hunting, rocks are usually dusty or muddy and will make a mess of anything they come in contact with. The bag will also need to carry a range of accessories which need to be easily accessible. Among the features recommended include: brightly coloured, a strong holder construction, back support, strong straps, plenty of easily accessible pockets and a rain cover.

Walking boots: A good pair of walking boots will protect you from ankle sprains, provide more grip on slippery surfaces and keep you dry in wet conditions. During your fossil hunt you're likely to encounter a variety of terrains so footwear needs to be designed for a range of conditions.

For more information and examples of tools and equipment recommended for fossil hunting [click here](#) or shop online at [UKGE](#).

Protecting your finds

It's important to spend some time considering the best way to protect your finds onsite, in transit, on display and in storage. Prior to your visit, consider the equipment and accessories you're likely to need, as these will differ depending on the type of rock, terrain and prevailing weather conditions.

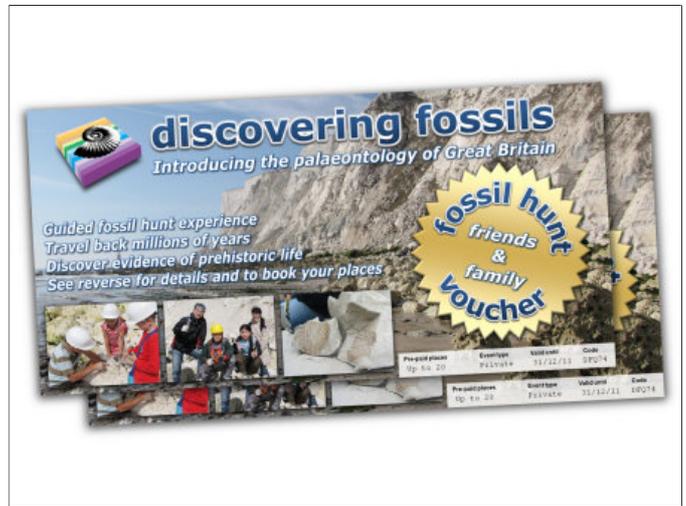


Left: Fossil wrapped in foam, ready for transport. **Right:** A small compartment box containing cotton wool is ideal for separating delicate specimens.

When you discover a fossil, examine the surrounding matrix (rock) and consider how best to remove the specimen without breaking it; patience and consideration are key. The aim of extraction is to remove the specimen with some of the matrix attached, as this will provide added protection during transit and future handling; sometimes breaks are unavoidable, but with care you should be able to extract most specimens intact. In the event of breakage, carefully gather all the pieces together, as in most cases repairs can be made at a later time.

For more information about collecting fossils please refer to the following online guides: [Fossil Hunting](#) and [Conserving Prehistoric Evidence](#).

Join us on a fossil hunt



Left: A birthday party with a twist - fossil hunting at Peacehaven. **Right:** Send someone special a Fossil Hunt Experience Gift Voucher

Discovering Fossils guided fossil hunts reveal evidence of life that existed millions of years ago. Whether it's your first time fossil hunting or you're looking to expand your subject knowledge, our fossil hunts provide an enjoyable and educational experience for all. To find out more [CLICK HERE](#)



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Safety notice: Fossil hunting can at times pose a risk to personal safety, in particular within environments close to the coast, cliffs or in quarries and when using the tools and equipment illustrated. Discovering Fossils provides a free resource to inform you about this fascinating subject and does not accept any liability for decisions made using this information. We recommend all individuals abide by the fossil hunting guidelines available by clicking on the icon at the top of the page.

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