

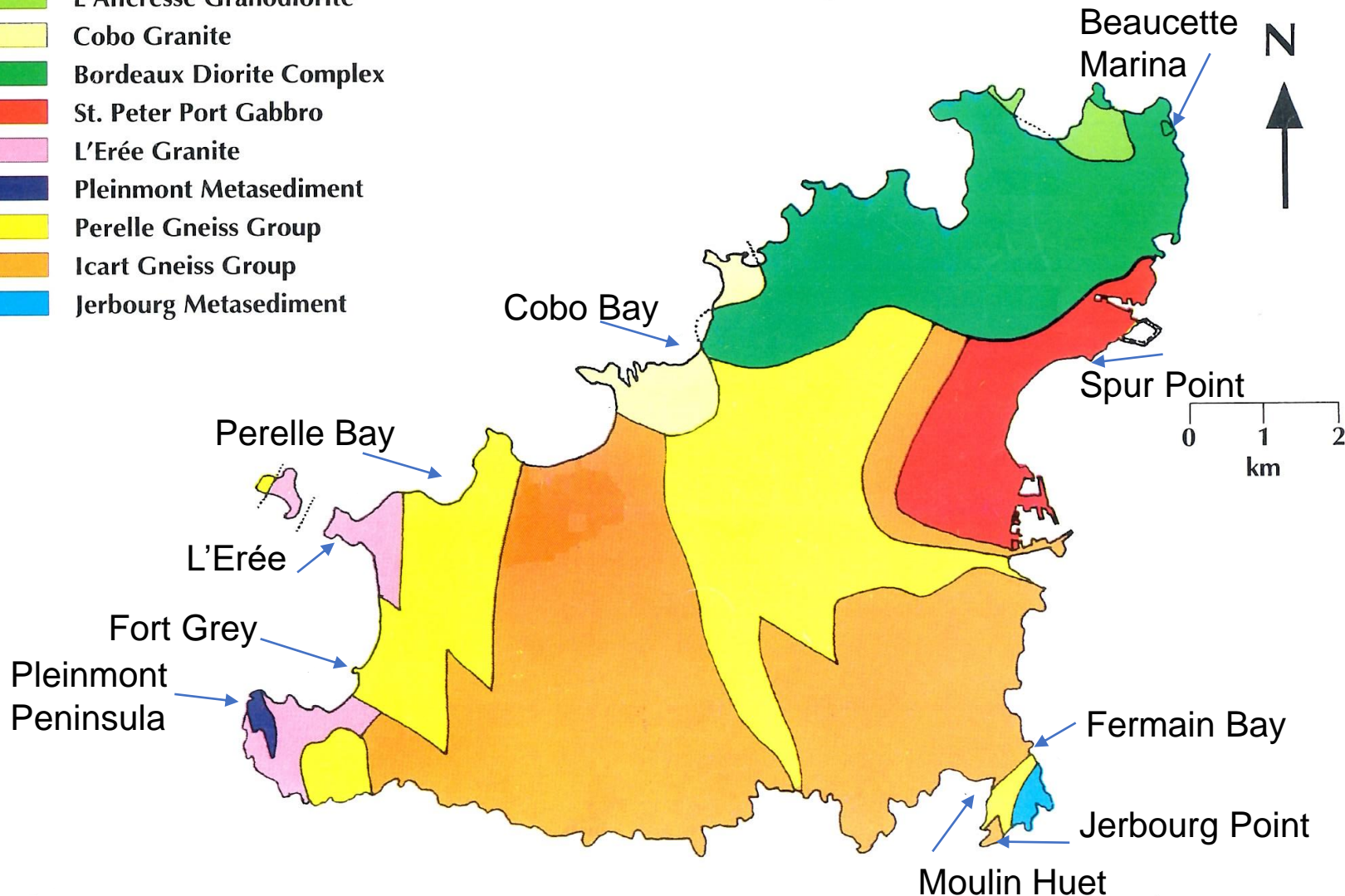
Harrow & Hillingdon
Geological Society
Overseas Field Trips

Guernsey and Sark
Summer 2013

Guernsey, Summer 2013

The Geology of Guernsey

- L'Ancrese Granodiorite
- Cobo Granite
- Bordeaux Diorite Complex
- St. Peter Port Gabbro
- L'Erée Granite
- Pleinmont Metasediment
- Perelle Gneiss Group
- Icart Gneiss Group
- Jerbourg Metasediment



Guernsey has an area of about 40 sq.km. Its geology consists mostly of a suite of unique, colourful **Precambrian** igneous and metamorphic rocks.

The northern part of the island is composed of **plutonic igneous** rocks while the southern region is mostly **metamorphic** rocks derived from both sedimentary and igneous predecessors.

The landscape of the north is more low lying than the elevated plateau and cliffs of the south.

Around the coastline evidence of changes in sea level can be found, caused by the **Quaternary Ice Age**. These include raised beaches, relict cliff lines and submerged peat beds as well as some head deposits (glacial till).

Pleinmont Peninsula

Right, contact between **L'Erée Granite** (*left*) and **Pleinmont Metasediments** (*right*) near Pezeries Point.

Below, **L'Erée Granite** on Pleinmont Peninsular, looking west, towards Les Hanois lighthouse.



Fossil cliff line (Briovarian 700-1,000Ma) of former headland in Pleinmont Metasediments.



German WW2 watchtower



Pleinmont Peninsula



La Table des Pions

1 Site of Historic Interest


La Table des Pions consists of a circular ditch with a circle of stones lying around the outside. The date of construction is unknown although presumed to be the late 18th or 19th century and it is linked to the Guernsey tradition of the Chevauchée.

This was a procession that went round the island checking the condition of the roads every three years. However it is believed that the custom may have had religious origins.


The Table des Pions was one of the many stopping points along the route and it was here that the pions (or footmen of the officials who rode on horses) sat for their afternoon refreshments.

The earliest record of the Chevauchée dates to 1530 but the tradition fell into decline at the end of the seventeenth century. The last procession took place in 1837 although there have been subsequent re-enactments.

The Table des Pions is also known locally as the Fairy Ring and there are many stories of goblins and witches meeting here!



Re-enactment of the Chevauchée in 1966
Image courtesy of French Library



Many other sites of historic interest can be found in Guernsey including:

Fort Les Pezeries. Pleinmont Metasediments.

La Table des Pions, 18-19th Century resting place for road inspectors.

Fort Grey, Rocquaine Bay



Fort Grey is situated on a promontory in Rocquaine Bay.



Fort Grey was built in 1804 along with many other forts and battlements around the island to protect it from French Invasion. The Germans used it as an anti-aircraft battery during their WW2 occupation. It is now a maritime museum.



Amphibole enclaves in **Perelle Quartz Diorite** blocks.



L'Erée Headland



L'Erée Granite at L'Erée.
The low cliff line is an
exposure of Ice Age **loess**
(wind blown sandy deposit).

Le Trépied dolmen, Perelle Bay



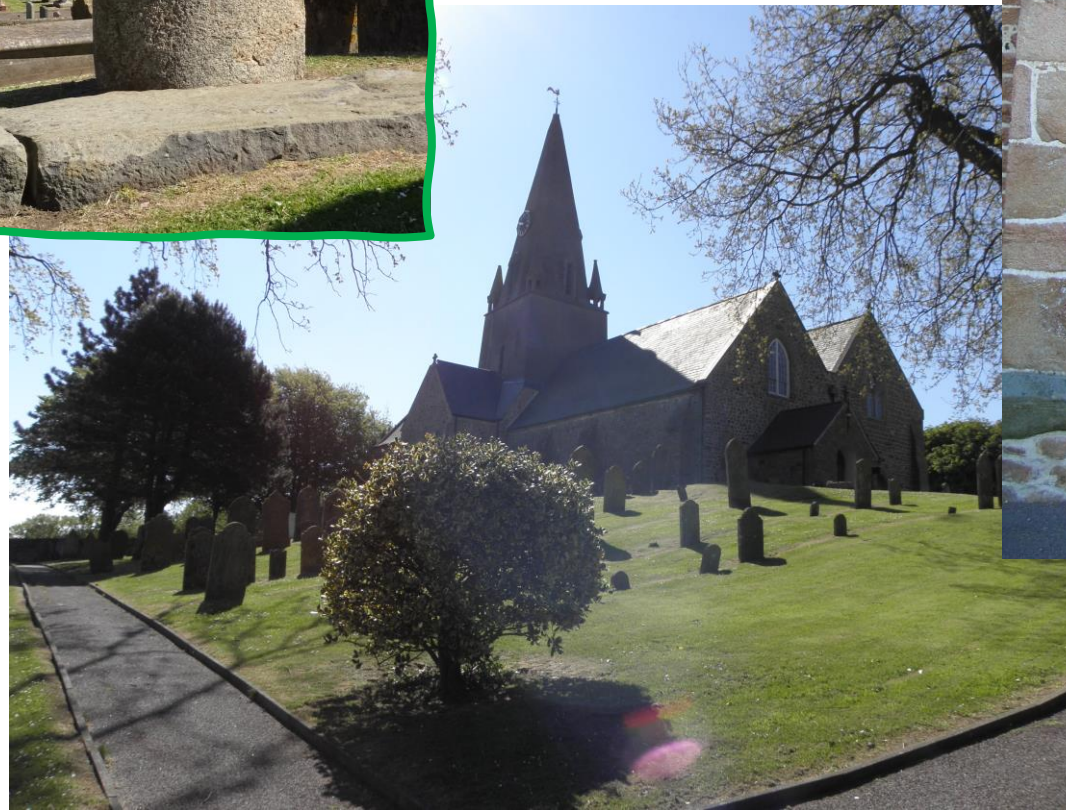
One of many
Neolithic
passage graves
on Guernsey.

Guernsey Churches

'La Gran'mere du Chimquiere' is a Neolithic carved **granite** menhir standing outside **St Martin's Church**.



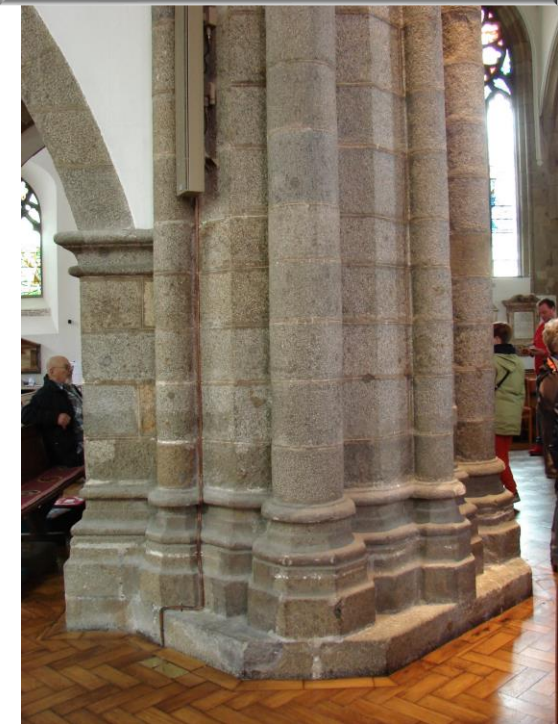
Late Neolithic-early Bronze Age carved **granite** menhir in **Castel** churchyard



Castel Church is mainly constructed of **Cobo Granite** blocks.

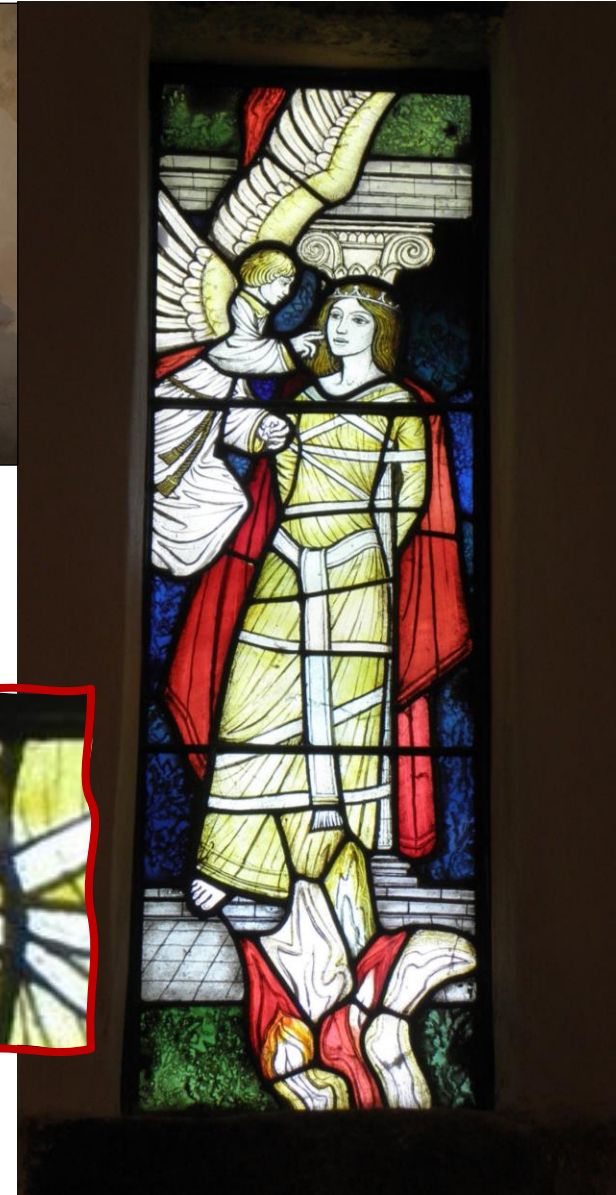
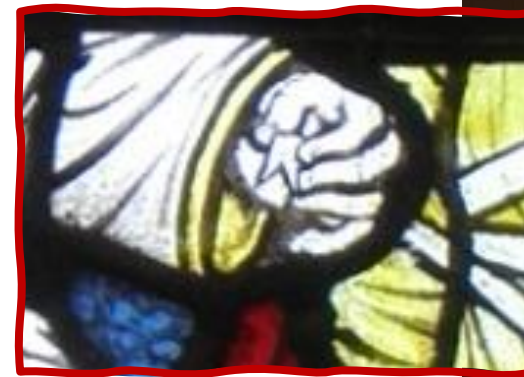
Guernsey Churches

13th C Town Church of St Peter, St Peter Port, is built of granite and originally served as a fortress.



Built from mixed local stones, **St Apolline Chapel**, Perelle Bay, is one of only two surviving sites on Guernsey containing **Medieval wall paintings**.

It is the only place in Europe dedicated to St Apolline, the **patron saint of dentists** (see tooth in hand inset right).



Cobo Bay



Aplite vein cutting through granite-diorite marginal facies.



Examining the complex contact between the **Cobo Granite** (pink) and the **Bordeaux Diorite** (grey).

Right, Xenoliths of grey **Bordeaux diorite** within the pink **Cobo Granite** may have been semi-molten when they were derived.
Top, Marginal diorite gneiss boulder.



L'Ancrese Bay



Dolerite dyke in L'Ancrese Granodiorite.
Inset top, Xenolith.



Contact between **L'Ancrese Granodiorite** (pink) and **Bordeaux Diorite** (grey-brown) at Creve Coeur, west of L'Ancrese Bay.

Spur Point, near Richmond Corner



Bojite, St Peter Port Gabbro, with plagioclase vein & **hornblende** crystals.



Layering & veining in **St Peter Port Gabbro**.



Poikilitic ('bird's eye') gabbro with plagioclase-rich vein, **St Peter Port Gabbro**.



Plagioclase veins in **St Peter Port Gabbro**

Beaucette Marina



Layering due to immiscibility of the magmas of different density in **Bordeaux Diorite**



Plagioclase vein in **meladiorite, Bordeaux Diorite**

Meladiorite and vein diorite, **Bordeaux Diorite**, around mouth of Beaucette Marina

Fermain Bay

Granitic vein in Icart Gneiss



Icart Gneiss at Bec du Nez displaying strong foliation & late brittle fracturing.



Icart Gneiss with prominent pink feldspar crystals.

Lamprophyre dyke



Moulin Huet



Lamprophyre dyke showing honeycomb weathering, in **Icart Gneiss**



Pegmatite vein in **Icart Gneiss**.



Icart Gneiss



Dolerite dyke in **Icart Gneiss**

Icart Gneiss and **glacial head deposit** in cliff behind.



Pea Stacks, Jerbourg Point

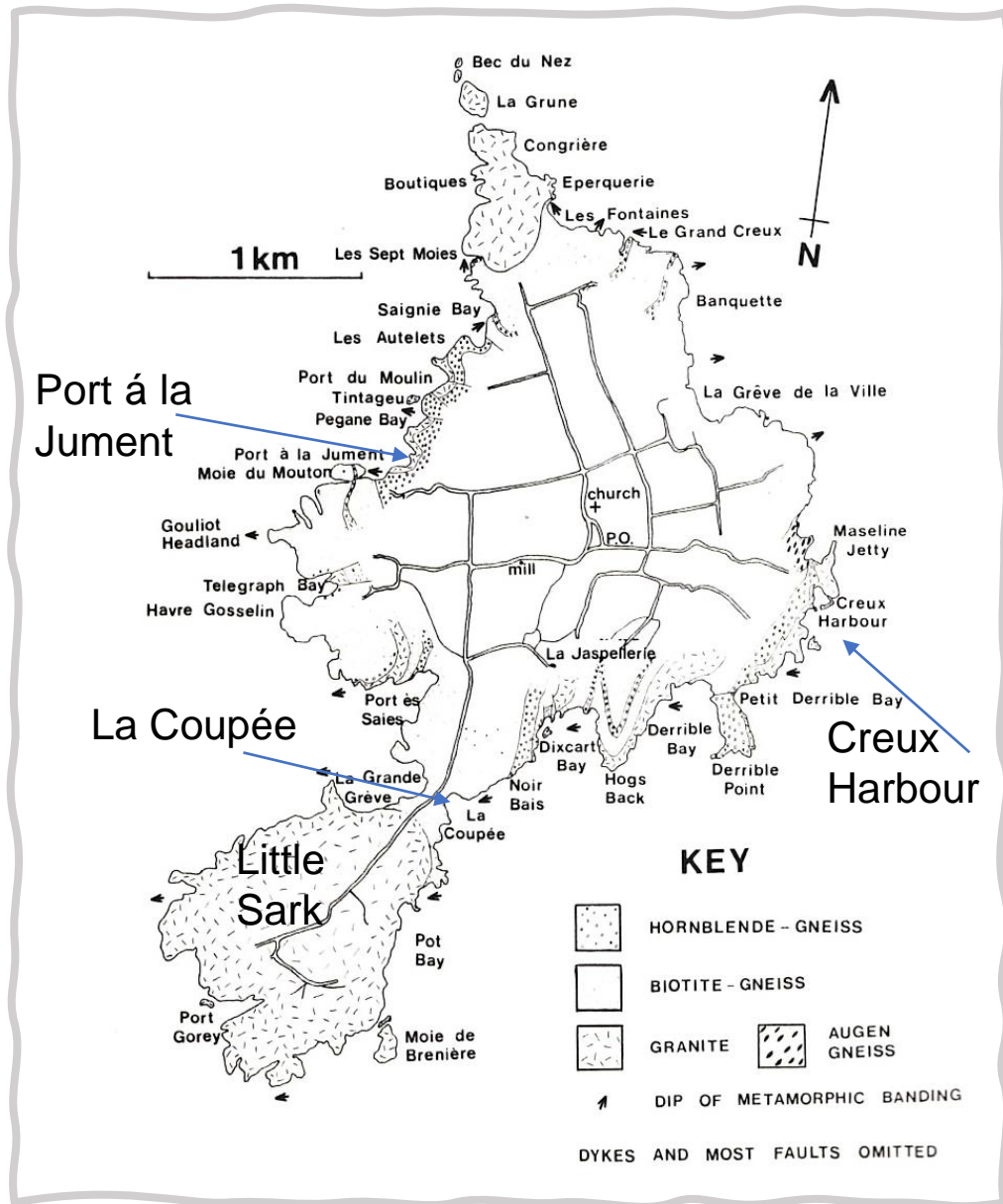


Looking across Moulin Huet Bay to Pea Stacks - **Icart Gneiss** (*foreground*), **Doyle Gneiss** & **Pea Stacks Gneiss** (*distance*).



Jerbourg Point - **Pea Stacks Gneiss** (*foreground*),
Pea Stacks – **Pea Stacks Gneiss** & **Doyle Gneiss** (*distance*).

Sark, Summer 2013



With a surface area of about 21 Sq. Km., Sark is composed of **Precambrian granites** and **gneisses** from both sedimentary and igneous origins. There is dramatic folding and faulting as well as alteration to kaolin, serpentine and asbestos. Little Sark had a **silver mining industry** in the 19th Century.

Creux Harbour, Sark



Kaolinisation in Creux Harbour Granodiorite, viewed from Little Sark.

Arriving at the Maseline Jetty, the geology of the harbour area is dominated by the **Creux Harbour Granite**, containing clear pinkish orthoclase feldspar. It is heavily faulted and foliated.



Port à la Jument, Sark



Examining the folded **biotite-rich gneiss** (*top*), also looking for the dolerite dykes and vertical faults. The hornblende-rich gneisses containing pink orthoclase feldspar (*right*) are thought to have igneous parentage, and are known as **Orthogneiss**.

La Cupée, Little Sark



Kaolinised Little Sark Granodiorite



Copper mineralisation,
near causeway



Little Sark Granodiorite is
quartz-dioritic in composition.



Sark

Point Robert, Sark



La Grande Greve and La Pointe de la Joue, foliated **Little Sark Granodiorite**.



Brecqhou from causeway. **Tintageu leugogneiss** with dykes.

