

Report of a brief survey of geological features within the Tabernacle Garden, Pembroke

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The garden is situated at the rear of the Tabernacle Congregational Church, Main Street, Pembroke (grid reference SM 98693 01288). The location is shown in Figure 1.

A site visit was requested by Elizabeth Gossage of Pembroke 21C in order to assess the geological interest visible in the exposures (an old limestone quarry face and inset caves) within the garden.

General setting

The historic walled town of Pembroke is situated on ridge of Carboniferous Limestone. The limestone outcrop occurs within the core of the Pembroke Syncline (Figure 2).

The mapping and outline description of the geology of the Pembroke area was carried out in the early 1900's (Dixon, 1921) and there has not been any recent work. There are no published details of the rocks exposed within the Tabernacle Garden.

Preliminary appraisal

The site visit was made in poor weather so it was quite brief. Photographs (Figures 3 and 4) were taken but no measurements or other investigations were made.

The rock faces (in what is presumed to be an old quarry for walling stone and/or limestone supply for a nearby lime kiln) are partially covered by ivy, some of which dangles down to ground level.

Photos of the general setting could be made if the intention is to expose the rock faces as a feature of the garden. Bedding within the limestone may be near horizontal but because the rock is heavily-jointed this was not easy to confirm from restricted views during a short visit.

Several natural cave passages are present but these 'close out' within a short distance and may be partially blocked with red clay around jammed blocks, which is fairly typical of other limestone caves in South Pembrokeshire.

The floor of the caves is composed of dark brown earth (due to incorporation of leaf litter) with embedded blocks of limestone and a surface scattering of recent litter.

The deposits in the caves could be of archaeological significance. Excavation should be only be carried out by Dyfed Archaeological Trust or other suitably experienced persons they might recommend. A geologist should also be present as there is potential overlap between archaeological interest (eg. stratification and sub-fossils). Cave passages could, perhaps, be recorded using a small, robust video camera on an extendable pole.

Bats might be present within caves and smaller fissures so advice will need to be sought from Natural Resources Wales on avoiding disturbance to these protected species, and on other aspects of biological interest (eg. mosses and lichens). Mary Chadwick and Sam Bosanquet are suggested contacts.

In terms of geological interest, the exposure adds to potential for revision of geological mapping of the limestone ridge (scattered exposure can still be seen around many parts of Pembroke).

The caves add to the understanding of the karst scenery of the Pembroke area, and their deposits (and any sub-soil in the remainder of the garden) could also be of geological interest.

Recommendations

A more detailed geological survey could be carried out when vegetation has died back or been cleared.

Copies of this and any future report to be submitted to Pembroke 21C, Dyfed Archaeological Trust and the County Records Office.

Geologist should be present at intervals during any archaeological investigation.

Reference

Dixon, 1921 The Geology of the South Wales Coal-field: Part 13. The country around Pembroke and Tenby, being an account of the region comprised in sheets 244 & 245 of the map. H.M. Stationery Office, London.

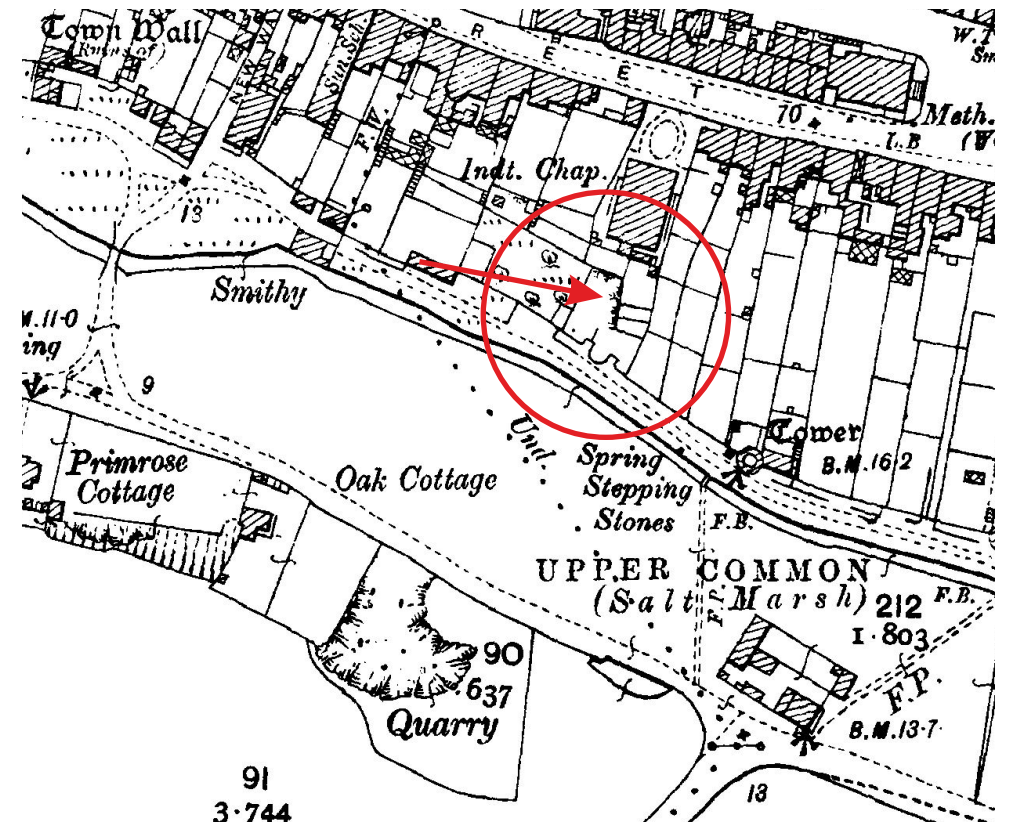


Figure 1 Location of Tabernacle Garden, Pembroke (SM 98693 01288) as seen on Google Earth photo and old OS 1:2,500 map. On the latter, the quarried rock face is depicted.

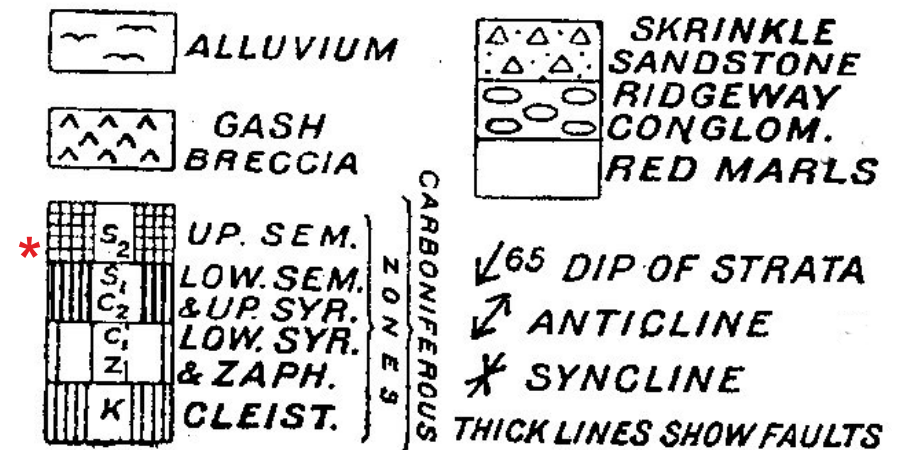
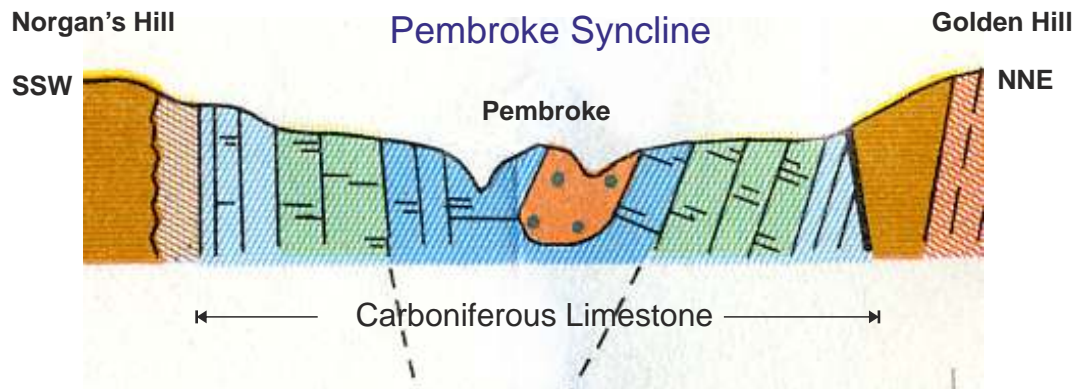
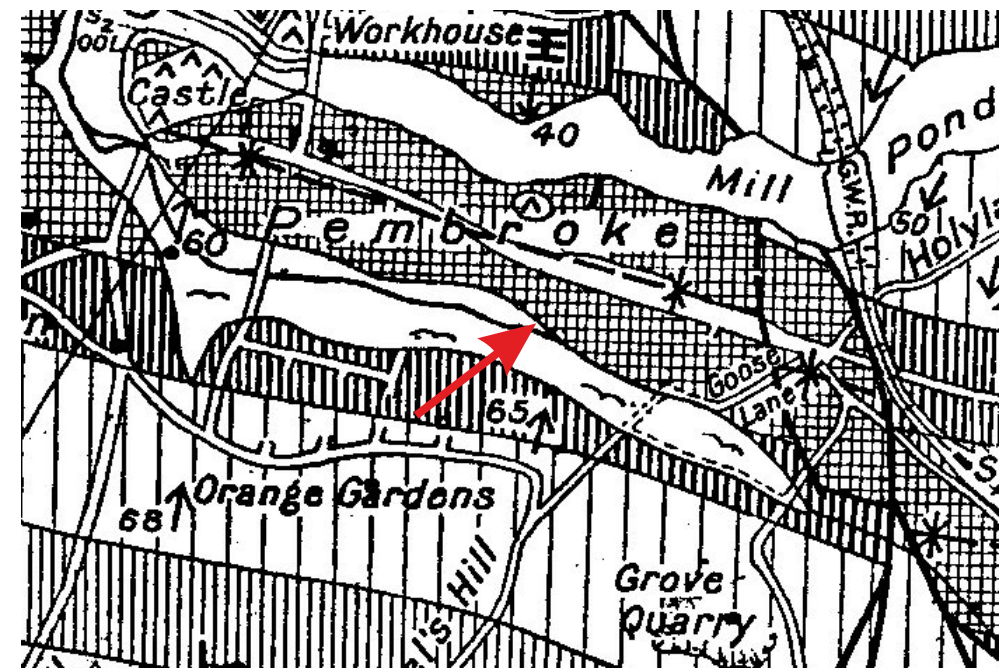
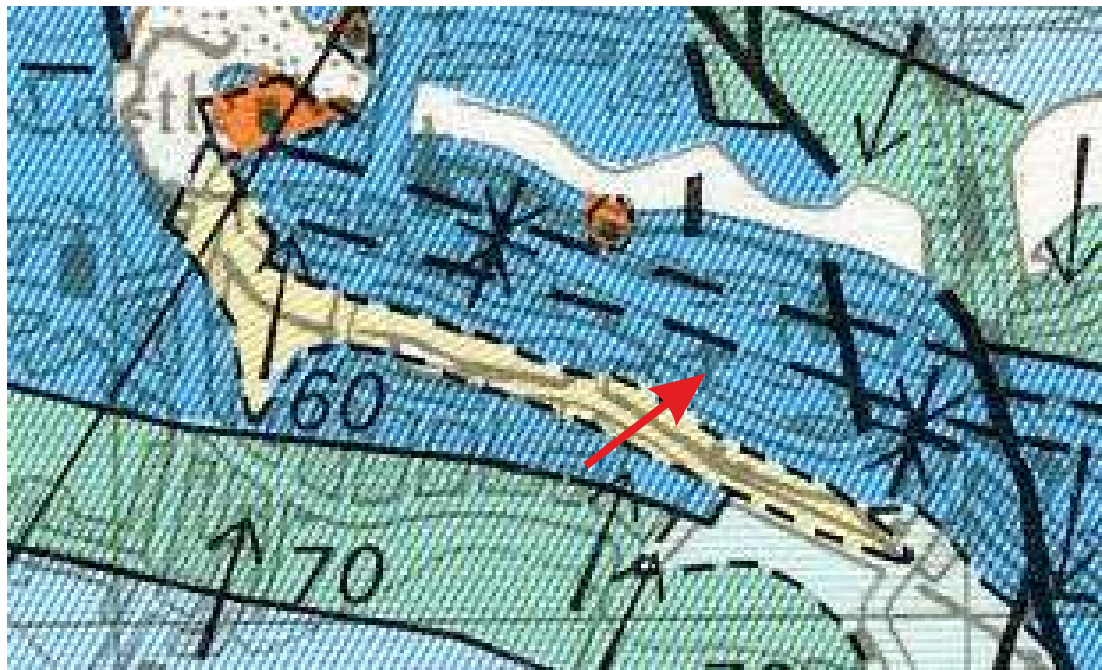


Figure 2 Geological setting of the historic walled town of Pembroke. The approximate location of the Tabernacle Garden is arrowed.

The cross-section (lower left) is a little to the west but it gives a rough idea of the structure of the Pembroke Syncline. The limestone beds seen at the Tabernacle Garden are probably low down within the S₂ subdivision of the Carboniferous Limestone as mapped (Dixon, 1921).



Figure 3 Northern rock face a. abutting stone wall, b. small cave c. jointed limestone rock face over 2m high (?sub-horizontal bedding)



detail of narrow cave passage and red clay

Figure 3 Cave in eastern rock face ? subhorizontal bedding in wall to left of ranging pole (2m)