

NEWSLETTER

Number 7 February 2010

Price £3.50

Now, in its eighth year the Forum continues to go from strength to strength, as is illustrated by the wide range of articles that you will find in this issue. Over this period the Forum has developed its own identity, which is different to that of similar organisations in England and Scotland. One aspect where we differ is in our extensive programme of field excursions that allows us to bring together geologists, historians, conservators and users of stone in the field where open discussion on interpretation, possible source etc is encouraged. In this issue you will find four field meeting reports from last year's programme; Cross Hands and the National Botanic Garden, Llangollen, Llandewi Brefi and Pontypool, as well as the full programme for this year's excursions.

Members of the Forum are also involved in many research projects, both large and small scale that can cover broad issues or very detailed. Jana Horák and John Davies write about their Brecon Beacons Building Stone Survey that covers the whole of the National Park, while Maddy Grey writes about a case study in the re-use of stone at Llaniltud Fawr (Llantwit Major). In a similar vein John Davies writes about the Tywi Valley Project and the Forum's role as well as expounding on his research in St Mary's Parish, Whitland.

Members of the Forum have also been involved in a number of stone related meetings and conferences. In this issue Edward Holland appraises us of what took place at the Redundant Rural Buildings – an untapped resource meeting in Llwynywermod last October, Eric Robinson on the History Forum for Wales meeting at Plas Tan y Bwlch where Eric shows that our knowledge of stone, in this case ballast, can be a relevant and useful aid to historical interpretation and finally in this section, Ewan Hyslop and Emily Tracey provide a review of the Building a Future for Stone conference held at the Geological Society, London in October.

Finally, there are the usual crop of short articles and notes including the use of Pwntan and Bwlch-y-Fadfa sandstone in central Ceredigion and the effects of sandblasting by Tim Palmer and Andrew Haycock reports on new building stone additions to the collections of the National Museum of Wales. All in all an extremely eclectic mix. Enjoy!

AGM 2010

Saturday 17th April, 11.00 am, Inner East Gate, Caerphilly Castle, Caerphilly. Meet at Glanmor's café at 10.45 (next to the Tourist Office, opposite the Castle).

We will be the guests of Cadw at Caerphilly, thanks to the invitation of John Shipton (Cadwraeth Cymru Conservation Manager). The AGM will be followed by talks by Dr Rick Turner (Inspector of Ancient Monuments) and John Shipton (Cadw) on recent activity at the Castle. We hope to have a Cadw mason on site to demonstrate stone carving. There will be an afternoon tour around the Castle to look at recent work undertaken by Cadw.

At the AGM we will be voting in a new Secretary and Membership Secretary/Treasurer. Please send your nominations to the Chariman, Dr John Davies by Wednesday 14th April.

2010 Programme

Saturday 27th March: Whitland & Whitland Abbey Leader: John Davies. Meet at 11.00am at the Abbey site, 1 mile to the northeast of Whitland village (SS 208 181). Bring a packed lunch.

This excursion will examine the use of building stone studies to interpret poorly documented historical events. Whitland Abbey was constructed of local Ordovician sandstones and possibly flaggy limestones, but the dressings were imported by sea

from the Jurassic Sutton Stone quarries at Ogmere in Glamorgan and from the Dundry Stone quarries at Dundry near Bristol (see John's article further on in this Newsletter). We shall be examining these stones in situ and, hopefully, the collections now in possession of the Carmarthen County Museum. We will also examine the evidence for Hendy Gwyn ar Daf being at Capel Mair on the banks of the Taf at Whitland.

Saturday 17th April: AGM Caerphilly Castle (see above for details).

Saturday 15th May: The Forest of Dean

Leaders: Jana Horak and Andrew Haycock

Meet at 11.00am at the entrance to Wilderness Quarry Mitcheldean (SO671 195). A visit to view the Old Red Sandstone of the Forest of Dean. Further details to be confirmed. Contact Jana Horak (details at end of programme section).

Saturday 12th – Sunday 13th June: Grinshill Stone Weekend: quarries, geology and use in the Shrewsbury and Wem areas.

Leaders: Graham Lott and Judi Loach

Meet at 11.00am on the Saturday morning near the church in Grinshill village (SJ 520 235). Saturday will be spent examining the local Grinshill Stone quarries and the use of the stone in the nearby villages. A packed lunch is suggested.

Meet at 10.30am on the Sunday at Morris Shopping Park car park (Aston Street/High Street) in Wem (SJ 514 288). Sunday will be spent examining local building stones in and around Wem and Shrewsbury.

It is suggested that participants staying overnight should consider seeking accommodation in and around Wem where parking is easy and there are a good range of reasonable hotels. Suggested possibilities are the Aston Lodge Guest House in Wem, The Grinshill Inn in Grinshill village, or for those looking to push the boat out a bit the Albright Hussey Manor or Albrighton Hall (now a Mecure hotel). A slightly cheaper alternative upmarket hotel but a little further away is the Hawkestone Park Hotel.

Saturday 10th July: Stone in the Brecon Beacons National Park

Leaders: John Davies and Vince Quartermaine

Meet at 11.00am Sawdde Common at the Swadde Bridge, Llangadog (SN 706276). Bring a packed lunch.

The majority of the inhabited areas of the National Park stand on Silurian and Devonian maroon or greyish sandstones as reflected in the buildings. However, in the western part, within the Tywi drainage basin, there is a greater variety of rock types which again are reflected in the local buildings. The excursion will take in Llangadog, Myddfai and Llandovery together with a few source quarries.

Saturday 18th September: Sudbrook Stone

Leader: Jana Horak (contact details below or 0789 0944822 on the day)

Meet at 11.00am in the Cadw West Gate barns car park, Caerwent. We will look at Roman and medieval use of use of Sudbrook Stone, and costal exposures if time and weather permit. Bring a packed lunch.

If you wish to share transport, or have transport difficulties getting to any of these fieldtrips, please e-mail Jana Horak (jana.horak@museumwales.ac.uk) or phone (029 20573353) and we will do our best to match up lifts offered to those needing transport.

Pwntan And Bwlch-y-fadfa Sandstone in Central Ceredigion

Tim Palmer

Nineteenth century churches and chapels are very important to an understanding of stone usage in Wales. They reflect the tastes and judgement of individual designers and architects; they display the range of stones available at the time; and they often show masonry of high quality, befitting the dignity and wealth of patrons, elders, and congregations.

Recently, the church of St Michael and all Angels, Tremain (SN 235486, in southern Cardiganshire, just off the main road about 6 miles east of Cardigan) has been considered for closure by the diocese because of a falling congregation. Brenda Howell, who has long been a member of that congregation, has mustered the arguments against this course of action, and has researched the history of the building. Opened in 1848, it was rebuilt on an existing ancient site and replaced a medieval structure that was in poor condition. Not in any way grand, it was nevertheless an extremely tidy building (using the word with the West Wales sense of warm commendation). The architect was John Jones, the Bard 'Talhaiarn', who worked for Sir George Gilbert Scott's firm, Scott and Moffatt, one of the C19th most important and influential architectural



Fig. 1. Pwntan Stone, lower exterior of east end of Tremain Church.

practices, who were also responsible for St Mary's National School in Cardigan. The patronage of the owner of Cardigan Priory, the Revd Robert Miles, was crucial to both buildings. John Jones later suffered a terrible death following a botched suicide attempt, and several portraits of him (both painted and photographed) exist in the collections of the National Library of Wales.

St Michael's is built entirely of Pwntan Stone from Tan-y-Groes, a couple of miles to the north-east. We have mentioned this pale Upper Ordovician sandstone from the Yr Allt Formation before in these pages. The outcrop of these sandstones across the middle of Cardiganshire is discontinuous, but the region of countryside where it is seen in buildings suggests that there were several quarries. The small reopened pit at Bwlch-y-Fadfa near Talgarreg is the only one still active (see Newsletter No. 3), but the stone appears to have been used well back into the Middle Ages (the surviving Romanesque font in Llansantffraed church at Llanon is evidence for this). At St Michael's, Pwntan Stone is used for both the dressings and the dressed rubble walling. The former were not taken to a smooth finish, but were given a reeded texture, like corduroy. The latter are very close-jointed and dressed over the face with a chisel. They show both re-entrants, where the corner of one stone sits in a right-angled depression in a neighbour, and oblique, (as opposed to vertical) perpend (Fig.1).

The whole is very unusual and highly characterful, and they attest to both the skill and imagination of the mason and architect. Possibly these are techniques

that John Jones met in his work for Scott, maybe in England, and perhaps even in France where the Scott practice worked for the Rothschilds. The variation in colour seen in the picture arises from different amounts of natural iron in the stone.

The Forum wrote to the Historic Buildings Advisory Council for Wales about the quality of the stonework in this beautiful little church when the closure was being considered. It is not our role to try and influence this sort of decision, but we felt that the quality of the stonework was unusually good and that the decision-makers might welcome an opinion on this aspect of the architecture. Exceptional quality (in various respects) is a criterion that is considered when the Friends of Friendless Churches (a Charity that takes on care of such buildings) is considering where to offer its limited resources. We await news of the future of the building.

There is a second stone-related mystery at Tremain, and that is the font (Fig 2). It is a Romanesque design, rectangular in plan and with 3 or 4 scallops delineating the base of the bowl on each of the four sides. Each scallop is separated from its neighbour by a small dart (not visible in the photo), and a sharp horizontal line separates the scalloped area from the upper, plain sides of the bowl. This design is seen at several places close to the coast along the south coast of Wales, and also at Mwnt on the coast north-west of Cardigan. The same design is common in north Devon, and it has been suggested that there was a



Fig. 2. Font at Tremain Church. Fonts of this pattern occur in several places in southern Wales, and may have been imported from north Devon.

font factory in that part of the world that exported fonts across the Bristol Channel to Wales. Doubtless the geology could help to test this idea. The Tremain font is made of a rough, medium sandstone containing greenish grains. It certainly doesn't look like a local Welsh stone to my eye, but I'm not very good on sandstones, and nor am I familiar with the geology of north Devon. All opinions gratefully received. Another Cardiganshire brainteaser involving Pwntan Stone, or something very similar, can be seen in the gateposts at Bwlchbychan House, south of Llanwenog (Fig 3). Here the stones have fine punch-dressed faces and neatly drafted margins. Very tidy work indeed. We know that the mason was D. James, because he has signed his work. But what of the date? It says 'Erected A.M. 5861'. This took some time to work



Fig. 3. Gatepost at Bwlchbychan House giving building date as Anno Mundi 5861.

out, but if you date things from 4004 B.C. which is the date that Archbishop Ussher of Armagh (d. 1656) calculated for the Creation, then 5861 translates to A.D. 1857. A.M. means anno mundi, 'in the year of the world'. Some other estimates took the date of the Creation as 4000 B.C., which would give a building date of 1861. I (or anyone else) should follow this up, and look into the career of D. James, a craftsman who deserved to be better known.

The Tywi Valley Project Area

John Davies

Work on the Tywi Valley Project is driven, amongst others, by members of the Dyfed Archaeological Trust. The project aims to bring together incomers who have an interest in finding out about their new environment

and the indigenous population whose local knowledge is fading. It thus builds bridges of communication and hopefully brings the two groups together.

The specific project which concerns the Stone Forum is a field-based project which the Tywi team have devised for recording architectural vernaculars amongst the buildings of an area within the central part of the Tywi Valley, between Llangadog in the north-east and Dryslwyn in the south-west. It also stretches from the north-western slopes of the Black Mountain to the watershed between the Cothi and Tywi rivers in the north-west. The south-eastern part [south-east of the river Tywi] is the historical type area of the Ordovician – Llandeilo succession, while the north-western half consists of upper Ordovician rocks. This area contains a complex of different building materials and styles which the project aims to identify. The recognition of building stones, of course, only forms part of the study.

Because the Stone Forum's Brecon Beacons Project, has already mapped the majority of the south-eastern part of the area, which lies within the National Park, it was considered that Jana and myself should meet and discuss ways in which the two projects could assist each other.

At the meeting, the discussion concerned the amount of recording detail, the petrological skill of the voluntary field recorders and the quality control of the resultant information. Because one of the main aims of the project was considered to be the involvement of enthusiastic volunteers, everyone agreed that the role of the Forum could be to provide basic training in the skills required to give a meaningful result.

It was considered that either Jana or myself could provide introductory training and were invited to attend the first evening session on 12th November at Llandeilo. I made a collection of specimens of the main building stones that are likely to occur in the area and used them to introduce basic concepts such as grain-size, colour, roundness and other properties of the building stones, together with some rule-of-thumb methods of the description of rocks to aid filling in the field forms. After the meeting, I presented the specimens to the project organisers to use as a reference collection. The field workers intend to visit buildings and possible source quarries as well as collecting specimens, where possible.

There have already been a few spin-offs from our involvement. The Dyfed Archaeological Trust has come to appreciate the value of close contacts with the Forum and the National Museum of Wales Geology Department and also the amount of work already being done in the field. Conversely, the archaeologists have already recorded the use of materials, such as the Tilestones, over a large area in antiquity, information which will enable the Forum database to give a more detailed picture of its historical distribution. The project continues and our involvement will benefit both organisations greatly.

Brecon Beacons Building Stone Survey

Jana Horák & John Davies

As reported briefly in Newsletter 6, during the first part of 2009, John Davies and Jana Horák (National Museum Wales) undertook a survey of building stone distribution and diversity within the Brecon Beacons National Park (BBNP). A considerable number of building stone enquiries related to this area have been received by the National Museum, which highlighted the need to obtain more detailed information. It was also hoped that data on the distribution and variety of stone would be of use to the Park authorities for planning purposes. An additional objective of the project was to scope the amount of work involved in rolling out a larger scale project that might eventually encompass the whole of Wales. A draft report, based on reconnaissance level surveying, was produced and submitted to BBNP in July 2009. Subsequently, survey work has continued and by the end of 2009 three quarters of the Park area had been surveyed at a more detailed level.

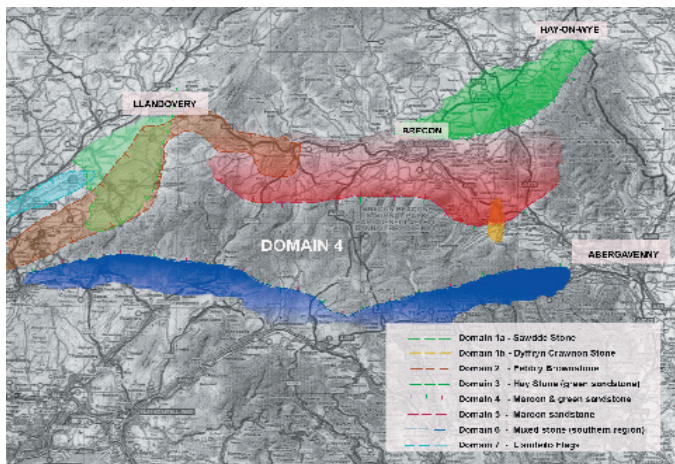


Fig 1. Building stone domain map of the Brecon Beacons National Park.

The project employed a simple methodology of following the arterial roads through the area and identifying the dominant stone or stones used in buildings of the towns and hamlets. A detailed photographic record was also produced, which proved a useful resource in cross checking the data collected on the survey forms. Although the type of stone was recorded on a building-by-building basis, the data were also grouped into ‘building stone domains’ as a means of providing a regional overview. At least eight domains have been identified within the BBNP (Fig 1) each defined by the use of a specific stone from the main fabric of the buildings, used in conjunction with either stone or brick dressings.

Of the eight domains identified, two employ polychromatic stone work. Sawdde Stone (Domain 1a), present in the west of the region, uses a variety of cobbles of contrasting sedimentary lithologies from the Sawdde river deposits, and includes cobbles carried by the river from the rocks outcropping on the western end of the northern escarpment of the South Wales Coalfield (Fig 2). A similar effect is present along the southern end of the National Park from Brynaman in the west to Dyffryn Crawnon to the south-west of Llangynidr (Domain 1b). The variety of stone in this domain, however, is quarried and not derived from the superficial deposits. It is likely that this pattern of stone use will also be seen in the Clydach Gorge above Abergavenny when the area is surveyed in detail.

Domains 2 to 5 contain Devonian sandstones of different colours. Particular attention was paid to the pale grey-green sandstones from the Hay area. This forms a clearly map-able zone from Hay to Talgarth and Llanfili where the stone is derived from a series of local quarries in the St Maughan’s Formation. We have used the term ‘Hay Stone’ for this lithology but this has no formal status.

Domain 6 is derived from the Carboniferous rocks along the northern crop of the South Wales Coalfield and appears to be almost contemporaneous with Domain 1b. This region is the area of on-going work and may result in new domains or sub-domains being defined. The lithologies documented include Carboniferous Limestone, Pennant Sandstone, Farwell Rock and quartzitic units of the Upper Old Red Sandstone all of which are locally derived.



Fig. 2 Polychromatic stonework of Domain 1a.

The flaggy limestones of Domain 7 (Llandeilo Flags) represent the oldest rocks exploited within the National Park. These are present in a region extending from south-west of Llangadog (Carmarthenshire), down the Tywi valley and beyond the Park limits towards Carmarthen and perhaps even farther. Examples of the use of this stone are seen at Denefwr and Dryslwyn Castle and the gate tower at Aberglasney Gardens.

The detailed survey work is probably three-quarters complete and will involve another couple of days field work before a final account is produced. It is hoped that identification of building stone domains will support the greater contextual use of stone by raising awareness of the dominant local stone. During the course of the project there has been much interest and enthusiasm amongst property owners and anecdotal information gained about the sources of building stones. There also appears to be a desire



Fig 3. Red and green sandstones in new build in Hay-on-Wye.

that the natural building stone vernaculars should be retained in the countryside. The project has also provided an opportunity to canvass the idea of the difference between building stone quarries and aggregate quarries in their environmental impact during these personal contacts.

An additional outcome of the survey work has been the identification of the swamping of local stone types both by 'Pennant Sandstone creep' and also by the use of a mixture of maroon and green sandstones from the Old Red Sandstone succession of Domain 4. The use of both lithologies appears to be a reflection on the available sources of stone for building. At present a negligible amount of building stone is extracted within the Park and this emphasises the need to either support greater local extraction, within the constraints of planning, or to identify suitable lithological matches for the various domains from outside the National Park. Stone is being extracted on a small scale on farms during excavation work related to the construction of buildings or new silage pits. At present this is hard to exploit commercially and may even have to be disposed of to land-fill. If this could be disposed of on a commercial basis to support the local building vernacular then a useful source of stone could be made available.

We hope, with the agreement of the Brecon Beacons National Park Authority, to make all or part of the completed report available via the WSF website.

NMW Building Stone Collection: New Buildings + New (Re)development = New Specimens

**Forest of Dean Sandstones and Chinese
'Granites'**

Andrew Haycock

Cardiff has seen much new building and redevelopment in recent years. A large area of the city centre has been completely redeveloped as part of the St David's 2 shopping complex. As part of this development, numerous pedestrian areas have been repaved with natural stone slabs and cobbles.

This work has provided the Department of Geology at National Museum Wales with the opportunity to procure representative samples to expand its building stone collection. The museum approached



Fig 1. Forest Pennant paving Park Place, Cardiff.

several contractors and stone suppliers, who kindly donated samples of stone used in the building work. It was advantageous to approach companies during the redevelopment phase, as they were more likely to have readily available, representative samples. The specimens are particularly important to the collection, as they date a current phase of development in the city.

Park Place

The southern end of Park Place at its junction with Queen Street near the Thistle Hotel (formally the Park Hotel), has been repaved with two types of Pennant Sandstone (Fig 1). Although only recently laid, the stone has already developed a characteristic ‘weathered’ appearance. Both stone types were provided by Royal Forest Pennant Natural Stone Products that work out of the Forest of Dean, near Coleford.

Forest Pennant Ltd, based at Bishop Sutton and formerly part of Hanson Formpave but a stand-alone company since 2006, bought a 33% share of the Forest of Dean Stone Firm Ltd in 2008. The latter formally ran the quarry, saw mill and supplied stone to the Forest Pennant brand name. Following the success of Forest Pennant in establishing itself as a brand in the stone market, the two companies have come together to quarry, cut and supply natural stone products under the Royal Forest Pennant Natural Stone Products branding.

The Carboniferous Pennant Measures lie between the Coleford High Delf and Yorkley coal seams, equating to a Westphalian D age. The stone is quarried just east of Coleford at the Barnhill / Bixhead quarries [SO 596109] and prepared at the Bixdale / Bixslade Stone Works [SO 607 099] at Parkend. Interestingly, the saw mill sources 70% of its power by hydroelectricity from the nearby Cannop Ponds. A Forum field trip to visit the quarry and works is planned for 15th May this year. The donated specimens are described below:

Royal Forest Pennant – Blue

Fine to medium-grained, blue-grey coloured, quartz-rich, micaceous sandstone with feldspar, and coalified granules (<1.5mm) (Fig 2). Comparable to / other trade names: Blue Forest of Dean Stone [see Watson 1911 p 286], Bixhead Blue.

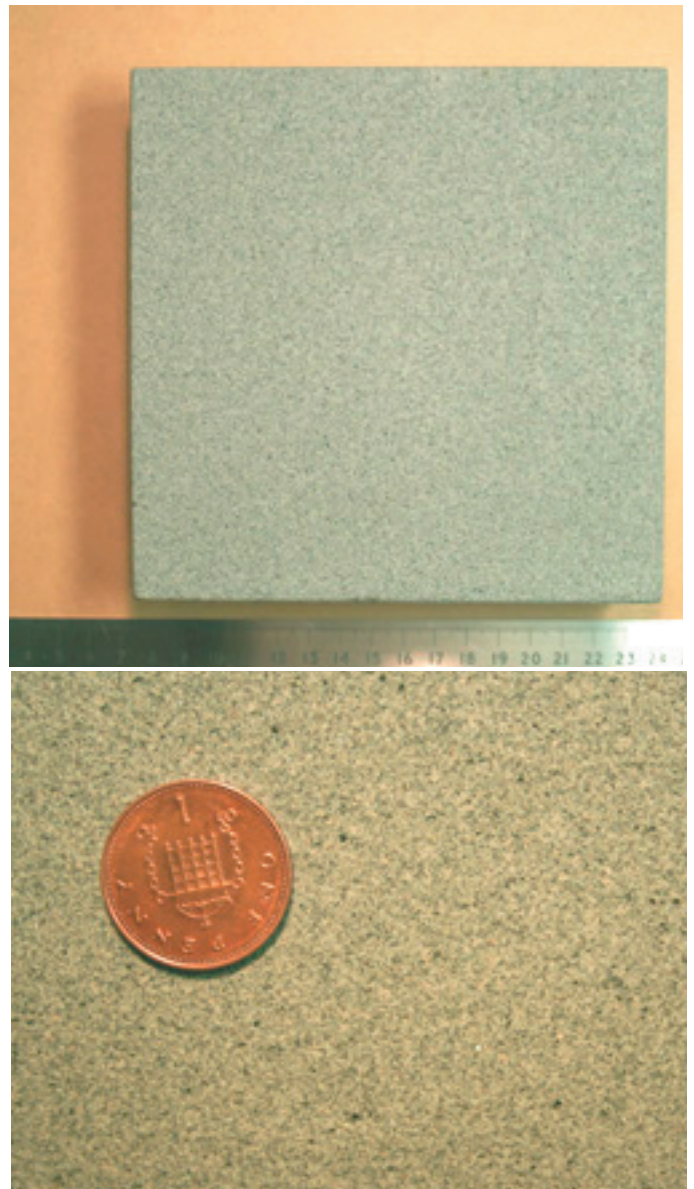


Fig 2. Close up of cut block of Forest Pennant

Royal Forest Pennant - Mixed

Fine to medium-grained, grey coloured, quartz-rich, micaceous sandstone with feldspar, and coalified granules (<2mm). Bands of iron-oxide staining throughout specimen, a distinct decorative feature that is utilised in paving and building stone (unfortunately this feature fades as the stone weathers). Comparable to / other trade names: Grey Forest of Dean Stone [see Watson 1911 p 286], Barnhill Grey.

This mixed colour stone has also been used for the new Interpretation Centre at Cardiff Castle (opened on 12 June 2008) where it has been used for both the main structure and the external works.

St John / Working Street

St John's Street/Working Street is the pedestrian street that runs from the corner of Queen Street and the Castle to the Hayes. The street has been repaved in four shades of red/pink granite and black 'granite'. Examples of these stones were donated by the contractors, Skanska McNicholas. Although little provenance details were available, using trade names and the codes provided confirmed that all of the stone was of Chinese origin. The black 'granite' was thin sectioned for identification, and found to be an olivine gabbro, likely to originate in Fuding, Jujian Province, China (Figs 3a & 3b – size 9 shoe for scale!).

St Davids 2

The interior of the shopping centre has been laid with approximately 30,000 (8000m²) polished floor tiles of Yana (Cenia) Limestone (a dolomitic biosparite) from Ulldecona, Spain. Elsewhere, Welsh slate has been used for wall cladding around the lift areas,



Fig 3b. Granite and olivine gabbro paving, north end of St. John's Street/Working Street, Cardiff.

and polished black 'granite' from South Africa in the floor. The Department of Geology has been in contact with the company, Stone Cladding International, who supplied the stone for the centre and they have kindly agreed to supply samples.

Reference.

Watson, J., 1911. *British and Foreign building stones: A descriptive catalogue of the specimens in the Sedgwick Museum, Cambridge* CUP.

A Visit To St Mary's Parish on the Banks of The Tâf River At Whitland - Questions Raised

John Davies

About the year 945, Hywel ap Cadell, 'Hywel Dda', gathered together at Whitland a multitude of four or six representatives from each of the Cwmwdau (communities) of Wales, who, with all their retainers, may have numbered as many as 2000 people. They held a great parliament, at which they codified the laws of Wales. These laws remained the main statutes of Wales until they were supplanted by English law through the Acts of Union (1536-1542) by Henry VIII.

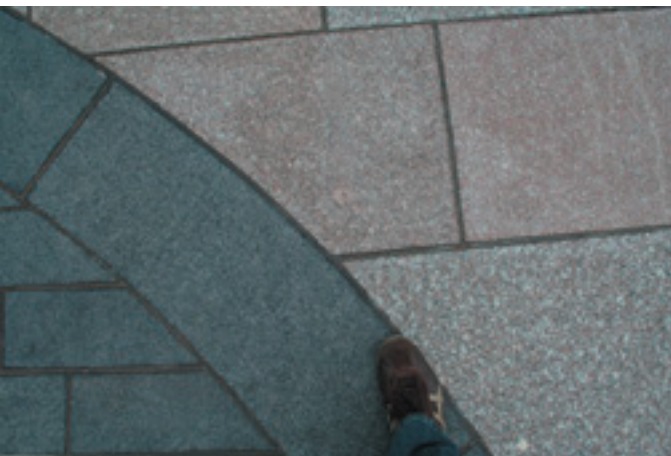


Fig 3a Close up of paving shown in fig 3b.

There has been a question amongst historians concerning the site of this parliament. From the C19th many of the historians of Wales suspected that the site was on the banks of the River Tâf at Whitland. The present site of Whitland Abbey (Fig 1) is not on the Tâf at Whitland but on it's northern tributary, the little River Gronw, approximately 2 km north of the Tâf. Thus, Whitland Abbey is not at Whitland. The correct name for Whitland is Hendy Gwyn ar Daf - The Old White House on the Tâf. The Welsh Language is specific and if it says on the Tâf, it means exactly that: on the banks of the Tâf.

The present town of Whitland, which houses the Hywel Dda Centre to commemorate the great parliament, has no buildings older than the mid C19th and was built around the C18th turnpike road and the railway. Therefore, the name must refer to something much older, even older than the abbey itself. The monks referred to Whitland as Hendy Gwyn - the 'Old' White House - but the Laws refer to Ty Gwyn ar Dâf , just the 'White House'.



Fig 1. Whitland Abbey.

On the banks of the river Tâf, at the crossing point, stands the Victorian church of St Mary's (Fig 2). It used to be called Capel Mair ar Glannau Dâf (St Mary's Chapel on the banks of the Tâf) and its location warranted further study. The church was rebuilt in 1850 -1853 by Coe & Goodwin architects of Edinburgh and is a rather formal Decorated Gothic building. There were two plans for the rebuilding which had been sponsored Mr William Henry Yelverton (1791-1884), son of William Henry Yelverton who had built the Abbey mansion, and William the younger had also built the Abbey Farm.



Fig. 2. St Mary's Church, Whitland

The original project was scaled down by the vicar and the builders due to reduced funds but eventually money ran out for both projects.

The nature of the site

The site of St Mary's churchyard is a platform slightly raised above the flood-plain of the river Tâf, upstream from the mouth of the River Gronw, which drains Whitland Abbey lands. It is an oval-shaped Llan of classical form, probably built on an earlier island. This would suggest that this is the site of a British church dating from as early as the C6th. The site has another peculiarity - it once had a wet moat around it - which makes it a very unusual ecclesiastical setting. The remains of the moat have recently been partially filled on the eastern side of the llan with fresh soil in order to level the adjacent field and until comparatively recently had a stone bridge extending southwards from a gate in the south side of the llan wall. According to the Sexton, the bridge stones were only removed in order to create more space for burials within the graveyard (llan). The stones from the bridge can still to be seen on site according to the Sexton.

Questions arise from the curious situation of a moated llan such as, what was the reason for the need for defence? Was this site more important than an ordinary llan? Could it have been a defended royal site?

The Church

The church is an ordinary Victorian structure, with rubble walls of local stone and Bath Stone dressings

around windows and the main door arches. No stone is visible in the walls other than local dark grey Ordovician sandstone and the Bath Stone dressings, neither is there any pre-Victorian structure visible externally. However, there is some evidence of a pre-existing church provided by two exotic blocks of stone, one loose and one actually forming part of the foundation of the eastern chancel wall (Fig 3). From their location it is thus certain that these two blocks formed part of an earlier, pre-Victorian church.



Fig.3 Loose block of Dundry Stone, Whitland.

Both blocks are white limestones, which at first sight resemble Sutton Stone from the mouth of the river Ogmor, in Glamorgan. Sutton Stone, which is a distinctive, white limestone, is not unknown in the area, as it is one of the two main exotic building stones used at Whitland Abbey itself, the other being Dundry Stone from Dundry, south-west of Bristol. Dundry Stone is a cream-white limestone, but unlike Sutton Stone, is composed of broken fragments of fossil echinoderms (sea-lillies, sea-urchins etc.). Fortunately, a flake off one of the blocks was sufficient to make a thin section, prepared in the Geology Department of the National Museum of Wales, for microscopic examination. Tim Palmer is confident that this is indeed classic Dundry Stone.

Three questions are immediately raised by the presence of this stone at Capel Mair ar Dâf. The first is; was this stone brought here for repairs to the church building after the dissolution of the monasteries enabled the abbey itself to be used as a stone quarry? This is highly likely, since John Vaughan and associates were in trouble for raiding the abbey for stone in order to, amongst other things, extend the castle at Laugharne in 1539.

After the dissolution of Whitland Abbey (c1539), John Vaughan of Narberth received the abbey for the assistance that he had given to the Court of Augmentations. However, John Vaughan, John Perott of Laugharne and Richard Vaughan father and son, were soon investigated by a commission of inquiry as there had been unlawful removal of iron and lead, glass and timber from the abbey.

In 'the hall' ... 'all the boards in the flooring quite all the gutters of lead, on the roof of the house, taken away and spoiled'. Perrot took many of the freestones to Talacharn to erect a house for himself. Richard Vaughan purloined all the household goods and exchanged cart-loads of freestone in return for livestock. Only one great chamber and two small rooms escaped attention, as they were under lock and key. (D.Williams).

The second question is; if Capel Mair ar Dâf was the first foundation of Whitland Abbey, was Dundry Stone imported for that purpose and then the same source used for the construction of the later abbey at its present site? This is possible. However, there is both Sutton Stone and Dundry Stone at the present abbey and so far only Dundry Stone at St Mary's church. Since generally in south Wales the use of Sutton Stone predates the use of Dundry Stone, it might be expected that Sutton Stone should be at the earlier foundation not Dundry Stone.

The third question, which is potentially considerably more exciting, is: did the building at Capel Mair use Dundry Stone as just dressings, or was the whole building constructed of whitish Dundry Stone ashlar, when all the other buildings of the area used local grey rubble - thus making it Ty Gwyn ar Dâf (the White House on the Tâf)?

The history of the use of Sutton Stone and Dundry Stone

Sutton Stone was used by the Normans for dressings across south Wales, from its source area in the lower Ogmor valley in Glamorgan, eastwards to the fine romanesque arches at Llandaff and St Woolow's Cathedrals and the priory church of Ewenny, north to Caerffili Castle and west to Margam, Neath and Whitland and even as far as Manorbyr Castle in Pembrokeshire. Dundry Stone appears to have replaced it in many of the buildings, particularly

those to the west of Glamorgan, during the reign of the Lord Rhys (d. 1197). It also appears extensively across the south where it was used by the Marcher Lords.

Sutton Stone was used much earlier than Dundry Stone as seen in many of the large C10th 'Celtic' crosses found across south Wales. These are contemporary with the reign of Hywel Dda (927-950) who was on good terms with the kings of Morgannwg. According to the preamble of the Welsh Laws, Hywel and Owain King of Glamorgan took the law books on his second visit to Rome for the approval of the Pope. He was also a regular visitor to the royal courts of Aethelstan of Wessex, where he would undoubtedly have seen the use of ashlar building stones, probably including Doulling or Dundry Stone. Could Hywel Dda have imported Dundry Stone by sea along the same route as Sutton Stone, that was unloaded at the mouth of the River Gronw (Fig 4) as happened during the building of the later abbey?

Thus the big question is; was Hendy Gwyn ar Dâf (The Old White House on the Tâf) white because it was built of white Dundry Stone? Was it literally on the banks of the Tâf at Capel Mair? Was it old in comparison with the Norman abbey? If the answer to these questions is yes, then there is a strong possibility that the illusive site of Hywel Dda's famous parliament is indeed Capel Mair on the banks of the Tâf at Whitland. It is interesting to note also that another site suggested to have been a royal court of Hywel Dda is Llyswen in the Wye valley, which is again a 'white court'.



Fig 4. Confluence of the Rivers Gronw and Tâf.

Bibliography

- Pevsner, N. 1958. *The Buildings of England: North Somerset and Bristol*, Penguin Books.
- Lloyd, T., Orbach, J. & Scourfield. *The Buildings of Wales: Carmarthenshire and Ceredigion*, Yale.
- Lewis, E.T. 1976. *Local Heritage: Efailwen to Whitland*, Vol 1, private, printed Lodwick Caerfyrddin.
- Lewis, E.T. 1976. *Local Heritage: Efailwen to Whitland*, Vol 2, private, printed Lodwick Caerfyrddin.
- Cox, Commander?. 1958? *The story of Whitland - a west Wales village or The Cistercian story of Alba Landa*.
- Lloyd, J.E. 1935. *A history of Carmarthenshire*. Vol I, II.

Llanilltud Fawr (Llantwit Major): A Case Study In The Reuse Of Stone

Maddy Grey

The reuse of stone has been a frequent theme in the Forum's field visits and Newsletter. The parish church of Llanilltud Fawr (Llantwit Major) in the Vale of Glamorgan gives us a very good focus for studying some of the different ways in which stone was reused, in the medieval period and since. This note concentrates mainly on the re-use of tomb slabs, and further study of the church would probably provide many more examples of the reuse of other kinds of stone. Looking in detail at the petrology of the stones, Tim Palmer and Jana Horák found that they offer a useful collection of different types of Blue Lias, with a range of fossil content for comparisons. The church is always open and interesting architectural developments are in progress.

The first tomb carving we considered will be familiar to some Forum members from the 2009 AGM. In the western part of the church is a coped slab decorated with true and false interlace and foliage and with the head of a priest carved in relief at the top (Fig 1).

It was Sally Badham who suggested that the monument had been modified some time after the original carving, as the head cuts into the carving near the head of the slab (Badham, 1999) The head is clearly that of a priest but the inscription on the stone suggests that it commemorates a woman. The carving of the interlace and foliage is very accomplished, the carving of the head less so, but this does not necessarily indicate different carvers (the effigy of an Elizabethan gentlewoman, also in the western part of the church, has similarly expert interlace on her blackwork and similarly clumsy carving of the face



Fig 1. Coped coffin slab in Sutton stone, possibly re-cut with the head of a priest

and arms). Rhianydd Biebrach pointed out that the false interlace and foliage do not reach to the top of the slab and suggested that the fact that the opening for the head cuts into the decoration could indicate poor setting out. However, in a study of a similar monument at Cherry Hinton (Cambridgeshire), Andrew Sargent has suggested that the original design may have included a cross at the top and that the head may subsequently have been inserted in place of the cross (Sargent, 2008). To judge from Sargent's photographs, the Cherry Hinton slab was clearly a cross with a central shaft. The Llanilltud slab is asymmetrical, with false interlace on one side and an intricate and stylized foliage trail on the other. The central panel of interlace could conceivably be the shaft of a cross modelled on the earlier 'Celtic' crosses which were presumably still to be seen in or near the church, but there is very little room at the top for a cross-head in a similar style of interlace.

Rhianydd Biebrach suggests for comparison the similar coped slab at the church of St Illtud,

Newcastle, Bridgend¹. The inscription on the Newcastle stone implies that the deceased was the parish priest. The stone has a cross with plaited decoration and an interlaced square almost identical with the one on the Llanilltud Fawr stone. However, the square on the Llanilltud stone is higher up the slab and leaves very little room for a cross-head above it. The balance of probability, therefore, lies with Sally Badham's suggestion but the evidence is not absolutely conclusive.

If the slab was indeed re-cut, when was this done? Sargent suggests that the earlier carving on the Cherry Hinton slab was late C12th and that the semi-effigy was inserted in the late C13th or early C14th. Badham suggests a slightly later date for the original carving of the Llanilltud slab, some time in the first half of the C13th and modification 'around the turn of the fourteenth century'. These dates are very close together. The tomb in its final form presumably commemorates a priest of the parish church, and an elderly member of the community at the time when the tomb was re-cut could well have remembered its installation in its original form. While we have no way of knowing who was commemorated by the original slab, it was clearly a person of some status, and the inscription on the side suggests it was a woman. Sargent suggested that the re-cutting of the Cherry Hinton slab was a deliberate attempt to appropriate the social status of the original owner by an ambitious tenant of the manor. We could speculate that the same might be true of the re-cutting of the Llanilltud slab, but we will probably never know.

Llanilltud is best known for its collection of early medieval carved and inscribed stones, the famous 'Celtic' interlace crosses. Most of these seem to commemorate local rulers and monastic dignitaries, though they may not actually be tombstones. However, the church also has a remarkable collection of later medieval incised tomb slabs. In a church less well endowed with carved stone these would be prized possessions and prominently displayed. At Llanilltud they suffer by comparison with the earlier material. Three are fixed to the walls in the western part of the church but many others are to be found used as paving slabs and even hidden under furniture. The re-use of these stones as paving in the western part of the church presumably dates from the 1899 restoration, as a photograph in Orrin of the church prior to restoration shows an earth floor (and a number of lead coffins). If the medieval stones are

coffin covers they may have been discovered during excavation of the stone floor – which leads one to wonder whether stone coffins were also found, and whether they may have been broken up and used in the fabric of the building.

Reuse of stone in the eastern part of the church is difficult to date but may well be earlier. At least two slabs have been cut up and used as steps in the tower (Fig 2). [This is also found elsewhere: most of the tower steps at Conwy are made of tomb carvings.] The tower at Llanilltud dates from the early C13th and was probably modified in the late C13th, but the tomb slabs are mid C13th at the earliest and may even be C14th. The steps are too worn to be the result of the late C19th restoration. The most likely explanation may be that the tower had another phase of rebuilding in the late medieval period (again, like Conwy).

Most of the medieval tomb slabs are on the same pattern: a cross-head with fleur-de-lys finials, set in a circle, on a branched shaft with either fleurs-de-lys or stiff-leaf foliation, on a three-stepped base. Some have 8-petalled flowers in the centre of the cross-head. At least two have very slender unbranched shafts. They are all tapering in shape, without inscriptions, and may have been coffin covers. One, a fragment of a cross-head set in the floor at the back of the



Fig 2. Floriated cross in circle, reused in tower steps.

eastern part of the church, is completely different. It is a cross bottony with fleurs-de-lys in the angles and 6-petalled flowers in the upper corners of the slab. In the absence of typological sequences from elsewhere in south-east Wales it is difficult to date these carvings exactly. The branched and foliated stems are similar to those on the earlier stones which Gresham identified in north Wales and dated to the mid C13th,⁵ but the very formal floriated crosses in circles look a little later.

All these slabs are Blue Lias, but of slightly different types (different facies, to use a useful geological term). The two stones fixed to the north wall of the western part of the church are a very pale limestone, though the colour may be because they have not been laid in the floor and suffered wear and repeated cleaning and possibly polishing. Most of the others are a mid-brown colour, but while some are fairly smooth and contain evidence of burrowing while the sediment was a soft sea-floor mud (a process known as bioturbation), others are rougher with more finely granular material. It is this slight difference in texture which enabled Tim to say that more than one slab had been reused in the tower steps. The difference in texture also helped us to disentangle the slabs in and near the niche in the north wall. Two cross-heads have been laid in the niche and fragments of what may have been their shafts are arranged in front of the niche, but without close inspection of the stone it would have been impossible to suggest which head might have belonged to which shaft.

One slab near the chancel steps is quite different in design, a floriated cross without a circle on a slender un-branched shaft (Fig 3). This is probably medieval, but may be later than the others. It has had an early C17th inscription superimposed on it. Like the other medieval slabs it is of brown coloured Blue Lias, and it is also bioturbated and contains rare *Pentacrinus* crinoid ossicles. The floors of the eastern and western parts of the church also contain a number of C17th and C18th slabs with memorial inscriptions superimposed on roughly-incised crosses (Fig 4). All are Blue Lias but of a much darker colour, probably because of the greater amounts of finely granular iron sulphide that they contain. Some are very smooth and virtually unmarked but the dark colour means that the fossils stand out very well. These are mostly oysters, which are characteristic of the lower beds of the Blue Lias in this part of the world. These slabs looked at first like reused medieval stones, but because of the crude



Fig 3. Medieval grave slab re-cut with 17th century inscription

carving of the crosses and the difference in the Blue Lias limestone it may be more likely that they were post-medieval. It is possible, though, that they were meant to look like reused stones, which is interesting in itself.

The eastern part of the church contains two other striking examples of relocation and reuse of stone features, one of which has been to a degree misinterpreted in previous studies. Newman describes the image niche now on the east wall of the south aisle as ‘an outstanding piece of 13th century sculpture. The figure of Jesse lies at the bottom, his descendants represented by heads peeping out of the deeply undercut stiff-leaf scrolls which decorate the jambs and trefoil head of the niche. Head of Christ at the apex ...’. Following Orrin, he suggests that the niche was originally part of the reredos of the C13th high altar and was removed to its present position when the chancel was rebuilt and the present elaborate reredos installed in the later C14th.

However, what neither Newman nor Orrin mention is that, while the base with the carving of Jesse and some of the heads of the kings of Israel is of Sutton Stone, the rest of the niche and its surround are Painswick Stone, a Jurassic limestone from Gloucestershire. The styles of carving are also different, though this may be explained by the fact that deeper undercutting is possible in the Painswick Stone. The base also looks more weathered, suggesting that it may have been outside for some time (though it may just be rougher because Sutton Stone doesn’t carve so cleanly). The difference in stone and carving style might even suggest that the niche as we now see it is a composite

from two sources, though the likelihood of two such niches with exactly the same size and plan becoming available at the same time is remote. Tim suggested that the use of two kinds of stone may have been for practical reasons. The niche was presumably intended to contain a statue, most likely of the Virgin and Child. The niche is large and the statue would have been heavy – possibly too heavy to be supported on a plinth of Painswick Stone. The use of Sutton Stone for the base may simply have been because the stone was better able to take the weight. However, the weathering of the base (and the relative lack of wear on the rest of the niche) may suggest that the two parts were separated for some time, and that the relocation of the niche to the south aisle may not have been medieval but more recent.

Near the Jesse niche is a medieval altar slab, still with the consecration crosses where the bishop would have anointed it with holy oil. The slab is of roughly-finished Blue Lias, its fossils clearly visible. They include *Mactromya*, a burrowing bivalve mollusc, still in the living position as they were supported by the sediment into which they had burrowed. The slab has been reused as a tomb-



Fig 4. These seventeenth-century slabs look re-cut but the crosses are probably contemporary with the lettering.

stone – at least, at some point in the C18th (to judge from the style of the letters) the inscription KATHERIN : THOMAS OF THE HAME has been carved at one end. (The Ham is one of the larger farms near Llanilltud, home of the Nicholls family; was Katherin a relative by marriage?) Further down the stone, and probably later, the letters E H have been carved in larger and better-formed capitals. This could be written off as graffiti – many names and initials carved on tomb stones are very well formed – but the central position suggests something more deliberate and formal. The whole thing looks like an attempt to reuse the altar slab as a grave stone, followed by the beginnings of another commemorative inscription – a date stone for a building, possibly? But in both cases the carver has given up. Were they perhaps deterred by a lingering feeling of reverence for what had once been a sacred object?

The stone is roughly finished, probably because it would always have been covered by altar cloths. What is now the front edge has a large hollowed-out area at the centre, across the angle of the top and the front edge. We tried to imagine this as the result of generations of elderly priests grasping the stone to help them up from their knees. There is no hand wear, but of course the stone would always have been covered. However, the stone seems to have been reversed; what is now the front edge is less well finished, while the back is neatly squared off and would presumably have been the original front. The wear is probably the result of water damage, possibly while the stone was outside, or during one of the periods when the whole building was neglected. The altar stone has now been replaced on a plain modern support to form the altar of the south aisle chapel, but whereas the medieval altar would have been placed against the back wall, it now has space behind it in accordance with modern liturgical practice.

Llanilltud is now embarking on a very third-millennium reuse of some of its stones. The parish and the local history society have secured an enviably large sum of money from the Heritage Lottery Fund and other sources to rebuild the ruined Galilee chapel at the west end of the church, to move the early medieval stones there and to use it as an interpretation centre. This raises all kinds of issues about the role of churches as heritage attractions. We arrived for our field visit at the end of a meeting

to consider designs for the rebuilding, and it was clear that there had been a lot of very well-informed debate about different styles of function and display. It is always worth remembering that the early stones have been moved, some of them several times, before reaching their current position in the west end of the church. Some visitors find it infuriating that the Sunday School's display boards are sometimes in front of (or even on top of) the stone they want to see, others find it part of the appeal of the building. The parishioners have looked at other museums of stones (such as Margam and the St David's lapidarium) and considered them rather arid. There is a clear sense that they do not want the latest phase in the reuse of the early medieval stones as heritage attractions to lose the sense that the stones articulate the collective memory of a worshipping community. There are at present no plans to move any of the later medieval stones, but moving the earlier stones (some of which are very large) will at least leave more space for the later stones to be seen properly. It is also to be hoped that the interpretative material in the rebuilt Galilee chapel will be able to encourage visitors to explore the later stones for themselves.

This article is based on observations during field visits by Tim Palmer, Jana Horák, Rhianydd Biebrach and Maddy Gray. For background and architectural descriptions of the church see John Newman, *The Buildings of Wales: Glamorgan*, Penguin/University of Wales Press, 1995, and Geoffrey Orrin, *Medieval Churches of the Vale of Glamorgan*, Cowbridge: D. Brown & Sons, 1988.

References & Endnote

- Badham, S., 1999. Medieval minor effigial monuments in west and south Wales: an interim survey. *Church Monuments* xiv, 5-34, 17-18, 27.
- Sargent, A., 2008. A re-used twelfth-century grave cover from St Andrew's, Cherry Hinton, Cambridge. *Church Monuments* xxiii (2008), 7-13.
- Gresham, C., 1968. *Medieval Stone Carving in North Wales* Cardiff: University of Wales Press, esp pp 67-71.

¹ For a drawing and discussion see Peter Lord, *Medieval Vision* (Cardiff: University of Wales Press, 2003), 73-4. The stone is now in the vestry and the carving is not as clear as it is in the drawing in Lord's book.

² We also found traces of paint in the folds of the drapery on the other effigy, which is in the eastern part of the church. This is a Dundry stone effigy of a civilian, early fourteenth century, but as the stone has not been reused it will not be discussed in detail here.

Redundant Rural Buildings – an untapped resource

Edward Holland

This was the title of a conference held at Llwynywermod in October and run by The Prince's Regeneration Trust and Adfer Ban a Chwm Building Preservation Trust. It was part of a week of meetings and events run by all the Prince's Charities in Wales and we and our sister charities are extremely grateful to His Royal Highness for the use of Llwynywermod for the week.

Llwynywermod is the home of Their Royal Highness's The Prince of Wales and The Duchess of Cornwall. It is the Home Farm to the once great house of Llwynywermod, home c1800 to Sir George Griffies Williams. The stone house is of medieval origin but sadly has lain in ruins since the 1960's. However, the parkland is relatively intact and the nearby farmhouse and farmyard have been restored in the last few years. The Prince of Wales's architect for the work was Craig Hamilton and there was an emphasis on using local materials and local craftsmen. Coe Stone Ltd from Neath were the stonemasons and Camillieri from the Vale of Glamorgan the roofing contractors while the limewash was prepared by Ty Mawr Lime.

The seminar was held in the stone barn, which dates from about 1800 and at 100ft is one of the longest in West Wales. It is distinctive for its twin threshing floors. It was a majestic venue for the seminar, if rather cold, but most of the 55 delegates heeded the warning and came suitably thermally attired! The overriding conference theme was that redundant rural buildings should be treated as an untapped resource that can address some of the needs of today rather than as ruinous buildings that have no use for the C21st.

The programme began by The Prince's Regeneration Trust demonstrating in broad terms how the historic environment can support the sustainability of rural communities. The repair and re-use of redundant buildings preserves local identity and historic character but also has economic benefits by creating employment for those carrying out the restoration project and, in certain cases, creates desirable workplaces in which local people can be employed.

Furthermore, there is the sustainability benefit that using existing buildings preserves their embodied energy and reduces the carbon footprint that would mount up by importing materials from elsewhere to build new structures. Providing local places of work also helps to reduce local people's need to travel. The more existing buildings can be made useful to the local community, and the less people have to travel away from the community to get work and to visit friends and family, the more integrated the community can become.

Cadw then gave a detailed analysis of the vernacular building traditions in West Wales and specifically in the Carmarthenshire / Ceredigion area, which has been the subject of recent characterisation work in association with the Cambrian Mountains Initiative. Judith Alfrey showed how rural buildings provide tangible evidence of history and went on to draw out clear regional themes and local variations. Her presentation explained how the technologies of construction are influenced by the available materials and the status and wealth of their owners and in this way are as eloquent as written documents in telling us about the history of an area and the people that lived there. The wide range of building materials and how they are used is of such importance to understand and preserve.

The characterisation work already carried out by The Prince's Regeneration Trust, enabled by Cadw funding, showed that in northern Carmarthenshire and southern Ceredigion almost all the traditional farm buildings were constructed of stone from local sources, both quarried and that gathered from the fields and rivers. Stonework was generally not laid to be pointed but was intended to be covered in a weather-proofing limewash. Field stone is more typical of the low-lying areas such as the Teifi and Aeron Valleys. Here the stones are laid in courses of varying regularity rather than random rubble with bigger, roughly squared, quoins and boulders often used for footings. A mixture of quartz and sedimentary stone can sometimes be found in the same wall. In one or two communities (eg Llanwnnen) poor-quality shale is used and at Nantcwnlle quarried stone is often found laid in snecked courses, especially on the front elevations. Few farm buildings are built of superior masonry. Berthdomled at Lledrod, dated 1836, is one such example where the buildings are of hammer-dressed stonework.

Building a Future for Stone

Ewan Hyslop & Emily Tracey

Having seen how important rural buildings are and how the historic environment can be a catalyst for regeneration the conference went on to look at one specific means of bringing redundant buildings back into use. Adfer Ban a Chwm is a Building Preservation Trust founded in 2008 by Joanie Speers and based in Carmarthenshire. This Trust is extremely active in promoting the need for affordable housing and the potential that these rural buildings have to provide this asset. Her presentation showed a large number of potential buildings and explained the funding, planning and delivery issues that need to be resolved. Phil Roberts of Warm Wales continued with the same theme and echoed the way in which such projects could promote traditional craft skills.

The next presentation focused on making these buildings affordable to live in as well as to purchase. The National Trust has been leading the way on this issue in Wales and Keith Jones gave a practical summary of how to be 'green' without spoiling the historic character of these rural buildings. He stressed that the first thing is to look at reducing energy consumption by ensuring that windows and doors fit properly and the roof is well insulated etc. He showed how the National Trust's own analysis of the way certain properties were used had identified relatively easy ways to reduce energy consumption. Micro-generation should only be considered after going through the process of eliminating needless waste of energy first.

The conference ended with a presentation by Jocelyn Davies AM, Deputy Minister for Housing, Welsh Assembly Government. The Minister expressed her support for the theme of the conference. The new National Housing Strategy, called Sustainable Homes, sets out the vision for the coming years and promotes the sustainability of communities of which the Minister agreed retaining rural distinctiveness in the built environment is important. It was encouraging to hear the Welsh Assembly Government's support for joint working to address these issues.

The Welsh Stone Forum was represented by two of the speakers, Judith Alfrey and myself and by one delegate, Murray Quatermaine. Overall, it was agreed that the emphasis on characterisation and repairing and reusing redundant local buildings using local craftsmen will ensure that local distinctiveness can be retained.

The meeting 'Building a future for stone' was convened on 1st October 2009 at the Geological Society, Burlington House, London in order to address current issues in the supply of building stone in the UK, and to bring together those with a professional interest in building stone from throughout the UK. The meeting was organised by the British Geological Survey under the *Geomaterials for the Built Environment* project, forming part of the BGS Minerals and Waste programme. The meeting was organised by Dr Ewan Hyslop and Emily Tracey.

The aim was to bring together those with a professional interest in the use of building stone from throughout the UK to address the key current issues relating to specification and supply of stone for heritage and new construction. The event was aimed at planners, architects, stone producers, heritage conservation professionals and all those with a professional interest in stone. The aim of the symposium was to address current issues of building and roofing stone in the UK, and how to improve the use and availability of indigenous building stone today and for the future. Specific aspects to be considered included:

The value and significance of stone in the UK for heritage and new construction

The stone industry past, present and future

Improving stone selection and safeguarding of quarry resources

Sustainability and stone sourcing for the local economy

The role of heritage agencies, local government and the planning system

Databases for the future: improving access to information

The programme consisted of invited specialist speakers who represented current activities in different parts of the UK with the intention of providing a view of the range of issues currently being faced and the different approaches being applied to address these. Two keynote speakers provided a wider perspective; James Simpson gave an historical perspective on the use of stone in the UK, while Michiel Duser provided an overview of the current situation and research activities in Belgium. Following the presentations,

the symposium concluded with a discussion session in which the audience were invited to air issues of importance. The topics discussed were:

- Information and access to information
- Collections and Research
- Stone specification
- Sustainability
- Importation of stone into the UK
- Regulation and competitiveness
- The viability of stone extraction in UK
- Conservation legislation
- EU Regulations
- Planning
- Safeguarding and Collaboration.

A report will be released this year by BGS which will include a summary of the proceedings of the meeting and the presentations along with the discussion session. It is hoped that this publication, once released, may provide a source of information that can be used to inform future policy in regards to planning of building stones by highlighting some of the main issues of concern expressed by those involved in building stones in the UK.

A profitable line for the Forum

Eric Robinson

The study of exotic stones in Swansea (the Castle and streets) with the idea that they were probably ballast obtained over a wide period of time, has been the conclusion of the small group of Forum members who have been researching this topic. Early in November, this topic was taken to a meeting of the History Forum for Wales, and specifically, Morol, the Institute of Welsh Maritime History. That meeting, entitled Wales and the Sea, was looking for all kinds of association – boats and boat-building regionally; traffic and trade; fishing. We were given the opportunity of slipping in our ballast interest, which could not have reached a more appreciative and responsive audience.

Any research into ballast mentioned in the accounts of shipwreck archaeology, or the accounts of trading from Welsh ports, soon meets a silence, which is

deafening. Given the importance of on-board ballast for the safe and efficient sailing of vessels this failure to mention or discuss the subject is difficult to understand. Beyond these practical matters, the provenance and sources of the ballast, which any geologist might identify, adds considerably to the information about the traffic and trade of Welsh ports.

Portmadoc, the port closest to Plas Tan y Bwlch, where the meeting was being held, handled the bulk of the slate export for southern Snowdonia. By coincidence, a small booklet about the trade offered a calendar of events for a three-masted brig, the Theda, which covered Western Europe and the east coast of the Maritime Provinces. It also listed the cargoes interspersed with the record, “in ballast”. But what ballast? Conventionally, in the harbour of Portmadoc there is an island, Ynys Bals, which has to be of stone jettisoned by some of those slate traders. This could be a relationship which is/was repeated at other ports.

The whole idea of looking into this topic was clearly new to several societies concerned with other aspects of Welsh maritime history and I think we can now look forward to their regional discoveries. Already, we have verbal offers on the weight of ballast needed by working replicas of Viking sailing ships (between 3 ½ and 4 tonnes according to Howard Kimberley). John is gathering all such offerings and may compile a list if only to sustain the enthusiasm generated at the conference. It seems likely that there could be a role for the Forum if we affiliate with the wider History Forum for Wales. This idea was encouraged when it was mentioned that next year the topic would be Wales and Agriculture. A contribution on dry-stone walling could be offered without much difficulty. Meantime, it falls to the Forum to step up our research and field work on ballast and any record of local or regional variation. To date, Newport, Cardiff and Swansea have received attention. What about Llanelli, Burryport or Haverfordwest for Forum members living outside the cities of south Wales?

What is satisfying from what has happened so far must be that we are talking to groups of enthusiasts who in the normal way of things would not be giving a second thought to geology. We must rise to this situation and surprise them with our awareness.

FIELD MEETING REPORTS

Pontypool Park And Town: Fantasy, Folly and Finance

Steve Gray

Pontypool was first chosen for a field visit as a 'typical' Welsh valleys town. Ironically, as fieldwork progressed it became apparent that Pontypool is in fact unusual and even unique in the Welsh industrial valleys. It had an extensive and successful iron works by the C16th, a mansion built by the Hanbury family of ironmasters in 1680, a bustling commercial centre with a covered market by the 1720s and a late C18th Picturesque landscaped park with a shell grotto and a folly tower. It now has more than 20 listed buildings.¹ All this is juxtaposed, sometimes incongruously, with a post-industrial social mix and a number of heritage projects. This raises the question: how does a town which no longer has the economic resources of its industrial heyday, renovate, maintain and find a use for such a remarkable collection of historic buildings?

On the morning of 28 March 2009 we were met by Alexandra Andrews, then the manager of Pontypool Park, who escorted us during the morning. We assembled in the car park of the Pontypool Museum, who hosted us for the day, for which we are most grateful to the curator Debbie Wilde-Gust and her staff and volunteers. The morning was a long circuit of the park, examining stone in the landscape – works of imagination and celebration within the extensive Picturesque gardens. The first stop was the Eisteddfod stones (Fig.1).

In Wales we tend to take these stones for granted: but they are the physical remnant of an annual celebration that means a lot to local people, both then and now. Traditionally the stones are chosen from local materials: in Pontypool this is a combination of Pennant Sandstone² and what locals call 'pudding stone' (heresy for a geologist! We left it to John Davies to tell us exactly what they should be called). Contemporary with the Pontypool Eisteddfod, Beriah Gwynfe Evans produced a book entitled *The Bardic Gorsedd – its history and symbolism* (Pontypool: Griffin Press, 1925). Whilst on site the group debated issues concerning the Eisteddfod stones including

Cardiff's decision, in 2008, to have plastic portable pillars for its Gorsedd. (Phrases like 'leave not a wrack behind' were used.)

The drive to the top of the hill took us past the parish church of Trefethin and the barely-visible remains of quarrying amongst the school fields. Stone from these quarries was probably used in the church and the original folly tower, though not the folly as we see it today. The folly (Fig.2) was built by the Hanbury family in the C18th but it was left unfinished. It was subsequently renovated as a summerhouse by Molly Mackworth, wife of Capel Hanbury, in 1831. It was for us in the Forum a similar prospect to that viewed by Archdeacon Coxe in 1799: he said that 'no traveller should quit Monmouthshire without enjoying this singular and almost boundless prospect'. Step forward John Davies, who talked us through a master-class in the geology of the area from the 360° viewpoint at the top of the tower.

But this is not the same tower as that which featured in many C19th poems. Demolished in 1940, because it was feared that it would serve as a landmark for wartime bombers, in the 1990s a campaign began to rebuild the tower. The demolition of three local schools (particularly Abersychan School) provided stone which could be reused in its construction. It was reopened by HRH Prince of Wales on 22 July 1994. The official souvenir brochure, *Tower of Strength on a Hill of Dreams* (Pontypool: Griffin Press, 1994) gives a detailed account of the rebuilding.

Using the minibus between showers, we hopped to the entrance gates of the American Gardens. We were unable to spend as much time as we would have liked on the history of the garden and the



Fig.1 Steve Gray addresses the group at the Gorsedd Circle, Pontypool Park.

work of individuals like Capel and Molly Hanbury. Their fanciful and elaborate landscaping schemes can seem like the self-indulgence of a leisured elite (shades of duck islands and moats). However, the Hanburys were involved in reform movements and their garden landscape projects often served as job creation schemes at time of industrial hardship. The park is extensive and has a history of over 300 years of garden design since Major John Hanbury bought it in 1677. It became first a deer park, then a landscaped idyll. It is now a municipal facility with a ski slope in addition to its bandstand and rugby field and a leisure centre. There were once formal gardens with exotic plants, a large kitchen garden, horse-rides and an extensive arboretum in what is known as the American Gardens.

Stone in the landscape is evidenced by the mundane in the estate walls and more exotically in its use for landscaped ponds with small stone caves and picturesque rock formations. The park is registered by Cadw [PGW (GT) 26]. It was a delightful shock for many in the group when we reached the 'Rustic Cottage' (Fig.3), looking like a fossilized gingerbread house, built in the local conglomerate stone, in good condition and still lived in by a family. It was built in 1841 as a lodge-keeper's house and is in the cottage ornée style.



Fig.3 *The Rustic Cottage, built of local conglomerate.*

Continuing the walk along the private road we reached Twyn Gwyn Farm, a late C18th farm house with a listed barn. The barn is whitewashed over rubble stone with a steeply-pitched roof partly slated with stone slabs. The quality of the worked stone in the estate walls beyond the farm was noted as we turned along the ridge to the shell grotto.

The grotto was built for Capel Hanbury in the 1830s when there were 85 unemployed people on the estate and the grotto was explicitly to provide them with work. It was officially designed by the Bath architect Stephen Gunstan Tit, though in fact it owes more to Molly Mackworth, who was Capel Hanbury's first wife. Indeed, there are many similarities between Pontypool Park and the landscape of Molly's earlier home at the Gnoll, Neath. The grotto, whilst used for picnics by the Hanbury-Leigh family, housed an extensive geological collection as well as the whole of the wall, ceiling and floor surface being plastered and decorated with patterns of shells, reflective crystals, teeth, bone and other exotic materials (Figs. 4 & 5). The grotto survives thanks to two extensive renovation projects – on the outside in 1994 and internally in 1996-7. Both were partly funded by the European Regional Development Fund, Torfaen County Borough Council, Cadw and the Heritage Lottery Fund.

The walk continued down through the park – again with ample evidence of stone in a people-made parkland landscape. We returned to the Museum for lunch, and those who ate quickly were able to explore the excellent museum displays.

The second half of the day was very different. The 1680s mansion, which we had walked past on the



Fig.2 *The Folly tower, Pontypool, that was rebuilt in the 1990s.*

way to the Italian Gardens, survives as a school, St Alban's Comprehensive, whilst the stables and coach house provide a home for the museum and the headquarters of the Royal National Institute for the Blind. The Italian Gardens were so called because they were designed by the Hanburys after they returned from an Italian honeymoon but they are not actually Italianate. Both Alex Andrews and Debbie Wilde-Gust are looking to source a large amount of local stone to reconstruct fountains and other features based on recently-discovered photographs.

The Italian Garden is the hinge between the town and the park, having been donated to the people of Pontypool with the removal of the large white estate wall which formerly separated the town from the house – a gap then filled by the memorial gates. We walked along Hanbury Road towards Trosnant and turned down towards the Settlement. The listed Georgian building, Trosnant House, bears one of several plaques around the town which record different heritage and renovation initiatives during the last thirty years. Next to the new Masonic Hall is a building in much need of repair known as the Meeting House (or sometimes the Quakers' Meeting House). Though not listed, it has a mixed and fascinating history. At one time it was a Quaker meeting house, with close contacts with the Penn Society of Friends' settlement in what was then New England. Subsequently, in the early C19th, a Baptist chapel was established there, led by Dr Thomas (the first principal of the Baptist college at Pen-y-garn, where the Trosnant congregation moved). By the 1850s, it was a County Court room; in the late C19th it was a meeting place of the Capel Hanbury Lodge of the Independent Order of Good Templars; then, following a visit by General Booth,

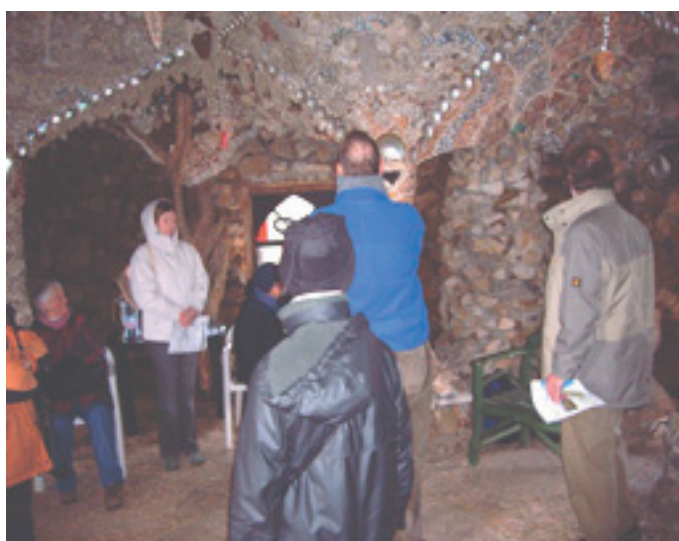


Fig.4 The inside of the grotto.



Fig.5 Detail of a shell encrusted wall of the Grotto, including a complete Nautilus shell.

the building was leased by the Salvation Army. In the C20th it housed a bakery and later a furniture store. It is currently rented by the local brass band. The walls are a fascinating patchwork of good-quality stone, though the side which faces the car park is heavily threatened by encroaching vegetation.

Returning towards town, we passed one of several major places of worship. The survival of buildings is often linked to their use by religious organizations or groups. Mount Pleasant United Reformed Church is a splendid stone-built chapel dating from 1905, at the time of the Great Revival. It stands near the Registry Office and in the vicinity of the invisible (now demolished) C17th manor house, coach-house and stables: all part of the Pontypool palimpsest. The Library, on land donated by the Hanburys and built with monies from the Andrew Carnegie Trust in 1908, is in the Edwardian Baroque style, mainly red brick with a plinth of coursed rock faced pennant rubble and dressings of Portland limestone ashlar.

These are the beginning of a series of public buildings which survive because of their civic use. The Town Hall is a large Italianate block in pinkish limestone. The stonework is mainly rock faced on the ground floor and ashlar with rockfaced quoins above. It was donated to the town in 1853 by Capel Hanbury Leigh to celebrate the birth of his son and heir. Alongside it is a memorial to civilian organizations for their contributions during the Second World War: a recent installation, it is interesting that, out of all the materials and styles available, the people of Pontypool chose a stone monolith reminiscent of the Gorsedd stones for this essentially popular commemoration.

Across a side road stands the other of Pontypool's two most prestigious buildings, Glantorfaen House. This is a Victorian office building built in 1860-3 with characteristic Ruskinian Gothic detailing. A large, square, three-storey building, it is mainly squared grey rockfaced coursed limestone with ashlar dressings and squared pink limestone rubble on the return elevation. To the side is an elaborate porch with colonnettes in polished red granite. The present tenants are solicitors, which parallels the occupation of the original owner, Richard Greenway. He did much work for the Hanbury estate. Following his death in 1890, the house passed to Henry Bythway, a foundling child whom he had 'adopted'. Bythway lived there until his death in 1949. He was found 'by the way', presumably abandoned as an infant, and bore a striking resemblance to a certain Hanbury.

St James's Church Hall was in the process of renovation, with builders on site while we were there. The repointing of the stonework would be particularly challenging given how tight the joints were. Privately owned, the stonework is in rather better condition than that of St James's Church, a little further along the road. No longer a religious building, the former church is in very poor repair. It has recently been for sale with outline planning permission for flats but the collapse of the buy-to-let market may have made conversion uneconomic.

Further along stands the 'Doctor's House', a substantial stone building which, though it lost its ground floor frontage to the glass plate windows of the later Gas Showrooms (now a charity shop), is in rather better condition than the listed and (despite previous restoration funding) deteriorating Art Deco Co-operative Department Store opposite, now home to Elephant Beds and in need of several million pounds of investment. The problem with this one is partly that the building is concrete not stone.

Entering the heart of the commercial centre, we noted the listed buildings which have benefited from adoption by banks – Barclays, Lloyds, HSBC and the new Co-op with building materials ranging from yellow limestone ashlar to Baltic black marble (the geologists' 'Bankite'). Listed buildings which are now public houses, such as the George, are under serious threat: five of the historic pubs in the centre are up for sale or lease. The George is an Edwardian baroque-style public house with red brick and orange glazed brick, ashlar dressings and slate roof. The listed

shops include Manchester House, an elaborate late-Victorian shop built of coursed squared rubble stone with yellow Ebbw Vale brick dressings, elaborate first-floor windows and bargeboards.

Crane Street is a marvellous example of a significant commercial street. Running along one side of the present market, it houses the Jubilee Building (1897), Crane Street Chapel with its classical portico (1847), and the ornate Jubilee entrances to the market. This Market Hall of 1893-4 replaced the vegetable market of 1875. Built of a grey-blue narrow-coursed rockfaced Pennant limestone with yellow Ebbw Vale brick dressings and a Welsh slate roof, it is a much celebrated building. As well as the market, it has housed sporting events including championship boxing and somehow manages to survive despite modern retail trends.

The Old Market House, a building dated 1730 opposite the lower end of Crane Street, is where we turned left towards George Street and Osborne Road. These were extensions of a prosperous and developing centre in the late C19th and early C20th. The Old Post Office housed the sorting office and telephone exchange; the modern post office occupies about a sixth of the building. Further along Osborne Road is an example of the 'Wetherspoon Effect': a fine stone building, originally a drapers' and tailors' shop, now sensitively restored as a pub with an exhibition inside on the history of the building and the surrounding area. On the other side of the road is a building converted in 1999 into flats (hence the crop of satellite dishes) but originally St David's Presbyterian Church (1905). The end wall by the steps has some interesting geodes.

These steps lead up to the end of our route, the rather unprepossessing higgledy-piggledy random rubble end wall of a warehouse. Now the storage building of a DIY retailers, it was originally the storehouse for the Castle Brewery. The original floor with its setts and drains is still in place. It was taken over by a lemonade manufacturer and is known locally as the 'Pop Factory'. The wall is significant because it contains the multi-coloured leftovers from buildings which no longer exist, including the Castle Hotel and the Castle Brewery.

Every story has a moral. Much has not survived. Google Earth will show you that one-third of Pontypool town centre is now covered by Tesco's and its attendant

car park. There are tantalising glimpses of the past - the various Japanware works, iron foundries, country and coach house hotels, workers' cottages and villas of the rich; the search for what more can be found still goes on. What remains in good order is usually the result of adoption and reuse – such as the Clarence Hotel, now flats of the Valleys Housing Association (2003) – or commercially successful buildings such as the banks, or maintained by organizations such as churches or local authorities. Much is in danger as evidenced in the Pontypool Conservation Area's 'Conservation Area Appraisal' in March 2007. In the present economic climate a grant of £900,000 (which has been announced since our visit) links altruism with hard-headed realism: subsequent running and maintenance costs must be the responsibility of bona fide organizations. The message is 'be adopted, adapt or disappear'.

Endnote

¹ Much of what follows is based on the listing information produced by the Royal Commission on Ancient and Historic Monuments in Wales.

² A plea for someone to write a short piece entitled 'Everything you wanted to know about Pennant Sandstone but were afraid to ask'.

Llandewi Brefi, Strata Florida and Llanbadarn Fawr

John Shipton

On 27th June 2009, members assembled in the square at Llandewi Brefi (Fig 1) and made their way up to 'Eglwys Dewi Saint' where David Austin and John Davies discussed the layout of this classic medieval church. Of note on the outside is an Idnerth stone (Fig 2), which has been broken up and reused in the church wall and on which the Latin inscription is still legible (for the classically educated members).

Tim Palmer explained that the walls are composed of turbidites and greywackies as well as Aberystwyth and Cwmystwyth Grits. These 400 million year old rocks were deposited off the Welsh coast as vast sheets of sandstone laid down by landslides cascading down submarine canyons. The sandstones occur in beds 200mm to 225mm in depth and have been used in the quoins of the external walls. Grinshill Stone has been used in the dressings to the church whereas on other ecclesiastical sites in the area it is Douling

and Bath Stone, the railway close by facilitating the transportation of these rocks from north Shropshire and the Cotswolds and Bath areas.

Inside the church is an image of St David carved from Portland Stone and the font is Bath Stone. Tim also pointed out that the local beds of sandstone have provided good flagstones and slabs for use in the church on the undersides of which trace fossils are visible. John explained that where mudstones dominate the local stratigraphy high pressure deformation has produced slates, which were available for roofing. When this high pressure was normal to parallel bedded sandstones good flagstones and slabs were produced.

Tim led the party to a sandstone quarry opened in the C19th at the top of the hill above Llandewi Brefi (Fig 3) which worked the Llandewi Brefi Bluestone, an extremely strong stone that is uniformly grey in colour. The Bluestone is strongly jointed, the joints cutting the bedding at an angle of approximately 70° that requires the acute angle to be chipped off to square-up each building block. This pattern of joints enabled the stone to be quarried in long lengths that could produce lintels up to twelve feet long. The group inspected a house in the village (Fig 4) that had been built using this stone, dressed in this characteristic way, before moving on to the quarry itself. The quarry was opened in 1820 and was in use up to the early C20th but due to health and safety reasons the group was unable to gain access and had to view it from behind a wire fence. The quarry was somewhat overgrown but you could see the beds dipping from right to left.



Fig 1. The party meet at Llandewi Brefi church.



Fig 2. The Idnerth Stone in the walls of Llandewi Brefi church.

Before lunch the group visited a local farm owned by the daughter-in-law, now in her eighties, of the last man to work the quarry. Here, Llandewi Brefi Bluestone columns supporting the roof of a barn were inspected (Fig 5) which, if you included the length of the column set in the ground, would exceed four meters in length.

Lunch was taken at Strata Florida and after we re-assembled at the site of the Great Gatehouse between the inner and outer precinct, David Austin spoke about the first phase of archaeological excavations, which he has led since 2004 and which were completed this year. He explained that very little of the abbey church was left standing as around twenty local farms had been using the site as a quarry. If the precinct walls were proved to be where expected then it would be the largest Cistercian abbey in Wales, some four times larger than the mother church at Whitland. The abbey



Fig 3. Llandewi Brefi Bluestones quarry.

diverted the natural course of the Afon Glasffrwd to feed at least one forge and several mills within its walls.

David Austin spent some time describing the archaeological finds and John Davies provided a bit of history of the site before moving on to look at the stones in the building. The shallow excavation exhibited Ordovician sandstones, a piece of Pwtan Stone, several pieces of Dundry Stone from Bristol and a number of Anglesey Grits and quartz washed out of the glacial drift. John Davies thanked David before the group moved on to the Visitor Centre and abbey church.

At the entrance to the Visitor's Centre is a large, repaired, limestone gravestone reportedly taken from a prince's grave. Although appearing to be a single piece, upon inspection it became clear that it comprised two pieces of stone, which Tim Palmer identified as Bath Stone or similar at the top and the



Fig 4. Tim Palmer examining the walls of a house constructed of Llandewi Brefi Bluestone.

bottom a different Cotswold stone, possibly from Painswick. The stone was a grave slab for one of the descendents of the Lord Rhys and the Painswick stone matches the effigies of two members of the same family seen at St David's Cathedral. The carving on both pieces did not seem to fit together harmoniously and the suggestion was made that the bottom section was from a grave case lid and the top piece, one of the end panels from the same or another case.

The party then inspected the fine remains of the entrance to the abbey church (Fig 6) which is made of Dundry Stone, a vast amount of which had been shipped from Dundry, near Bristol for the abbey. The



Fig 5. Long columns of Llandewi Brefi Bluestone supporting the barn roof.

group discussed the logistics as to whether the stone had been worked on site or cut and assembled in the quarry and transported as a kit of parts? It was felt that it was probably worked on site as large off-cuts can be found built into the abbey walls. Smaller pieces were probably burnt to provide lime for mortar.

Within the angle between the chancel and the Chapter House, outside the church, there are a number of markers on the site of the princes' graves. From one of the damaged crosses Tim was able to identify the stone as being an oolitic Jurassic limestone (Bath Stone), which is possibly more modern than the others which are either of Anglesey Grit or of Dundry, also a Jurassic limestone. The latter two are used for all of the remaining dressed stones on site. They are prominent on the quoins and do not seem to have been used in any pre-ordained way, the masons using whatever stone was available at the time.

The convoy of vehicles moved off towards Aberystwyth to Llanbadarn Fawr church (Fig 7) to be welcomed outside of the C19th porch by the curator of the local museum, Michael Freeman. The porch walls are of Llandewi Brefi Bluestone and the steps Radyr Stone from Cardiff. There are Anglesey Grit voussoirs and the inner arches are cut from Dundry Stone. When the porch was built in the C19th, the church had been subjected to major rebuilding works. The walls to the main body of the church had been taken down to approximately half height and rebuilt. Some of the Aberystwyth Grit jamb stones to the windows had been re-used but C19th heads and modern cills have been introduced.

Many of the other windows have been subjected to major changes; the east end window has jambs of

red sandstone from the West Midlands, with most of the tracery of Hollington Stone from Staffordshire. The latter had not stood the test of time well and had been replaced with cream-coloured Grinshill Stone in places. In the west end there are white Grinshill Stone replacement cills, with prominent calcite veins. The windows in the C13th tower are of yellowish Cefn Stone.



Fig.6 The party at the entrance to Strata Florida abbey.



Fig 7. Llanbadarn Fawr church showing the rebuilding phases.

Inside the church is a C12th font of Purbeck Marble font standing on a relatively new plinth cut from Anglesey Grit. A modern Peter Lord designed

chapel had been created in the church with sculptured marble, thought to be Cornish as Peter Lord's father had worked in Cornish quarries, plus a number of ancient stones of unknown origin.

It had been a long day and we had covered a lot of ground so at 5pm, John Davies thanked Michael Freeman for an informative visit and we went our separate ways.

Llangollen and Valle Crucis Abbey

John Shipton

The final field trip of the year, on 12th September 2009, was led by Dr Jacqui Malpas and saw a small group of members assemble outside of the Bedyddwyr building in Llangollen. Built in 1860 of Cefn Sandstone from Ruabon the front steps are a newer construction of York Stone slabs.



Fig 1. In-filled arches of the Town Hall.

Close by is the much-altered Town Hall, built in 1860 of Cefn y Fedw Sandstone. Course blocks have been used in the front of the building while a finer-grained sandstone of similar colour has been used to in-fill the arched openings on the ground floor (Fig 1), which had in the past obviously been used for a different purpose other than offices. The columns on the front are cut from granite (Fig 2).

The style of build employed in an adjacent wall was more economic. Here a variety of stone sourced locally and cheaply had been used in the wall; Silurian mudstones, some river pebbles and even a volcanic erratic (possibly slag). Slate has been used in buildings in the town, possibly from the slate



Fig 2. Granite columns at the Town Hall.

quarries near the Horseshoe Pass although this slate is often used for fire hearths and billiard tables.

The old bridge was originally constructed of local coarse grits topped with Cefn Sandstone copings (Fig 3). However, the bridge has been twice widened and the new work has been carried out in sandstone, possibly from Yorkshire. In a nearby wall, dolerites are visible that have possibly come from Pant in the next valley. The group moved on to examine the War Memorial which is of an igneous rock, possibly metamorphosed within which feldspar clasts are visible.



Fig 3. Cefn Sandstone coping stones on the old bridge, Llangollen.



Fig 4. *St Collens Parish Church.*

Moving on to St Collen's Parish Church (Fig 4), past the church wall of Silurian mudstone, it was noted that pieces of volcanic ash flow tuff had been incorporated into the wall. An extension to the church has been built in sandstone blocks of the same type and style used in the infill panels on the Town Hall. This indicated that the same builder could have carried out the work to both buildings around the same time. The dressings around the window are also in sandstone but Carboniferous Limestone has been used for the capitals (Fig 5).



Fig 5. *Carboniferous Limestone capitals, St Collens Parish Church..*

Inside the church is an elaborate font constructed of a number of different limestones. The base and highly carved top are an Jurassic oolitic limestone from Gloucestershire, which sits on four columns of dark polished Carboniferous Limestone with top collars of a stone similar to Devonian Limestone from Torquay. The bottom is of Carboniferous crinoidal limestone from Derbyshire. The C13th church was much altered in 1863 but still contains a C14th tomb in the north aisle. The carved altar screen is cut from a Middle Jurassic limestone that is not oolitic and probably comes from Caen in Normandy.

In the churchyard are buried the famous Ladies of Llangollen who lived nearby at Plas Newydd. After viewing the monument to the two ladies, the group made their way back past the old armoury building, whose walls are of blocks of Carboniferous Limestone, to their cars and on to Valle Crucis Abbey for a late lunch.

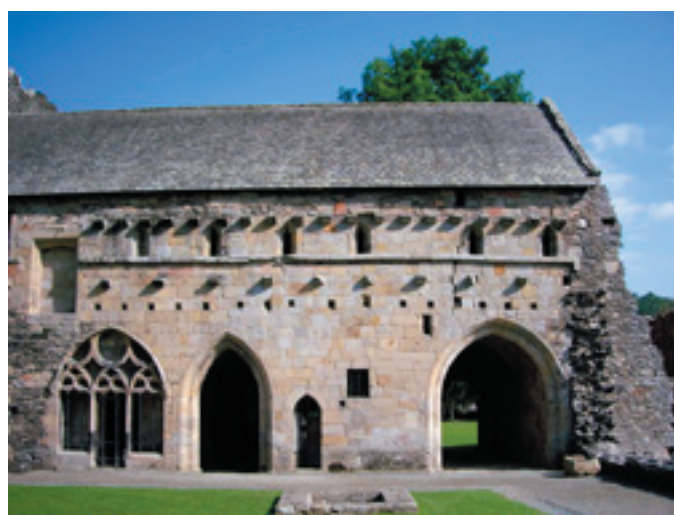


Fig 6. *The Monks dormitory, showing sign of subsidence, Valle Crucis Abbey.*

Madog ap Gruffudd Maelor founded the abbey in 1201. It had a bit of a chequered history before it was dissolved in 1537 and is now a romantic ruin (Fig 6). We spent a pleasant sunny afternoon viewing the remaining upstanding masonry. The ashlers are of Cefn y Fedw Sandstone and the rubble walling probably of sandstone from the Elwy group.

Tea was taken at the nearby café and John Davies thanked Jacqui for an interesting and informative visit and thus the programme of field trips were completed for another year.

SHORT NOTES

Sand-blasting

You may like it; you may hate it; you may even not have noticed it, but the sand-blasting of stone buildings in Wales seems to be here to stay. Doubtless the technique is useful for removing an old layer of render or limewash, or for reeming out old pointing, but don't forget that it will also remove the patina that has grown on your house over many decades and possibly centuries, and that your home will probably never look the



same again in your lifetime. What's more, your next-door neighbour, especially if you live in a semi or a terrace, may feel indignant that the integrity of the row has been compromised. Look at this example from west Wales of the same building before (image left) and after sandblasting (image right), and see what you may be letting yourself in for.

Tim Palmer

Recent Building Stone Publications

Horak, J.M., Davies, D. & Palmer, T.J., 2009. Why Stone Matters, In: *Urban Geology in Wales 4*, (Eds) Bassett, M.G., Bolton, H., & Nichols, D. National Museum of Wales Geological Series 26., Cardiff, 199pp. ISBN 978-0-7200-0594-3

Lott, G. The Building Stones of the Edwardian Castles In: *The Impact of the Edwardian Castles in Wales*. (Eds) Diane Williams & John Kenyon. ISBN-13: 978-1-84217-380-0 (hardback) ISBN-10: 1-84217-380-4

Contact Details

For further Welsh Stone Forum details please contact

Dr Jana Horák
Amgueddfa Cymru - National Museum, Wales
Cardiff CF10 3NP
jana.horak@museumwales.ac.uk

<http://www.museumwales.ac.uk/en/welshstoneforum>
<http://www.amgueddfacymru.ac.uk/en/fforwmcerrigcymru>

ISSN 1759-7609

Please note that the views expressed in this newsletter are those of the individual contributors