Fforwm Cerrig Cymru Welsh Stone Forum

NEWSLETTER

Number 5 February 2008 **Price £2.50**

Welcome to the fifth WSF Newsletter in which you will hopefully find something of interest. It seems amazing that it is now six years since the Stone in Wales conference, which led to the creation of the Forum. During those six years the Forum has gradually found its feet and role and has become recognised as a source of good information and advise as well as an advocate for the good use of natural stone products.

In this issue you will find field meeting reports for some of last year's excursions that give a flavour of what was seen and what those who couldn't come missed. Dai Willie writes about Quarella Stone, which you have the chance to get to grips with and examine on the excursion that Dai is co-leading to Margam on 29th March. Eric Robinson reflects on an issue raised at last year's Chepstow meeting about how the creation of new quarries in the south Wales Brownstones would not only assist in the repair of local buildings, such as Tintern Abbey, but also buildings across the Severn that have the same problems in sourcing this material.

Steve Gray and Dyfed Elis-Grufydd look at two very different stone memorials to be found in Wales; one remembering the suffering of the Christian Armenian population and the other Owain Glyndwr. Maddy Gray writes on the Medieval use of paint on stone and Julian Orbach has produced a catalogue of the stone resources of south-west Wales that was used extensively in the writing of the Buildings of Wales series volumes for Pembrokeshire and Carmarthenshire. Quite an eclectic mix so there is hopefully something to interest you all. My thanks to all of the authors who have contributed to this issue followed by my normal plea to begin thinking about what you are going to write for the next edition!

AGM 2008

This year's AGM will take place at the National Waterfront Museum in Swansea. After the formalities of the meeting Dr Jenny Alexander will give a talk on Signs and Ciphers; re-assessing mason's marks. After lunch there will be a short excursion to look at some of the local building stones.

At the recent Council Meeting it was reported that all except one of the current officers were agreeable to continuing in post, and that four additional members would be voted on to the Council at the AGM. New blood is always welcome so please consider putting yourselves forward, if only as a member of Council. All nominations should be sent to the Secretary – Tim Palmer – to arrive no later than 14 days prior to the AGM. Your current Council is:

President: John Davies;
Vice President: Jonathan Adams;
Secretary: Tim Palmer;
Treasurer: Jana Horak:
Newsletter Editor: Stephen Howe;
Meetings Secretary: Steve Gray;
Council Members: Judith Alfrey, Dyfed Elis-Gruffydd, Kieran Elliott, Edward Holland, Peter Kendall, Judi Loach, Graham Lott, Gerallt Nash, Ray Roberts, Eric Robinson, John Shipton, Ian Thomas, David Thompson and Dai Willie.

2008 Programme

Saturday 29th March: Margam and Pyle, Glamorgan
Leaders: Dai Willie, Steve Gray and Ron Austin
Meet at 11.00am in the first car park at Margam Country Park [SS 801 861] (not the second one at the Orangery).

Saturday 12th April: AGM, lecture and field meeting, Swansea
This year's AGM will be held at the National Waterfront Museum, Swansea. The AGM begins at 11.00am and will be followed by a lecture by Dr Jenny Alexander on Signs and Ciphers; re-assessing mason's marks. After lunch (the museum has a cafeteria) there will be a short walk to look at building stones in Swansea.

Saturday10th/Sunday 11th May: Anglesey.
Leaders: Jana Horak, John Davies, Judi Loach and Tim Palmer.
This will be a two-day field meeting based on Beaumaris. On the Saturday meet at 11.00am in Beaumaris Castle car park [SH 608 762]

Saturday 28th June: Building stones in the Upper Severn Valley
Leader: John Davies.
Meet at 11.00am at the old railway station (now a shop and caffi) car park, Welshpool [SJ 228 072]

Saturday 6th September Pontypool and the shell grotto, Gwent.
Leader: Steve Gray
Meet at 11.00am at Pontypool Park car park [SO 2827 0106].

BACK TO 'HERITAGE QUARRYING'
Eric Robinson

When the Forum visited Chepstow on 28th April 2007, we soon became aware of another of those problems faced by the agencies responsible for building maintenance in acquiring the right stone for the best work. Here it was Cadw, responsible for Welsh historic buildings, seeking Old Red Sandstone of the Brownstones colour and texture to repair the fabric of the Norman castle which dominates the town and the River Wye cliffs.

The Brownstones are a thick, red sandstone unit, which forms a massive outcrop surrounding the Carboniferous core of the Forest of Dean. In the past, this excellent freestone was the stone used in the castles of Raglan and Goodrich. In all cases, it was the river which provided the means of transport to bring the stone from the quarries to the sites long before the roads were passable or the railway came. Today, it seems that no working quarry is available to supply the original quality stone. Instead, the red sandstone of Hollington in Staffordshire is being used as a substitute.

'Red Hollington' is a good stone in its own right, but not the perfect match for the Brownstones. It isn't just that it is Triassic rather than Devonian in age but that it contains sand grains enlarged by silica growth, which makes it sparkle in sunlight. Although an attractive character it is not one found in the rocks of the Brownstones. As it happens, it was the use of this stone by Cadw at Tintern Abbey to repair the weathered local Brownstones, which came to the notice of the 2002 conference and was taken as a good reason to establish the Welsh Stone Forum. The Forum had the blessing of the Welsh Assembly Government in Cardiff, so perhaps we can press for planning and exploration permission for a renewed quarry source in Monmouth, Ross, or any of the outcrops in the Forest of Dean to meet a genuine need. There is a long tradition of quarrying within the Forest and a workforce with the necessary skills could still exist. The landscape is also robust and could absorb a limited in-road of stone working.

Ironically, if the bid was successful, it could see the 'export' of Brownstones across the Severn into Somerset. Here, English Heritage, unable to obtain the local red Triassic sandstones, which have a colour and texture similar to that of the Wye Valley Brownstones, currently uses Hollington Stone in the restoration and maintenance of Cleeve Abbey. That surely is an inducement for Welsh action?

In August, the stone trade magazine, Natural Stone Specialist, carried a note of the take-over of Callow Quarry, Buckholt to the company Black Mountain, for the production of red sandstone. They state in their press release that "Callow Quarry is a major producer of local Herefordshire/Monmouthshire red sandstone which features in so many local buildings"

Does this answer my Chepstow appeal? Is this the needed alternative to sparkling Staffordshire Hollington Stone? I leave it to the fit and active members of the Forum to explore the quality and fitness of this Welsh stone. If it comes even close, the prospect must be satisfying, for in the release it goes on to say, Callow Quarry covers an area of seven acres and has reserves estimated at over one million tonnes. Initially, the new quarry will produce block stone and cropped building stone. There are plans to add a range of coursed building stone…"

OWAIN GLYNDWR, CHINA AND TREFOR QUARRY
Dyfed Elis-Gruffydd

On 13 September 2007, three days prior to the anniversary of the day that Owain Glyndwr was proclaimed Prince of Wales in 1400, Hertage Minister Rhodri Glyn Thomas, unveiled a new 4.5 meter statue at Corwen, which depicts Glyndwr, one of the most remarkable personalities in the history of Wales, astride a battle charger rallying his fellow-countrymen to the Welsh cause. More by accident than design, Colin Spofforth's defiant bronze statue, officially dedicated at a service held at Corwen church on 9 November, is set upon a c.8 tonne block of grey-blue granite supplied by Trefor Quarry, which scars the north-east slopes of Yr Eifl on the north coast of the Llyn peninsula (see Newsletter, 2, October 2004, p. 2). Indeed, had it not been for a fortuitous accident sometime in June 2007 in faraway Xiamen, China, the statue would have stood on a block of Chinese granite, because Welsh granite was apparently deemed to be 'the wrong shade of grey'!

According to a statement released by Colin Spofforth Studio, '… the plinth was on the back of a lorry which was being driven along a primitive road in the [granite] quarry when it was swept into a 30 foot ravine' during a monsoon. Undeterred by the loss of the 'irretrievable' plinth, the above commissioned Studio investigated the possibility of acquiring a replacement block. To quote the BBC News website report of 13 June 2007: 'Arrangements are being made to cut a fresh piece of granite – known as South African Grey [sic] – which has been specially selected for

The plinth, fashioned from a block of Trevor Granite.

its colours to complement the bronze'! Fortunately, the arrangements came to nought when, presumably, it was realised that granite of the 'right shade of grey' was to be found in Trefor Quarry, a road journey of less than 70 miles from Corwen.

Trefor granite, quarried in Y Gwaith Mawr or, simply, Y Gwaith, as the quarry is known amongst local inhabitants, is in fact the basis of several monuments the length and breadth of Wales commemorating both significant events and the nation's great and the good. The striking 16-foot-high war memorial, in the form of a Celtic cross, that stands on the summit of Ynys Galch, Porthmadog, was fashioned from Trefor granite and unveiled at the beginning of April 1922 'in memory of ninety-seven fallen war heroes of Madoc Vale'. In Maeshyfryd Cemetery, Holyhead, stands a monument, incorporating in bas-relief a simple cross, wave motif and anchor, carved from the self same material to remember the 99 seamen who drowned in the submarine Thetis, which sank on her maiden voyage in Conwy Bay in June 1939. In 1958, Sir Thomas Parry unveiled the memorial stone, acquired from Trefor Quarry, noting the birthplace in Mold of Daniel Owen (1836-95), 'father of the Welsh-language novel'. On the summit of Eglwyseg, between Llangollen and Rhosllannerchrugog, a memorial stone derived from the same quarry commemorates the popular Welsh-language poet, I. D. Hooson (1880-1948). Besides the A494(T) at Llanuwchllyn the twin statues of Sir O.M. Edwards (1859-1920), literary scholar, editor and educationalist, and his son Sir Ifan ab Owen Edwards (1895-1970), founder of Urdd Gobaith Cymru (the Welsh League of Youth), stand firm on a block of grey Trefor granite. The monument, the work of sculptor Jonah Jones, was unveiled in 1972 to mark the 50th anniversary of the Urdd.

In Pencader, south Wales, 1952 witnessed the unveiling in Pencader of the 1.5 tonne polished slab of grey Trefor granite upon which is inscribed the defiant, dignified and appropriate response of Hen yr Pencader (the Old Man of Pencader) when Henry II in 1163 arrogantly and patronizingly enquired as to whether Wales would continue to resist England's authority and rule. The monument, commissioned by Plaid Cymru, stands alongside the B4469, in the centre of the village. However, in the opinion of patriotic Welsh men and women, by far the most impressive and poignant monument is the undressed, grey granite monolith obtained from Trefor Quarry and erected in 1956 besides the A483(T) at Cilmeri, near to the place where Llywelyn ap Gruffydd (c.1225-82) was killed by English soldiers, an event which prompted Gruffydd ab yr Ynad Goch (fl.1280) to compose one of the most well-known and intensely moving of Welsh elegies.

The early history of Trefor Quarry and the nearby village of Trefor is recalled in the Welsh-language booklet Trefor, an excellent account written by Geraint Jones and Dafydd Williams, and published by Canolfan Hanes Uwchgwyrfai, Clynnog Fawr, in 2006 to mark the 150th anniversary of the establishment of the village and Y Gwaith Mawr.

The monument to 'Llywelyn Ein Llyw Olaf', the last Prince of Wales, at Cilmeri.

MORE THAN JUST GEOLOGY

Steve Gray

In November 2007, several hundred people from as far as Australia attended the Welsh Centre for International Affairs, Temple of Peace in Cardiff to dedicate an impressive stone monument commemorating the suffering of the Christian Armenian population during and subsequent to the First World War. Choirs sang; children danced; musicians played; politicans made speeches; poets read; religious leaders led prayers; demonstrators shouted and whistled; police maintained a low-key presence.

Commissioned and paid for by members of the Wales Armenia Society, the stone monument was also to represent the gratitude to Wales for both the hospitality to the Armenian refugees and the public pronouncements alerting the British people to the devastation of the Armenian population. In 1915, the respected campaigning M.P Aneurin Williams - who helped establish The League of Nations - spoke in parliament, demanding action and condeming the Turkish government. More recently the Wales Assembly Government has officially recognised the Armenian devastation and called on the Turkish Government to recognise its true nature.

The installation was controversial because of one word that appears carved in the three languages of Welsh, English and Armenian – genocide. The mass deportations and deaths of one and a half million Armenians (60% of a population of just two and a half million), singled out by the Turkish government, was the world's first modern genocide. This is vociferously denied by the Turkish Government, despite recent declarations by the governments of Germany and USA, amongst others. The Wales Centre has for years remembered the Armenian tragedy on World Holocaust Day along with other genocides, and the Armenian stone cross – a khatchkar – takes its place in the Garden of Peace amongst other monuments: trees, plantings, plaques and stones.

The khatchkar has a special place in Armenian culture. The ornately designed crosses are similar to Welsh Celtic crosses, not least in their elaborate curvilinear design and the significance they hold in one's sense of identity. It is most significant that the Armenians commissioned a Welsh sculptor and were adamant that the stone and design reflect their gratitude to Wales and the Welsh people.

Ieuan Rees from Saron, who has produced wonderful sculptures and memorials, including the foundation stone for the Wales Millennium Centre, decided not to make the monument completely from Welsh slate; a two and a half ton memorial of such material would look rather grim. The main body of the monument uses a pink sandstone from St. Bees in Cumbria, closely resembling the appearance of the stone of khatchkar in Armenia. The ornately carved cross and wonderfully intricate roundel were carved from what Ieuan Rees calls the best slate in the world, sourced from the Wincilate Quarry, Corris. As one "follows" the slate bed south from Penrhyn and Dinorwic - where the slate splits more easily, and suitably, for roofing slates. Ieuan Rees ajudges that it keeps its colour longer and "works" much better in the hand. He also remembers the enthusiasm of the commissioners and the fact that the khatchkar would have been even more elaborate but for political pressures that meant the monument had to be finished ahead of time.

Symbols appear in many forms (e.g. in code) or more substantially in stone. This stone cross in Wales symbolises remembrance, respect, and "Y Gwir yn erbyn y Byd" – TheTruth against the World.

The representatives of Wales and Armenia:

Political: Lord Dafydd Elis-Thomas and Dr. Vahe Gabrielyan, Armenian Ambassador to the UK;
Religious: Canon Patrick Thomas and their Graces Bishop Nathan Hovhannisian and Bishop Khoshaba Guorges;
Choral: Cor Cochion, Cor Aelwyd Hamdden and the Armenian Church Choir;
Artistic: Agtamar Dance Group and duduk players Ara Petrossian and Karabet Baljian;
Poetic: Eilian Williams and Teni Nersessian;
and an international audience of adults and children assembled because of a stone that symbolises much.

New stone monument errected in the grounds of the Temple of Peace, Cardiff to commemorate the Armenian population.

PAINT ON STONE: THE FAKE COTSWOLD STONE OF THE TWELFTH CENTURY?

Maddy Gray

The medieval religion online discussion group (all postings archived at http://www.jiscmail.ac.uk/lists/MEDIEVAL-RELIGION.html) has been having a very interesting discussion about various aspects of medieval use of paint on stone. This was triggered by a posting last August about sculptured and painted capitals in the church of Sainte-Radegonde in Poitiers. This site reminded Christopher Crockett of the recent discovery of paint on the statues on the west front of Amiens cathedral. John Dillon located photos of the painted stone and
laser-generated images reconstructing how the west front might have looked in all its polychromed splendour. Some members found this hideous, others were fascinated. John Dillon also found photos of surviving polychromy at the church of Santa Maria del Lago at Moscufo in Abruzzo.

There matters rested for a couple of months. We got back to the subject early in December via a discussion of colour symbolism which led George Ferzoco to ask whether there was any sort of descriptive census of painted medieval statues. Gordon Plumb referred him to Sharon Cather, David Park and Paul Williamson's publication on Early Medieval Wall Painting and Painted Sculpture in England, based on the proceedings of a symposium at the Courtauld Institute of Art, while Christopher Crockett pointed us to a discussion of the Amiens polychromy in Denis Verret and Delphine Steyaert (eds), La couleur et la pierre: polychromie des portails gothiques / actes du colloque, Amiens, 12-14 octobre 2000 (Amiens/Paris, 2002). A debate then ensued on the actual pigments used and how bright they might have been. Henk't Jong suggested (based on his own experiments with paints and painting techniques) that the colours when new would have been intense and (to modern eyes) garish, though they would have dulled over time with exposure and the soot, candle and oil residues in any medieval building.[1]

Our own Gerallt Nash chipped in with some photos of the newly-painted rood screen in the Llandeilo Talybont church at St Fagan's – paint on wood, admittedly, but using identifiable medieval pigments and techniques and startlingly vivid to modern eyes. Knowing that the painters at St Fagan's had used gesso as an underlayer, I mentioned an East Anglian font with additions in gesso to the stonework which would have taken an even brighter colour. However, Henk't Jong argued that gesso would only have been used for very fine detail, such as that in the capitals of pillars.

> *"Most stone, when freshly cut, is pretty smooth. Fact is: most walls that were painted on were of a rough surface which was smoothed by applying at least layers of whitewash (chalk and water) or a layer or two three of plaster (chalk and sand, gypsum and sand, lime (calcium hydroxide) and sand) in the form of a mortar. In northern continental churches the walls were usually of brick, which is less smooth than stone and this really needed a chalky coat."*

This took me back to my photos of the Doom at Wrexham and it seemed to me that was painted direct onto the stone rather than on plaster. So I contacted Forum member Stuart Fry for ideas about the effect of painting direct onto stone. He said

> *" In essence all sedimentary rock takes traditional paint bases, i.e. Lime, Linseed etc. well but exposure to elements would obviously have a bearing. Chalks and even Portland type stones were - so I am told - sealed either with egg white or tallow as they are too porous by far. Certainly Gesso would have been used especially as ornate carvings are generally the softer sedimentary rocks. However, paint applied to the grain end i.e. the face that would normally appear in a built stone wall would almost certainly have to be sealed too. Given that many of the medieval paints used some mineral base as well as plant extract they were probably bright and durable. Of course once lead started to appear in paints we see erosion of softer stone and I suspect this is where much of the apparent damage to very detailed and ornamental work occurs. Harder rock, such as granite and quartzite does not hold so well at all, neither do the hard shales/slates because the particles of clay which they consist of are too tight."*

This sparked further debate about the use of lead, tallow and linseed oil. Henk't Jong pointed to the need to consider strategies for protecting walls from damp – gutters and drains. He said

> "*They also knew (and this is all over Europe!) how to insulate a wall, waterproof it as it were. They used tar for that or made sure the plaster consisted of many layers, from coarse to fine, the better to fuse with each other and the paint. The main thing however was to prevent water accumulating on top of or at the foot of a wall, so it could not penetrate the stone and attack the paint-layer from behind ... It was very rare to work with linseed oil on walls. See what happened to Leonardo's Last Supper in Milan. It can only be done on inner walls and even there it is not stable.*
>
> *I have heard of sealing walls with egg white but not of doing it with tallow. You'd need a lot of eggs to seal a church but it seems to have been done, if only in parts. Cennini mentions that for oil painting on walls (as is done in Germany, he says) you need a plastered wall that is sized with egg glaze. Oil painting in C's day was not the kind we have today (alla prima), but consisted of (many) layers of tempera paints and final glazes of oil colours over that. Tallow, like wax, is even more unstable as a ground than oil on stone.*

Plant-based dyes can be used to make pigments, but they need a carrier to work, because they are not solid but watery. Saffron is about the only exception as this is a very strong colour. It is and was also very expensive and you need a lot to paint f.i. a foot square piece of wall. I have never heard it used for wall painting, but you can find it in some miniatures. There were other yellows that were used on walls, mainly ochres, and they were very much cheaper. So why would they use saffron? Other vegetable dyes may be combined with acids or bases to form lake-colours, but these weren't used on walls as well. Too unstable and likely to flake in time.

Wall colours were minerals like the ochres (including yellow, red and pink, sienna, umber and terre verte) and metals or metal compounds (lead, minium, cinnabar) and copper ores like azurite, malachite, plus soot of several types. Most of these colours are pretty stable and do not lighten easily. I agree that lead-white does destroy some other colours after some time and the lead in minium tends to darken the orangy red. But the better painters knew that and usually closed them off by 'wrapping' them in egg-white, which dries up very hard, almost glass like.

Gesso, as I said before, is a mix of a chalk with glue, and does work best on wood. If used on stone, it has to have a plaster underlayer as contact with the stone will make the glue react, depending on the type of stone".

Christopher Crockett also pointed out that one would not normally see the end grain in a stone wall but that it would have been visible in columns – which raised the intriguing possibility of differential absorption rates for paint on different parts of columns and (of course) carvings and statues.

We moved on to consider the range of styles of painting – from whitewash and false ashlaring to all-over patterns and figurative murals. John Briggs mentioned the surviving C11th plaster, whitewash, and red (fake) ashlar lines on an exterior wall of the C11th structure at York Minster, which was preserved when part of the church of Thomas of Bayeux was enclosed within a later structure. Jim Bugslag confessed that he was baffled by the painting of fake ashlar over fine masonry structures and suggested it might represent "some impossible - possibly transcendent - level of idealism". George Hoelzeman identified other examples of fake ashlar painted over good masonry – at the Cistercian abbey of Marienstadt (Diocese of Limburg) and at St George in Limburg – and suggested that there could be a possible iconographical connection to the idea of the Church as the "City of God". Even the interior of Chartres Cathedral – which has very fine masonry indeed – was plastered and decorated with false ashlaring. To our eyes this seems like sacrilege, comparable with rendering the coursed rubble of C19th housing and covering it with plastic 'Cotswold stone'.

Christopher Crockett suggested that the inspiration might be the Biblical references to the Temple and the Heavenly City being constructed of "squared stones" and being painted with stones as well. Also, a preference for uniformity might have influenced the painting, and that white plaster with false ashlaring would have made church interiors much lighter than bare stone. The stonework of Chartres is Bercheres (so named for the village from which it comes, a few miles from the city) and, as Christopher Crockett pointed out, it can be quite marvellously varied in colour. Freshly cut, he says, it is white - as is the exterior of the cathedral on a brilliant summer's day. When worn or polished - as on the pavement, or the bases of the great piers of the nave, where, as he says, the backsides of countless pilgrims have polished it - it takes on a dark cream colour like a very porous marble. On a bright afternoon in late autumn or winter, when the sun is very low in the sky and bathes everything in red, it will take on a pinkish hue, and on some rainy, soggy, cold mornings in winter he has seen it as a really magnificent, earthy brownish green. As he says, the building is made out of 'living stones', but in general the interior walls are a rather inert grey. Painting would have distracted from the stained glass, but simple plastering and false ashlaring would have lightened the interior considerably.

There may also have been more practical reasons, particularly for painting or lime-washing the exteriors of churches. Kerry Inman pointed out that buildings which had been burned (by Viking raiders or by accident) might then be whitewashed to cover up smoke stains. Poorer quality stone might weather and have to be plastered over, or it could be plastered to protect it. Pinnacles and fine carving would be particularly vulnerable to frost and water damage and once they were plastered to protect them it would be tempting to paint them as well. Even good-quality stone can suffer frost damage if carved: one has only to think of the Christ in Majesty from the west face of Llandaff Cathedral (now housed in the north chapel). This is Dundry Stone like the rest of the C13th work on the west front. The face, chest and knees of the seated figure have sheared off along the lines of the bedding planes of the stone. We have no evidence of the date of this, but from subsequent wear on the broken edges it seems to have involved at least two fractures, one more recent than the other. Christopher Crockett mentioned documentary evidence he had seen that one of the statue-columns of the Royal Portal of the collegial church of St. Mary of Etampes near Chartres "suffered what sounded like a 'freeze fracture' during WWII, and about half of it fell off its place on the portal, split vertically, right along the grain of the stone". He has read the reports of the incident in French and in German (by the commander of the occupying force) but can see no sign of the damage on the actual portal.

There were of course stone buildings which were not painted: Jon Cannon drew our attention to Durham Cathedral, where there is no evidence of pre-1200 paint.

However surprising to modern eyes, though, painted stonework was commonplace in the medieval as well as the classical world. Even those glowing alabaster tombs of the C15th and C16th were painted, some of them very elaborately.

This raises a number of issues of interest to Stone Forum members. We are looking at different kinds of painting, for different purposes – figurative painting on plaster or plain stone; painting to enhance carving; painted backgrounds to carving (such as the carved panel of the Crucifixion in Brecon Cathedral, which probably had the cross and possibly other background material painted in), and the vexed question of fake ashlar painted over good stonework. We clearly need to remember that much of the stonework we are studying in medieval churches would at some time have been painted. The question of the effectiveness of different sealants and paint bases on stone probably needs analysis of surviving fragments and experimental work. Does anyone know of other examples of gesso or other moulding materials being used for detailed work as an addition to carved stone? And can anyone contribute to the debate over the meaning of fake ashlaring over good masonry?

The archives of the medieval religion discussion group are open to anyone who wants to read these discussions in full. To post messages to the list you have to be a member, but membership is open to anyone interested in the subject.

http://www.jiscmail.ac.uk/cgi-bin/webadmin?A2=ind0712&L=MEDIEVAL-RELIGION&D=0&I=-3&O=D&T=0&m=32373&P=10020

QUARELLA STONE

Dai Willie

Quarella Stone is the name given to a series of pale-coloured sandstones of Triassic-age, that are only found in the area around Bridgend. It is one of the most workable building stones found in Wales, which can exhibit excellent carving qualities and has been worked at many different sites. One of the finest examples of the use of Quarella Stone is Margam Castle, which was commissioned by Christopher Rice Mansel Talbot and built between 1830 and 1840. Margam Orangery, built by Thomas Mansel Talbot in 1786 – 1793 also made excellent use of the stone.

The stone for both of these buildings was quarried at the Margam Estates Quarries at Pyle, overgrown remains of which can still be recognised along the footpath between St James Church, Pyle and Llanmihangel Mill (SS 82 82) both of which are themselves built of Quarella Stone. Reference to the site is found in Lewis's 1833 Topographical Dictionaries of Wales which states; "Near the church', on the estate of C. R. M. Talbot, Esq., is a quarry of excellent building stone from which that now

Former Margam Estates Quarry

employed in the erection of the spacious Mansion in Margam Park, belonging to Mr Talbot, now in progress, is taken". The 1849 edition states the stone "was taken" implying that by this time the quarry had closed.

The site and works were extensive and were probably the largest freestone extraction operation ever seen in Wales. Stone from this and adjacent sites was not only used locally - notably in the construction of Medieval churches and the C12th Kenfig Castle - but was also taken longer distances utilising the adjacent Afon Cynffig for water transport before the mid C19th arrival of the railway. Local legend explains how a field further downstream, where the Afan Cynffig used to be tidal and deeper, is known as Portlands. Apparently this is where barges, which used to be bought up-river on the tide, were loaded with stone allegedly bought the kilometre or so down to them from the quarries by a horse drawn tramway.

Opposite St James' Church, Pyle Inn Quarry was opened as part of the Margam Estates operation in the middle of the C18th. While initially used for the construction of the Pyle Inn itself, later C19th references mention the quarry re-opening and providing excellent stone for the building of railway bridges and viaducts. Bridges still in use in the area are a testament to the toughness and durability of the stone used. This can be surprising when compared with examples of Quarella Stone used elsewhere from other sources which has not faired so well.

In the past Quarella Stone (the name is derived from charwel the Welsh for Quarry) from these quarries has also been referred to as Pyle Sandstone and both Pyle Ashlar and Margam Ashlar. The same beds have been quarried throughout the Bridgend area including Stormy Down, Court Colman, Laleston, Pen-y-fai, Wildmill, Coity, Coychurch, Pencoed and St Mary Hill and other possible sites further east in the Cowbridge area are being investigated. Extensive C19th and C20th quarrying of the

The old Infirmary Bridgend

stone was carried out in the Stormy Down area, much of which went for use in the manufacture of silica bricks for refractory use. The owner of T.S.Rees Quarries, Sammy Rees, who was in his 95th year when spoken to last year, can recall starting work pushing a dram in the Stormy Quarry in the 1930s.

The Church in Laleston is a fine example of the use of Quarella Stone, which was quarried from Laleston Churchyard Quarry. At Penyfai, Angelton Quarry was especially opened to build the Glamorgan Asylum in the 1880s and many other local buildings were also built from the same stone. The stone is usually most immediately associated with McGaul's Quarella Road Quarry in

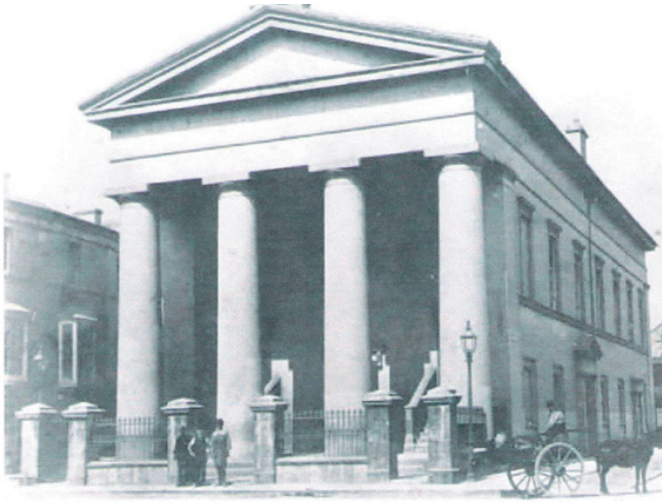
Kenfig Castle

Wildmill, Bridgend. The works here were extensive and included major sawing and masonry facilities in the late C19th and early C20th. This quarry earned the reputation of supplying poisonous stone due to the low life expectancy of the workers at the site, few of whom lived past their fifties, due to silicosis caused by the high fine quartz content of the stone and the dust created by the mechanised sawing.

Many fine examples of the use of the stone can be seen all around Bridgend town. Unfortunately, one of the best examples, the Old Infirmary, went through the crusher for hardcore in 1998. The old Town Hall, with its classical gigantic entrance pillars of almost Biblical proportions, was another casualty of the early 1970s demolition craze. East of Bridgend, at Pencoed, other quarries were worked the two main ones, both of which were just off Hendre Road, being Hendre Quarry (mostly used for silica brick) and Saunders' Quarry (mostly building stone). Continuing east the Triassic crops out as crags on upland areas around St Mary Hill. There were limestone quarries here, which closed in the l970s, and it is rumoured that sandstone was also extracted but as yet this is not confirmed.

Margam Castle

Triassic sandstones outcrop intermittently further east through the Vale of Glamorgan. Extensive use has been made of it as a freestone for mouldings and carvings throughout the Vale in buildings from Medieval to Victorian age. It may have been extracted in the vicinity of St Hilary and there is reference to Quarella Stone being quarried at St Nicholas in *The Geology of Building Stones* by J.A. Howe (1910) but as yet the sites have not been identified.



Bridgend Town Hall c. 1901.

Much information has been taken from the 1904 edition of the British Geological Survey memoir to Sheets 261 and 262, *The Geology of the South Wales Coalfield, Part VI, the country around Bridgend,* by A. Strahan and T.C. Cantrill. It is hoped in the near future, if copyright can be cleared, to make this memoir accessible on www.welshstonecentre.com. Research is continuing into building stones of Glamorgan with a particular interest in Quarella Stone and I would be most grateful for any information, which can be sent to dave@welshstonecentre.com

Field Meeting Reports

LLANDYSUL
John Shipton

Following the Welsh Stone Forum AGM, and fine lecture by Julian Orbach on 'Stone Building in the south-west counties of Wales', on the 14th April 2007, at the Welsh Woollen Museum, Drefach their followed a field trip to Llandysul.

On the way we stopped at St Barnabus' Church, Felindre, which was unfortunately shut, so making it impossible for us to examine the interior. We were, however, content to view the local, Upper Ordovician sandstone external walls and the not so local Box Ground (bath) limestone dressings. Some of the dressings to the windows were fractured where ferrous metal fixings were rusting and expanding within.

Moving on to Llandysul the group parked in the car park above the river and set off, led by John Davies, in an anti-clockwise direction around the town, much of which is built with the local upper Ordovician silty-mudstones, quarried in the vicinity of the town itself. The higher-status houses use the Upper Ordovician sandstone similar to Felindre church. However, there are some exceptions and a rather outstanding example was Glan Teifi House.

Here, the whole of the front of the house is built of Old Red Sandstone, pebbly Brownstones from the upper part of the Lower Devonian, probably from south Carmarthenshire. The exposed side of the house was built of a Silurian sandstone, possibly a Llandewi Brefi blue-stone or Cwmystwith grit from the Mynydd Bach –Ystrad Meurig area.

The group moved along the main street in a south-westerly direction taking in the variety of materials used in the construction of the banks and shop fronts. An example of Larvikite was seen in the shop front of B.J. Jones, while Lloyds and HSBC banks were built with traditional red bricks and Bath Stone, the latter exhibiting its characteristic 'snail-trail' calcite veins. A fine example of the local turbidites, showing fine graded-bedding, was found in the front step of one of the houses. A number of the properties have thresholds adjacent to the pavement, which show fine examples of the original muds, from which the slates were formed, which contain vertical burrows. These burrows have been later filled with darker mud, thus contrasting with the paler host mud, and making them very conspicuous. This is a characteristic feature of the local slate and may be typical of quarries like as those at Cilgerran. Barclays Bank was a more modern, if less attractive building, using a stone cladding that may have been York Sandstone.

On the other side of the street the chapel wall was built of Carboniferous Limestone, in which a number of large brachiopod fossils were visible. Reaching the end of the street and crossing the bridge over the River Teifi graded turbidites were clearly visible in the river bed while some of the quarries worked for the local building stone form the cliff on the north-west side of the river gorge.

The trip concluded with a visit to St. Tysul's church – from which the town takes it's name. The church yard contains various 'exotics', such as basalt and slate. There are a number of interesting grave markers consisting of a panel built using Upper Ordovician sandstone, which frames and protects a slate engraved plaque on the front. A large tomb adjacent to the church had a bulky, lichen-encrusted limestone cap. Tim Palmer felt that this was not Bath Stone but possibly a similar stone from Calne in Wiltshire or, more likely, Portland Stone. The original church building, including the window and door dressings, are built in local slate and sandstone. However, recent replacements to the windows have been carried out using Bath Stone. Inside the pulpit is made of a Jurassic limestone, possibly from Painswick in Gloucestershire, or a similar lesser Jurassic oolite.

SUTTON, OGMORE, EWENNY AND BEAUPRE, VALE OF GLAMORGAN
Stephen Howe

A beautifully hot, sunny, September day blessed the last Forum field trip of the year to the Vale of Glamorgan. The aim of the day was to concentrate on the examination of the outcrop and use of the Sutton Stone, the only indigenous freestone to be found in Wales, in its heartland.

The excursion began at Ogmore-by-Sea, on the western side of the Vale of Glamorgan, where the Sutton Stone can be examined at outcrop, especially at the mouth of the Pant-y-Slade valley. The stone is Liassic in age (basal Jurassic) and only occurs in a small area around Ogmore-by-Sea where it lies unconformably upon much

Sutton Stone in the cliffs at the mouth of Pant-y-Slade.

older, folded Carboniferous limestones. When fresh it has a brilliant white colour but becomes distinctly grey upon weathering. It also varies in texture from a coarse, conglomeratic limestone, full of rounded to sub-rounded pebbles of harder Carboniferous limestones and cherts, to a fairly uniform granular limestone. It is the conglomeratic form that is so easily identifiable in buildings because the harder pebbles drop out of the cut stone as the softer limestone surrounding them is weathered away, giving the stone a distinctive pock-marked appearance. The stone was used locally from the C11th – C16th until its use was superseded by the importation of better freestones, especially those of the Middle Jurassic, from outside Wales. Its restricted use in time is an aid to identifying the age of buildings in which it is found.

Sutton Stone nave pier, Ewenny Priory.

Leaving Pant-y-Slade, where the old cliff-side workings are still visible, the party had a brief stop in Sutton Village to view the roadside quarries and a new building just below which has been faced in the stone, before moving on for another brief stop at Ogmore Castle. The bulk of the walls of this C12th castle are composed of the local, hard, grey, Carboniferous limestones, along with river cobbles showing a range of rock types derived from outcrops further inland. However, the keep has dressings of Sutton Stone and, on the first floor, a magnificent dressed fireplace, again of Sutton Stone.

C16th Bath Stone Porch, Old Beaupre Castle

After a hearty lunch, the party moved on to Ewenny Priory where the priory church, dedicated to St Michael, is deemed to be the most complete and impressive Norman ecclesiastical building in Glamorgan. Inside this amazing church, as well as being able to examine the different textures of the Sutton Stone, examples of its full range of uses could be seen from simple dressed ashlar blocks to intricately carved decorated courses and monument slabs. Outside, amongst the range of local building stones already seen elsewhere, the C16th porch contains blocks of Triassic age Quarella Sandstone in both its pale green and cream colour form. This is another of the very localised south Wales building stones, outcropping only in the Bridgend area.

Having feasted on the simplistic delights of Ewenny the party moved to Old Beaupre Castle, near St Hilary, in the heart of the Vale of Glamorgan. This fortified manor house stands somewhat forlornly in fields above the River Thaw and is the product of three building phases; c.1300 and early and late C16th. The main building stones are again local – Carboniferous limestones, Sutton Stone, Quarella Sandstone and also Blue Lias, but inside lies a spectacular 'exotic' that most of us were totally unaware existed! Entering the castle we admired the nicely carved Sutton Stone panel on the front of the gatehouse before finding ourselves in an inner courtyard facing a spectacular three-story porch of bright Bath Stone with imposing coupled columns. Closer examination showed that those parts facing to the north-west were of a coarse shelly facies, similar to that found at Brown's Folly, just east of Bathampton, near Bath, while the inner areas, protected from the weather, were of a much finer, paler coloured oolite. The porch had been prepared off-site in kit form before being shipped to the site and re-built where it could be seen to have just been added to the face of the original building.

Other areas of the castle, especially those of a later date, could be seen to have used a lot of Quarella Sandstone where the earlier build had used Sutton. These included window and door frames as well as a couple of large fireplaces. There was so much to see that participants were reluctant to leave. However, with time running out many people had to leave at this stage although a few stalwarts decided to stay on and have a quick look at St Mary's Church close by.

This was a very full and interesting day which had given us all a good introduction to the use and nature of the Sutton Stone as well as a variety of other building stones local to this part of south Wales. Thanks go to Jana and Dai for a well-planned and informative day and to all the participants who, in true Forum fashion, added so much more to the trip with their comments and observations.

POWIS CASTLE
John Shipton

On the 30th June, the Forum visited Powis Castle, built in a commanding position overlooking the Powys countryside. Although, the earliest part of the Castle was built c.1200, it has been much added to and altered over the years. The Castle is approached through a brick-built gatehouse dated to 1668. We were fortunate to be allowed to view an inner courtyard not normally open to the public but by the time we got there the rain was falling heavily. This area was originally built in the C16th with a red conglomeratic sandstone, the Powis Castle Conglomerate that was obtained on-site. The windows were changed to a Jacobean style, with mullions and leaded lights, around 1820 and the ground level arches were in-filled with what appeared to be Grinshill Sandstone, which has now failed. C20th replacements for this failed Grinshill Sandstone are probably of Hollington sandstone.

We moved to the eastern end of the building, to a door that was thought to be the main entrance to the castle in C16th. On this side of the house are the old quarries from where the stone for the body of the walls was hewn. The slabs and steps on this side are of Grinshill Sandstone; the prominent veins being characteristic of this stone.

The rather wet members then moved inside to get some respite from the rain. Either side of the eastern doorway is a pair of statues of Edgar and Offa, carved out of Bath Stone in the mid to late C19th. One member observed that the lettering was of a style used not later than 1885.

Inside the main House is a magnificent C17th Italian Pietra Dura table. Stone used in the inlay includes travertine, Lumachelle, Lapis Lazuli, fossiliferous limestone, and red, heavily iron-stained quartz in shapes of various fish and fowl, set on a bed of Carrara Marble. Experts disagree as to whether this fine table came from Rome or Florence. Also in this area are twelve marble busts of various Roman Emperors.

The group moved outside once more. The current main entrance to the house from the outer courtyard is of Powis Castle Conglomerate with Red Grinshill Sandstone dressings, as is the whole of this elevation. Much of the Grinshill has failed and much has been replaced with what is almost certainly Red Hollington Sandstone.

The C19th windows in the shop and café wing are also in red Grinshill Sandstone. They are flaking badly with the face laminating off. Following a hearty lunch in the café it was decided to wind up the formal visit as the rain was still heavy. Some members visited the inside of the house whilst others beat a hasty retreat to their cars.

Short Notes

New Chief Geologist for Wales: Dr Jeremy Davies has recently been appointed by the British Geological Survey (BGS) to the newly created position of Chief Geologist Wales. Dr Davies has spent much of his professional life working in Wales. On joining BGS he worked briefly in NE England before transferring to the newly formed Aberystwyth-based Wales mapping team in the early 1980s. He has researched the Carboniferous successions in north and south Wales, the deep-water Lower Palaeozoic turbidite succession of central Wales and the Quaternary sediments and landforms in Wales.

Amongst an extensive portfolio of applied geological projects are investigations of hard rock aggregate resources and a series of thematic geological mapping reports for the

Deeside, Bridgend and Cardigan districts. He is currently investigating the Silurian succession of the Llandovery region with colleagues from other institutions including the National Museum of Wales, Cardiff.

Dr Davies has published widely on the geology of Wales across a range of earth science disciplines including field guides, three BGS memoirs and over twenty geological maps. In his new role, based at the recently opened BGS Cardiff Office, he is charged with developing and implementing a new scientific strategy for the BGS effort in Wales, one more clearly focused on the key environmental challenges we face today. He recognises also the need to make relevant the role of earth science research to local and central government in Wales, but also to a wider, non-specialist audience.

British Regional Geology - Wales: The long awaited new Regional Geology Guide to Wales, which replaces the long out of date separate guides to North and South Wales, has just been published by BGS. Written by Malcolm Howells, this full colour, 230 page publication will be of great value not only to geologists but to all those with an interest of geology in Wales. This fully illustrated guide describes the geological history of Wales, the evolution of its structure and landscape as well as its stratigraphy.

The final chapter on 'Geology and man' looks at how humans have interacted with and made use of the geology around them, including stone for building. The guide costs £18 and is available from the BGS Sales Desk (Tel. 0115 936 3241 or email sales@bgs.ac.uk).

Stone quiz at Laugharne Castle: The next time you visit Laugharne Castle in Carmarthenshire take time to look at the memorial arbour to Richard Avent, Cadw's Chief Inspector of Monuments who was tragically killed in a diving accident last year. Richard's colleagues in Cadwraeth Cymru, under the guidance of Mial Watkins, created the memorial, the base of which contains blocks of stone taken from the eight Cadw sites most associated with Richard's work. Some are relatively easy to deduce but others are much harder. How many can you identify?

Welsh Stone Forum Archive/Library: Several publications concerning Grinshill Sandstone (published by the Grinshill Trust) have been added to the WSF archive/ library. If you would like to have access to these, please contact Jana Horak (jana.horak@museumwales.ac.uk or 029 20573353).

Sudbrook Stone publication: We would like to draw to your attention the paper on Sudbrook Stone published by John Allen (Emmeritus Professor, Reading University). This is a useful contribution to our knowledge of building stone in Wales and covers the petrology of the source material and the early exploitation of the stone. A copy of the paper may be borrowed from the WSF archive (see details above). The full reference is:-

Allen, R.L., 2005. Roman and Medieval-early Modern building stone in South East Wales: The Sudbrook Sandstone and Dolomitic Conglomerate (Triassic). The Monmouthshire Antiquary, XXI, 21-43.

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Please note that the views expressed in this newsletter are those of the individual contributors and are not those of the Welsh Stone Forum.