

Amgueddfa

Yearbook of the National Museums & Galleries of Wales 2002-2003



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Reaching the people museums do not normally reach



The introduction of the free entry policy in April 2001, supported by the Welsh Assembly Government, was met with an overwhelming public response and resulted in a great increase in the number of visitors to all the National Museums & Galleries of Wales sites. While free entry is an important step towards increasing access to the nation's treasures, it is also vital that NMGW continues to reach new audiences. There are still a number of people who have not visited NMGW in the past, and have not been persuaded to do so by free entry.

How, therefore, do we make our museums as well-known as possible to the widest audiences, especially those who do not believe that museums are interesting? How do we persuade individuals with no experience of us that museums and galleries might be relevant to them? How can we connect with more people in a more meaningful way? During the past year, two initiatives in particular have helped to develop our ideas and prepare the ground for an increasing focus on audience development: research into the attitudes of those who do not visit museums, and the On Common Ground initiative, targeted at young people.

Non-visitor research

In 2002, NMGW commissioned the Research Centre for Museums and Galleries (RCMG) at the University of Leicester to undertake a research project designed to achieve two aims. Firstly, to assist our efforts in attracting new audiences by gathering data about needs, attitudes and perceptions amongst non-user communities, to help us develop strategies to broaden our appeal and reach those groups currently under-represented in our visitor profiles. Secondly, to identify opportunities for us to engage with socially excluded communities and to work with them in a way that will contribute towards the wider process of social inclusion.

The research comprised of:

- desk research, including market research on museum non-users
- six focus groups held across Wales with key socially excluded groups
- fourteen in-depth interviews with representatives from some of Wales's most disadvantaged communities, and with key individuals in the field of social inclusion
- less structured contacts with other individuals.

The researchers concluded that: 'Being free is not in itself sufficient to engage many disadvantaged communities... To significantly broaden audiences, NMGW needs to nurture ways of working which focus on meeting people's needs.'

The study highlighted in particular the needs of young people, older people, families, Welsh speakers, ethnic minorities and economically disadvantaged communities. The research also suggested ways in which we could seek to remove barriers to visiting and stressed the importance of *enabling* communities to make choices: 'Typically museums do not feature on excluded communities' menu of opportunities. People need some experience of museums that demonstrates their potential role and relevance to enable them to make free choice decisions about participation.'

What next?

We have, over a period of some years, engaged with initiatives designed to increase access and to address social inclusion. But

activity in the past has tended to be less targeted and to have less emphasis on sustainability. The non-visitor research encouraged us to review past initiatives and to develop a more focused and holistic approach, drawing together initiatives from our Education, Visitor Services, Marketing, Events and Human Resources departments.

The research also inspired a number of controversial but important points for discussion:

- Is there a contradiction between promoting our collections and attracting new audiences? Does one take place at the expense of the other?
- Should we prioritise working within excluded communities, or should we address the issue of access more broadly, concentrating instead on attracting a wider range of visitors? (Developing New Audiences for the Heritage Sector, Research Study for the Heritage Lottery Fund, *Final Report, PLB Consulting Limited, April 2001*)
- Should we focus our resources on the communities in the vicinity of our museums, or should we try to engage with communities in the remoter areas with limited transport to museums? What is the right balance between outreach (initiatives with local communities beyond our normal catchment areas) and in-reach (activities to motivate people to come to us)?
- Which barriers can we realistically remove, and which are outside our responsibility and, indeed, our capacity?
- What is the role of a *national* museum in relation to social inclusion? Is social inclusion work easier for local institutions, which have a responsibility for a smaller, more clearly defined area? Do national museums have a distinct contribution to make - or should they be seeking simply to replicate the very successful work of some local museums, as described in the GLLAM report? (Museums and Social Inclusion: the GLLAM Report, RCMG, 2000)

As any experienced community worker will confirm, the most effective initiatives involve targeted grass-roots work, partnership with local agencies, response to locally identified needs and long-term commitments. However, all of the above have resource implications. While we could (and do) use all of these techniques in a small number of communities, we would inevitably neglect many more. Finally, after wrestling with this particular issue, we began to plan a way forward. Through our On Common Ground initiative, we had already undertaken projects in partnership with local museums and with a range of heritage initiatives. We had also developed new and innovative approaches to outreach and to working with young people in disadvantaged circumstances.

We decided that, as a national institution, one of our most valuable and distinctive roles is that of advocating, developing

and disseminating good practice. We should seek to stimulate a debate around access, audience development and social inclusion, and explore ways of working in partnership with other organizations in Wales.

We also recognised that we have both an operational and advocacy role. Social inclusion and access are complex issues that require multi-layered approaches. Reflecting this, we have planned a programme of activity that includes:

- audience development initiatives designed to reach particular target groups
- an audit of how 'family friendly' our museums are and of ways of making our sites more welcoming
- a survey of potential partners with whom we can collaborate in the future
- an extension of the On Common Ground initiative, developing and promoting new ways of working.

However, social inclusion is a long-term process. We hope that these steps will help us to begin to reach those people that museums do not normally succeed in reaching.

Ceri Black, Head of Education

Agenda21

and the Convention on Biological Diversity

This article explores the origins and development of our natural history collections and their revival as tools for highlighting the major issues of biodiversity and sustainable development in the twenty-first century. This review forms the background to a continuing development proposal for the Departments of BioSyB and Geology, and aims to increase the relevance of their research and learning programmes to contemporary issues.

Formal natural history collections first appeared in the sixteenth century as 'cabinets of curiosities' and were the property of wealthy individuals or those of royal status. This type of collecting was mostly motivated by the desire to own the unusual or the expensive, and could not be described as scholarly. The great expansion of collecting came during the Victorian era, which also heralded the great age of public museums; however, the driving force behind the collections and exhibitions was a simple desire to possess, catalogue and admire the enormous range of animals, plants, fossils, minerals and rocks. This was made even more exciting to the collector and the public because many of the specimens came from as yet unexplored parts of the world. At this time, global travel was available to only a privileged few, and museums were the only place that such 'Wonders of the East' or of the Americas could be seen. This type of public response was last seen when the first moon rock was exhibited.

In 1859, the publication of Charles Darwin's *Origin of Species* fundamentally altered the sciences of biology and palaeontology, and indeed our own views of our place in the world. Museum collections leapt from being a catalogue of creation to a tool for the study of evolution. Collections had a new purpose, and the search for new species, whether living or fossil, took on a new impetus: to fill the gaps in the story of life on Earth. At this time there were also revelations about the antiquity of the Earth, giving a revised direction for all aspects of geology.

The National Museum of Wales was the last of the great national museums to be built in Britain and it was in this late Victorian environment that its founders lived. The 1907 Charter of the Museum, however, suggests the earlier motivations of creating a catalogue: 'the complete illustration of the geology, mineralogy, zoology, botany... of Wales'. Although the Charter also mentions supporting scholarship in Wales as an aim, there are no specific reasons for this 'complete illustration' except for public exhibition. The Charter uses the

word 'representation', which leads one to conclude that a one-of-each approach was envisaged, but this has no basic value in either education or research. The conundrum 'why do you have more than one of each?' remains relevant to this day and perhaps reflects biologists' failure to explain the fundamental role and value of variation within species. The first Director of the National Museum of Wales was William Evans Hoyle, an eminent zoologist and world pioneer of the taxonomy of cephalopods, who must have been fully aware of the flaws of the representational approach.

Whatever policy was adopted during these early years, there was no obvious strategy to deliver the Charter aims, and, indeed, there never has been. The only outcome with a semblance of 'complete illustration' was the flora of Wales pioneered by Hyde and Wade. From the beginning, the collections developed in an ad hoc manner and, in zoology especially, acquisitions of exotic collections began almost immediately. This resulted in a wide range of specimens, and the collections began to mirror those of other large public museums in both subject and geographic scope.

In 1941, the Museum was involved with the Society for the Promotion of Nature Reserves, but this did not result in any revision of the Charter or of the role of the botany or zoology collections. By 1951, one director, Dr Dilwyn John, had realized the unique role of museums and museum curators in cataloguing the variety of natural things, but had also recognised a shortfall in expertise. Collections continued to grow and were boosted greatly in 1955 by the donation of the second largest collection of molluscan shells ever made by a private individual - the 80,000 boxes of shells of the Tomlin bequest. At that time there was no curator of molluscs and there would not be for another fifteen years. It would not be until the 1970s that significant research contributions to botany and zoology began.

In Geology, the situation was rather different. The theory of plate tectonics, proposed in the 1960s, gave a great impetus to the Earth Sciences, and had the effect of unifying their previously disparate sub-disciplines; it also provided the mechanism for continental drift, proposed by Wegener many years before but until then not generally accepted. It offered explanations for seemingly anomalous distributions of fossil faunas, and emphasised the need for these to be examined on an international scale. Wales, a country steeped in pioneering

geology, has an important role in elucidating the earth's history and in the 1960s the Geology Department began to develop its research potential, which today is of international status.

While plate tectonics gave geology a unifying principle, there was no such development in the biological sciences. Taxonomy and the skills of identification dropped out of fashion in universities, with emphasis moving towards molecular biology, genetics and ecology. While there have been museums dedicated to the arts and to social and industrial history in twentieth-century Britain, there has been no such development of a museum for natural history. Many university collections have been lost or transferred to museums and many multi-disciplinary museums have seen a loss of related staff.

Our role in public understanding and education has not changed in essence, but our direction and approach have been fundamentally challenged since its formation. Advances in communication and the advent of global travel have rendered the museum's role in displaying the unknown and the exotic much less unique. A pickled octopus in a jar is not the same as the live video, or the opportunity to see one when snorkelling; a stuffed lion is not the same as one seen on safari. The resulting trend in natural history display has moved from a multitude of specimens with a classification theme to a specimen-poor display with greater emphasis on simulated environments, with film and interactive devices supporting process or ecosystem themes. In biology, the research collections no longer provide the core of exhibitions, and new preparations, models and interactives have created a complex and expensive trend in museum display. In geology this has occurred to a lesser degree because of the inert nature of the materials, but in recent years there has been a rise in the reconstruction of dinosaurs, extinct marine reptiles and all manner of prehistoric life. These are amongst the most popular exhibitions we have ever developed and the topic remains very popular with the public.

During this decline in taxonomy and the changing role of collections, the world was waking up to the fact that the rate of alteration or destruction of natural environments would soon become critical and have a negative impact on human existence. The climate was changing, fossil fuels were running out, famines remained, extinctions increased, there was widespread over-fishing, over-use of pesticides and so on. Finally, in 1992 the Earth Summit in Rio de Janeiro heralded a new approach to the exploitation of natural resources. Agenda 21 enshrined the sustainable use of resources, and one of the major resources was biodiversity. Biodiversity had to be measured, valued and conserved. The importance of biodiversity was finally recognised for the provision of food, raw materials, medicines and energy. Its role in maintaining stable ecosystems and the health of the planet was also accepted. The Convention on Biological Diversity (CBD) was signed and this heralded a new era of academic, social and political interest. The first questions asked about biodiversity concern its measurement, what species there are, where they

are and how many there are. How ironic it is that our 1907 Charter was in reality a desire to create a biodiversity inventory for Wales, one of the primary aims of the CBD. Arriving with the CBD was another realization - that there were insufficient taxonomic data and taxonomists to fulfil the aims of the convention, thus echoing the words of the former director, Dr Dilwyn John, who in 1951 had noted the decline of taxonomic expertise.

Here, at last, are social issues that give relevance to the work of museums and create both obligations and opportunities for us:

- the collections are a global resource for biodiversity information and research, and there are obligations to give access to them
- the collections and the Museum have potential roles in public awareness and education for environmental and sustainability issues
- there are bio-informatics initiatives such as the Global Biodiversity Information Facility, National Biodiversity Network and Marine Life Information Network, which offer opportunities for both public awareness and access
- there are educational initiatives, such as Interpret Wales and the UK Environmental Education Council, to which we could contribute
- the disciplines of taxonomy and systematics underpin all other biological and much geological science
- natural history museums have an almost unique niche as the centres of taxonomic and systematics research and training
- the academic curatorial staff who maintain and research the collections have a role of regional and international value
- the original Charter objective of a complete representation of the fauna and flora of Wales has never been realized, and developments in the biological and geological sciences require a broader and more modern approach.

Recognizing these issues has given a renewed focus for the natural science disciplines and provides us with a niche along with our partners in museums, universities and conservation agencies. The functions of taxonomic provision, bioinformatics and learning linked to biodiversity conservation and sustainable development support the maintenance and expansion of collections and curatorial expertise. With this focus, we can not only support the aims of the Welsh Assembly Government but can also contribute on a UK and global scale, as encouraged by Agenda 21.

Dr Graham Oliver, Head of Biodiversity & Systematic Biolog

Gathering the Jewels

digitising Wales's national treasures



In July 1999, a number of organizations and bodies from across the culture and heritage sector in Wales met at the National Assembly for Wales to discuss the possibility of working in partnership to digitise Wales's national treasures. The remit of this ambitious initiative was formulated, and in the spring of 2000 the Gathering the Jewels consortium was formed.

The consortium consisted of the following members: The National Library of Wales, Society of Chief Librarians (Wales), Federation of Welsh Museums, Archives Council Wales, Royal Commission on the Ancient and Historic Monuments of Wales, Council of Museums in Wales, Wales Higher Education Libraries Forum, Welsh County Archivists Group and the National Museums & Galleries of Wales.

The aim of the consortium was to digitise many of the significant collections held by museums, archives and libraries from across Wales. This would be achieved by creating a digital image, producing the relevant information using metadata standards and then displaying this information on the Web. No institution was too large or small to be represented. The project team aimed to bring together material that would become a new national learning resource and would reflect and promote the extraordinary diversity of collections held in Welsh libraries, museums and archives - thus 'Gathering the Jewels'.

Initially, some felt that a pan-Wales programme was too ambitious, while others thought that this facility should have existed already. However the project was viewed, it became increasingly clear that there were many advantages in creating a national project to digitise Wales's primary cultural and heritage items. Although a number of small projects were underway, there had never been such a large, co-ordinated approach before. This was the first project to focus on digitising items from across the whole of Wales, and included many institutions that had never attempted to digitise any of their collections in the past.

The consortium members agreed to establish a small working group who would undertake the job of preparing a business case and a funding application. In the summer of 2000, the Gathering the Jewels consortium was informed by the New Opportunities Fund (NOF) that its application was successful and it would receive just over £1 million. At this point a small project team was appointed and the consortium members were given the opportunity to second staff to the project. We have been supporting the project since its inception in 1999. Gayle Evans, Head of Documentation and Ian Fell, Assistant Director of Exhibitions & Interpretation, represented the Museum on the Board of Gathering the Jewels. We were therefore delighted when Dr Steve Burrow, Earlier Prehistorian from the Department of Archaeology & Numismatics, joined the team as the Project Officer representing institutions in south Wales. Steve had already developed a number of web pages for the Department, and brought both an appreciation of the possibilities of web distribution and a creative approach to interactive learning resources to the post. Support for Gathering the Jewels also came from our Photographic Unit, which photographed and digitised in the region of 2,400 images in eighteen months.

The first stage of the project was completed in September 2002 and was celebrated with a launch in the Reardon Smith Lecture Theatre at the National Museum & Gallery in Cardiff. Over 300 people attended including Welsh Assembly Members, Members of Parliament, academics, historians and representatives from contributing institutions across Wales. During the launch, Jenny Randerson AM, then Minister for Culture, Sport and the Welsh Language, praised the accomplishment of the team and the consortium.

By May 2003, the website for Gathering the Jewels (www.gtj.org.uk) provided access to over 20,000 images relating to Welsh history, culture and heritage, gathered from over 170 Welsh museums, libraries and archives. This is the first time such an impressive collection has been available in one location. It is available - free - twenty-four hours a day, seven days a week.

Although the NOF grant for Gathering the Jewels ceased in September 2003, this is not the end - it is the beginning. Through a generous grant from the Welsh Assembly Government, the expertise and resources gained through Gathering the Jewels will continue to be developed in a new project - Culturenet Cymru Ltd. This is a not-for-profit private company limited by guarantee, based at the National Library of Wales, Aberystwyth, which aims to expand its services by achieving the following goals:

- develop a portal to Welsh culture and heritage online
- deliver a range of innovative and exciting projects to stimulate interest in Welsh culture and heritage and satisfy the needs of member organizations
- work in partnership with member organizations on specific innovative projects
- support, encourage and promote the web-based activities of member organizations.

We have been delighted to be an active member of the consortium, since the inception of Gathering the Jewels, through to the establishment of Culturenet Cymru, and will continue to play a leading role in enabling access to all Wales's treasures.

Gayle Evans, Head of Documentation

What's in Store?

a survey of archaeological collections in Wales



Archaeological remains provide the only evidence for the vast majority (c.250,000 years) of human history in Wales. The investigation of known and potential sites is a regular occurrence and provides essential evidence for understanding Wales's past. Most archaeological excavations today are prompted by the threat of development, such as schemes to construct new buildings and roads, but some organizations, like us, carry out investigative research to answer specific questions. Excavation can produce numerous boxes of finds such as sherds of pottery and metal artefacts, environmental evidence including animal bones and bags of soil samples, as well as the supporting paper, photographic and (increasingly) digital records. The collected remains and records resulting from an excavation form the archaeological archive of a site.



After removal from the ground the archive is processed and, where necessary, conserved, studied and published. Since excavations are, by their nature, unrepeatable, it is essential that the archive should be retained so as to enable the re-interpretation of the evidence in the future, or for further study, perhaps using techniques not available at present. To achieve this, archaeological archives not only need to be stored in environmental conditions appropriate to the various materials, but should be kept in such a manner so as to allow access both to professionals and the general public.

In 1997, a survey of archaeological archives was undertaken in England for English Heritage and the Museums & Galleries Commission. The resulting report, published in 1998, identified the fact that many museums were at crisis point, their stores were full and they did not have the resources to accept or to care for further archaeological archives. It highlighted the lack of good guidance in the creation of archives and their successful transfer to museums, the limited use they were being put to once in museums and the lack of staff with archaeological expertise. Also, archaeological contractors, many working nationally, sometimes had difficulty in identifying the appropriate museum to offer the archive to, in part because of the lack of a clear national statement of museum collecting areas.

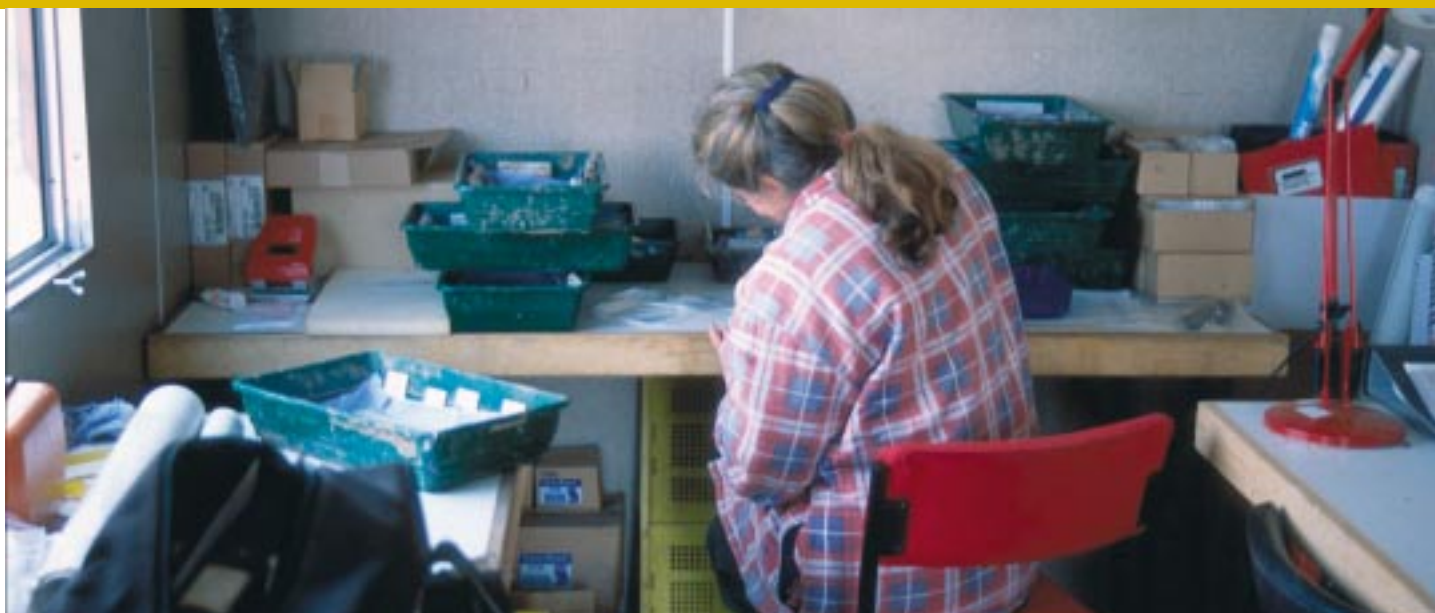
The report also recommended that a similar survey be undertaken in Wales. The Council for Museums in Wales, the National Museums & Galleries of Wales and the Royal

Commission on the Ancient and Historical Monuments of Wales formed a partnership to identify whether or not the same issues existed in Wales. Consultants Jane Henderson and Phil Parkes (of Cardiff University) were appointed to undertake a survey of all museums, university researchers, archaeological contractors who had worked in Wales (some from as far away as Lancashire and Oxfordshire) and societies and private individuals who undertake excavations. In all, 80 per cent of the museums and 67 per cent of the contractors and individuals responded to the survey.

The survey estimated that the archaeological archive for the whole of Wales occupies approximately 6,400 metres of shelving in permanent collections, of which 81 per cent comprise artefacts, 11 per cent environmental samples and 7 per cent paper records. Of this figure, we have responsibility for storing and caring for approximately 3,600 metres or 57 per cent of the total archaeological archive. It has been estimated from the questionnaires returned that there are over a thousand metres of archive awaiting transfer to museums from projects nearing completion. Over 70 per cent of this material is destined for non-national museums in Wales, but museums, other than ourselves, were unaware of the scale of this future deposition. It has been calculated that it currently costs £116 per metre to store archaeological archives each year, so museums face an additional cost in excess of £100,000 a year when the present backlog is transferred.

The report raises a large number of crucial issues and highlights many problems experienced by both museums and archaeological contractors. Newly excavated archaeological objects, especially metals and organic materials such as wood and leather, are generally unstable when removed from the ground in which they have been buried sometimes for thousands of years. The shock of entering a different environment can often lead to rapid deterioration unless they are stabilised or undergo immediate specialist conservation. It is clear from the survey that, in many cases, archaeological collections are not being cared for or stored correctly by the excavators during the post-excavation process. Also, there are often long delays before the excavated material is transferred to a permanent store. Even more worryingly, a third of the museums claim that their stores are unsuitable for the long-term storage of archaeological archives. Unsuitable storage, whether temporary or permanent, will lead to corroding metalwork, fading or lost identification labels, collapsing boxes etc. Such deterioration results in a loss of information and costly remedial conservation.

The research demonstrates that the stores in the majority of museums in Wales are already full or overcrowded and that only a few have more than ten years growth capacity. Considering the number of collections awaiting transfer, the situation in Wales appears to be at crisis point, even without the inevitable creation of further archaeological archives. This lack of space not only reduces the ability to preserve the



collections, but also hinders access, thus undermining the fundamental premise for retaining the archive. Excavators indicated that they were experiencing problems of not being able to locate a suitable permanent home for the completed archive in some instances. The development of a national collecting policy, one of the report's recommendations, would remove the uncertainty of which museum a collection should enter. The larger archaeological contracting units, which are run on a commercial basis, generally employ a member of staff who is responsible for the temporary care of the archive. It is clear that universities in Wales, with staff active in the field, do not make the same provision for the management of collections in their care. This causes considerable concern, as they are responsible for the archaeologists of the future.

Another issue raised in the report is the deposition of the associated records - paper, photographic and digital. The Royal Commission on the Ancient and Historical Monuments of Wales aims to collect and curate archaeological records within the National Monuments Record Collecting Policy. However, there is no consistent approach elsewhere in Wales and there is a lack of awareness of the standards in storing this archive. Some museums accept the associated record with the finds archive if offered it, whilst many more decline. The survey indicated that many of the excavating units prefer to retain the records in the belief that researchers will approach them for information. Also, an increasing number of evaluations produce only a paper and photographic archive and no artefacts. Excavators are creating an increasing amount of digital records of their work, but very few repositories have a policy for the preservation of these materials. There needs to be greater clarity and an agreed format for the transfer of records, both paper and digital.

Access to collections means more than providing physical access to the stores in which they are kept. Individuals and communities need to be aware of the existence of collections and have sufficient support to understand them. Unfortunately,

the lack of archaeological expertise in many museums, and therefore a poor understanding of the archive, is considered a barrier by many curators to providing full access to their collections, whether through changing exhibitions or assisting researchers. The lack of basic facilities and the dispersed nature of some site collections can limit access to researchers. For most people, the main point of contact with the archaeological archive is through exhibitions in their local museum. As well as wishing to see important artefacts, visitors have a growing interest in the process of excavation and the techniques of discovery. Communities have the understandable desire to see objects found in their local area. Considerable interest is frequently generated by new discoveries - as demonstrated during the uncovering of the Newport medieval ship - and greater efforts need to be made to involve local communities during the course of excavation. To achieve such goals there is a need for investment in modern display facilities to provide environmental control, security and effective interpretation. We piloted the partnership scheme *Cyfoeth Cymru Gyfan-Sharing Treasures* with three local museums, Oriel Ynys Môn, Brecknock Museum and Wrexham Museum, which supported improvements of facilities at the three museums so that items from the national collections can be displayed locally.

Wales's archaeological archive, with proper stewardship, awareness and displays, has the potential to be a tremendous resource for a diverse audience. People of all ages and learning abilities can gain knowledge and enjoyment from engaging with this unique resource. The popularity of television programmes such as *Meet the Ancestors* and *Time Team* has led to a new wave of interest in the subject, yet few people find it easy to access the information they want or participate meaningfully in their heritage.

The survey resulted in the formulation of nine draft recommendations for the future management of the archaeological archive in Wales:

Recommendations

- 1a Create a national store, or
- 1b Create regional stores as centres of excellence
- 2 Create a database of Welsh Archaeological collections
- 3 Establish a national panel for archaeology
- 4 CyMAL to develop a remit for archaeology
- 5 Encourage and develop a nationally framed collecting policy through the Museum Registration Scheme
- 6 Draw up guidelines for the deposition of collections
- 7 Review the management of the information database
- 8 Require the management of archaeological archives by universities
- 9 Additional training

The recommendation that archaeological archives not on display should be housed in one or more centralised stores is likely to cause much discussion in the museum community. The consultants consider that the centralisation of archives will lead to greater use by researchers and will provide more cost efficient storage. The options considered are either a single store as recommended by the All Party Parliamentary Archaeological Group (2003), or a number of regional stores, which matches the concept of 'museum hubs' promoted in England by Re:source. Another far reaching recommendation is the possible creation of a National Panel for Archaeology, which, with a mandate for the entire process from planning stages of an excavation to deposition of the archive, could



encourage more partnership working. This panel might also assist in identifying the most suitable repository for a particular archive, and possibly have a role in deciding whether a collection is of national significance and should be housed at NMGW. Such initiatives should remove the need for us to, in effect, act as a local museum for regions where there is currently no local museum provision.

The National Museums & Galleries of Wales, which has considerable archaeological expertise and permanent staff dedicated to the care of archaeological archives, is well placed to play a lead role with our partners in the future arrangements for improving management of archaeological collections. Opportunities afforded by the development of our own National Conservation and Access Centre at Nantgarw and improvements in storage at the National Museum & Gallery in Cardiff will enable us to care better for the national collections, and our documentation programme will go a long way to assist access. We certainly hope that the days when excavators turn up at the Museum door with archaeological archives unlisted and unlabelled in plastic carrier bags or packaged in sawdust will be a thing of the past. However, the recommendations present the entire archaeological and museum communities with an opportunity to address the serious issues highlighted in the report. As a fundamental record of our past, 'what's in store' must be cared for to the highest standards and made accessible to the widest audience.

Elizabeth A. Walker, Collections Manager Archaeology & Numismatics, and Richard J. Brewer, Head of Archaeology & Numismatics

Research

at the National Museums & Galleries of Wales in 2002-03



Research on our collections strengthens our contribution to a worldwide appreciation of Wales, of the heritage and culture of the Welsh people and of Wales's contribution to the world, taking us into the twenty-first century with confidence. Here we provide details on research projects that were progressed during 2002-03 and a report on the research and scholarship performance indicators collated by our Research Requirements Board. Some of the features outline significant research undertaken, and the outputs from this research work, whether exhibitions or books, will feature in future publications.

Research Projects

We define the term Research Project to include research associated with work on scholarly books (including catalogues) and articles, displays and exhibitions, fieldwork and technical

research, but not routine investigations associated with the accessioning of collections and documentation or responding to public enquiries. Projects should normally take a total of ten days or longer to be included in our Research Register.

Archaeology & Numismatics

E. M. Besly

- The Rogiet, Monmouthshire, Roman coin hoard
- Gloucester Roman coin hoard: coins of Probus (with The British Museum)
- Campaign and gallantry medals in NMGW's collections

N. Blackmore

- A Fabric-type series of Roman pottery in Wales in NMGW's collections (M.Phil, Cardiff University)

R. J. Brewer

- Roman Caerwent: a courtyard house
- Roman Caerwent: *forum-basilica* (with Dr Peter Guest, Cardiff University)
- The Romans in Gwent: the creation of the Silurian Res Publica for the *Gwent County History*

S. Burrow

- Catalogue of the Mesolithic and Neolithic collections in NMGW

E. Chapman

- Roman military equipment in NMGW (M.Phil, Cardiff University)

M. Davis

- Analysis of Early Bronze Age faience objects from Wales (with Dr A.Sheridan, National Museums of Scotland)

A. Gwilt

- Tools, weapons and Late Bronze Age societies for the *Gwent County History*

A. Gwilt, M. Lodwick and M. Davis

- Catalogue of Late Bronze Age hoards from south Wales and the Marches: recent discoveries

P. Hill

- Analysis of the De Walden Collection of classical arms and armour in NMGW

J. R. Kenyon

- Medieval castle architecture for the *Gwent County History*

L. Mumford

- Llan-gors crannog - early medieval textile

M. Redknap

- Viking-age settlement in Wales and the evidence from Llanbedrgoch, Anglesey
- Llanbedrgoch, Anglesey, Viking-age site: post- excavation report
- Llan-gors crannog post-excavation report (with Dr Alan Lane, Cardiff University)
- Re-Creations: Visualizing our Past: a history of techniques used to recreate the past (Temporary Exhibition, National Museum & Gallery, Cardiff)

M. Redknap and J. M. Lewis

- Corpus of Early Christian monuments: south-east Wales and southern Marches (in conjunction with the University of Wales's Board of Celtic Studies)

J. Reynolds

- Roman Caerleon: the cemeteries

E.A. Walker

- Mesolithic Wales: post-excavation report on Burry Holms, Gower
- Changes in the ways museums in Wales have collected archaeological material during the twentieth century (M.Phil, University of Wales, Lampeter)



Early Medieval Inscribed Stones and Stone Sculpture from Wales

The information that can be gained from the study of the early medieval inscribed and decorated stones of Wales is extraordinarily rich. These stones form the most prolific body of material evidence that survives for early medieval Wales from about AD 400 to 1100. They provide archaeological evidence for burial practice and boundaries; they throw light on Welsh history - providing names, kinship and status of people - and also contribute to our understanding of historical linguistics.

Memorial stones were inscribed in Latin or Old Irish ogam (or both) during the fifth and sixth centuries to commemorate the elite of Welsh society. They are crucial to our understanding of the degree of continuity with preceding Roman culture, Irish settlement and the development of the early Welsh kingdoms, as well as language, literacy and the development of the church. They are a main source for the Latin, Welsh and Irish languages in post-Roman Wales. The cross-carved stones and larger free-standing crosses allow us to identify a range of early medieval ecclesiastical sites within a wider landscape, and trace the patronage of the church by the secular elite, and the impact of external cultural contacts from the Irish Sea zone and Anglo-Saxon England.

The *Early Christian Monuments of Wales* by V. E. Nash-Williams (1950) remains a landmark in the study of the period. This was the first systematic, illustrated corpus of these inscribed and decorated stones of Wales, and represented the fruits of fieldwork and study over the best part of twenty years. Nash-Williams passed his entire professional career in the service of the National Museum of Wales. In 1924 he was appointed Assistant Keeper in the Department of Archaeology, and two years later he became Keeper (and also lecturer in Archaeology at University College of South Wales and Monmouthshire). It is over fifty years since his authoritative work was published, and the new corpus now in preparation builds upon his work. The project is being supported by the University of Wales's Board of Celtic Studies, the British Academy, the National Museums & Galleries of Wales and the Royal Commission on the Ancient and Historical Monuments of Wales.

Dr Mark Redknap is presently engaged with John Lewis, formerly Assistant Keeper in the National Museum, in preparing the volume for south and south-east Wales, while Dr Nancy Edwards, University of Wales Bangor, is responsible for the two volumes covering west Wales and north Wales. The scope of the work has been widened by contributions from specialists in the fields of palaeography (Gifford Charles-Edwards), language (Professor Patrick Sims-Williams, University of Wales, Aberystwyth), geology (Dr Jana Horák, Department of Geology, NMGW) and early history (Jeremy Knight, former Inspector of Ancient Monuments, Cadw). This new corpus will provide fresh studies of these aspects, new interpretations of some stones and a record of many previously unpublished examples. The catalogue will offer a compendium of early medieval art from western Britain, and its high-quality illustrations will provide artists and art-historians with a rich visual sourcebook.

Dr Mark Redknap, Curator of Medieval & Later Archaeology



Re-discovering Thomas Jones: new research for the bicentenary exhibition

The year 2003 marked the bicentenary of the Welsh landscape artist, Thomas Jones (1742-1803), and NMGW mounted a major celebratory exhibition to cover his entire career. Research was carried out on all aspects of his life and work, but it concentrated on his early subject paintings, his oil sketches of his native Radnorshire painted near his family home, Pencerrig, and his later artistic production, thus putting his well-known Italian oil sketches into context.

The research confirmed that painting in oil on paper was a well established part of Thomas Jones's practice in the 1770s, long before he travelled to Italy. His small oil sketches, many of which were entitled merely *Pencerrig*, all showed different locations, and these have now been topographically identified with the assistance of Dr Richard Bevins (Department of Geology) and Kevin Thomas (Senior Photographic Officer). A number of views could be clearly identified from the grounds of Pencerrig, others proved to be further afield. The work showed, however, that he did not stray too far from his family estate.

The Welsh oil sketches were divided into three categories: those that were topographically entirely accurate, those concentrating upon individual motifs, and a final group where the geological details were often less faithful to nature but the cloud formations were carefully studied. Art historians have previously interpreted these oil sketches as being early examples of *plein air* painting, i.e. painting out of doors. However, analysis using infrared photography revealed that almost all had careful and extensive under-drawing. This suggested that they were perhaps only begun on paper in the open air using pencil and that the oil was added later in the studio. Analysis of Jones's Italian oil sketches of the later 1770s and 1780s also revealed similar careful under-drawing. Kate Lowry (Chief Conservation Officer, Fine Art) further explored Jones's working methods and made interesting comparisons between his approach and that of his master Richard Wilson. Surface cleaning of one Italian landscape revealed a date showing that it had been painted back in London, whereas previously it had been assumed it was one of the *Views of Naples* that he brought back with him when he left Naples permanently in 1783.

On his return to Britain, Thomas Jones inherited extensive lands in Radnorshire and became virtually an amateur artist, only occasionally sending works to the Royal Academy in London. Other researchers have reconsidered the chronology of his later career, revealing that many works of Italian subjects, which it had been assumed were painted during his years in Italy, were in fact executed in Wales, probably while he was writing his *Memoirs* at the end of his life. Paper analysis of these later paintings revealed that some of the sheets were not produced until the 1790s.

Research for the exhibition has not only confirmed Jones as a leading landscape artist of the late eighteenth century, but has also illustrated his diverse talents as a subject painter, thus confirming his talents beyond the boundaries of the small Naples sketches and showing the influence of Dutch seventeenth-century artists like Ruisdael, the Dutch Italianate Pynacker and the Italian Salvator Rosa, as well as Gainsborough and of course Richard Wilson. This work has also provided a new insight into the artist's working methods and enabled us to re-date many works and establish a new chronology for his artistic output.

Dr Ann Sumner, Curator (Fine Art)

Art

L. Briggs and A. Renton

Redisplay of modern & contemporary art from the collection
(Exhibition, National Museum & Gallery, Cardiff)

K. Lowry and R. Turnbull

Conservation survey of paintings by Richard Wilson (supported
by the Getty Program)

A. Renton

Thomas Pardoe and William Weston Young

A. Sumner and K. Lowry

Thomas Jones 1742-1803: an artist rediscovered (Temporary
exhibition, National Museum & Gallery, Cardiff)



Major grant for Marine Biodiversity survey of the Outer Bristol Channel

Marine Biodiversity is a major focus for NMGW and over the last ten years considerable progress has been made towards a complete biological survey of the seabed around Wales. At the beginning of this year, moves were made to focus on the largest understudied area - the Bristol Channel. This environmentally sensitive area is subject to a number of recreational, industrial and conservation demands and was last studied in any detail in the early 1970s.

Biodiversity & Systematic Biology (BioSyb)

Entomology

B. Levey

- Taxonomic studies on Buprestidae (Australian Coleoptera)
- Taxonomic studies on British Coleoptera

J. Deeming

- Taxonomic studies on Diptera

Joint proposals from NMGW and the British Geological Survey (BGS) were submitted to the Aggregate Levy Sustainability Fund administered by the Welsh Assembly Government and to the Mineral Industry Research Organisation acting on behalf of the Office of the Deputy Prime Minister. The applications were successful and a combined grant of £605,300 - the largest ever secured by the BioSyB Department - was awarded for a joint biological-geological survey of the area. Supporting funding of £166,400 was also secured from NMGW, the Crown Estate and the British Marine Aggregate Producers Association (BMAPA), with additional data in kind made available by BGS, the Maritime & Coast Guard Agency and Llanelli Sand Dredging Ltd. The Marine Conservation Society and the Wildlife Trust of South & West Wales provided letters of support for this three-year Outer Bristol Channel Marine Habitat Study.

As well as providing independent broad-scale information that will integrate baseline biological and geological scientific data, the project also includes an exciting major public awareness initiative. This will be hosted primarily within the Education Department after the results of the survey have been analysed, and will include a fixed and mobile exhibition and outreach talks and events throughout south Wales. In addition, the development of an interactive CD-ROM and website will involve the Marine Life Information Network - which has recently established a Welsh node in the hands-on Glanely Gallery in the National Museum & Gallery, through the support of the Countryside Council for Wales.

In July 2003, 136 sites were sampled using the University of Wales Bangor ship the *RV Prince Madog*, comprising 114 biological stations, 121 sediment samples and series of 12 underwater video/photographic tows. A team of five is now being employed to sort and help identify the invertebrate animals in these samples.

The effects of extracting sand and gravel from offshore beds in the Bristol Channel is of considerable topical concern. Incorporating a public awareness programme into this scientific research project was an important contributing factor in the success of the application.

Dr Andy Mackie, Head of Marine Biodiversity

M. R. Wilson

Terrestrial invertebrate biodiversity in Galapagos: training and collection (supported by DEFRA)

Darwin funded Papua New Guinea project (in partnership with Sussex University and supported by DEFRA)

Updated handbook to UK Planthoppers (Hemiptera)

New UK Hemiptera checklist

Research on potential vectors of Coconut lethal yellowing disease

Marine

A.S.Y. Mackie

South-west Irish Sea Survey examining seabed diversity and invertebrate distributions. An EU INTERREG project in partnership with University College Dublin and University of Wales, Bangor

Poecilochaetidae from Brazil (in collaboration with Dr Santos, University of Parana, Brazil)

A. S.Y. Mackie and T. Darbyshire

Welsh Sandbanks Survey 2001 (in partnership with CCW and University of Wales, Bangor)

Molecular systematics and taxonomic research on the Spionidae (in collaboration with Dr Halanych, Woods Hole, USA)

A. S.Y. Mackie and K. Mortimer

Benthos of the Irish Sea (supported by the DTI)

A. S.Y. Mackie, T. Darbyshire, K. Mortimer and P. G. Oliver

Seychelles benthic survey (*The Royal Geographical Society-Royal Society Shoals of Capricorn Programme*)

Mollusca

J. Gallichan and H. Wood

Mellville-Tomlin Collection, NMGW Archive Project

A. Holmes

Molecular systematics of freshwater mussels

P. G. Oliver

Deep water bivalves of west of Shetland (supported by UKOOA)

Systematics of *Arcopsis*

Identification Manual to *Thyasira*

P. G. Oliver and A. Holmes

Study of the bivalve taxonomy of the Mascarene Islands (*The Royal Geographical Society-Royal Society Shoals of Capricorn Programme*)

Deep water bivalves from the Oman Margin

M. Seddon

The Molluscan Biodiversity of East African forests

Illustrated Checklist of East African Molluscs from Kenya, Tanzania and Uganda

H. Wood

History of the Melville-Tomlin Collection, NMGW

Cryptogamic Botany

I. Juettner

Diatoms as indicators of eutrophication in Eastern Nepal

Diatom biodiversity in ponds of south Wales

A. Orange

Upland lichen and bryophyte communities of Wales, Scotland and England (supported by CCW, SH and EN)

Merioneth oakwoods lichen survey (supported by CCW)

British lichen flora species

R. Tangney

Taxonomy of the moss genus *Lembophyllum*

Taxonomy of the moss genus *Isoetecium*

Molecular systematics taxonomic research on the moss genera *Isoetecium* (supported by the Linnean Society)

Vegetation History

C. Cleal

Climatic and vegetational changes in the Late Carboniferous tropical belt (NATO Collaborative Linkage Grant)

Systematics of the Westphalian Pteridosperms of the Central Bohemia Coalfield (supported by the Czech Geological Survey)

Systematics of Late Carboniferous Pteridosperms and Fern

B. Evans

Palaeobotany and stratigraphy of the upper Carboniferous coal measures of the Neath and Swansea Valley (supported by CCW)

H. Pardoe

Pollen monitoring programme in Wales

Surface pollen deposition in Arctic-Alpine environments

Vascular Plants

G. Hutchinson

Flora of Carmarthenshire

T. Rich

Collection and determination of apomictic taxa in Wales (collaborative with NMBGW and CCW)

Taxonomic revisions of British and Irish *Sorbus* (supported by / collaborative with EN, RBG Kew, CCW, NBGW)

BSBI handbook on British and Irish Gentianaceae (funded by BSBI)

Bridgend pond survey (supported by BCBC)

Neath-Port Talbot pond survey (supported by BCBC/EAW)

Conservation of *Centaureum scilloides*: distribution, autoecology, syncology and genetic (collaborative with NBGW)

Conservation of *Asparagus prostratus*: autoecology, syncology and genetics (supported by BSBI, National Trust, CCW and EN)

Conservation status of *Hieracium* sect *Alpina*: distribution and IUCN status

Analysis of distribution of *Alyssum alyssoides* and *Berteroa incana*

Conservation

C. J. Buttler

Conservation of Ichthyosaur in NMGW collections

J. Carter

DNA degradation in fluid preserved collections (MPhil, Cardiff University)

M. Davis and L. Mumford

Investigation into mineral inclusions in the Cwmwystwyth, Ceredigion, launders used in Bronze Age copper extraction

W. Gneisinger

Conservation of an explosives tram

P. Hill

Assessment of past iron treatments

C. Mackay

Investigations into the use of pigments on works of art on paper

V. Purewal

Pesticide residues in natural history collections

Geology

M. G. Bassett

Atlas of Silurian palaeogeography and facies evolution of Baltascandia (supported by the Royal Society and Saga Petroleum)

Mid Silurian brachiopods of Wales and the Welsh Borderland Taxonomy and Phylogeny of Cambrian, Ordovician and Silurian brachiopods, mainly from the UK and Scandinavia (supported by the Royal Society and Swedish Academy of Sciences)

Upper Devonian brachiopod faunas from Iran (supported by University of Kerman, Iran)

M. G. Bassett and L. E. Popov

Taxonomic diversity of Cambrian brachiopods from the Middle East Phylogeny and biogeography of Cambrian-early Ordovician brachiopods, especially relating to North Gondwanan terranes The taxonomy and phylogeny of Cambrian, Ordovician and Silurian brachiopods, mainly from UK and Scandinavia

R.E. Bevins

Low grade metamorphism in Wales and related regions

R.E. Bevins and J. M. Horák

Geochemical and petrological study of magmatism in the South-East British Tertiary Igneous Province (support from University of Keele)

R.E. Bevins and J. S. Mason

Detailed investigation of the mineralogy of the Dolgellau Gold Belt, Wales including research of J.W. G. Gilbey Collection

C. J. Buttler

Treatise on Invertebrate Paleontology, Part G. Trepostomata

A. Channing and M. G. Bassett

Taphonomy of plants in hot spring environments

A. Channing and M. G. Bassett

Silurian micromorphic brachiopods

W.T. Dean

Lower Palaeozoic correlation and faunas in Turkey and the Middle East (Honorary Research Fellow) (supported by Turkish Petroleum)

Ordovician trilobite faunas of the Pupiao Formation in West Yunnan, South-West China (supported by the Royal Society)

Treatise on Invertebrate Paleontology: taxonomy of several Cambrian and Ordovician trilobite groups

Review of the Harnagian Stage in south Shropshire

J. M. Horák

Mines and mineralogy of south-eastern Wales

Provenance of Early Christian monuments of southern Wales

Preliminary investigation of the Zn-rich amphiboles from Mynydd Mawr, north Wales

H. Jackson

Investigations into the mineralogy and petrology of artefacts and sediments from the Lower Palaeolithic site of Pontnewydd Cave, north Wales (M.Phil University of Wales, Bangor).

H. Kerbey

Challinor collection and other specimens of marked rocks

M. O'Regan

Cambrian monoplacophorans

R. M. Owens

Taxonomy and phylogeny of Carboniferous trilobites from Britain and Ireland

Taxonomy and phylogeny of Ordovician-Devonian proetordeal trilobites

Treatise on invertebrate paleontology

L. E. Popov and M. G. Bassett

Ordovician brachiopods of Central Kazakhstan

T. Sharpe

History of geology

Industry

R. Davies and E. Lile

The Welsh toy industry

D. Jenkins

'Llongau'r Chwarelwyr'? Investments by slate quarrymen in shipping in the late nineteenth century

Llongau Pwllparc, Rag & Bones Jones a'r Welsh Greeks - rhai o berchnogion llongau Cymreig Caerdydd

The Power of the Sea: maritime Wales (Exhibition, National Waterfront Museum, Swansea)

The Power of Networks: transport in Wales (Exhibition, National Waterfront Museum, Swansea)

The Power of Coal: the significance of the Welsh coal trade (Exhibition, National Waterfront Museum, Swansea)

R. Protheroe Jones

Welsh iron industry

The Power of the Land: mining and quarrying in Wales (Exhibition, National Waterfront Museum, Swansea)

The Power of Metals: the world-wide significance of Welsh metal exports and related migration (Exhibition, National Waterfront Museum, Swansea)

The Power of Transformations: the smelting of metals in Wales (Exhibition, National Waterfront Museum, Swansea)



Post-1945 Agriculture in Wales research project

In order to continue to fulfil its role in recording, presenting and interpreting the agriculture of Wales, the Museum of Welsh Life considers it essential to enhance and substantially increase the store of information about the huge developments that have happened from 1945 to the present. It could be argued that this period, described by some historians as the Second Agricultural Revolution, has seen more significant and rapid changes in agriculture than in any other period. These have included dramatic increases in production and prosperity, but also decreases in the numbers of farms and of people working on the land, mechanisation, government intervention, changing consumer demands and increasing concerns about 'industrial' methods of production. These changes, which continued at an increasing pace owing to the Foot and Mouth outbreak, are having long-term consequences for the countryside and the social and cultural life of the people who live there.

The research has been concentrated initially in the former county of Glamorgan, with a range of interviewees representing different types and aspects of farming, such as a dairy farmer, a sheep farmer, a farm worker and a brother and sister who farmed together. It includes women farmers and farmers' wives. Their role has evolved considerably, from being perceived as mainly responsible for keeping the house to sometimes being an essential breadwinner during the agricultural depression of the last decade. The enjoyments, rewards, and difficulties will be explored from the viewpoint of younger farmers.

The Museum is very pleased to be working in partnership with CARAD at Rhayader to record farming at the Cilewent farm in the Elan Valley before it was re-erected at St Fagans, and with the Voices of Agriculture project at Trinity College, Carmarthen. In order to put the recordings in better context, the project also includes photographing farms and, where possible, farm activities, as well as copying old photographs, receipts and farm accounts if available. The Museum of Welsh Life photographer and I look forward eagerly to photographing, recording and quite probably participating in morning milking at a dairy farm near St Nicholas, where the working day starts at 5.00 a.m.

Gareth Beech, Assistant Curator, Rural Life

Social & Cultural History

G. Beech

Agriculture in Wales since 1950 (Museum of Welsh Life, Agricultural Gallery)

E. Davies

Sampling original lacquers on vernacular furniture (with Cardiff University)

R. Gwyndaf

A substantial publication on Welsh folklore drawing on fieldwork material collected for Museum of Welsh Life archives

A web-based exhibition of Welsh tradition bearers and the repertoires of stories

E. Lile

Rural sports in Wales, 1750-1900 (PhD, University of Glamorgan)
 The Power of Organisations (Exhibition, National Waterfront Museum, Swansea)
 Welsh music tradition (Exhibition, Material Culture Gallery, Museum of Welsh Life)

M.W. Sutherland

The Power of Communities (Exhibition, National Waterfront Museum, Swansea)
 Food in Wales

S.W. Hughes

The Power of Money (Exhibition, National Waterfront Museum, Swansea)

S. N. Williams

Revision of catalogue of Welsh Clock and Watch makers (website database)

Publications

Comprehensive lists of publications are included with the departments' reports. Altogether, during 2002-03 our staff produced:

- Peer-reviewed papers 59
- Academic books/monographs 10
- Popular publications, including electronic media 53

Research grants and sponsorship

- CCW to support research on Late Westphalian palaeobotanical and stratigraphical sites in south Wales.
- CCW for collaborative Welsh Sandbanks Survey.
- CCW to facilitate the Merioneth Oakwoods Lichen Survey.
- CCW and English Nature to facilitate a survey of Upland lichen and bryophyte communities of Wales, Scotland and England.
- CCW to support a baseline survey of diatoms in the Wye Valley.
- Environment Agency, Bridgend and Neath-Port Talbot CBCs to support pond surveys.
- DEFRA (Darwin Fund Initiative) to facilitate entomological research and taxonomic capacity building in Galapagos and Papua New Guinea.
- Getty Program for Richard Wilson paintings survey.
- IGCP Project 469 (UNESCO) - Variscan terrestrial biotas and palaeoenvironments.
- Paul Mellon Centre for British Art for Thomas Jones exhibition catalogue and international seminar.
- NATO Collaborative Science Programme Project Climatic and vegetational changes in the Late

Carboniferous tropical belt.

- Pilgrim Trust for National Inventory of Old Master collections in South Wales galleries.
- UK Oil Operators Association (UKOOA) to facilitate taxonomic research on spionid polychaetes and the taxonomy of selected deep water bivalves from Shetland Island region.
- University of Kerman, Iran funded geological fieldwork.

Prizes and awards

- *Art in Exile* was one of six catalogues shortlisted for the first W. M. Berger prize for British Art History 2002 in association with the *British Art Journal*.
- Edward Besly was awarded the British Numismatic Society's Sanford Saltus Gold Medal for his major contribution to numismatic science through his published work.
- Dr Mark Redknap won the Ancient and Medieval History Book Club Archaeological Book Award for *Vikings in Wales: an Archaeological Quest* at the British Archaeological Awards 2002.
- Dr Mark Redknap was awarded the G. T. Clark prize by the Cambrian Archaeological Association in 2002 for his research contribution to the early medieval archaeology of Wales.

Esteem: wider role in the research community**Directorate****Eurwyn Wiliam**

Honorary Professor, School of History and Archaeology, University of Wales Cardiff; Member, Historic Buildings Council for Wales; Vice-Chairman, Royal Commission on the Ancient & Historical Monuments of Wales, and Chairman of the Survey Committee; Chairman, Folk Life Section, Guild of Graduates of the University of Wales; External examiner, MA Heritage Management Course, University of Wales, Bangor

John Williams- Davies

Honorary Lecturer, Department of Welsh, Cardiff University; Board Member, Assoc. of European Open-Air Museums; Member Advisory Panel of the Visual Culture of Wales Project, University of Wales Centre for Advanced Welsh & Celtic Studies; Member of Court, University of Wales, Aberystwyth.

Mike Tooby

External examiner, MA Museum and Gallery Management course, City University, London

Archaeology & Numismatics

R. J. Brewer

Honorary Lecturer, School of History and Archaeology, Cardiff University; Member, Ancient Monuments Board for Wales; Member, Editorial Committee, Roman Society; Member, Archaeology Committee, Roman Society; Editor, 'Archaeological Notes', *Morgannwg*

E. M. Besly

Honorary Lecturer, School of History and Archaeology, Cardiff University; Member, Council of the British Numismatic Society

S. Burrow

Senior Research Associate, Bournemouth University

M. Davis

Member, Archaeology Committee of the Historical Metallurgy Society

M. Redknap

Honorary Lecturer, School of History and Archaeology, Cardiff University; Member, Advisory Committee on Historic Wrecks; Member, Council of Society of Antiquaries of London; Member, Medieval Archaeology Society Council; Archaeological Advisor, Diocesan Advisory Committee, Diocese of Monmouth; Cathedral Archaeologist, Llandaff; President, Coventry and District Archaeological Advisor

E. A. Walker

Member, Committee of the Lithic Studies Society; Member, Committee of the Society of Museum Archaeologists; Member, Severn Estuary Levels Research Committee; Advisor, Cadw project on Prehistoric Non-defensive Settlement Sites (lithic scatters).

Art

O. Fairclough

UK museums representative, Antique Plate Committee, Worshipful Company of Goldsmiths; Editor, *Journal of the French Porcelain Society*; Expert Advisor; Acceptance in Lieu Panel, Resource; Independent Assessor; Reviewing Committee on the Export of Works of Art

K. Lowry

Chair, Paintings section; UKIC; Member of Council, UKIC; Member, Co-ordination Committee and Accreditation Committee, UKIC

J. Pinkham

Past-chair, Ceramics and Glass section, UKIC

A. Renton

Member, Scholarship Committee, Attingham Trust

A. Sumner

Member, Steering Committee, National Gallery / Pilgrim Trust, National Inventory of Old Master Paintings project

Biodiversity & Systematic Biology (BioSyb)

P. G. Oliver

Member of Council, Conchological Society of Great Britain & Ireland and Editor of *Journal of Conchology*; Member, Wales Biodiversity Group, Welsh Assembly Government; Honorary Lecturer, Dept of BioSciences, Cardiff University; Honorary Lecturer, Dept of Ocean Sciences, Bangor University; Member, UK steering groups for lowland freshwater molluscs; Member, UK steering groups for Freshwater Pearl Mussel; Board member for *Natur Cymru*

C. Cleal

Member/co-Chair, Scientific Committee for the 6th European Conference on Palaeobotany and Palynology (Athens, August 2002); Secretary, British Institute for Geological Conservation; Corresponding Member, IUGS Subcommission on Carboniferous Stratigraphy. Editorial Board member of *Journal of Systematic Palaeontology*

A. Holmes

Associate Editor, *Journal of Conchology*

P. Howlett

Secretary, Bird Observatories Council; Council member, Bardsey Bird and Field Observatory

A. S. Y. Mackie

Secretary/Treasurer, International Polychaetology Society; Member, Steering Committee for the Marine Life Information Network (MarLIN), Member of Council, Porcupine Marine Natural History Society; Member, International Union of Biological Sciences (IUBS) liaison group

A. Orange

Member, British Lichen Society Lichen Flora Steering Group

H. Pardoe

Bibliography Database Manager and Joint British Co-ordinator, International Pollen Monitoring Programme

T. Rich

Council member, Ray Society

M. Seddon

Chair: Mollusc Specialist Group IUCN (World Conservation Union) Species Survival Commission 2000-2004; Member of Council, Conchological Society of Great Britain & Ireland 2002-2005; Honorary Research Associate, Royal Holloway & Bedford New College.

R. Tangney

Council member, Systematic Association; Council member, British Bryological Society

Conservation

R. E. Child

Member, conservation panel, CILIP

V. Purewal

Editor, ICOM *Natural History Collections Working Group newsletter*

Geology

M. G. Bassett

Member, International Subcommission on the Stratigraphy of the Ordovician System. - (with Leonid Popov); Member, International Subcommission on the Stratigraphy of the Silurian System; Member, Court of Governors, University of Swansea; Member of British Geological Survey advisory board for Wales; Member, advisory board of Estonian Academy of Sciences; Member of advisory board of visitors of Oxford Museum; Honorary life member of the South Wales Geological Association; Honorary Professor, Department of Earth Sciences, Cardiff University

R. E. Bevins

Honorary Lecturer, Dept. Earth Sciences, Cardiff University

C. J. Buttler

Council member, Palaeontographical Society

T. Cotterell

Committee member, Wales & West branch of the Russell Society

J. M. Horák

Committee member, Professional Committee of the Geological Society of London; Treasurer, Welsh Stone Forum;

S. Howe

Rhondda Cynon Taf Earth Science Audit Committee

R. M. Owens

Honorary Lecturer, Dept. Earth Sciences, Cardiff University, Trustee of Ludlow Research Group

Industry

D. Jenkins

Council member, Powysland Club; Committee member, South Wales Record Society; member of the UK Maritime Curators' Group; member of the International Congress of Maritime Museums; Vice-President of the World Ship Society; co-editor of *Cymru a'r Mor/Maritime Wales*; Secretary to the Cardiff & Bristol Channel Incorporated Shipowners' Association

R. Protheroe Jones

Member, Welsh Industrial Archaeology Panel

C. Thompson

Member, Coal Curators Group

Library

J. R. Kenyon

Honorary Lecturer, School of History and Archaeology, Cardiff University; Assistant Editor, *Post-Medieval Archaeology*

Social & Cultural History

B. Thomas

Chair, Oral History Society (UK); Honorary Lecturer, Department of Welsh, Cardiff University; Member of steering group for The UK Audiovisual Archive Strategy, funded by Re:Source; HLF expert advisor on oral history

G. Nash

Chair of Welsh Mills Society; Committee member, Society for the Protection of Ancient Buildings, Mills section; Secretary, The International Molinological Society; Council member - ICOMOS (UK) Earth Structures Committee; Committee member, Historic Farm Buildings Group; member of Welsh Industrial Archaeology Panel; external verifier for University of Glamorgan Building Conservation course; external examiner for Royal Institute of Chartered Surveyors course at University of Reading and DeMontfort University MA course

C. Stevens

Secretary, Group for Costume and Textile Staff in Museums (specialist group of Museums Association); Committee member: The Costume Society of Great Britain; Costume committee of ICOM (co-ordinator of international costume bibliography); UK national representative on Ethno Working party for CIDOC (ICOM documentation committee); National advisor MDA Spectrum (costume and textile collections); Curatorial Advisor (for MGC registration) to the Welsh Museum of Health and Medicine committee of Trustees; Curatorial Advisor to Judges Lodging Museum, Presteigne.

R. Gwyndaf

International Board member: European Centre for Traditional Culture, Budapest

C. Stoughton-Harris

Chair of committee, Textile section, UKIC; Textile representative on UKIC Accreditation Committee

E. Davies

Committee member, UKIC Furniture section

D. Jones

NMGW representative, Welsh Sports Hall of Fame Committee

E. Lile

Regional Network Representative, Oral History Society

S.W. Hughes

Member, History of Medicine Forum (advising on the research of the History of Medicine in Wales).



Furthering research - FTIR

(Fourier-transform infrared spectrometry)

A recent review of conservation services at NMGW recommended the provision of in-house analytical services appropriate to a national museum. Staff already had access to a state-of-the-art Scanning Electron Microscope (SEM), jointly purchased with Cardiff University, which enables the detailed examination of inorganic materials. The next priority in developing analytical facilities, and to complement the SEM, was the purchase of a piece of equipment specialising in the analysis of organic materials.

In Spring 2003, on the recommendation of the Research Requirements Board, NMGW procured a Perkin Elmer Fourier-transform infrared spectrometer (FTIR) with a microscope attachment. Infrared spectrometry is used for the qualitative

analysis of organic materials such as coatings, varnishes, dyes, fibres, resins etc. It measures the absorption of infrared radiation by vibrating atoms of the molecules within a sample and so provides details of the types of chemical bonds present. The FTIR uses an 'interferometer' to generate infrared radiation of different wavelengths, and by employing a combination of moving and stationary mirrors and a computer to perform complex calculations, a spectrum of absorbency versus wavelength is produced. The resulting spectra can be compared and matched with those of known substances stored in various database libraries.

The correct identification of organic materials is an essential requirement in both caring for and understanding the objects and specimens in our collections. The FTIR will be of benefit to most curatorial departments, but will particularly enhance our understanding of 'modern' materials, such as plastics, contained within our social and industrial history collections.

Already the identification of old resins and adhesives used in previous repairs has enabled the best conservation treatments to be applied to ancient ceramics and sub-fossil bone; while historic coatings on artefacts from the industrial collections and the pigments used for nineteenth-century paintings have been examined and identified. Future projects envisaged include the analysis of dyes, the examination of preserved natural science specimens and research into the degradation of plastics and rubbers. With access to this piece of equipment, curators and conservators in all departments will be able to study key aspects of the materials within the collections in more detail than previously.

Julian Carter (Conservator, BioSyB) and Mary Davis (Conservator, Department of Archaeology & Numismatics)

Research partnerships

Aberdeen University
 American Museum of Natural History
 Anburn University, Alabama, USA
 Appalachian State University, North Carolina
 Board of Celtic Studies
 Botanical Garden, Madeira
 Botanical Institute, University of Bonn
 Botanical Society of the British Isles
 The British Museum
 Bulgarian Academy of Sciences
 Cadw: Welsh Historic Monuments
 Cardiff University
 Charles Darwin Research Station, Galapagos
 Countryside Council of Wales
 Czech Academy of Sciences
 Czech Geological Survey
 English Nature
 Geological Survey of West Virginia
 Institute of Botany, Estonia
 Institute of Botany, Switzerland
 Institute of Geological Sciences, Almaty, Kazakhstan
 Landcare Research New Zealand
 Manchester Museum
 Museum of the Rockies, Montana
 National Botanic Gardens, Pretoria
 National Gallery, London
 National Museums of Kenya
 National Museums of Scotland
 National Museums of Tanzania
 National Botanic Garden of Wales
 The Natural History Museum
 Oulu University, Finland
 Oxford University Museum of Natural History
 Royal Botanic Gardens Kew
 Royal Commission on the Ancient and Historical Monuments of Wales
 Scottish Natural Heritage
 Trinity College, Dublin
 Universidad de Buenos Aires
 Universidad de Chile, Santiago

University College of Cape Breton
 University of Bristol
 University of Chicago
 University of Exeter
 University of Kerman, Iran
 University of Leicester
 University of Osnabruck, Germany
 University of Oulu, Finland
 University of Uppsala, Sweden
 University of Wales, Aberystwyth
 University of Wales, Swansea
 West Bohemia Museum
 Yale University Press

Use of the collections

External researchers consulting collections:

Archaeology & Numismatics	
48 researchers	94 visits
Art	
85 researchers	
Biodiversity & Systematic Biology	
292 researchers	394 visits
Geology	
53 researchers	81 visits
Industry	
60 researchers	
Social & Cultural History	
85 researchers	

Archaeology & Numismatics



The Department of Archaeology & Numismatics is one of the primary bodies in Wales concerned, through its collection and preservation of antiquities, with the comprehensive interpretation of Wales's past. It promotes the archaeology of Wales through its public galleries, exhibitions and events, as well as through the high profile gained by its research and fieldwork. As such, it plays an important part in raising the consciousness of the people of Wales, whose identity is rooted in their archaeology and history.

The high standard of the work of the Department was recognised with the presentation of a number of prestigious awards. Edward Besly, who is responsible for the coins and medals collection, received the British Numismatic Society's John Sanford Saltus Medal. Established in 1910, the award is presented every three years to the member who has made a major contribution to the study of coins and medals through the Society's publications. This award recognises Edward's wide-ranging work on Roman and medieval coinage and the Civil War mints at York, Truro and Exeter. The citation acknowledges Edward's 'impressive contribution to numismatic scholarship and to the popular dissemination of its results'.

Vikings in Wales: an Archaeological Quest by Dr Mark Redknap won the Ancient & Medieval History Book Club's Archaeological Book Award at the prestigious British Archaeological Awards 2002. The book, which explores the impact the Vikings had in Wales using historical and recent archaeological evidence, was selected as the winner from over sixty nominations. It was described as 'an outstanding book that brought British archaeology to the widest audience'. The judging panel stated in their citation that: 'The author deserves the fullest congratulations for his lively and visually exciting treatment of new discoveries that have transformed our knowledge of the early medieval period in Wales. The combination of new research and compelling narrative integrated with colour photographs of sites and artefacts, maps and reconstruction drawings sets a new standard in museum archaeological publication'. Dr Redknap was also awarded the Cambrian Archaeological Association's G.T. Clark Prize for the quality of his research into early medieval Wales.

The exhibition *Re-Creations: Visualizing our Past*, developed in collaboration with Cadw, ran from 27 April until 1 September 2002. It explored how the art of reconstruction has developed through time, revealing the collaboration between artist, historian, archaeologist, anthropologist, forensic scientist and ecologist. These visual interpretations of the past, based on archaeological evidence collected from fieldwork, took the form of dramatic and detailed paintings, models and facial reconstructions. The British Museum also lent its full-size reconstruction of an Iron Age chariot, which featured in the BBC programme *The Chariot Queen*, part of the *Meet the Ancestors* series. National Archaeology Days (21-22 July)

featured re-enactment, with demonstrations of weaponry by thirteenth-century knights and the medicine of a barber surgeon. After a very successful run in the National Museum & Gallery in Cardiff the exhibition toured to Oriel Ynys Môn, Llangefni under the scheme Cyfoeth Cymru Gyfan-Sharing Treasures. A richly illustrated book that expanded on the theme of the exhibition was published jointly with Cadw, and launched by Jenny Randerson AM (then Minister for Culture, Sport and the Welsh Language) at the opening of the exhibition in Llangefni. It is also planned to show a version of the exhibition under the partnership scheme at Wrexham County Borough Museum.

The Department also co-operated in the development of a prestigious international exhibition held at the Kentucky Horse Park, USA. A selection of prehistoric and medieval artefacts were loaned to the exhibition *All the Queen's Horses*, which celebrated the role of the horse in British history. Items loaned included some of the earliest and most elaborate examples of horse harness and chariot pieces from Britain.

Looking after the collections entrusted to our care is a very high priority for NMGW. The fundamental work of stewardship, conservation, curation and documentation underpins many other museum activities. The Department made excellent progress in 2002-03, with a further 30,904 artefacts being repackaged and their records entered onto the computerised Collections Management System; 68.7 per cent of the archaeological collection held in the National Museum & Gallery has now been documented to inventory level or above. In 2002-03, work continued on the Palaeolithic and Roman collections, the Iron Age, medieval and post-medieval collections and on curating the Henry Stopes Collection of Prehistoric stone tools, which comprises the largest single collection of Palaeolithic implements from Britain. This work is built on a research project being undertaken by Southampton University, which is funded from the Aggregates Sustainability Levy Fund.

72.4 per cent of the coins and medals collection has now been documented. In 2002-03, all the eighteenth-century British tokens were documented and all the British campaign and gallantry medals were documented.



Treasure

In April and May 2002, a hoard of 199 silver pennies was found by metal detectorists on farmland in the Abergavenny area of Monmouthshire. The hoard was declared Treasure at a coroner's inquest on 26 June and has since been acquired for the national collection. It contains 130 coins of the Anglo-Saxon king Edward the Confessor (1042-65) and 69 of the first Norman king, William I (William The Conqueror, 1066-87) and was deposited some time during the 1080s. This is the first early Norman hoard to be recorded from Welsh soil and comes from an area that was overrun by the Normans fairly rapidly following the conquest of England.

Saxon and Norman coins were produced at a network of mints in England (and in Wales from the 1080s, though there are none in the hoard). The big mints of London and Winchester are well represented, but pride of place goes to the 'local' mints of Hereford (thirty-three coins) and Bristol (twenty-four coins). Rare mints represented include Bridport (Dorset), Cricklade and Taunton and the hoard displays a distinctly regional character. The coins were found heavily encrusted with iron pan, which has preserved evidence that they were contained in a cloth bag. Full study of the hoard will contribute significantly to our knowledge of minting and circulation in the area in the

early days of Norman rule. How and why the hoard came to be buried where it did will never be known.

Another significant acquisition was an Early Bronze Age (2300-1500 BC) halberd and a tanged spearhead, both from Llanfachreth, near Dolgellau. The halberd, one of only ten known from Wales, was discovered in 1826 and for a long time formed part of an antiquarian collection.

The Portable Antiquities Scheme in Wales, which encourages the voluntary reporting of archaeological objects found by metal detectorists and other members of the public, is contributing significantly to our understanding of Wales's past. There have been a number of notable discoveries, including a remarkable amount of Late Bronze Age metalwork recovered from south-east Wales. Five hoards were recovered from the Vale of Glamorgan, while two others came from Torfaen and Monmouthshire. The bulk of this metalwork, nearly 250 pieces in total, was deposited during the Ewart Park phase of the Late Bronze Age (c. 950-750 BC). These assemblages are the subject of detailed study and research, including analysis using the Scanning Electron Microscope shared with Cardiff University, in order to produce a regional synthesis of Late Bronze Age metalwork and deposition. A rare Roman 'donkey-mill', which had been reported under the Portable Antiquities Scheme, is now on display in the National Museum & Gallery. Used by the Roman army for milling flour on a large scale, it was found at the early Roman fort at Clyro, near Hay-on-Wye, Powys

The Forum of National Museum Archaeologists, including representatives from NMGW, the British Museum, National Museums & Galleries of Northern Ireland, National Museum of Ireland and National Museums of Scotland, met at the National Museum & Gallery, Cardiff, in November 2002. The main theme was the role of the museum catalogue and how the work of curation and documentation enables greater access to the collections.

NMGW, The Council of Museums in Wales and the Royal Commission on the Ancient and Historical Monuments of Wales joined forces in an initiative to examine the body of

evidence retrieved from archaeological investigations, which is crucial to understanding Wales's past. This partnership commissioned a study to assess the physical condition of and access to archaeological collections and supporting records in Wales. The resulting report provides an invaluable source of data for museums and other heritage bodies, as well as the Welsh Assembly Government, to help plan the future needs for archaeological storage and also promote the value of the archaeological archive (see *What's in Store?*, page 12).

NMGW plays a vital role in the operation of the Treasure Act, providing Coroners with expert advice. Eleven discoveries



Bronze Age hoard discovered

The Portable Antiquities Scheme encourages finders who have uncovered anything exciting, fragile or complex to contact an archaeologist to help carefully dig it out and, most importantly, record the context. During August 2002 the Finds Co-ordinator for Wales was contacted to report the discovery of two important Late Bronze Age metalwork assemblages found with the aid of metal detectors on farmland in the Vale of Glamorgan. Jeff Collier reported a scattered hoard recovered from ploughsoil and informed us that a second, more substantial assemblage was found largely undisturbed beneath the ploughsoil. The finder, Alan Jenkins, recognised the importance of the discovery and left the pieces in the ground. The Finds Co-ordinator was able to conduct a small excavation with the help and support of the finders, the landowner and other Museum staff and was able to deduce that both assemblages were probably placed or thrown into the edge of wetlands some time between 950 and 750 BC. The two hoards contain a variety of complete and fragmentary tools and weapons, including axes of various types, swords and spears. The metalwork demonstrates a number of interesting and apparently deliberate damage patterns.

Death and Burial

The conservation and display of a Roman stone coffin at the Roman Legionary Museum, Caerleon, also featured in the BBC series *Treasure House*. The fragmentary Bath stone coffin was discovered during mechanical digging of foundations for an extension to the University of Wales, Newport campus above Caerleon in 1995. An extensive cemetery, comprising cremation and inhumation burials, is known to exist to the north of the fortress.

Anatomical analysis showed that the coffin contained the remains of a man who had died at about forty years old. The cause of death is unknown, but he did have dental abscesses, caries and periodontal disease. Radiocarbon dating of the skeleton showed that he had been buried around AD 200. Grave goods in the coffin comprised a shale bowl and a small glass vessel. Until about AD 150, cremation was the standard funerary practice in most of the Roman Empire. Thereafter, inhumation begins to appear in the archaeological record, a practice probably linked to the growth of eastern mystery cults, which promised their devotees a more satisfactory after-life. This new exhibit, which demonstrates changing ideas in the Roman world, has proved to be very popular. Funds allocated from public donations enabled its reconstruction and display to proceed.



A National Reference Collection of Roman Pottery

NMGW holds the most extensive collection of Roman pottery from sites in Wales. This substantial archive is stored on a site-specific basis, which is ideal for those accessing individual site assemblages, but does not assist those with other interests, such as researchers studying different fabrics. There seemed considerable merit, therefore, in creating a Roman Pottery fabric typology, which would provide faster and more efficient access to the Roman pottery site assemblages. Nigel Blackmore, under the supervision of Dr Peter Webster (Cardiff University and NMGW Honorary Research Fellow), was appointed to undertake the project.

The study identified and recorded the significant coarse and fineware ceramic fabrics that have been found in Wales. Descriptions of the fabric, surface treatment, decoration and production techniques were recorded. Basic distribution maps were produced to indicate where each fabric could be found in Wales. All significant forms, within each fabric's chronological sequence, were illustrated and the entry is completed with a discussion of its origin. It is hoped further study will enable

were declared Treasure during 2002-03, including a spectacular hoard of silver pennies, buried or lost after about AD 1080, found near Abergavenny, Monmouthshire (see Treasure, below). Visitors also had the opportunity to view the Monkash Treasure as a temporary display in the Coins and Medals gallery. This second-century AD hoard of Roman silver *denarii* was declared treasure in 2001 and also featured in the BBC television series *Treasure House*.

The Department also had a high media profile during the year and featured in the behind-the-scenes documentary series *Treasure House* broadcast on BBC2 Wales. Staff also contributed to the popular series *Reading the Ruins*, an archaeological history of Wales on BBC1 Wales and *Talking Stones*, shown on ITV Wales, which looked at some of the fascinating stories behind gravestones.



these distributions to be refined and analysed to identify trade routes and patterns.

The different fabrics of Roman pottery have been collected together from site assemblages throughout Wales. This national reference collection has already been used by researchers and the project should continue to facilitate and inspire further research into Roman pottery studies in Wales. It is hoped to produce a handbook to the reference collection, which should promote access and provide more effective use of the pottery resource by both researchers and the general public with an interest.

This project was funded by a bursary from the Friends of NMGW, with further financial support from the Departments of Archaeology & Numismatics and Education and the School of History and Archaeology at Cardiff University.

NMGW is committed to continuing professional development and several members of staff in the Department of Archaeology & Numismatics are undertaking postgraduate degrees and professional qualifications. In 2002-03, Dr Steve Burrow attained the Associateship of the Museums Association, and Nigel Blackmore (Friends of NMGW student) was awarded his M.Phil by Cardiff University for his thesis *A Fabric Type Series of Roman Pottery in Wales*, which was undertaken to aid access to the collections (see National Reference Collection of Roman Pottery, below). Evan Chapman was about to submit his M.Phil thesis *Roman Military Equipment in the Collections of the National Museum of Wales* (Cardiff University), whilst Elizabeth Walker embarked on a research degree on Aspects of Change in Museum Collecting Practice during the Twentieth Century (University of Wales, Lampeter).

Department of Archaeology & Numismatics staff list

National Museum & Gallery, Cardiff

Keeper, *Richard Brewer*

Assistant Keeper (Numismatics), *Edward Besly*

Curator of Earlier Prehistory, *Dr Steve Burrow*

Curator of Later Prehistory, *Adam Gwilt*

Curator of Medieval & Later Archaeology, *Dr Mark Redknap*

Collections Manager, *Elizabeth Walker*

Curatorial Assistant (Stopes Project), *Tim Ace*

Curatorial Assistant, *Nigel Blackamore*

Curatorial Officer, *Evan Chapman*

Curatorial Assistant, *Jody Deacon*

Archaeological Conservator, *Mary Davis*

Archaeological Conservator, *Penny Hill*

Archaeological Conservator, *Louise Mumford*

Conservation Student Placement (University of Durham),
Felicity Woor

Senior Illustrator, *Tony Daly*

Illustrator, *Jackie Chadwick*

Research Room, *Dr Peter Guest*

Finds Co-ordinator: Wales, *Mark Lodwick*

Honorary Research Fellow, *Dr Peter Webster*

Honorary Research Fellow, *Dr David Williams*

Administrative Officer, *Shanon Deal*

Administrative Assistant, *Charlotte Gape*

Roman Legionary Museum, Caerleon

Curator, *Bethan Lewis*

Curatorial Assistant, *Mark Lewis*

Curatorial Officer, *Julie Reynolds*

Publications by Department of Archaeology & Numismatics staff

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Art



The Department of Art cares for, researches and presents the Welsh national collection of fine and applied art. This is both a unique resource documenting the history of art in Wales since the sixteenth century, and a major international collection of British and European art. We place great importance on making the collections we hold available to as wide an audience as possible through display and temporary exhibitions at the National Museum & Gallery and elsewhere.

As well as delivering a high-profile exhibition programme, the Department of Art made some notable acquisitions in 2002-03 and completed two other major projects, the Getty-funded survey of paintings attributed to Richard Wilson, and a web-based summary catalogue of oil paintings and sculpture in the collection. The year also saw the long-awaited transfer to NMGW of a major part of the collection of modern art formed by the Arts Council of Wales, our participation in the BBC Wales television series *Treasure House*, and the second stage of a public consultation on the future display of the fine and applied art collections. With the notable exception of a fine seventeenth-century landscape by Adam Pynacker, acquisitions focused principally on modern and contemporary art, and included major works by two leading British artists, Leon Kossoff (b.1926) and Rachel Whiteread (b.1963).

Leon Kossoff is usually seen as belonging to a post-war figurative tradition, and grouped with Francis Bacon, Lucian Freud, Frank Auerbach and Michael Andrews, sometimes described as the School of London. A painter of portraits and of the urban landscape, Kossoff moved his studio to a garage at Willesden Junction in 1961, and then in 1966 to his home at Willesden Green, near a vast, windswept network of railway lines. His paintings are often large, and are in a heavily worked Expressionist style. The purchase of *From Willesden Green, Autumn*, 1991, (for £140,000 with support from the Derek Williams Trust and the Knapping Fund) completes our representation of the School of London painters.

The plaster and polystyrene sculpture *Untitled (History)*, 2002 is one of a number of works that Rachel Whiteread has produced by casting the spaces around bookcases. The casting of bookcases in both negative and positive form is a relatively recent development in her art and denotes a shift from concerns with the notion of personal, individual memory to the idea of collective, historical memory. In *Untitled (History)*, books represent not only the written word but also ideas and emotions. The works produced by casting books vary greatly in size; from pieces such as this, which comprises four units, to casts of whole rooms. *Untitled (History)* is more plastic than earlier works on this theme, and introduces discreet areas of colour. It also refers to one of Whiteread's most powerful recent public sculptures, the *Holocaust Memorial* in Judenplatz, Vienna. It was purchased from the artist through the Anthony d'Offay Gallery for £120,000, two-thirds of the cost being met



by the Derek Williams Trust and the National Art Collections Fund. It is a significant addition to the Museum's growing collection of contemporary British art and is the first work to enter the Cardiff collection by one of the 'Young British Artists'.

The arrival of 450 works from the art collection formed by the Arts Council of Wales and its predecessors between 1951 and the 1980s has significantly extended our outstanding holdings of mid-twentieth-century Welsh art. Lacking a space to display the collection, the Arts Council has long sought to devolve it to museums and galleries in Wales. Following a selection and bidding process, nearly a third of it has now been transferred to us as a conditional gift. Following conservation and integration into the collection, some works will be shown from 2005.



Adam Pynacker's *Landscape with Arched Gateway*, of around 1654, is a major work by a Dutch artist who travelled to Italy and was much influenced by the light and scenery of the Roman Campagna. It was purchased in 1861 by Colonel Edward Douglas-Pennant, later 1st Lord Penrhyn, who used the spectacular fortune he derived from the slate industry to amass one of the finest collections of Old Master paintings formed in Britain during the nineteenth century. This was hung at Penrhyn Castle, near Bangor, now owned by the National Trust, and the painting has been bought jointly with the National Trust with the help of a tax concession. It will be shown for five-year periods at the National Museum & Gallery, where landscape has long been a dominant theme, and at Penrhyn Castle. NMGW holds a large collection of miniature portraits, primarily of Welsh sitters, and we were therefore delighted to be given a further nineteen from the Nicholl and Carne families. As a result of research on Thomas Jones, we also purchased another of his oil sketches of Radnorshire, *A Field near Pencerrig* of 1775-6.



The Department also purchased three pieces of silver, all from Welsh collections; a silver gilt communion cup of around 1667 from the chapel of Christ College, Brecon, a cup of 1806 associated with Abernant ironworks, Glamorgan, and an extraordinary pair of silver candlesticks of 1840 from Nannau, near Dolgellau, in the form of Tudor chimney stacks. Bequests included a collection of English and Welsh porcelain of the early nineteenth century from the late Lynne Price. Major pieces of contemporary ceramics by Claire Curneen, gold medal winner at the 2001 National Eisteddfod, and by Ewen Henderson were also acquired.



In the Conservation section, Kate Lowry, Chief Conservation Officer, and Rachel Turnbull, Assistant Oil Paintings

Conservator, completed a two-year examination of all our paintings attributed to Richard Wilson (see The Getty Program-funded Wilson survey, below). They also researched Thomas Jones's materials and techniques and conserved a number of works including Adam Pynacker's *Landscape with Arched Gateway*. The Paper Conservation staff worked extensively on Japanese prints as well as on material for the Thomas Jones exhibition, and the Applied Art studio treated a range of ceramics, silver and sculpture.

Much effort recently has gone into the redocumentation of our 15,000 drawings and watercolours. The task was finally completed in 2002-03, providing computerised records for this area of the collection. Now that this essential foundation is in place, we can provide structured information on this relatively little-known aspect of the collection. Similarly, a list of all 2,000 oil paintings and sculptures was placed on our website, with brief biographical information on the 900 artists represented and images and information on the principal works.

The Getty Program-funded Wilson survey

As a result of a recent survey, we now believe our holdings comprise twenty-two paintings attributed to Richard Wilson (1713-1782) and a further twenty-three attributed to his followers. Since 1912, the Museum devoted a substantial proportion of its modest acquisition budget to building a collection of Wilson's work. Although some of these early acquisitions are by Wilson's followers, our collection includes examples of the artist's finest works.

The aims of the project, apart from determining the condition of the individual paintings, were to find out more about Richard Wilson's materials and technique and to establish the likely authenticity of those paintings hitherto designated 'school of'.

Each painting was subject to a close visual examination and systematically recorded. In addition, X-radiography, infra-red reflectography and ultra violet light were used to explore their structure. Paint samples were taken and the ground and paint layers examined in cross-section under the Scanning Electron Microscope to establish their pigment content, and Gas Chromatography-Mass Spectrometry was carried out on some samples to analyse the painting medium used.

X-radiography showed that Wilson laid in the main features of his landscapes simply and directly. A characteristic radiograph image of his work shows a sharp difference in density between the sky, containing white lead, and the landscape, largely composed of earth pigments. Buildings and trees are also reserved against the sky from the outset. This is confirmed by accounts of Wilson's practice of dead colouring and his subsequent applications of paint. Infra-red reflectography was used to investigate the presence of any underdrawing. Virtually none was found in the majority of his paintings. This confirmed Joseph Farington's account of Wilson's painting method that included placing the main features of the composition using dilute paint. The only exceptions to this were two oil sketches on paper, and a large landscape painted over an earlier portrait.

For pigment and media analysis, small samples were taken from each painting to provide a cross-section of the paint layers. The most frequently observed characteristics of these samples were the presence of a double ground layer separated by an intermediate glue layer, identified by protein staining. This is a common feature of commercially prepared oil grounds of the period. SEM-EDX analysis was used to determine the pigment content of the paint and this was found to coincide closely with the palettes recorded for Wilson. The most frequently found blue was Prussian blue and although contemporary records indicate that he often used Ultramarine as a final glaze in the sky, Ultramarine was only found in one instance. All the greens are mixtures of Prussian Blue with yellow, green, red and brown earths.

Kate Lowry, Chief Conservation Officer

Turning to curatorial research, the principal commitment was the exhibition *Thomas Jones (1742-1803): An Artist Rediscovered* (see *Re-discovering Thomas Jones* in *Research at NMGW*), shown at the National Museum & Gallery, the Whitworth Art Gallery, Manchester, and the National Gallery, London, during 2003-04. This was the largest loan exhibition shown in Cardiff for many years, and drew on the expertise of colleagues in the Geology, Industry and Photography departments. For the exhibition, a major reassessment of both Jones's working methods and the chronology of his oeuvre was undertaken. Dr Ann Sumner, Curator (Fine Art) researched and selected the exhibition with the help of an advisory committee, and co-authored and edited the ground-breaking catalogue, which was published jointly with Yale University Press in May 2003.

Andrew Renton, Curator (Applied Art) researched the ceramic decorators Thomas Pardoe and William Weston Young (see *Thomas Pardoe and William Weston Young*, below). The Department was also pleased to support a researcher working on the Pilgrim Trust-funded survey of Old Master Paintings in public collections.

As well as preparing *Thomas Jones*, the Art Department delivered three major exhibitions in 2002-03: *Ceri Richards: Themes and Variations*, *Art in Exile: Flanders, Wales and the First World War* and *Cedric Morris & Lett Haines: Teaching, art and life*. We also collaborated with the Whitworth Art Gallery to present the smaller exhibition *Piranesi's Sublime Dreams*; with the BioSyB Department over *A Passion for Plants* and with the Ysbryd/Spirit group of painters over a contemporary response to the work of Ceri Richards. Programme of talks and study days accompanying the major exhibitions were all well-supported.

Recently somewhat overlooked, Ceri Richards (1903-1971) was the most significant Welsh modernist artist of the mid-twentieth century. He had a deep understanding of Cubism and Abstraction, and also worked in the domain of Surrealism. *Ceri Richards: Themes and Variations* (27 July-27 October 2002) marked the publication of a major monograph on the artist by the exhibition's guest curator, Mel Gooding, as well as the forthcoming centenary of the artist's birth. A select retrospective, it focused on the musical and poetic themes that influenced Richards throughout his career. These included the poetry of Dylan Thomas and the music of Debussy, whose prelude *La Cathédrale Engloutie* inspired a magisterial series of



Thomas Pardoe and William Weston Young

In the early nineteenth century Thomas Pardoe (1770-1823) and William Weston Young (1776-1847) made remarkable contributions to the ceramics industry of south Wales. Fresh research into their careers and a reassessment of key evidence were presented in a paper at the conference *Welsh Ceramics in Context*, held in Swansea in September 2002.

Pardoe, formerly an apprentice at the Derby porcelain factory, became chief painter at the Cambrian Pottery, Swansea, in the late 1790s. He first met Young in 1803, when Young was employed by the pottery's new proprietor, Lewis Weston Dillwyn, to illustrate his *British Confevrae*. A man of many parts and admirable energy, Young also decorated Swansea pottery and can be shown to have collaborated with Pardoe, most notably on a magnificent pair of bough pots at the British Museum. By 1809, both Young and Pardoe had left the Cambrian Pottery to pursue their own independent businesses, Young as

a wreck-raiser, land surveyor and merchant, Pardoe at his own decorating workshop in Bristol.

Research based on sketchbooks in the National Museum & Gallery has cast new light on Pardoe's time in Bristol. He decorated wares bought in from Wedgwood, Coalport and elsewhere for Welsh clients like William Lewes of Duffryn House, near Ammanford, and Lord Milford. He also branched out into the decoration of window glass for leading families in the Bristol area, such as the Harford family of bankers and industrialists and Sir Henry Protheroe, who was both mayor and MP for Bristol. In addition, he taught women to paint on china and velvet. A pair of velvet bell-pulls, painted by Pardoe and donated by a descendant, survives at the Museum of Welsh Life in Cardiff.

Between 1814 and 1823, Young and Pardoe also played a key role in the brief life of the Nantgarw porcelain factory. Young put time and money into William Billingsley's insolvent venture and used his local connections to raise funds. Pardoe lent money in 1814 and in 1821, following Billingsley's abrupt departure, moved to Nantgarw to help Young complete the job of decorating porcelain for sale.

Andrew Renton, Curator (Applied Art)

semi-abstract seascapes between 1957 and 1962. The exhibition toured in a reduced version to Leeds City Art Gallery and the Glynn Vivian Art Gallery, Swansea.

Art in Exile: Flanders, Wales and the First World War (22 June-15 September 2002) focused on the work of George Minne, Valerius de Saedeleer, Gustave van de Woestyne and Edgar Gevaert. Following the German invasion of Belgium in 1914, these Flemish artists took refuge in Wales, where they were supported by the sisters Gwendoline and Margaret Davies. The exhibition, which was also the subject of an HTV programme, surveyed art in both Flanders and Wales during the immediate pre-war period, and explored the impact of the war on artists. A collaboration with the Museum voor Schone Kunsten, Ghent, in association with the Hannema-de Stueurs Foundation in the Netherlands, it benefited from the support of the Flemish Community. Its catalogue was shortlisted for the 2002 William M. B. Berger prize for British art history.

Developed jointly with the Norfolk Museums & Archaeology Service, *Cedric Morris & Lett Haines: Teaching, Art and Life* (25 January-27 April 2003) examined the work of both artists and of a group of their students: David Carr, Lucian Freud, Maggi Hambling, Lucy Harwood, Frances Hodgkins and Glyn Morgan. Cedric Morris (1889-1982) enjoyed success in London in the 1920s, but in 1937 he and his partner, Arthur Lett Haines (1894-1978), settled in Suffolk where they established one of the most progressive art institutions of the day, the East Anglian School of Painting and Drawing. The exhibition explored their own achievements as artists, particularly Morris's flower paintings and portraits, alongside their commitment to teaching and promoting the arts both in East Anglia and in Wales.

The most visible of a number of improvements to the permanent display during the year was the re-hanging of both the Victorian and Edwardian and the contemporary galleries. We continued to lend to a wide range of temporary exhibitions both in Britain and overseas. In Wales, we were delighted to be asked to provide a selection of contemporary art from the Museum's collection and that of the Derek Williams Trust for the opening exhibition at the newly refurbished Oriel Davies in Newtown.

Department of Art staff list

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Curator (Applied Art), *Andrew Renton*

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Assistant Curator (Prints & Drawings), *Beth McIntyre*

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Senior Conservation Officer (Paper), *Christine Mackay*

Senior Conservation Officer (Applied Art), *Judi Pinkham*

Paper Conservator, *Sandrine Decoux*

Assistant Oil Paintings Conservator, *Rachel Turnbull*

Senior Technical Assistant, *Mike Jones*

Technician, *Keith Bowen*

Mount Cutter, *Hugh Chilcott*

Documentation Assistant (Fine Art), *Julia Carver*

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Publications by Department of Art staff

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Biodiversity & Systematic Biology



Our strategic review of the role of the natural sciences highlighted some of the major contributions that museum biodiversity departments could make to contemporary issues. The Convention on Biological Diversity (CBD) and the Global Taxonomy Initiative (GTI), both arising from the Earth Summit in 1992 and ratified again in 2002 in Johannesburg, underpin much of our work. The Department of Biodiversity & Systematic Biology (BioSyB) holds collections and expertise that are relevant to the delivery of the understanding and sustainable use of biodiversity both in local and international contexts. It has adopted as priorities the public understanding of sustainable development, wider access to collection data and a broader understanding of museum work.

Much of our work has relevance to nature conservation and we have supported the UK Biodiversity Action Plan (UKBAP) through a number of projects. A series of lichen surveys were completed in Wales, Scotland and England with support from conservation agencies (Countryside Council for Wales, Scottish Natural Heritage and English Nature).

The pond surveys, which commenced in 2000, continued with support from Neath Port Talbot and Bridgend Borough Councils. Previous surveys had focused solely on the larger plants, but in 2002 diatoms were also included. Diatom diversity can be related to environmental parameters and this project

aims to develop a diatom index and the first pond diatom flora for Wales.

The next phase of marine benthic survey has now begun with the development of an outer Bristol Channel project in collaboration with the British Geological Survey. Data gathered from previous surveys was requested for inclusion in the Irish Sea Pilot Project. This is the first project using the 'ecosystem approach', which links biodiversity conservation with sustainable use. As more UK agencies adopt the ecosystem approach, the creation of a matching approach by BioSyB may be advantageous. This year, we have also carried out

A Lichen Survey of the Oakwoods of Meirionnydd and Dwyfor

A lichen survey of fifty woodland sites was carried out in 2002 in an area that contains the greatest concentration of notable woodland lichen sites in Wales. The mild climate and high rainfall of some parts provides a refuge for species restricted to the oceanic west of Europe.

The survey was particularly concerned with lichens that are indicators of ancient woodland. These 'old-forest' lichens sometimes need niches only found on ancient trees, such as old dry bark on leaning trunks. Alternatively, they are very slow colonists that spread slowly to new trees, and even slower to new sites. The continuity of a woodland presence over the last few hundred years is a key factor to the survival of old-forest lichens; clear-felling a wood removes all the lichens at once, so there is no stock of old-forest species left to colonize a new generation of trees.

In north Wales, old-forest lichens fall into two groups. The first prefers bark which is slightly basic or of neutral pH, such as that of oak, ash and sycamore. This, the *Lobarion* community, occurs in lowland and relatively unpolluted areas, and includes species like the large Tree Lungwort (*Lobaria pulmonaria*). This group would once have existed throughout Wales. The second group grows on acidic bark, mainly oak and birch, in high-rainfall areas. One of the most conspicuous species of this group is the grey leafy *Hypotrachyna taylorensis*.

The survey found 438 species of lichen, including those growing on rock. Some species were new to Wales, including *Micarea ternaria* and *Parmelinopsis minarum*, and one or two are apparently undescribed species, including an *Anisomeridium* collected previously in Welsh parklands. Worryingly, the best species were often in small quantity, and the future of many populations is precarious. Commercial woodlands are unsuitable for old-forest lichens as a result of clear-felling, a lack of old trees and excessive shading. The best fragments often comprised old trees near long-abandoned farm buildings, woodland in ravines, small woodlands used for stock shelter and, especially, old parkland. Site protection and appropriate woodland management is needed to ensure the long-term future of Welsh old-forest lichens.

environmental impact surveys on the invertebrates of the Gwent levels.

The Department also undertakes survey work in other countries, which helps their governments fulfil the requirements of the CBD. Since the Darwin Initiative project in Africa finished, we have continued to work with our partners in the National Museums of Tanzania, surveying new forest regions. Further collections were made in the forests of Udzungwa National Park in Tanzania in January 2003 and we have identified one species that is new to science. The data will provide management and educational information for the Tanzanian Governments National Park Authority (TANAPA).

Studies have also been undertaken into biodiversity changes in past vegetation, with the principal aim of understanding patterns of climate change. One project, using the pollen and spore record, examines vegetation and climate change from the

late Quaternary through to the present day. Another returns to the Late Carboniferous vegetation, some 300 million years ago. The NATO-funded project to compare late Westphalian and early Stephanian plant biodiversity in Canada, southern Britain and Bulgaria was completed. This project has revealed evidence of relatively stable conditions in the palaeotropics during this period, in contrast to the previously agreed model of progressive global warming and aridification of the palaeotropics. This work is to be further developed next year as part of an IUGS International Geological Correlation Programme project, partly co-ordinated through NMGW, involving specialists throughout Europe and North America.

Also within the context of the UKBAP have been a variety of projects related to single species. The majority of these are flowering plants and many are related to the projects on rare Welsh plants (see below).



Rediscovery of the 'extinct' Snowdonia Hawkweed

Hawkweeds (genus *Hieraceum*) comprise a large group of complex species which, like their relatives the dandelions, are often difficult to identify. The Snowdonia Hawkweed (*Hieraceum*

snowdoniense) itself has a confused nomenclatural history, being discovered by the Caernarfon-born botanist John Griffith in the 1880s but not receiving its current name until 1955. It has always been a rare plant, with herbarium data showing only seven find-sites, and is confined to Snowdonia. Although it had not been seen for nearly fifty years its habitat of mountain cliff ledges gave hope for its survival. Surveys were carried out through 2000-02 jointly with CCW and were finally successful in July 2002 with the discovery of a single plant on Cwm Idwal. This single plant remains the only one known, conferring to it the status of one of the world's rarest plants.

It is thought that grazing by sheep accounts for the decline in this species and that controlled access may see its regeneration. However, such is the uncertainty of its survival, two seed heads were taken and the Snowdonia Hawkweed is now being propagated in the National Botanic Gardens of Wales.

The rediscovery of the endemic and believed extinct Snowdonia Hawkweed has attracted the most attention, but another major project involves the complex of local endemic species of whitebeams (genus *Sorbus*). In the initial surveys to ascertain the number and distribution of whitebeam trees at Craig y Cilau NNR in the Brecon Beacons, the populations were found to be double that of previous estimates. The survey has now progressed to a DNA study, with the Royal Botanic Gardens, Kew. An understanding of the genetic relationships of these closely related species is essential for correct conservation management. This survey has also contributed specimens to the herbarium collections and allowed photography of the fruits of many species. Other rare plant research focused on Perennial Centaury (*Centaureum scilloides*) and Wild Asparagus (*Asparagus prostratus*). Knowledge of the distribution, habitats, conservation attributes and threats has been reviewed and some plants are being cultured in the NBG.



Deep sea invertebrates

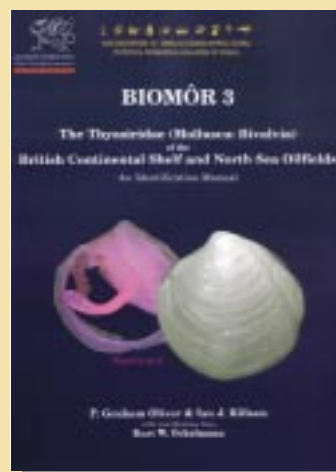
Although the life in our near shore seas is relatively well known, that of the off-shore and deep waters remains to be fully investigated. As exploration and exploitation of these waters gathers pace the need for environmental impact assessment grows. However, without basic identification guides ecologists

The Entomology section has carried out further surveys for the Shrill Carder Bee (*Bombus sylvarum*) and confirmed that the Welsh range includes sites in the Gwent levels. Habitat and species recovery programmes are a vital part of the UKBAP and the Department has become involved in a remedial project to ameliorate the effects of acid rain in the upper catchment of the River Wye. Our intention is to use the changes in diatom floras to monitor water quality changes as the work progresses over the next three years.

The Global Taxonomy Initiative stresses the need for continued research and the development of skills, especially as there is insufficient taxonomic data and skills to fulfil the aims of the CBD. This issue has also been a subject of a review by the House of Lords' Select Committee, to which NMGW contributed. In this we supported the recognition that museums are now the stronghold for taxonomic research and that their collections are valuable sources of biodiversity information.

The British fauna and flora are relatively well studied, but modern taxonomic tools are still required. Although there are relatively few species of British freshwater bivalved molluscs, many have always been problematic to identify. A joint project to produce a new identification manual reached the testing phase, to be available in late 2003. This work made extensive use of the computer-enhanced digital imaging system (AutoMontage™) which gives detailed colour images of microscopic specimens. AutoMontage™ was also essential in

are severely hampered. We have published the first of a series of books and papers reviewing taxonomy and providing identification guides. This guide to the bivalves of the family Thyasiridae appears as part of our *Biomôr* series. Research continues on other bivalves mostly taken from deep water (200 to 2,000m) west of Shetland under the Atlantic Frontiers Environmental Network (AFEN) programme (funded by the United Kingdom Oil Operators Association). This phase reviews those species belonging to *Yoldiella*, Thyasiridae and Septibranchia and initial results reveal a number of species new



to science but also similarities with the northern and arctic faunas. These northern faunas can have a circum Arctic range necessitating comparison with species described from North America as well as Scandinavia. We have received additional funding from AFEN to undertake a similar review of the bristle worm family Spionidae.

the production of an identification guide on marine bivalves of the family Thyasiridae (Hatchet shells).

The Entomology section is developing tools in the form of Royal Entomological Society Handbooks to the coleopteran (beetle) families Scaptiidae and Mordellidae and contributing to a new checklist of British Hemiptera.

Many insects are important pests and much of our research relates to these. Scale insects (Coccidae) are sap-feeding insects found on almost all terrestrial plants. They are among the most important agricultural and forestry pests in the world. Research aims to investigate the relationships of the families of scale insects based on male structures and is carried out by our research associate, Chris Hodgson. Diptera (flies), especially shoot flies, damage crops, and papers on Middle Eastern and African species have resulted from this research theme. Buprestid (jewel beetles) research has resulted in a Lebanese checklist following fieldwork in 2001-02 and a revision of Australian Melobasis (Buprestidae) -195 species, of which around 80 are new species - has been prepared. Papers on species of Coleoptera and Hymenoptera newly recorded in Wales have also been produced.

Considerable concern has been given to the decline of Aculeates (bees and wasps) in the UK and work has continued on a paper on the bees and wasps of Wales, based on an unpublished manuscript by Hallett, whose collection is housed in the Museum.

Polychaete worms are one of the most diverse groups of marine invertebrates but have a relatively poorly developed taxonomy. They are the focus of taxonomic research in the Marine Biodiversity Section. Specimens from the Seychelles collected by the Department contained new species of the families Magelonidae and Pilargidae and these results will appear in the Proceedings of the 7th Polychaete Conference, co-edited by Dr Andy Mackie. A third project, in collaboration with the University of Parana, Brazil, describes new species in the family Poecilochatidae from Brazil and Rodrigues.

Bryophytes (mosses) are an ancient group with a long evolutionary history. Their classification, which has been based on external appearances, is now being reviewed using DNA analyses. Investigations with the Natural History Museum and the Botanical Institute, Bonn, into the higher-level classification of the pleurocarpous mosses are currently focused on *Isoetecium*, a genus common in the forests of Wales and widespread in the Northern Hemisphere. The results show that *Isoetecium* is more closely related to mosses from the tropics and the Southern Hemisphere than to Northern Hemisphere mosses as had previously been thought. Funding to support some of this research has come from the Linnean Society.

Other ancient but fossil floras are the subject of research by the Vegetation History section. The links between these early floras and living primitive plants were developed in the exhibition *Pioneers of the Land*. The Department's main taxonomic activity in this field was on Late Carboniferous tropical ferns and gymnosperms. Collaborative fern studies (with researchers from Canada, the Czech Republic and Cardiff University) focused on the Marattiales, one of the dominant tropical groups of ferns in the Late Carboniferous. A new genus (*Sydneia*) of fossil marattialean was described from Westphalian



age rocks of Nova Scotia, which provides important information on the relationship between the Palaeozoic and extant members of the order. Work also commenced on *Acitheca*, one of the marattialean tree ferns that made up large parts of the tropical forests towards the end of the Carboniferous, when the tropical wetlands were contracting and eventually disappearing. Late Carboniferous gymnosperm taxonomic work dealt mainly with the Medullosales, a group most closely related to the extant Cycadales. Two new species were described from the middle Westphalian of Saarland, Germany, providing further evidence of the distinctive nature of these upland floras. Detailed studies were undertaken, with the Natural History Museum, on the taxonomy of *Laveineopteris*, one of the most characteristic medullosaleans of the Westphalian aged tropical wetlands, and on the rather small *Odontopteris*, found in the Stephanian aged floras of Europe and North America. Work has also been undertaken on the floras of the eastern palaeotropics in China. The main result of this has been a monograph on a new late Westphalian flora from Shanxi, which has allowed comparisons with the contemporaneous Welsh floras.

BioSyB collections are now regularly used for DNA-based studies. It is thus becoming increasingly important for us to understand how the many methods of specimen collection and preservation we used affect the condition of the DNA. Recent research within the Conservation section has investigated these issues, particularly with fluid-preserved zoological collections. The long-term aim of this work is to attempt to develop affordable and practical methods that preserve museum specimens for both morphological and molecular studies.

The Mollusca section is part of the new European Union-funded Species 2000 Europa Project that has been initiated as part of a pan-European effort to document available species

Filth flies - applied taxonomy

Thousands of flies emerging from a landfill site gave our resident dipterist, Dr John Deeming, a rather unpleasant but interesting research contract. Flies can be serious carriers of disease, and rather too many had invaded a nearby village. The task at hand

was to identify over 20,000 flies and comment upon their life histories and the risks they imposed. Ninety species of flies were found and one in particular was unwelcome - *Protophormia terraenovae*, a large black blowfly. This fly was first described from Greenland, the larvae feeding on stranded whale carcasses, and has only been found twice before in Wales. It was particularly common at the site and was cause for concern. This incident reflects the importance of insect taxonomy, and is one aspect of the support services we can offer.



Capacity Building in Galapagos

Most visitors to Galapagos do not realize the importance of its terrestrial invertebrates. There is a relatively small fauna of around 2,250 species, with 400 introduced species, compared

with at least 22,000 species in Britain. Yet even this small fauna is still incompletely known, despite the rush of discoveries that collecting throughout the islands over the past fifteen years has produced. Many new species have been discovered, but it is the apparent scale of introductions in recent years that has caused much interest and alarm. There is an increasing need to be able to readily identify invertebrates in Galapagos without having to send specimens to overseas specialists. For the past three years, the Terrestrial Invertebrate Section of the Charles Darwin Foundation has been assisted in this aim by a UK Government Darwin Initiative Grant. This grant, administered by the National Museums & Galleries of Wales, has allowed the CDF to purchase insect cabinets and drawers and run several training courses in Galapagos. In addition, several CDF staff have visited the UK for further training.

The training courses and additional facilities have led to increased confidence in identifications, and sampling and various field studies have been initiated. Lazaro Roque (seen in the photo collecting moths at a light) is now registered at Cardiff University for a Ph.D based on his studies of the butterflies and moths of Galapagos.

The invertebrate section in Galapagos is also increasingly involved in the training of new quarantine officers, who should help prevent any avoidable invertebrate introductions that are potentially damaging to the Galapagos environment.

names. This new project will develop a common access gateway through the web to allow users to interrogate these databases and return answers. The Mollusca section will be providing a global database of Freshwater Molluscan names.

The Department attended conferences concerning the adoption of sustainable development by the Welsh Assembly Government. The need for more public awareness projects prompted us to use the theme of composting for an exhibition on the biology and ecology of earthworms.

An equally important objective for the CBD and UKBAP is that of taxonomic training and capacity building. Our international initiatives include the Darwin Initiative project in Galapagos (see below).

East African links continue through the IUCN on a WANI- (Water and Nature) funded project aimed at capacity building in East Africa. This project was initiated in January 2003, and is training twenty-four scientists in Africa, with the aim of producing a list of Regional Threatened Freshwater Species in order to prioritise conservation areas. We are also involved, with numerous partners (The Natural History Museum, Cardiff University, University of Bielefeld and Katmandu University) in a project that investigates diatom biogeography, diversity and assemblage composition in relation to water chemistry and habitat character in streams, lakes and ponds of Nepal and north-west India, and will develop tools to monitor water quality.

The Department's involvement in postgraduate training continued this year. Dr Graham Oliver participated in the US PEET programme giving tuition on taxonomic research at the International Marine Bivalve Workshop, Florida, and Dr Andy Mackie taught the Introduction to Marine Invertebrate Taxonomy component of Bangor University's MSc Marine Environmental Protection course. Taxonomic training was not confined to academic circles and a course in Diptera identification was held for Syngenta staff. Identification workshops on invertebrates were run for amateurs and biological recorders, and three training courses on grass identification were run for the Institute of Ecology and Environmental Management.

In view of increasing training demands, a more formal approach was developed towards training of the practitioners involved in the UKBAP, biological recorders and amateur enthusiasts. Discussions are now taking place with the National Biodiversity Network and the Countryside Division of the Welsh Assembly Government to deliver taxonomic training throughout Wales. This will begin in 2003 following a grant of £20,000 from the latter to provide taxonomic training on species covered by the CROW Act.

The curation, documentation and conservation of collections, the unsung work of many staff, progressed well and the percentages of our collections at the inventory level exceed national averages. Web access to databases on the vertebrates,

mollusca and marine invertebrate collections remain available, and the value of the Mollusca database has been enhanced by the acquisition of digital images of all type, figured and cited shells in the Melvill-Tomlin Collection. High quality electronic images give wider access, often remove the need to loan specimens and reduce the risk of loss or damage.

A project documenting the Melvill-Tomlin Archives of letters from famous malacologists worldwide has begun and will enable researchers to identify the handwriting on labels in collections. This resource will be made fully accessible on the web and could contain data on up to 800 sources of specimens.

The size of the collections in Entomology precludes the creation of a complete inventory within current resources. A 'taxon held' approach has been adopted, and a database of species of conservation concern in the UK has been completed for the Diptera, Hemiptera, and smaller orders, but not yet for Coleoptera and Lepidoptera.

Collections of aged material that has been treated with pesticides and fungicides form the core of a Ph.D research project. These chemicals have been identified as hazardous, and this research has proved vital regarding the health and safety of staff and visitors to the collections. This work has been presented at international conferences, raising awareness of this problem amongst other institutions that house natural history collections.

The first steps were taken to document properly the Department's holding of botanical postage stamps, by transferring the existing card index to an Excel spreadsheet. When completed (hopefully by the end of 2003-04), this will allow the collection to be searched for particular themes, which will enhance its value for public display.

Approximately 100,000 specimens of mosses and liverworts are being added to the main collection in the final stages of a process that will bring all the specimens together in one location. Previously this material had been dispersed and therefore not readily accessible to visitors or for loans. The completion of this work will be the culmination of seven years documentation and curation and a significant milestone for the Lower Plants Section. The BBSUK collection remains very active with 930 moss and 255 hepatic voucher specimens received from members.

Most collections are now acquired through fieldwork related to survey or research projects and are discussed elsewhere. The first major donation of note has been that of the marine invertebrate collections made by Mr Ivor Rees, recently retired from the School of Ocean Sciences, Bangor University. These include much of the material collected by him from Liverpool Bay and thus compliments that collected by the department from its southern Irish Sea expeditions. The second was the entomological collections of Dr Neil Horton, whose specimens formed the basis for his book on the butterflies and moths of Monmouthshire. They include the first specimens found of the Silurian moth (*Eriopygodes imbecilla*), which is still only known in

the UK, from around Abergavenny. A major part of promoting the study and conservation of biodiversity is increased public awareness. The Department has employed a number of approaches - exhibitions, events, conferences and lectures - to promote both public awareness of sustainable development and a wider understanding of the work of the Museum.

The Vegetation History and Lower Plants Sections, along with Conservation staff, put together an exhibition looking at early land plants and the links between research on fossil and living forms. Entitled *Pioneers of the Land*, the exhibition looked at the plants that existed some 300 million years ago, a time when the land was being covered by plants for the first time, and those that have living relatives today. Mosses, clubmosses and horsetails are descended from some of the earliest land plants, with fossils dating back hundreds of millions of years. Fossils, wax model re-constructions and herbarium specimens of living plants were used to illustrate the story. There were displays on coal and its formation and how Wales is internationally important for its early plant fossils. The ecology of modern mosses was summarised and a living moss garden displayed a range of living plants. The recently acquired Whitehouse collection of macro stereo images was used to illustrate the detailed structure of mosses.





The third exhibition of the year, *A Passion for Plants*, illustrated the history of women in botanical illustration. Over sixty items, all from our collections, were exhibited and included a range of works, from early pieces by M. S. Merian to those of the contemporary artists Gillian Griffith and Rebecca John.

To involve the public in activities, our Schools and Communities Agenda 21 Network developed a project called Snail Search

with the aim of monitoring the spread of an alien snail most commonly found in gardens (see Snail Search, in the Education section, page 56). The Marine Biodiversity Section also gave a video microscope demonstration on living polychaete worms at the 2002 National Eisteddfod in St Davids. Taking the subject to the audience was acclaimed as a success, and must be seen as an alternative to focusing all activities within NMGW sites.

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Head of Vascular Plants, *Dr Tim Rich*

Head of Mollusca, *Dr Mary Seddon*

Head of Lower Plants, *Dr Ray Tangney*

Head of Entomology, *Dr Mike Wilson*

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Research Fellow, *Ian Killeen*

Research Fellow, *Malcom Luxton*

Research Fellow, *Peter Tattersfield*

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Education



As the Museums Association observes, 'Museums enable people to explore collections for inspiration, learning and enjoyment'. Our task in the Education Department is to use the collections to generate wider interest, enthusiasm and excitement and to find ways of connecting with new audiences who have not yet discovered our treasures.

This year has seen a number of initiatives that have aimed to reach out to communities in the vicinity of our sites - and sometimes much further afield. With the temporary closure of the Museum of the Welsh Woollen Industry, the Education Officer set off 'on tour' to offer hands-on sessions to schools in the surrounding three counties. This established good contacts with institutions that had previously not visited the Museum. Our collections and expertise have also been shared with wider audiences through our Outreach (loans) Service and through educational programmes at events such as the National Eisteddfod (see below).

We have also been exploring ways of combining the use of video and videoconferencing with schools in Carmarthen and have been sharing our treasures with schools in remote areas of Scotland. Closer to home, we have enabled local communities to record their own histories, create their own exhibitions and celebrate the distinctive cultural life of Wales by working in collaboration with local organizations.

As an institution, we are concerned with lifelong learning. This year, our programmes have covered both ends of the age spectrum. The Ant Antics workshops, targeted at pre-school children and reception classes, have proved very popular. We have also introduced more study days for adults and initiatives for older people such as Drawn from Memory, an art event led by the illustrator Quentin Blake. In order for us to continue to

meet the needs of the formal education sector in Wales, we work directly with teachers through the Education Business Partnerships (see Professional Development for Teachers, below) and on projects supported by the General Teaching Council of Wales. These collaborations create valued opportunities for professional development for teachers and help us to ensure that our services continue to grow and develop.

During the past twelve months we have particularly focused on families. All our sites have been developing new family trails or guides and exploring other means of helping adults and children to get more out of their visits together. To coincide with Family Learning Weekend, each site arranged a family learning programme, and the Roman Legionary Museum's Roman Dustbin project subsequently won the Campaign for Learning's prize for an innovative family activity. At the National Museum & Gallery, Cardiff, we have been trialling 'backpacks' - bags of resources that our visitors can use in the galleries to stimulate discussion and greater interaction with our exhibits. We have also been experimenting with 'Art Carts', which contain high-quality art materials that visitors can use to create their own artworks. The popularity of the Art Carts has enabled us to secure funding to provide them on a more regular basis.

Our events programmes are vital. They not only encourage repeat visits but, more importantly, encourage new ways of understanding and engaging with the collections. A successful

At the Eisteddfod: the Graham Sutherland Residency

Every year, we spend a week at the National Eisteddfod, giving us the opportunity to re-examine some of our activities and collections from the local area. In St Davids, we chose to focus on our Graham Sutherland collection, influenced by the project to establish a new home for his work. A selection of his oil paintings were exhibited in the Eisteddfod Arts and Crafts pavilion, while a copy of one of his sketchbooks was displayed in our pavilion. This became the basis of a busy programme of complementary work.

In collaboration with Cywaith Cymru/Artworks Wales, the agency for public art in Wales, which regularly presents artists' residencies and projects on the Eisteddfod field, the artist Richard Battrick created artwork in response to Sutherland's work. The themes explored in Richard's paintings and drawings are similar to those pervading Sutherland's work. Richard often works outdoors and incorporates elements and objects from the landscape into his practice.

Following a period in the Museum studying paintings, photographs and sketchbooks, Richard decided that the beaches of Pembrokeshire, which Sutherland himself had found so inspirational, should be his starting point. He collected an array of items, including large stumps of knotted wood, sand, frayed ropes, shells and pebbles of all colours and shapes as his inspiration and included many of these in the final works.

During the Eisteddfod week, Richard divided his time between his own work and large-scale pieces created by groups of children and adults. He took visitors to look at Sutherland's work in the Eisteddfod Arts and Crafts pavilion and inspired both adults and children to respond to it. These participants created their own artwork, which became covered with layer upon layer of colour and textures, and incorporated a huge variety of materials mixed into the paint in order to create the various surfaces. Richard's own work developed from working with the visitors. He used large canvasses, making rubbings of the knotted timber that he had brought from the beach and then working over the rubbings, allowing the images to grow out of the canvas. Four months later, the finished piece was displayed in the National Museum & Gallery in Cardiff, and attracted great interest from our visitors.

Eleri Wyn Evans, Arts & Sciences Education Co-ordinator

Professional Development for Teachers

Each year, the Education Department organizes an annual programme of teacher placements in collaboration with the Education Business Partnerships (EBP) of Careers Wales. In 2002-03, the number of placements, now funded by ELWa, increased substantially.

NMGW staff organized nine projects for primary schools and one for secondary teachers, enabling twenty-nine people to work in teams with education officers as part of their professional development. The placements were three to five days long, separated by breaks to allow classroom trialling.

event entitled Girls Behaving Constructively, which was held at the Museum of Welsh Life, provided hands-on experience in activities such as carpentry and stone-laying for girls considering a career in the construction industry. At Big Pit, older visitors were invited to share and record their memories as part of a photographic exhibition arranged with Blaenavon Community Heritage Group.

The past year also saw an increase in the use of 'characters' or interpreters in costume, enabling visitors of all ages to enter imaginatively into the world of the past. Our most recent addition is at the Welsh Slate Museum, Llanberis, where a local actress has created the character of Nel, a widow from a century ago who supports her family by taking in washing; the actress encourages primary school children to join in the washday tasks. Originally devised for schools, these sessions are now being adapted and developed for an adult or family audiences.

Our guides and interpreters play an important role in bringing our collections alive. In the Glanely Gallery, our hands-on interactive space at the National Museum & Gallery, they provide an interface between the public and the curatorial departments. Collaborative events in 2002-03 included two fossil field trips, a National Archaeology Weekend programme and sessions for an amateur mineralogical society. We developed further partnerships when, in conjunction with the Open University, we organized a Science Study Day, where curatorial staff delivered talks and workshops to interested adults, while education staff delivered workshops on similar topics to their children.

We are acutely aware that different people learn in different ways. We have been particularly successful this year in involving families who prefer to educate their children at home in museum-based workshops. These Home Learners Study Days proved extremely popular, with over 100 families attending a

Whilst some teachers developed new educational materials, others focused on piloting and revising prepared resources - helping to ensure that we continue to deliver the kind of service that schools need and want.

The Literacy through Art teachers worked on an education pack with activities for use before, during and after visits and devised a treasure chest of resources to be used in our galleries. Other placements developed material for the SCAN project, our environmental education programme.

As part of a new, Get Set for Science Week initiative, seventy-five teachers attended a series of days aiming to encourage fun, practical science in the primary classroom, while a further eighty-eight teachers attended the 'getting to know your museum' days at four of our sites.

Geraint Price, Senior Education Officer

session to learn about seashore ecology. We also set about creating more opportunities for both 'hands-on' experience and distance learning. We received valuable input about our interactive gallery from a focus group for the visually impaired, and now have a designated collection of zoological handling specimens for use by blind or partially sighted visitors.

The appointment of our first Educational Resources Officer (E-Learning) helped us to explore ways of increasing access and learning through the Web and other electronic means. We have published two educational CD ROMs on the Celts that can enrich the experience of school children who visit the Celtic village at the Museum of Welsh Life. The Roman Legionary Museum's Web Challenge was highly commended in the British Archaeology Trust Awards and our web-based environmental project, SCAN (Schools and Community 21 Network), blazed a trail with its focus on an alien invader, the 'girdled snail' (see below).

Lastly, as a department that works across all sites and all curatorial areas, we are conscious of the need to find new ways of working with colleagues both inside and outside NMGW. To help this process, we have introduced Learning Initiatives @ NMGW days to introduce colleagues and outsiders to the range of activities in which we are involved.

Ceri Black, Head of Education

Snail Search

The 'alien' Girdled Snail (*Hygromia cinctella*) was first recorded in Devon over fifty years ago, but its range did not expand until 2000 when it was first found in Cardiff. This snail is one of the easiest to recognise and a schools and public participation science exercise was developed to assess the expansion of this species. The spread of the snail may be linked to climate change and this contemporary environmental issue has been

highlighted by the project. The initial results were encouraging with 250 returns in Wales showing three new vice-county records, one as far north as Denbighshire. The project was relaunched into England during Science Week 2002 and many more responses have been received. One school in Conwy, north Wales, used the internet to send pictures of all the snails encountered and they were stimulated into developing other snail-related projects. In response to demand, the Education Department has developed 'snail suitcases', which are loaned to schools to support their investigations into local snail populations.

Danielle Cowell, SCAN Project Officer

Education Department staff list

National Museum & Gallery, Cardiff

Head of Education, *Ceri Black*

Secretary to Head of Education, *Gaynor Williams*

Outreach and Community Education Co-ordinator, *Rhian Thomas*

Arts and Sciences Education Co-ordinator, *Eleri Wyn Evans*

Senior Education Officer/Earth Sciences, *Geraint Price*

Archaeology & History Education Officer, *Ken Brassil*

Natural Sciences Education Officer, *Ciara Charnley*

SCAN Project Officer, *Danielle Cowell*

Illustrator, *Liz Forrest*

Technician, *Tom Davies*

Glanely Gallery Manager, *Sally Pointer*

Geology Education Interpreter, Glanely Gallery, *Heather Jackson*

BioSyB Education Interpreter, Glanely Gallery, *Rhian Bowen*

Outreach Collection Manager, *Bryony Spurway*

Handyperson/Driver, *Paul Evans*

Community Co-ordinating Officer, *Sarah Greenhalgh*

Events Officer NMG, *Miranda Berry*

Administrative Officer, *Katy Brown*

Administrative Officer, *Alun Jones*

Museum of Welsh Life, St Fagans

Social and Industrial History Co-ordinator, *Nia Williams*

Departmental Secretary, *Eleanor Jones*

Site Education Officer, *Ffion Kynaston*

Education Resource Officer (E-learning), *Dafydd James*

Education Assistant, *Jayne Murphy*

Events Officer, Museum of Welsh Life, *Juli Paschalis*

Education Interpreter, House for the Future, *Elen Davies*

Education Interpreter, St Teilo's Church, *Leah Jones*

Education Interpreter, Celtic Village, *Dai Price*

Education Interpreter, *Betsan Evans*

Roman Legionary Museum, Caerleon

Education Officer, *Nigel Cross*

Administrative Officer, *Labessa Warren*

Education Interpreter, *Heidi Evans*

Museum of the Welsh Woollen Industry, Dre-fach Felindre

Education Officer, *Llinos Thomas*

Welsh Slate Museum, Llanberis

Education Officer, *Celia Wyn Parri*

Big Pit: National Mining Museum of Wales

Education Officer, *Sharon Ford*

Publications by Education Department staff

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Geology



The Department of Geology holds in its collections very large numbers of rocks, minerals and fossils that help us to understand the physical and biological evolution of our planet from its origins about 4,600 million years ago. The Department is divided into two main, long-established sections, the Palaeontology Section and the Mineralogy/Petrology Section.

The nature of Earth Sciences has changed considerably over the past forty years or so, beginning in the 1960s when the so-called 'Plate Tectonic Revolution' demonstrated convincingly that our planet has undergone a mobile and dynamic history throughout its 4,600 million years of existence. It is now known that the thin outer layers of the Earth, forming the crust, are only 35 to 70 kilometres thick under the continents and generally much thinner under the oceans. The relatively cool crust is 'floating' on the underlying plastic to molten mantle and core, which are together over 6,000 kilometres thick. Hot material deep in the mantle moves slowly upwards in convection currents to impinge on the base of the crust, breaking it into numerous segments called plates. This process has taken place throughout geological time, constantly moving and shuffling the plates around the globe like a gigantic jigsaw. At times, different plates literally collide into one another, whilst others break apart, the consequence of which is that the configuration and position of continents and oceans has changed dramatically and continuously through the history of the planet.

So what has this to do with our Department of Geology? The answer, of course, is everything. In order to study, interpret and document the ancient, pre-human physical and biological evolution of Wales, we are now obliged to understand the nature of plate tectonics and the processes involved so that we can apply them to our part of the world. Put simply, the oldest rocks in Wales, only about 700 million years old, were formed deep in the southern hemisphere far south of the Equator. Since then our tiny portion of the planet has drifted across the globe through time, crossing different latitudes through different climatic belts, and thus through different environments. The record of the changes involved in this amazing journey is locked up in the rocks, minerals and fossils beneath our feet, and is told vividly in the *Evolution of Wales* exhibition in Cardiff.

That story is obviously also incorporated in the geological collections themselves. Until the advent of plate tectonics as a coherent explanation for many geological processes, the collecting programmes of the Department of Geology involved mostly material from within Wales itself, or from present-day nearby regions. At the same time, the range of exhibition and research work based on those collections was largely descriptive in setting out the historical context, distribution and succession of the rocks, and analysis of the composition of fossil faunal and floral assemblages and mineral suites found in Wales and adjacent areas. Now all that has changed.

The collections themselves remain the cornerstone on which all our geological work is based - the essential database from which we construct exhibitions, use comparative material to deal with public enquiries, and build our research programmes. However, we can no longer afford to constrain our collecting remit to the North Atlantic region. If we are to understand the complete story of Wales and to set that story in a global context, then our collecting programmes must encompass other parts of the world, some of which are now far-distant but were once in close proximity. Such regions can contain direct counterparts of the Welsh geological record as fundamental clues to the interpretation of our distant relationships. Equally important is the need to expand the descriptive phases of work on the collections into experimental and interpretive studies that will allow the collections, both old and new, and their accompanying data to be incorporated into a dynamic plate tectonic context. A further key is to build on existing collection strengths in order to further enhance the ability to make meaningful comparisons and correlations across the various regions.

Fortunately, the expansion of collections goes hand in hand with the increasing development of computer-based curating and research programmes. The accurate identification of specimens and documentation of their accompanying data are prerequisites for much of the 'new' type of work outlined above, in order to construct comparative databases for different regions and periods of geological time. We continue to explore the exchange of our database information with other organisations as a means of furthering the progress of various projects in which we are involved.

Palaeontology

Wales is the type area for Cambrian, Ordovician and Silurian geology - a standard succession of rocks with which all other areas of the world must ultimately be linked if the existence of strata of this age elsewhere is to be confirmed. NMGW holds large suites of fossils from the standard sequences, which form a basis for definition and correlation of similar aged biotas across all continents. The Department has particular taxonomic expertise in fossil brachiopods, trilobites and bryozoans, and the collections are visited and borrowed regularly by specialists from other institutions worldwide, for comparative study and discussion with our own staff.

Regular collecting programmes continue in the Welsh area, but in the light of the development outlined above there is now a wider focus to collect and study Lower Palaeozoic faunas. Until the middle of the Ordovician Period (about 450 million years ago) Wales was part of the northern margin of a vast supercontinent in the southern hemisphere, named Gondwana. Some of our neighbours included present-day north Africa, South America, the Middle East and eastern Australia. To investigate the biogeographical relationships between these regions we have instigated a major Gondwana Project, and have

so far collected substantial new marine fossil faunas from parts of Argentina, Bolivia, Jordan, Israel, Iran and New South Wales in order to understand more clearly the relationships with our part of the world. Most of this work is funded by outside agencies such as the Royal Society of London, our national science academy. In Iran, we have entered into a very fruitful formal partnership with the University of Kerman, who fund our field studies in that country, with staff from both institutions visiting regularly to promote the work. All collections generated from this project will remain in Cardiff. A Ph.D student from Kerman is based at the Museum, studying Silurian brachiopods, registered for his thesis at Cardiff University.

Similar links exist with the Balto-Scandinavian countries, because by about 430 million years ago Wales had drifted away from Gondwana, and was to collide with the Scandinavian block - somewhere in the tropics! There is also therefore an active collecting and research programme in Scandinavia, focusing on Ordovician-Silurian faunas, again in partnership with local research teams - in this case centred in Sweden at the University of Uppsala and the Naturhistoriska Riksmuseum, and again largely funded externally by a joint grant from the Royal Society of London and the Royal Swedish Academy of Sciences.

Other strengths in the palaeontology collections are Devonian and Carboniferous plants, Carboniferous invertebrates and Lower Jurassic molluscs. On a research and development basis, some of these fields are covered partly by Department of Geology staff, but for the most part we enjoy the close collaboration of our Honorary Research Fellows and of colleagues in the Department of Earth Sciences at Cardiff University.

Mineralogy/Petrology

The mineral collections form a comprehensive database for the genesis and distribution of minerals in Wales, and there are substantial comparative holdings from many parts of the world. There is an increasing need for sophisticated technology to increase the rigour of mineral analysis and identification for many purposes, using our collections as standard comparitors. Our Scanning Electron Microscope facility goes some way to providing such rigour, but we face an urgent need to replace our X-ray Diffraction equipment if we are to continue to meet the standards of a public and industrial information service, together with research quality investigations.

As in palaeontology, partnership programmes have been vital in recent years in developing a new range of mineralogical activities. The Minescan Project, with collaborative funding from the Countryside Council for Wales, has produced a complete survey of all known metal mine sites throughout Wales. Large new collections of minerals have been made to provide for the first time a comprehensive view of composition, variation and distribution of mineral types, with added data on land reclamation problems, hazards and contaminated mine waters as contributions to environmental monitoring. The project is currently being developed further as an interactive database in order to bring the results to the availability of a wider audience. This is a first class example of the use of museum collections and staff expertise as a contribution to the wider public good, not least in this case as a positive component of the sustainability agenda.

Current work on rocks is now also directed towards understanding processes that have affected Wales during its long history, as opposed to making collections that simply monitor the distribution of rock types. Understanding the chemistry and mineralogy of granites and highly altered rocks

The Welsh Stone Forum

A growing awareness of the importance of the use of Welsh stone in the built environment led to the Department hosting a meeting dedicated to this topic in April 2002. Undertaken in partnership with the Countryside Council in Wales and Cadw, the Stone in Wales meeting provided a forum not only for geologists and archaeologists, but conservationists, conservators, architects, planners and all those concerned with the balance between conserving the built heritage of Wales and its geological resources. The success and support arising from the meeting provided the impetus to formalise the provision

and sharing of information by the inauguration of the Welsh Stone Forum. Departmental staff have played a major role in ensuring the successful launch of this body, and this involvement has allowed our contribution to this growing issue to be instrumental in future planning. The programme has focused initially on reviewing and enhancing the existing building stone holdings and devising plans to enhance the collections, to develop expertise and to co-ordinate existing data. This work also forms a natural partner with the archaeopetrology work undertaken in the Department. Most recently, this has included documenting specimens of building stone from archaeological excavations to enhance access and studies relating to the provenancing of stone used for Early Medieval sculptures in Wales.

Dr Jana Horák, Acting Head of Mineralogy & Petrology



A rare fossil arthropod

Contributions to the geological collections are made from a variety of sources, including field work by staff, donation of research collections and specimens collected by amateurs. Over the years, the last category has enhanced the scope of the collections enormously, through the generous presentation by

on Anglesey and the Llŷn Peninsula is giving new insights into the processes and timing of events that took place when the tectonic plate on which Wales was situated collided with the North American continent over 400 million years ago - a dramatic collision that resulted in the closure of a proto-Atlantic Ocean. Age-dating of these rocks is carried out in collaboration with scientists at the British Geological Survey.

Wales is a classic area for the study of the effects of low-grade heat and pressure alteration of rocks resulting from the numerous earth movements through time. Joint programmes of study with the University of Bristol and the University of Keele had produced new insights into the processes involved, including wider comparative investigations as far afield as New Zealand and Chile in partnership with experts from those countries. Much of the funding is from extra-Museum sources, but the benefits are applied directly to yet further understanding of the cumulative development of Wales.

individuals to the Museum of scientifically important specimens. One such was donated in March 2003 by Mr P. Bennett of Brecon, and is a beautifully preserved fossil spider-like animal that he found in a quarry not far from the town.

Spiders and their relatives are comparatively uncommon in the fossil record, especially in the older rocks of Wales. Mr Bennett submitted his specimen to two experts in the field, Dr P.A. Selden of the University of Manchester and Dr J.A. Dunlop of the Humboldt Museum, Berlin, who identified it as a new genus and species of trigonotarbid, a group of extinct arachnids whose known geological range is between the late Silurian and early Permian periods (from about 420 to 280 million years ago). They have prepared a formal scientific description, to be published during 2004.

The specimen is so well preserved that many of the limbs are present. It is one of the oldest trigonotarbids known, and its discovery prompted an article in the *Western Mail* describing it as the world's oldest spider. The rocks in which it was found belong to the early Devonian Period, deposited about 415 million years ago, on the south-eastern side of a large continental mass which lay about 25° south of the Equator, and included North America, Britain, parts of north-western Europe, Scandinavia and European Russia. Stems of early land plants occur on the same piece of rock, which along with anatomical details of the arachnid demonstrate that this was a land animal, part of one of the earliest established terrestrial ecosystems. The fossil provides important information not only on this aspect, but also on the anatomy and evolutionary relationships of this group of arthropods.

Dr Robert Owens, Head of Palaeontology

Archives

The Department of Geology holds a large collection of correspondence, maps, books and other documents that together form one of the most important archives in the British Isles related to the historical development of earth sciences. Foremost among the collection are two lots. First is the extensive early archive of Henry Thomas De la Beche, who became the first Director of the Geological Survey of Great Britain in 1835. He worked extensively in south Wales, and his daughter married into the well-known Dillwyn family of Swansea, from whom the archive was eventually acquired. It is consulted regularly by historians of science and gives fascinating insights into a period when the earth sciences were studied mostly by 'gentlemen geologists', leading up to the formation of the first ever governmentally sponsored organization in the world to undertake such work on a formal basis. The second lot is a collection of the geological maps made by the English surveyor and engineer William Smith, including copies of his famous map of England and Wales published in 1815, the first

compilation of this kind for any country in the world, and which quite recently has been popularised as 'The Map That Changed the World'. NMGW holds one of the largest known collections of these maps, which have become extremely rare. A copy that we purchased in summer 2003 is the second-most expensive item ever purchased by the Department of Geology, and will become the focus of a special exhibition in 2004.

Applied Geology

In keeping with recommendations made in the Assembly Government's Quinquennial Review of NMGW in 2001, the Department is now undertaking non-collection based projects in partnership with various groups of public and private geo-engineering organizations. We hold the largest geological database of maps, memoirs, ground surveys and associated information in Wales, consulted on a regular basis by organizations who need information on bedrock geology and ground conditions for construction and remediation purposes. We also have a substantial collection of borehole cores and well records drilled as part of engineering projects and which also record valuable details of subsurface geology. In 2001, the Department collaborated with four major geotechnical engineering associations to produce the volume *Landslides and Landslide Management in South Wales*. And in 2002, a similar volume, *Landslides and Landslide Management in North Wales*, was published in partnership with a consortium of geo-engineering organizations. Similar work will address aspects of urban geology in Wales in 2004, again as a contribution to geological matters that affect the day to day lives of many people, and as part of the sustainability agenda.

Education

All Museum activities are educational in the sense that information is passed in various ways to different groups of people - via exhibitions, answering public enquiries, information leaflets, popular publications, research papers and monographs and gallery talks etc. Our departmental exhibition showpiece is *The Evolution of Wales*, which generates many public enquiries and for which we have provided consultancy advice and comment on similar projects both in the U.K. and abroad, including Sharjah and Hong Kong. Over and above these in-house educational activities, there is a considerable call on Department of Geology staff time for more formal lecturing and teaching in various spheres. Collectively, we lecture to university classes and we have postgraduate students, we lead field parties around many areas of Wales, numerous societies each year ask for popular talks, we make presentations to learned societies - and in all this myriad activity we promote our understanding of the long history and processes that have produced the fascinating story of the Geology of Wales.

Professor Michael G. Bassett, Keeper of Geology

Industry



Much of the work of the Department of Industry has been devoted either to the extensive redevelopment of existing industrial museums, such as at Big Pit in Blaenafon and the National Woollen Museum in Dre-fach Felindre, or to the planning of the new National Waterfront Museum at Swansea.

The Department of Industry made a number of acquisitions in 2002-03, ranging in size from a brick press from Emlyn Brickworks, Penygroes, Carmarthenshire (see *The Emlyn Brick Works Press*, below), to pens and pencils manufactured by Staedtler UK at Llantrisant. A fine ship portrait of the Anglesey-owned barque *Afon Cefni* was acquired during the year; and was conserved. Amongst other accessions were fine scale models of articulated lorries owned by Welsh haulage companies, an Austin Pathfinder pedal car, lamps and lampchecks from collieries in the north Wales coalfield, police riot shields from the Miners' Strike of 1984-5, a Dragon 64 computer, copper ingots, a model of the cargo liner MV *Author*, a GWR jigsaw of Swansea docks and a model Dalek made by Marx Toys of Swansea.

Elsewhere, Big Pit collected two statues made of coal, a collection of badges and stickers from the Hackney Miners' Support Group of 1984-5 and a pocket watch belonging to one of the victims of the Senghenydd explosion of 1913. This is a particularly poignant artefact, as it proved to be the only way of identifying the body of its owner, William Edward Beck. The Welsh Slate Museum in Llanberis acquired documents relating to the Dinorwig lodge of the North Wales Quarrymen's Union and an example of a rotary slate-dresser, made by a Porthmadog foundry and used at the Oakley Quarry in Blaenau Ffestiniog. Numerous artefacts from the collections were loaned out during the year, the most notable loan being that of the figurehead of Scott's Antarctic exploration vessel, *Terra Nova*, loaned to a prestigious exhibition held in the Australian National Maritime Museum in Sydney. The portrait of the *Afon Cefni* was been loaned to Oriel Ynys Môn, Llangefni, as part of our partnership scheme Cyfoeth Cymru Gyfan-Sharing Treasures.

Collections management staff provided support for redevelopments at the National Woollen Museum, Big Pit and the development of the National Waterfront Museum at Swansea. Much material from the National Woollen Museum, both artefacts and archival collections, has been stored in the Collections Centre at Nantgarw.

The facilities for the conservation of artefacts in the Department of Industry were improved significantly during the year with the completion of two new workshops within the Collections Centre. These workshops, for heavy engineering and woodwork respectively, will be vital as the conservation programme for the National Waterfront Museum project accelerates. Work has already commenced on the conservation

of the Emlyn brick press, which will occupy a prominent position in the new museum. Conservation work at the Welsh Slate Museum included the re-tubing of the boiler of the narrow-gauge steam locomotive *Una*, and the complete overhaul of the miniature de Winton locomotive *Dorothea*.

The Welsh Slate Museum celebrated its thirtieth birthday in May 2002, just a month after winning the Wales Tourist Board's prestigious 'Sense of Place' award. A further accolade for the Museum came in November 2002 when the restored Vivian V2 incline was awarded a commendation by the Institute of Civil Engineers at their Historic Bridges and Infrastructures awards ceremony. Welsh Slate Museum staff also assisted in the dismantling of the cowshed at Cae Adda farm, Waunfawr, to be erected at the Museum of Welsh Life. Amongst other events, the Museum continued its commemoration of the 1900-03 Penrhyn Quarry lock-out by organizing a series of poetry workshops on the theme of the slate industry, in association with Academi, the Welsh literature development agency, and also advised on the restoration of Cae'r Gors, near Rhosgadfan, the home of the Welsh novelist Kate Roberts. The Museum was also awarded an unusual contract to produce 5,000 pegged roofing slates for the restoration by Trinity House of eighteenth-century buildings associated with Ynys y Moelrhoniaid (the Skerries) off the north coast of Anglesey.

Much of the research work carried out within the Department was also linked to the National Waterfront Museum project. In addition to this, research projects were completed on maritime investments by slate quarrymen in late Victorian Gwynedd and on the Welsh toy industry. Important advances have also been made in identifying areas of research in the largely uncharted field of conservation of multi-material industrial artefacts. Surveys were carried out on the slate quarries at Llanfyrnach and Cilgerran during the year, and research was conducted on the history of a length of slate fencing bordering the grounds of Temple House, near Marlow, once the home of Thomas Williams, the 'copper king' of Parys Mountain fame.

Dr David Jenkins, Senior Curator (Maritime)

The Emlyn Brick Works Press

Amongst the wide range of industries that will feature in the National Waterfront Museum, Swansea, will be a number whose past or current importance may be a revelation to visitors. One industry that acquired an international reputation, yet even in its heyday was considered to be somewhat small-scale and localised, was the manufacture of brick and refractories (fire resistant bricks and other products). This industry was widely disseminated in most parts of Wales and, due to its status as a

multiplicity of usually modest and locally owned concerns, the overall scale and importance of the industry was largely obscured to contemporaries.

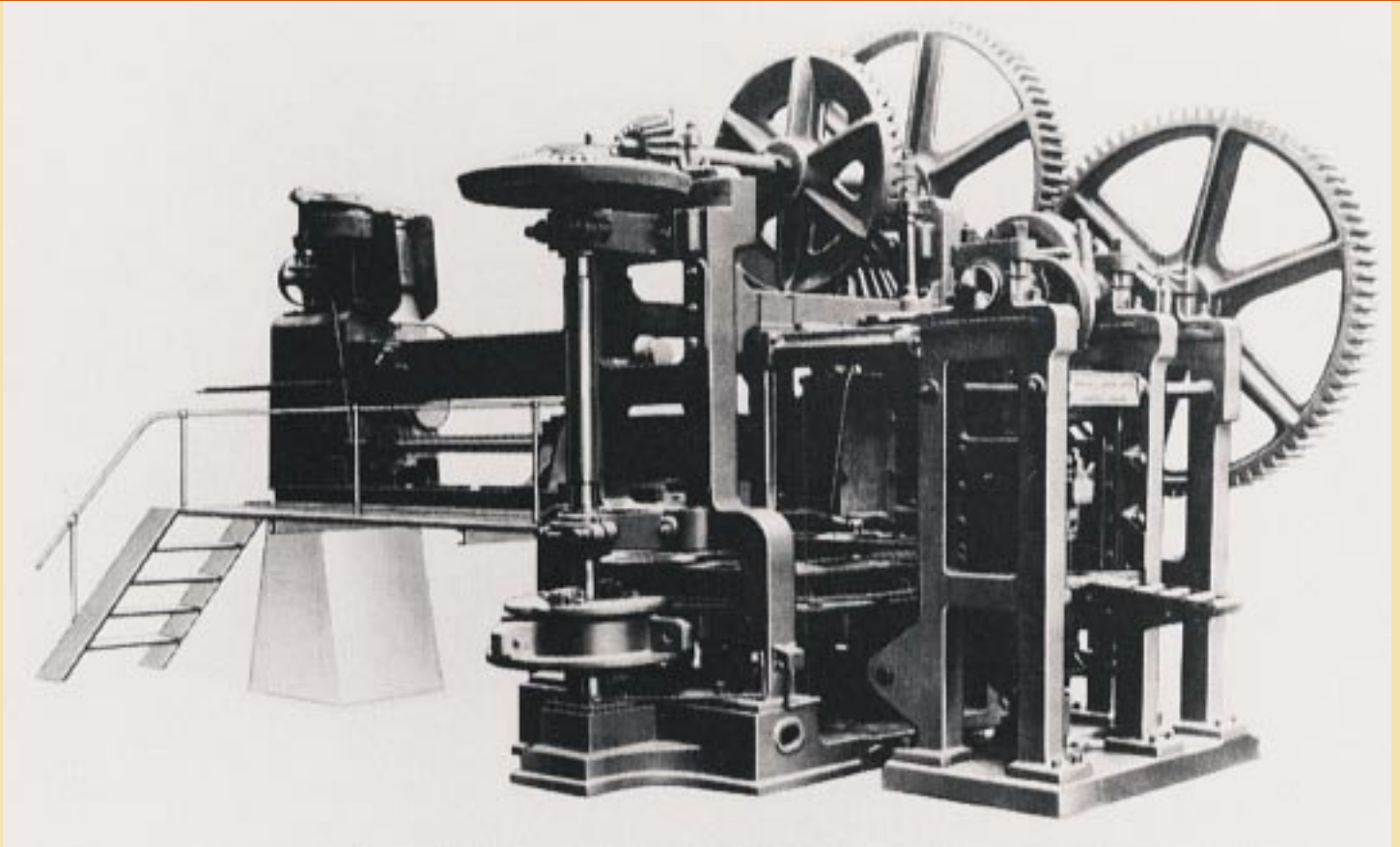
In the last few years the Department of Industry has been fortunate to be offered four substantial collections of Welsh bricks that have complemented and extended the sample coverage previously provided by a pioneering collection donated to the Museum in the 1980s. As it was not possible to collect brick-making machinery in the 1960s and 1970s, when the industry contracted considerably and the small number of surviving concerns re-equipped themselves with modern machinery, it had seemed that the absence of Welsh-provenanced machinery was an unfillable gap in the Museum's industry collections. Remarkably, the Museum was then offered an early twentieth-century brick press by a development company that was clearing the site of the former Emlyn Brick Works near Cross Hands, Carmarthenshire, thus enabling us to acquire a machine wholly typical of the industry and with an impeccable Welsh provenance.

In a relatively short space of time we made the transition from having a modest brick collection to substantially representative holdings including, importantly, a machine that is central to their manufacture, and which typifies the sort of machinery used in the early and mid-twentieth century. We were, additionally, able to make a photographic and process survey of Emlyn Brick Works with the machinery *in situ* prior to dismantling the machine. This, together with the existence of a buildings survey made for Cambria Archaeology and a film of the works made for S4C shortly prior to closure, makes the works uniquely well-documented and widens the scope of potential supporting displays in the National Waterfront Museum.

Despite being accessioned in 1987, G. Elfed Jones's pioneering brick collection (which formed the core of the Department of Industry's subsequent brick collecting activity), lay hidden in crates in the basement of 126 Bute Street, the former site of the Welsh Industrial & Maritime Museum, for over ten years. It was not until preparations were being made to move the collections to the Collections Centre at Nantgarw that we were able to realize the potential of this collection and address the issues of its documentation and ease of access. To protect the bricks during re-location, a system was devised whereby wooden dividers were used to form grids on pallets, creating twenty-eight individual compartments into which the bricks could be inserted. As well as providing for their safe movement, the gridded pallets provide an excellent storage system that allows easy physical access and permits viewing of inscriptions without having to handle the bricks. This system has been extended and used for the four other collections subsequently donated.

After their safe installation in the Collections Centre, we at last had the room and the means to examine, compare and re-document the collection by systematically recording dimensions, colour, inscriptions and other features. The





inventory of the brick and refractory collection on the Collections Management System (CMS) has enabled us to link each brick to the record photograph taken by the Photography Department and to reconcile each brick to its supporting accession information. In the case of the G. Elfed Jones collection this includes references to his notebook entries and scale drawings. Bricks remain one of the Department's current documentation projects as we continue to identify the locations, ownership and dates of operation of the works that manufactured the bricks, and the sources of their raw materials.

The brick and refractory industry will feature in a number of ways in the National Waterfront Museum. The brick press, with its large exposed gear wheels and a ponderous design that harks back to its mid-nineteenth-century origins, has been selected as one of the initial representative suite of large machines. In addition, many of the display themes in the National Waterfront Museum will relate to the brick industry. The raw materials used in this industry, such as clays, shales and marls, silica rock and coal will be highlighted as part of the theme of Land. The importance of refractories for furnace construction in the Welsh smelting industries will be featured in the theme Transformations. The theme The Day's Work will examine working conditions, highlighting both the mundane such as the brick works labourer, and those with industrial clout such as the steel works bricklayer who installed and repaired refractory furnace linings. The theme of Man on the Landscape examines the impact of mineral extraction and

industrialisation, including brick pits and fireclay mines, and the considerable tonnage of spent refractories that formed part of smelting works' waste tips. Wales's considerable industrial impact on the rest of the world will; be examined in Metals, which as well as considering its internationally pre-eminent metal exports will include Wales's importance in the field of refractories manufacture and engineering. Even today, the Welsh place name 'Dinas' survives in use in Russian (ДИНАС = dinas = silica rock), French (*terre de dinas* = silica rock) and German (*Dinaswerke* = silica brick works), the term having been adopted from the pioneering Dinas Silica Brick Works in the Vale of Neath, named after Craig y Ddinas.

Robert Protheroe Jones, Curator (Heavy Industry) and Carolyn Charles, Curator (Collections Management)

Department of Industry staff list

Collections Centre, Nantgarw

Senior Curator (Maritime & Transport), *Dr David Jenkins*
 Curator (Heavy Industry), *Robert Protheroe-Jones*
 Curator (Modern Industry), *Richard Davies*
 Curator (Collections Management), *Carolyn Charles*
 Curatorial Assistant (Collections Management), *Mark Etheridge*
 Curatorial Assistant (Photographic Collection), *Peter Bennett*
 Documentation Assistant (Industry), *Melanie Youngs*
 Conservation Officer (Industrial Collections), *Samantha Taylor*
 Conservation Officer (Small Objects), *Walter Gneisinger*
 Conservation Officer, *Lisa Childs*
 Senior Technician, *Chris Perry*
 Technician, *Phil Tuck*
 Administrative Officer, *Judith Martin*

Big Pit: National Mining Museum of Wales, Blaenafon

Keeper & Mine Manager, *Peter Walker*
 Curator (Coal), *Ceri Thompson*
 Conservation Officer (Coal), *Jon James*
 Education Officer, *Sharon Ford*
 Marketing Officer, *Kathryn Stowers*
 Administration Officer, *Vivienne Heward*
 Finance Officer, *Pat Edwards*
 Electrical Engineer/Security, *Graham Gratton*
 Mine Deputy, *Mike Read*
 Mechanical Engineer/Surface Maintenance, *Jeff White*

Welsh Slate Museum, Llanberis

Keeper, *Dafydd Roberts*
 Administrative Officer, *Nia Hughes*
 Administrative Assistant, *Tina Burgess*
 Exhibitions & Documentation Officer, *Tudur Jones*
 Education Officer, *Celia Wyn Parri*
 Promotions Officer, *Julie Williams*
 Supervising Technician, *Haydn Lewis*
 Craftsman, *John Peredur Hughes*
 Blacksmith, *Dylan Parry*

Museum of the Welsh Woollen Industry, Dre-fach Felindre

Curator, *Sally Moss*
 Curatorial Assistant, *Ann Whittall*
 Education Officer, *Llinos Thomas*
 Redevelopment Project Assistant, *Pippa Murphy*
 Conservation Officer (Machinery), *Russell Ellis*
 Museum Assistant, *Olga James*
 Administrative Assistant, *Marlene James*

National Waterfront Museum, Swansea

Project Manager, *Dr Richard Bevins*
 Administrative Assistant, *Kay Hanson*
 Research Assistant, *Siân Hopkin*

Publications by Department of Industry staff

JENKINS, D. (Co-editor) 2002. *Cymru ar Môr/Maritime Wales 23*.

PROTHEROE JONES, R. [co-author with Craig, R. & and Symons, M.] 2002. *The Industrial & Maritime History of Llanelli and Burry Port, 1750-2000*. Llanelli.

GNEISINGER, W. 2002. Contributed chapters on the conservation of paper and textiles. In *A Multilingual Dictionary of Conservation/Restoration Terminology*. CD Rom, EU Culture Programme Connect, 99/A2/82, 2002.

The Library



The Library, consisting of the main collection and departmental collections throughout the Museum, supports as its prime activity the work of the staff, particularly the curatorial departments. It also collects in its own right material for the special collections, such as early printed books in the natural sciences, Welsh topographical material of the eighteenth and early nineteenth centuries and examples from private presses.



Welsh Plowman & Cottagers.

An important feature of 2002-03 was the progress on refining the Library Management System (LMS) ready to be launched on the Museum's intranet. The bulk of the catalogue features periodicals, the monograph collection acquired since 1992, the main museology works, the Tomlin Library of books on Mollusca and the rare books collection held in the Main Library.

Part of the LMS is given over to a database of the prints and drawings that appear in the collection of eighteenth- and early nineteenth-century topographical books, largely tours undertaken in Wales and the Welsh Marches, as well as early county histories. A long-term project is to catalogue these prints and drawings electronically, providing title, date, original artist, engraver, size and also subjects terms. So, in the case of the latter, the watercolour included in Sarah Anne Wilmot's collection of her diaries recording tours in England and Wales, acquired in December 2001, is indexed under the county (Carmarthenshire), cottages, peasantry and slide-cars. A Friend of NMGW spends half a day each week on preparing the entry forms for each print or drawing, and by March 2003, 3,200 items had been placed on the database, out of a projected total of 5,000.

A feature of the collection of Welsh topographical books is a number of titles from the Monmouth author and publisher Charles Heath. Several of these books, such as those on the tour of the river Wye, Raglan Castle, Tintern Abbey and the

town of Chepstow, went into several editions, such was their popularity with those who toured Monmouthshire. The Library was able to add a further thirteen works by Heath, published in the first decade of the nineteenth century, with several editions published before those already in the collection.

The architect and ornamental designer Owen Jones, who played a leading role in the Great Exhibition of 1851, is best known for *The Grammar of Ornament* (1856). He designed and illustrated a number of books, printed by chromolithography and forming part of the Gothic Revival, and we acquired a small number of these many years ago. The auction of a large collection of books to which Jones contributed enabled the Library to acquire a further four titles, although one of his finest designs, *The Psalms of David*, eluded us.

Book searches on the internet have enabled us to fill several gaps in the collection of both antiquarian and modern books, with items coming from as far away as Italy and New Zealand, as well as America. One of the finest volumes of coloured aquatints in the Library is T. H. Fielding's *A Picturesque Description of the River Wye* (1841), and it has now been possible to acquire his similarly illustrated *British Castles* (1825).

Examples of a number of private press books have been added to the special collections, and one of the finest comes from Gwasg Gregynog. Published in 2002, *Cutting Images* is a selection of Sir Kyffin Williams' linocuts, and one of the special bindings by Alan Wood, to a design by the artist, was purchased.

Every few years, Shirley Jones of Red Hen Press, based near Brecon, produces an artists' book in a limited edition, usually forty copies. The latest addition to the collection was *Etched Out*, with images and words recording the community who lived and farmed in the Epynt area, which was evicted in 1940 in order that a military firing range could be created. Older private press books have not been neglected, and examples from one of the most famous of all, the Golden Cockerel Press, have been added, notably two illustrated by Robert Gibbings, director of the Press, as well as the edition of *The Wisdom of the Cymry* (1939).

Although the Library is much used by students and other members of the public, the only chance to display parts of the collection is usually through the 'Book of Month' case at the National Museum & Gallery. However, in 2002-03 our books formed part of the Blaschka glass exhibition that went to London and Sunderland, and also the exhibition *Re:creations: Visualizing our Past* that went from the National Museum & Gallery to Oriel Ynys Môn, Llangefni in Anglesey.

John Kenyon, Librarian

Significant Acquisitions:

- E. Cruickshanks (et al., eds), *The history of Parliament: the House of Commons 1690-1715*, 5 vols (Cambridge, 2002)
- K. Damsholt, *Illustrated flora of Nordic liverworts and hornworts* (Lund, 2002)
- David Esslemont, *Inside the book* (Newtown, 2002; one of ten special issues)
- T. H. Fielding, *British castles* (London, 1825)
- J. Greenwood, *Omega cuts* (Woodbridge, 1998; special edition)
- J. Greenwood, *The graphic work of Edward Wadsworth* (Woodbridge, 2002; special edition)
- F. W. Harrison and S. L. Gardiner, *Microscopic anatomy of invertebrates. 7. Annelida* (New York, 1992).
- House of Commons - Various reports on the coal trade, accidents in mines etc. (London, 1806-49)
- S. Jones, *Etched out* (Brecon, 2003)
- C. Koenig, *Icones fossilium sectiles: centuria prima* ([S.l.], 1830)
- J. H. Manners, 5th duke of Rutland, *Journal of a tour round the southern coasts of England*, vol. I (London, 1805)
- G. Meissner, *Allgemeines Künstlerlexikon*, vols 30-35 (Munich, 2001-2)
- S. Nilsson, *Petrificata suecana formationis cretaciae* (Londini Gothorum, 1827)
- T. Okutani, *Marine mollusks in Japan* (Tokyo, 2000)
- S. Pearce (ed.), *The collector's voice*, 4 vols (Aldershot, 2000-2)
- Slater's royal national and commercial directory... of the counties of Gloucestershire, Monmouthshire and north and south Wales* (London, 1858)
- K. Williams, *Cutting images: a selection of linocuts by Kyffin Williams* (Newtown, 2002; copy eighteen of a special edition of twenty)

Library staff list

Librarian, *John R. Kenyon*

Assistant Librarian, *Louise Carey*

Library Assistant, *Jennifer Evans*

Administrative Assistant, *Eleanor Jones*

Publications by Library staff

KENYON, J. R. 2001. Recent literature relating to Wales 2001. *Archaeology in Wales* **41**: 185-88.

___2002. *Castle Studies: Recent Publications - 15*. Castle Studies Group. 23pp.

___2002. Post-medieval Britain and Ireland in periodic literature in 2001-02. *Post-Medieval Archaeology* **36**: 289-99.

___(co-editor with O'Connor, K.) 2003. *The Medieval Castle in Ireland and Wales: Essays Presented to Jeremy Knight*. Four Courts Press, Dublin. 261 pp.

___2003. Kidwelly Castle, Carmarthenshire: the reinterpretation of a monument. In Kenyon, J. R. and O'Connor, K. (eds), *The Medieval Castle in Ireland and Wales: Essays Presented to Jeremy Knight*, Four Courts Press, Dublin: 176-81.

Social & Cultural History



The Department of Social & Cultural History is responsible for the curation, conservation and interpretation of the social and cultural history collections of the National Museums & Galleries of Wales. These include re-erected historical buildings, vernacular furniture, costume and textiles, as well as artefacts and archival materials relating to agriculture and crafts, folklore and customs, popular culture and domestic life. The Department's archival holdings include the definitive archive of Welsh oral traditions, folk music and dialect speech.

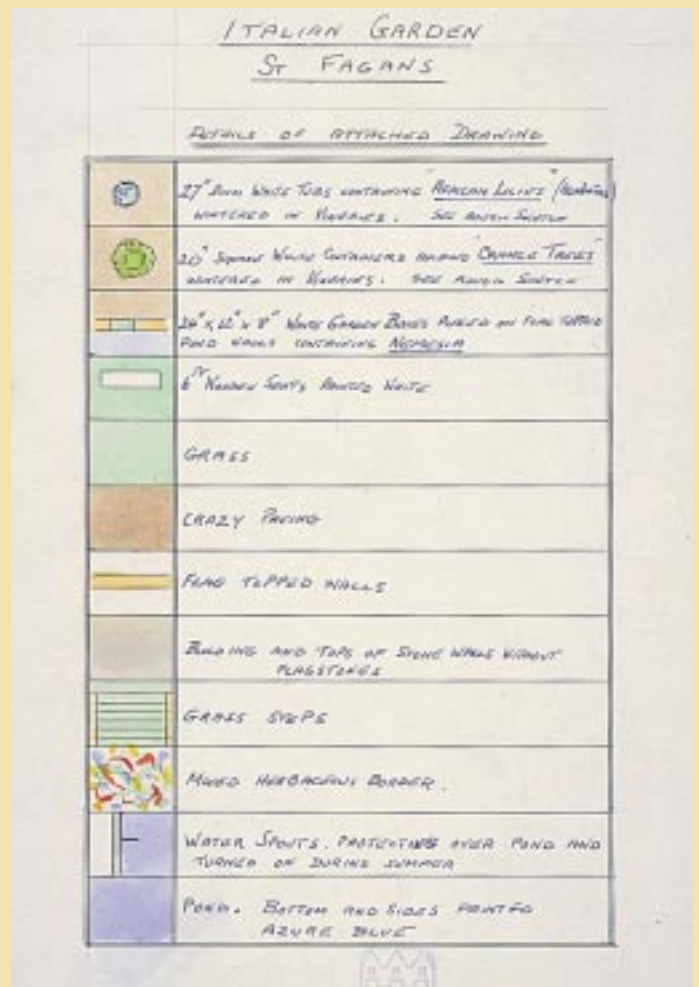
The Italian Garden, St Fagans Castle

The existence of this hidden garden first came to light during oral history interviews in St Fagans village as part of a research project on the Castle and garden staff. It was remembered as a place where everyone sat out after dances in the banqueting hall, where the village flower show was held and morris dancing and pageants took place. For some reason, the garden had not been included in the gift of the Castle and gardens to the national Museum of Wales in 1946, and over the next thirty or so years had been locked up and forgotten.

An opportunity for more detailed research arose when an interview was arranged with Andrew Pettigrew, son of Hugh, head gardener of St Fagans Castle from 1898 to 1935. As a

trained gardener himself, Andrew Pettigrew had an excellent recall of the layout and planting of this garden, evidenced by his immaculate hand-coloured sketch of the garden, and most especially a copy of Hugh Pettigrew's 1904 printed booklet *A Handlist of Roses*. The *Handlist* included a list of old roses still growing in the Italian Garden from its time as a rose garden in the 1860s. Research among papers and glass negatives in the Plymouth Estate offices at Oakly Park also brought to light the first surviving photographic images of this garden. More information was gleaned from a privately printed book compiled in 1932 by the Dowager Countess of Plymouth, acquired by the Museum of Welsh Life library during the 1990s, which contained Hugh Pettigrew's notes on the actual construction of the garden. When work began on the restoration of the garden, the information for an accurate representation of the original garden was already in place in the Museum of Welsh Life archives.

Christine Stevens, Curator (Domestic & Rural Collections)



For the Department of Social & Cultural History, the work of the past year has mainly been a combination of delivering major building projects at the Museum of Welsh Life, providing considerable input into the development of the National Waterfront Museum, Swansea, and the National Woollen Museum, Dre-fach Felindre, as well as addressing issues regarding the conservation and interpretation of historical buildings at Museum of Welsh Life.

Between May and August 2002, the Italian Garden, part of the formal gardens associated with St Fagans Castle, was totally rebuilt and restored to its original appearance around 1902 (see *The Italian Garden, St Fagans Castle*, below). Its restoration has helped to convey a fuller picture of how the gentry in Wales used their properties at the turn of the last century. The project, which was sponsored by Barclays, was documented in the BBC2 series *Hidden Gardens* broadcast in November 2002.

Work also continued on the re-erection of St Teilo's Church. Boosted by the appointment of another carpenter to the Historic Buildings Unit, the first two roofs are now built and covered in stone tiles. Fabrication of oak trusses for the nave is also already well advanced. Research was undertaken in partnership with the Archaeology Department on evidence for a medieval boundary wall. A plan for such a wall was agreed and work on its construction has now started. The staff of the Historic Buildings Unit delivered talks and guided tours to a variety of audiences. A highly successful celebration of St Teilo's Day was also organized, the activities focusing on the rebuilding process and including a poetry workshop for schools sponsored by Academi, the Welsh literature development agency. The recent appointment of a new full-time interpreter for the Church enables the project to be explained more effectively to the public, and allows the Historic Buildings team to concentrate on the re-erection of the building.



In September 2002, members of the Historic Buildings Unit travelled to Waunfawr in Snowdonia to record and dismantle a boulder-built cow byre, similar to that which once stood

alongside Llainfadyn, the quarryman's cottage from Rhosgadfan that is already part of the Museum's collections. Reconstruction of this building commenced in 2003. Its completion will enable the Museum to convey a more accurate picture of how the occupants of cottages such as Llainfadyn lived and worked in the late eighteenth and early nineteenth century. During the process of dismantling the building, successful outreach work was done with the local community and school. Video links have been made with the school since removing the building to the Museum of Welsh Life, which will culminate in their visiting the Museum to see the byre's re-erection.

Work continued on the refurbishment of St Fagans Castle interior, particularly the kitchen and circular staircase, despite the Castle having been closed since February 2002 awaiting repairs to the roof. Conservation work on the Angel bed in the State Bedroom was completed, mattress supports constructed and a new bedcover commissioned and completed. Work was also done on the kitchen table and clock, which is now in working condition. Condition reporting was begun on all display items in the Castle and the small items needed for kitchen displays have been conserved.

Some artefacts were affected by storage problems. The Museum of Welsh Life's collection of oil paintings had to be moved from their original location in St Fagans Castle to the Collections Centre, Nantgarw, following building work on the Castle roof. A survey of the current state of storage of agricultural vehicles also highlighted the urgency of finding alternative storage for those collections. More positively, the situation in the costume store was much improved by the upgrading of shelving, and upgrading work was also carried out on the costume and textile handling collections. The re-storage of the shoe collection was also completed, with all items having been inspected, condition reported and given new boxes.

Essential maintenance work was carried out on many of the seventy or so buildings for which the Department is responsible. The increased wear and tear on the buildings and their contents since the introduction of free entry in April 2001 has been a matter of concern for the Department, as has the increased need to improve the interpretation of our displays for new audiences. Many of the buildings at the Museum of Welsh Life, both domestic and craft interiors, are displayed substantially as they were when first re-erected, in some cases almost fifty years ago. Conservation and curatorial staff have for some time wished to review not only displays and interpretation but also the care of collections and preventative conservation in this area. Even before the additional pressure created by free entry, most interiors suffered considerable damage by being 'over-visited'. Kennixton Farmhouse and the Rhyd-y-car houses in particular were already showing serious signs of wear and tear, despite redecoration and the establishment of visitor limits for each building.

A number of surveys have been conducted to assess housekeeping, cleaning and visitor circulation. Detailed surveys of the worst affected buildings have been carried out as part of a rolling programme of research and reinterpretation, which will provide more meaningful information for the visitor and more care for the collections on display. The complex historical messages and stories portrayed are not always obvious to visitors, who do not necessarily have the prior knowledge and cultural background to unravel them. In addition, a preventive conservation policy has been drafted as part of a general review of housekeeping and cleaning, which should also have a positive effect on the open display areas on site.

On the archival front, much work has been done to improve information retrieval so that archival staff can respond efficiently to the increasing number of enquiries received. A searchable database of the Museum's manuscript archive has been created, which has provided much greater access to the information held in the collection. Work is also very far advanced on developing, with the Documentation Unit and the Department of Industry, a database management system for the photographic archive. The oral history project on Welsh women's history undertaken by Merched y Wawr drew to a close, having added over 1,000 recordings to the Museum of Welsh Life's sound archive. The Department has since provided recording and editing facilities to enable Merched y Wawr to publish CDs for the blind, based on material from the project. Work on cataloguing the sound archive also proceeded, thanks to a generous donation from the Friends of NMGW to pay for external assistance in documenting a collection of oral history recordings received some years ago from the BBC. Archive staff were also responsible for the Museum's annual 'e-steddfod', or

on-line eisteddfod, held jointly with the National Library of Wales. The e-steddfod resulted in over 120 compositions being submitted, the competitors coming from as far afield as America, Canada, Greece, Finland and New Zealand.

Research undertaken by the Department was dominated by the National Waterfront Museum, Swansea and the redevelopment of the National Woollen Museum at Dre-fach Felindre. For the National Waterfront Museum project, curators made significant contributions to the content development and research of exhibits relating to community life, organizations and commerce. Both curatorial and conservation staff were involved with developments at the National Woollen Museum, undertaking primary research, sourcing objects and arranging new photography for the *Following the Flock* exhibition in addition to condition-reporting the whole collection. The Curator of Historic Buildings undertook a detailed measured survey of the west gable of Mill South, which was unstable, to enable its accurate re-erection.

As well as researching original sources for Welsh rural dress and the influence of Lady Llanover, Christine Stevens, Curator (Domestic & Rural Collections), undertook research on Corgi Hosiery, a now world-famous firm which was originally founded in Ammanford in 1893 to produce hosiery for the coal mining community. This resulted in additions to both the archival and material collections. The clock and watchmakers database was completed by Dr Sioned Williams, Assistant Curator (Furniture), while Emma Lile, Assistant Curator (Music & Sport) prepared extensive entries on Welsh rural sports for a forthcoming Encyclopaedia of British Traditional Rural Sports. Based on the oral testimony collected over many years, Robin

New Net House and Boat House displays

Following the collapse of the boundary wall on the morning of 30 October 2000, the whole area of the swimming pool, Boat House, Net House and Esgair Moel pump house were flooded to a depth of approximately six feet. The Net House and Boat House are timber-built structures, copies of buildings which once stood at Chepstow and constructed by the Museum in 1972. The open-fronted Boat House is used to display examples of Welsh fishing boats, whilst the Net House contains displays and artefacts relating to river and estuary fishing, including the national coracle collection.

Although, as might be expected, the boats survived the flooding, all of the displays in the Net House were destroyed and the building was badly damaged. The following year was spent repairing damage to the boundary wall and the buildings, during which time drying out of the collections and conservation work took place, while planning and research for new displays was undertaken. When the new displays opened in April 2002, they included improved cases for sensitive or dangerous items, plastazote-lined stands for the coracles and new information panels and photographs. The displays included information gleaned from the oral history archive, as well as a film of most of the fishing methods displayed.

Since the opening, research has continued, resulting in demonstrations by the last remaining lave net fisherman on the Severn, and it is hoped to update the displays with new photography and film.

Christine Stevens, Curator (Domestic & Rural Collections)

Gwyndaf, Curator (Folklore) has been compiling a comprehensive and definitive volume on Welsh folklore. Gareth Beech, Assistant Curator (Rural Life) completed his work on Welsh field-gate patterns and embarked on a project to document agriculture in Wales since 1950, which will fill gaps in our knowledge of a period of great change in rural Wales and eventually enhance the Museum of Welsh Life's agricultural gallery (see *Research Report*, page XX). Fieldwork was also undertaken by Dylan Jones, Senior Curatorial Assistant, to record the disappearing skills of lave net fishing on the Severn, as well as documenting previously unrecorded river place names (see below).

Mared Sutherland, Assistant Curator (Domestic Life) conducted research on seasonal food and laundering in the early twentieth century. Other research was carried out by Gerallt Nash, Curator of Historic Buildings & Commerce, and Sioned Wyn Hughes, Assistant Curator (Historic Buildings & Commerce), on the history of the *Tŷ Un-nos* or 'One-Night House' tradition in Wales as part of an archaeological reconstruction at the Museum. The project, which involved building two temporary houses - one in the traditional fashion, and the other using modern materials - was broadcast as part of S4C's involvement with Shelter Cymru. Perhaps the most intriguing research project this year was the analysis of an eighteenth-century corset buried in the wall of a thatched cottage at Pontarddulais, west Glamorgan. The corset, which is now in the Museum's collections, was probably buried deliberately, following a centuries-old tradition of concealing clothes or other objects such as dried cats, witch bottles and charms in the walls of buildings as a ritual to protect the household and its inhabitants.

Dr Beth Thomas, Keeper, Social & Cultural History

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