Justin Champion discovers the past online

Researching the future through ARIA and SENSE

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issue 8 winter 2005

Preparing for the future

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Looking to the future

An interview with Sir Howard Newby, Chief Executive of HEFCE

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'In an era of lifelong learning, continuing personal and professional development will be central'

Interview with Sir Howard Newby, Chief Executive of HEFCE (see page 4)
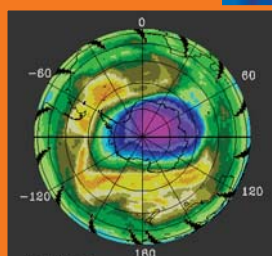
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A JISC agreement brings a world-famous reference work to the further and higher education community. Brian Mitchell reports

British lives online

A new online resource brings a vast and familiar reference tool to the desktop. The Oxford Dictionary of National Biography tells the stories of over 50,000 people who shaped the history of the British Isles and beyond, from the earliest times to those who died in the year 2000 – from the 4th-century BC Greek explorer Pytheas to Princess Diana, and from the founding fathers of America to the Nawabs of Bengal.

The Oxford Dictionary of National Biography also includes over 10,000 portrait illustrations – everything from coins and death masks to photographs by Cecil Beaton and Man Ray.

Now available through a JISC agreement, the online edition also offers access to the complete text of the first 33-volume Dictionary of National Biography. You can move from the new article to the original by clicking the DNB Archive button in the side bar, and comparisons are fascinating: see, for example, the article on Oscar Wilde and compare it with the original biography written in 1901.

A vast range of features and search options makes the online resource a powerful and rich tool for learning, teaching and research. Browsing by themes, such as prime ministers, saints, Nobel Prize or even Oscar winners is now possible, as is searching by birth date, occupation, contributors and images.

Brian Mitchell
JISC

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Audrey Hepburn (1929 – 1993), by Bassano (1950)

© National Portrait Gallery, London

Elizabeth I (1533 – 1603),
by unknown artist (c. 1575)

© National Portrait Gallery, London

Isambard Kingdom Brunel (1806 – 1859), by Robert Howlett (1857)

© Scottish National Portrait Gallery

David Hume (1711 – 1776),
by Allan Ramsay (1766)

For further information please go to:
http://www.jisc.ac.uk/collections

An interview with
Howard Newby,
Chief Executive, HEFCE

Looking to

The Higher Education Funding Council for England (HEFCE) is JISC's principal funder. Its mission is to promote and fund high-quality, cost-effective teaching and research in universities and colleges in England. In an exclusive interview with JISC Inform, HEFCE's Chief Executive Sir Howard Newby talks about HEFCE's plans for the HE sector in England and about the place of technology in that future.

JI: You've had a highly distinguished career in education and beyond, spanning a wide variety of roles. I wonder if you can begin by telling us what part ICT has played in your career.

HN: Back in the mid-1980s I was the director of the Economic and Social Research Council's (ESRC) Data Archive. In those days it was a physical archive of tapes, a kind of national lending library for electronic data. It was housed in a basement in ordered racks and along an eight-by-twenty-foot wall.

I was also Assistant Producer of the BBC's Domesday Project. This was 1986 which was the 900th anniversary of the Domesday Book. The project attempted to provide a snapshot of Britain 900 years on and was produced on two 12-inch laser discs, hooked up to a BBC Acorn computer. At that time it was state of the art and contained moving images, pictures, text, sound and census data. I was then seconded to the BBC Interactive TV Unit at Elstree and the changes there directly led to the creation of BBC Online.

Earlier than this, my first encounter with ICT was, like many academics, through mainframe computers and punch cards in the 1960s.

the future

JI: HEFCE is charged in the Government's White Paper 'The future of higher education' with working with partners on plans to embed e-learning over the next 10 years. What would you say are the key challenges facing the sector as you, through HEFCE's e-learning strategy, and we at JISC attempt to achieve that goal?

HN: We still need to understand a lot more about how e-learning relates to conventional and traditional forms of learning. I think there was a time when some thought that e-learning would replace conventional learning. But the community's understanding is now that this is not the case. But it is the general view too that e-learning will supplement and complement traditional forms of learning. There is more to higher education, for example, than simply sitting in front of a computer screen – I think we would all agree with that. We need to work through what the role of e-learning is in relation to learning and teaching, expand the opportunities for our students, explore the pedagogy of e-learning, ensure that we build courseware for our students that motivates them to learn.

'Blended learning' is the key now, I think; something that acknowledges the advantages that ICT can bring in terms of flexibility of delivery and access – in the home, the workplace, community centres and so on. I think it's fair to say that we're still feeling our way in this area.

JI: The question of excellence in learning and teaching is clearly a major Government priority, and therefore a central priority for HEFCE. How can technology provide a means for promoting excellence in teaching?

HN: The Higher Education Academy and the Centres for Excellence in Teaching and Learning (CETLs) are important developments in this area. We're currently going through the bids for the latter, and directly we hope that we will find one centre that will specialise in e-learning and pedagogy, one that will provide a centre of specialisation in this area. This would be a very important development, ensuring that we develop the professionalisation and the appropriate standards in e-learning so that the value of technology can be disseminated widely.

The Academy will in general take a strong interest in blended learning. Through the HE Academy the latest thinking will enable blended learning to be disseminated widely

Sir Howard Newby, HEFCE Chief Executive

and effectively. It will have a role in the setting of standards in the creation and use of learning materials. Of course, the primary responsibility will rest with the institutions themselves. They will be at the forefront of this, as they should be.

'"Blended learning" is the key now, I think; something that acknowledges the advantages that ICT can bring in terms of flexibility of delivery and access'

JI: There is an increasingly regional dimension to HEFCE's activities. There is also an increasingly 'vertical' dimension to higher education; that is to say, improving progression and pathways through different levels of educational attainment. Can you say how the two things are linked?

HN: The regional dimension is very important to us. I think we'd all agree it's a major driver for the knowledge economy. But central to the knowledge and skills agendas is the need to address disparities in HE provision across the regions of the country. The majority of HE institutions are based south of a line between Norwich and Birmingham. The position is not as healthy north of that line. There are also major disparities in subjects. As we move forward to a 50 per cent participation rate in HE, we know

the kind of people we need to encourage into HE - people from more disadvantaged areas - are more likely to go to their local institutions, usually an FE college.

So we need to provide opportunities for these students to enter progression routes and to link FE with HE provision, through foundation degrees, through degrees at local FE and HE colleges, and so on. At the moment, the opportunities are quite patchy. We need to develop a set of seamless progression routes so that wherever students come out of post-16 education there is a clear pathway that provides opportunities for them to go as far as they want to go. The Lifelong Learning Networks will be crucial to this, providing these pathways to progression.

JI: JISC is supporting this agenda through its Distributed e-Learning Programme announced last summer. What part can technology play in widening access and in providing these routes towards genuine lifelong learning?

HN: We're very lucky in this country. JANET has kept us in the forefront of worldwide developments. It's of course now been expanded to the further education sector and to schools, through the Regional Broadband Consortia, and the Adult and Community Learning sector. I've been an academic for over 30 years. If you look back at that time, what has been the most important thing that has made a difference? It is JANET. We take it for granted that we have easy access to the web. It's made a huge difference and we've never really celebrated it. JANET is a major national achievement that we should all be proud of.

But the technology of networking is

only part of the picture. We need to ensure that content is also provided and this is something that JISC is of course involved in too. Flexible delivery and exciting and innovative content is vital and, in operating in partnership with the British Library, with commercial providers, publishers and organisations such as ITN, this is clearly going to grow. Production values that apply to e-learning are clearly important for young people who are growing up well used to these things.

The Distributed e-Learning programme which you mention is looking at the feasibility of how, for instance, learner records can be transferred across institutions. This will obviously support the networks we are seeking to create, and encourage these progression routes.

JI: The recent report 'Science and innovation investment framework', published jointly by the DTI and the DfES, considers the role to be played by science and innovation in the UK over the next ten years (see insert box on next page). Could you say something about the importance to the wider life of the country of a vibrant and innovative HE and research community, and what the key priorities are for HEFCE in this area?

HN: The Government recognises that HE and FE institutions are major drivers for the knowledge-based economy. The future global competitiveness of our society at all levels depends on them. Universities are major innovators, so we need to ensure that we have effective mechanisms to ensure knowledge is delivered and transferred appropriately so that researchers can make use of it and so that it can support excellence in research. Knowledge transfer is our core mission in this area and it

research-intensive universities can sustain excellence in research in a niche area, but one which has national significance.

JI: Finally, how do you see the future of higher education in the year 2010? What will our students be experiencing then and what do you think will be the place of technology in that future?

HN: I think variable fees will mean that the higher education community will be a more diverse community. But it will also be more networked, more collaborative. The sector will deliver as a whole rather than institutions

delivering individually. There'll be closer links between FE and HE and a growing convergence that will ensure that a more tertiary system evolves. Institutions will be more customer-led and students will inevitably be more demanding and more impatient with supply-side barriers.

There'll certainly be a much greater use of technology in both research and in the classroom. Blended forms of learning will be the norm with technology being used in increasingly student-centred environments. It will be interesting to see the effects of this on curriculum development. The greater flexibility of technology will

encourage a "just-for-you" culture within institutions, developing not only bespoke courseware and learning materials, but whole courses of study, delivered into non-traditional surroundings – at work or at home. There'll be taught postgraduate courses and refresher courses which will be delivered purely through e-learning. In an era of lifelong learning, continuing personal and professional development will be central.

For the full text of this interview, go to:
http://www.jisc.ac.uk/interview

Innovation and Investment: the next ten years

As Sir Howard Newby makes clear in the above interview, a modern economy needs a strong science base to support improvements in education and welfare.

While the UK is among the leading nations in the world in most indicators of scientific and technical progress, increasing global competitiveness means that this country needs to continue to exploit its scientific base and a wide range of new technologies to maintain and improve its global position.

The Department for Trade and Industry, the Treasury and the Department for Education and Skills have recently published a report 'Science and innovation investment framework 2004-2014'. It considers the role to be played by science and innovation over the next ten years.

While the funding councils and research councils have provided their own responses to the report, JISC has also responded, indicating where it already supports this agenda and where it might continue to contribute in the future.

For example, the report urges the creation of a 'multidisciplinary research environment' for research-intensive universities. JISC is currently funding 'virtual research environments' (VREs) that will help researchers manage an increasingly complex and distributed environment.

Likewise the report talks of the need to provide the research community with mechanisms which systematically collect, preserve and make available digital information. The new Digital Curation Centre (see pages 10 and 11)

and the UK Centre for Text Mining, funded by JISC and partners, will be vital in supporting this agenda.

The emphasis in the report on the need for a 'national e-infrastructure' to support the research community is mirrored by JISC's plans for SuperJANET 5, while the stress on the need to encourage young people to study science subjects is likewise supported by JISC's funding of three projects (see page 17) to provide school students access to some of the most advanced scientific applications currently available.

Joe Hutcheon
JISC

Discovering

Early English Books Online is a resource that offers the full text of some 125,000 works published between 1473 and 1700. A JISC deal and major investment in the Text Creation Partnership (see box overleaf) make one of the most extraordinary of all online resources freely available to all colleges and universities. Professor Justin Champion looks at the resource and how it is transforming learning, teaching and research at his institution

the past online

Access to Early English Books Online (EEBO) provides a classic example of how new technology can rejuvenate traditional research. Extending access to the resource has fundamentally changed the way all of us can manage and maintain first–class scholarly research. Only the fustiest mind could resist celebration of this.

The JISC initiative to make this resource available free to all colleges and universities has fundamentally democratised access to what were once elite and inaccessible international resources. The functionality of EEBO extends access down the academic hierarchy, as well as across its institutional geography.

Now all students can have the resources of the British Library, of the Oxford and Cambridge University Libraries, and of some of the great North American collections on their desktop. Students in Hull, or Durham, Penzance or Hastings, can be examining some of the rarest and most impressive works of a global collection by a few clicks of the mouse. Librarians who might fear for the

hallowed sanctity of their special collections can collectively issue sighs of relief.

Many argue that the future of HE delivery will be shaped by electronic technology. Virtual Learning Environments (VLEs) and hybrid methods will become standard. The development of resources like EEBO will ensure that central components of this 'content' will be of a high intellectual and scholarly standard.

The e-delivery of undergraduate learning is also a key component in widening participation. In the past the expansion of student numbers has hit up hard against the brick wall of constraints in library budgets. But access to collections of primary resources opens up the exhilarating prospect of introducing a greater number of students to this intellectual heritage than was ever possible before.

Now students who need to live closer to home (for cultural, economic or medical reasons), or who have restrictions on their abilities to visit libraries during office hours, can browse in the

equivalent of the British Library stacks in the comfort of their own homes. Such access allows the potential for working in
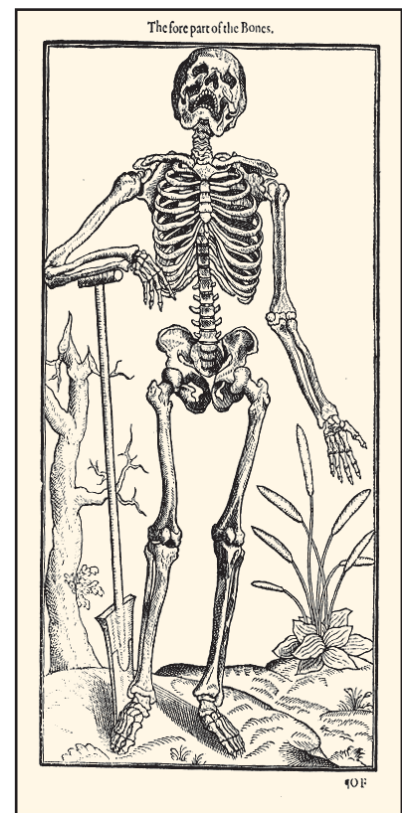
All images © ProQuest

Illustration from John Banister's 'Of the History of Man'.

'The JISC initiative to make this resource available free to all colleges and universities has fundamentally democratised access to what were once elite and inaccessible international resources'
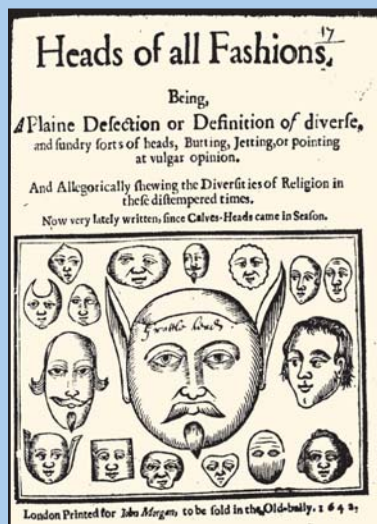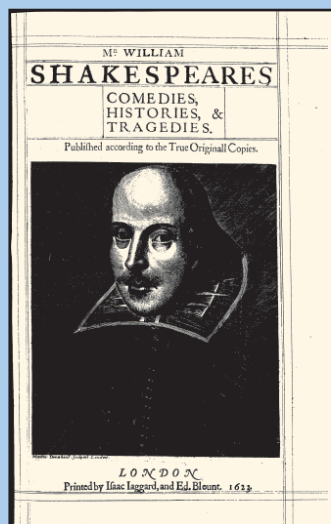

Illustration from John Taylor's 'Heads of all Fashions'

'This figure that thou here seest put, It was for gentle Shakespeare cut...' First Folio, 1623.

national archives and libraries outside office hours: it is now possible to work at 2am, after work, or when the children are asleep.

One of the central functions of a humanities degree is to develop skills of assessment, interpretation and analysis: this is best done in dialogue with primary sources. Such skills are essential to modern life beyond the academy.

Students learn best when they are challenged and stimulated. For too long we have constrained the ambitions of our undergraduates by only gradually weaning them on to the 'hard stuff' of historical sources in their final years. With EEBO, and other resources like it, undergraduates can be introduced to such material through a modern portal.

The resource allows undergraduates to escape the restrictive cultural reputation of the 'library', and to develop skills in an efficient and stimulating way. Still too much of a scholarly fetish is made of the archive and the business of handling books like precious artefacts.

In the past, access to the books, pamphlets and works in the national collections has been regulated and protected; now we can set hundreds and thousands of even first year undergraduates free in the equivalent of the Rare Books Room.

Justin Champion
Professor of the History of Ideas and Director of Executive, Electronic and External Programmes
Royal Holloway, University of London

What is the Text Creation Partnership?

Early English Books Online (EEBO) holds digital page images of more than 125,000 books, pamphlets, treatises, sermons, plays and other works published between 1473 and 1700. This is nearly the total output of English language books within this period.

The TCP project is an international partnership between JISC, the British Library, Oxford University, the University of Michigan, the Council on Library and Information Resources, ProQuest Information and Learning, and many other libraries. This partnership is transcribing a significant number of EEBO texts so that they will be full-text searchable In combination, the text and image editions of these works provide a powerful research and instructional tool of enormous value.

Emma Beer
Arts and Humanities Data Service

For further information please go to:
http://www.jisc.ac.uk/coll_eebo.html

The Digital Curation Centre was launched in November of last year. Already it is providing a vital focus for the task of managing and preserving the digital outputs of the research community. Liz Lyons, Director of Outreach at the Digital Curation Centre, reports on what the Centre hopes to achieve

Communicating across time

When it can be said that the original Domesday Book is easier to access than the BBC Domesday Project which marked the former's 900th anniversary, there is clearly the need for a Digital Curation Centre. So said Professor Tony Hey, Director of the e-Science Core Programme and Chair of the JISC Support of Research committee, at the launch of the Centre in November.

As methods of storage, software and operating systems change over time, data can quickly become unreadable, even when they are not actually lost or accidentally over-written or destroyed. The challenges that this presents are enormous.

The Digital Curation Centre has been set up to meet these challenges. Although there are a number of initiatives around the world looking at information preservation, these initiatives are widely dispersed. Funded by the Joint Information Systems Committee, (JISC) and the e-Science Core Programme, the Centre is run by a consortium of institutions: lead partner University of Edinburgh, the University of Glasgow,

UKOLN, at the University of Bath and the Council for the Central Laboratory of the Research Councils.

Formally launched by Lord Sutherland at a ceremony in Edinburgh in November, the DCC is charged with raising awareness and providing practical tools and support to a new breed of digital curators, drawn from research units, archives, libraries and computing centres.

'The research community is collaborating in a concerted effort to secure its investment in digital data'

'As methods of storage, software and operating systems change over time, data can quickly become unreadable…' Obsolete forms of storage on display at the DCC launch in November.

However, digital curation is not only about preserving and recovering data, it is about communicating with present and future users of the data, and this poses fundamental research problems for computer science.

For example, much scientific data is now held in databases. But how do you preserve something that changes every few seconds? How do you cite something in a database and have some assurance that what the citation refers to

will remain constant? Many of these databases consist of data from other databases, but their added value lies in their organisation and annotations. In a world in which everyone is copying data, how can you trace some piece of information to its source? There are also challenging issues to do with scale and security.

The research community is collaborating in a concerted effort to secure its investment in digital data, and the

Centre is set to become a strong and vibrant focus for the vital task of advising and assisting in the management and curation of the fruits of that community's work.

Liz Lyons
Digital Curation Centre and UKOLN

For further information please go to:
http://www.dcc.ac.uk

Who will the DCC support?

The British Atmospheric Data Centre (BADC) is one of the facilities in the NERC Centres for Atmospheric Sciences (NCAS). The extensive BADC archive allows access to tens of terabytes of data and is a convenient central point of reference for UK researchers needing access to atmospheric data and meteorological products.

Data are produced by NERC-funded projects, the Met Office and other Met agencies. The data are measurements from satellite, aircraft, balloon-borne

and ground-based instruments, as well numerical weather model output.

The BADC is already using the DCC to advise on best practice within archives. As part of this process they are aiming to conform to the OAIS archive reference model. The DCC will also be able to offer advice on the legal issues that are involved in distributing data owned by third parties.

Another DCC service will be the data format repository, which will contain information about common data formats

and related software. This information will allow users of BADC data to find suitable software and interpret the data into understandable forms. The BADC plans to upload descriptions of formats specific to atmospheric science into the repository that others can use.

Sam Pepler
The British Atmospheric Data Centre

For further information please go to:
http://badc.nerc.ac.uk/
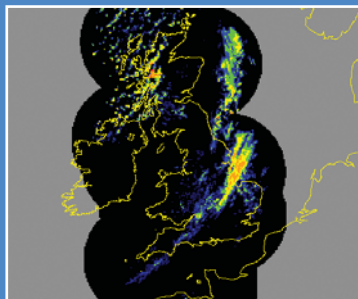
Ozone hole from NASA TOMS instrument
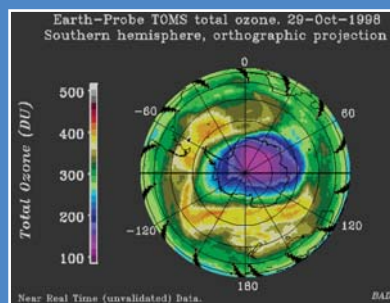
Rain radar data from the Met Office

NERC MST radar facility

Images courtesy of the BADC

Institutional repositories can support learning, teaching and research in a variety of ways. Over the following pages, we look at what institutional repositories are, who they would benefit and how, and consider two examples of projects already bringing direct benefits to the academic community through the establishment of repositories.

Creating and sharing community resources

An online repository can do many things. It can house and make available a whole range of content – research articles, teaching materials, theses, images, statistics, moving images, sound, and so on. It can provide a forum for collaboration by allowing others to contribute to the development of one's own research or teaching materials. It can make more visible a researcher's work, increasing citation rates. It can provide a record of an institution's output.

Clifford Lynch, Director of the Coalition of Networked Information, puts this point perhaps best of all when he writes that 'a mature and fully realised institutional repository will contain the intellectual works of faculty and students … but also the documentation of the activities of the institution itself and of the ongoing intellectual life of the institution.'

But along with these enormous benefits, there are other important advantages. As the price of journals has risen considerably above inflation over the last two decades, so the purchasing power of library budgets has dwindled proportionately. The problems generated have now become acute enough to have attracted attention up to government level.

In June of this year, the House of Commons Select Committee report on Scientific Publications was made public. Among its many recommendations was the encouragement of the creation of institutional repositories. These would exploit the full possibilities of the Internet to allow institutions to make available the outputs of their researchers and academics, to create collaborative communities across institutions, but also to ensure that research is made available to the widest audience in as cost-effective a way as possible.

While it is repositories for e-prints (research outputs, normally a journal article – see inset box) which have led the way in making the case for institutional repositories, repositories can in fact house a wide variety of content.

A new JISC programme, the £2.5m Digital Repositories Programme, to be announced early this year, will address many of the challenges, institutional, cultural, practical and technical, involved in establishing repositories as a viable and sustainable means for creating and sharing community resources.

Rachel Bruce
JISC

What is an institutional e-print repository?

An institutional e-print repository is an online archive set up and managed by an institution to house material created by authors at that institution. Academics deposit a copy of each of their research articles in their repository, usually after, but sometimes prior to, publication. The articles would become freely available on the Internet. Articles that had been peer reviewed and accepted for publication would be distinguished by the quality hallmark of the journal in which they were published.

Adapted from Scientific Publications: Free for All? Vol. 1 p. 56. Stationery Office, 2004.

I don't know where it's been published but I know Dr Smith always puts his articles in his repository – I'll find it there.

Researcher

JISC **inform** winter 2005

Scenarios... who benefits from repositories?

I'll submit my research paper online to my institutional repository so others can access it easily and use it in their research.

eprints.org software is being used by institutions to build repositories.

Authors can check against a JISC-funded database which indicates the level of permission allowed by publishers for authors to archive their work. (www.sherpa.ac.uk/romeo.php)

Researcher

I can now get the data on all staff, CVs and publications for the RAE (Research Assessment Exercise) submission.

Example of an
Institutional Repository

More and more institutions are building their own digital repositories to store the outputs of their own teaching and research.

Repositories are being developed so they support administrative processes.

Administrator

Librarian

I need to check the metadata to make sure this research paper can be easily searched for and retrieved.
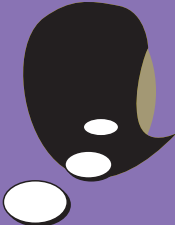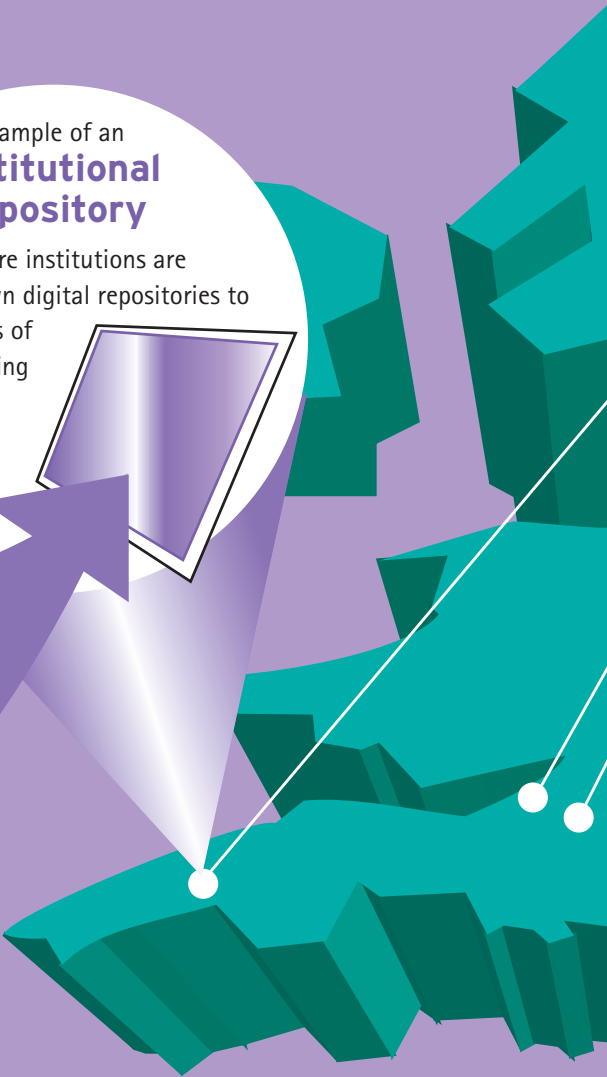
The content of repositories can be made available globally, supporting international collaboration.

ePrints UK
allows the user to cross-search 20 university institutional repositories (www.rdn.ac.uk/projects/eprints-uk/).

I don't know where it's been published but I know Dr Smith always puts his articles in his repository – I'll find it there.
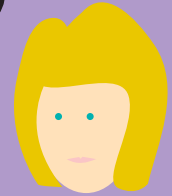
Researcher

I'd like to see the latest unpublished work by Professor Bloggs so that I can keep my secondary literature up to date.

Scientist

I need to see the most recent articles on methods in demographic analysis. I wonder what's available.

Postgraduate Student

The history resources we created worked really well, I'd like to share them. Also, it would be good to see if there's already something available for the new module I'm running in Project Skills.
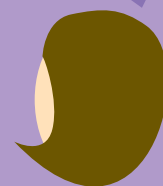
Teacher

National Repositories

National and regional repositories can ensure that there is a scaleable approach to help manage curation, access and use. For example, **JORUM** is a national learning materials repository currently in development. It will allow access and sharing of materials. Another area where a national approach is bringing benefits is in the area of electronic theses.

15

Projects

I can now get the data on all staff, CVs and publications for the RAE (Research Assessment Exercise) submission.

Administrator

## Forward in time: TARDis and the RAE

The Southampton University Research Repository (e-Prints Soton) was initially implemented as an open access institutional repository for the full text of Southampton University's research output, offering self-archiving and assisted deposit.

Contributions to the EPrints Software, developed by the TARDis Project, addressed multidisciplinary, institutional needs and made the deposit process more logical and intuitive for a wide range of research materials.

Conversation with academics at all levels steered the project towards being a publications database with full text where available. Not only does this mean that Southampton's research output is visible, but this central record can now be used for many purposes – web pages, funding proposals, the annual University Research Report, CVs, and perhaps most

importantly, the Research Assessment Exercise (RAE).

The University has now recommended that e-Prints Soton be used as the central RAE 2008 management tool. New features will offer researchers a selection mechanism for RAE submission, the ability for records to be annotated with RAE ratings at a secure level and provision for the export of data.

Full text deposit is growing because the software invites researchers to deposit at the same time as they create the metadata for the RAE record, thus

encouraging a sustainable culture of open access to develop. Support from the project team includes strong advocacy and value added services like linking to the e-Journal subscription version, as well as enriching the metadata to allow for more effective retrieval.

Pauline Simpson and Jessie Hey
TARDis, Southampton University

For further information please go to:
http://tardis.eprints.org/

Linking repositories: SHERPA and a national network

Institutional repositories have many advantages but where they really bring benefits is with a large-scale network of archives across different institutions, covering multiple subject disciplines.

A single search point is enough to search all the records in a whole network of repositories. When material is available on Open Access, the way it is found is independent of where it is held. A search service could be subject based, for example, only searching through e-prints from particular subject disciplines.

The SHERPA project is supporting the establishment of 20 such repositories in UK research institutions; currently 19 are live and gathering content. These join other existing repositories

in providing the backbone for a national repository infrastructure.

The recent Select Committee report (see page 13) recommended the establishment of a national network through giving institutions assistance with the costs of establishment and maintenance. The other main recommendation in this area was a requirement by funding councils for researchers to deposit their outputs. This would help in changing the culture of research communication so that repositories were seen as a natural part of research dissemination.

The reaction to these ideas from the wider research community was almost uniformly favourable. The Government response also supports repository use, although it stops short of directly funding institutions. However, strong foundations have been laid on which we can work for the future.

Bill Hubbard
SHERPA , University of Nottingham

For further information please go to:
http://www.sherpa.ac.uk

How do we make advanced digital technologies more relevant to our scientists of tomorrow?
Pat Leon reports on how a JISC project is reaching in to schools to answer this question

Making SENSE of technology

Street life will never be the same again for students at two Nottingham and Brighton schools after measuring traffic pollution for a JISC e-science project involving potential Grid technologies. Teams of children aged between 10 and 13 were kitted out with video cameras and carbon monoxide sensors last summer and told to seek pollution black spots. They had to analyse their results and share their conclusions with the other school, and with pollution expert Ben Croxford at University College London.

The aim of the project, called SENSE, is to see how new digital technology can make science in schools more exciting, hands-on and relevant.

Researchers from Bath, Nottingham and Sussex universities are lobbying to take the project nationwide. One potential spin-off is a data-network of community pollution measurements that scientists could use. Principal investigator Danae Stanton Fraser, senior psychology lecturer at Bath, said: 'What is novel is you are designing technologies with schools. Scaling up the project would enable us to evaluate further the educational benefits and potential of Grid technologies and of collaboration between scientists and schools.'

SENSE, short for Schools E-Science Network for the Study of Environment, involved two different year groups: Year 6 at Glenbrook Primary, Nottingham, and Year 9 at Varndean Secondary, Brighton. University researchers worked with the teachers on lesson plans to fit the experiment with the curriculum.

Ella Tallyn of Nottingham's school of computer science and information technology, said: 'We first spent time with pupils working on low-tech experiments looking at particulates around the school. The pupils then made

Vaseline and acetate collectors, which the particulates stick to, and examined these under a microscope. The next step was to tell them that there are things in air that you can't see but that pollute. In this way we introduced them to the carbon monoxide sensor, which they helped design.'

Both schools used a specially designed laptop interface that allowed the students to view and compare videodata alongside the carbon monoxide graph.

The children had responsibility for allocating tasks and looking after the equipment. Stanton Fraser said: 'The children explored data sources and viewed data through interfaces that incorporated video, graphs and notes. We'd like in future to integrate map, global positioning satellite and wind data.'

Science teacher David Crooks of Glenbrook told researchers he liked the project because it was cross-curricular, with a bit of maths, data handling, geographical datasets and maps.

In working with schools, the researchers have had to be sensitive to child and data protection issues. They have had to seek parental and school permission to video the process and explain how they will use the data.

Danae Stanton Fraser, project manager of SENSE, presenting at a JISC event last October on the place of e-science in schools.

'Teams of children were kitted out with video cameras and carbon monoxide sensors and told to seek pollution black spots.'

Hilary Smith, of Sussex University Interact Laboratory, said: 'Having kids use hands-on digital devices has definitely helped their enthusiasm in science. The students thought on their feet. They experimented. They held the monitors by running exhausts and by the road. Some even checked out the smoking pollution in the school toilets.'

For further information please go to:
http://www.informatics.sussex.ac.uk/users/hilarys/esci

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JISC's remit has recently expanded to cover the Adult and Community Learning sector. Helen Roberts reports that JISC's Regional Support Centres are at the heart of developments

Supporting a lifetin

'The Adult and Community Learning (ACL) sector, with its wealth of experience in supporting learning, has recently made significant contributions towards bridging the digital divide.'

So said my colleague Sharon Hutchings, ACL Adviser at the JISC Regional Support Centre (RSC) for East Midlands in a recent article. That's quite a claim, but one that many others would corroborate.

To support this important agenda, each of the nine JISC RSCs in England has recently recruited an ACL Adviser, such as Sharon and myself, to focus on meeting the needs of new ACL clients, helping to bring the benefits of the National Learning Network (NLN) programme to the sector.

Keeping ACL providers informed of new funding opportunities and staff development programmes, publicising regional and national events, we also promote the use of the free NLN e-learning materials and JISC resources.

Helen Roberts helps out Andy Eames of the DfES Standards Unit at a recent event to support the ACL sector.

What is the Adult and Community Learning sector?

The word 'diversity' is often used to define ACL, and it is very apt. Providers of ACL can include Local Education Authorities, the Workers' Education Association, Trade Union organisations, community, voluntary and religious groups. Some providers have only a few hundred learners, others thousands.

The learning itself can be delivered in dedicated centres or further education colleges, or alternatively, from schools, village halls, community centres, pubs, or even churches. Predominantly, these learning 'hubs' are manned by part-time staff. Courses offered are wide ranging and varied, being credited or not, often part-time and occasionally residential. Learners are drawn from various social and ethnic backgrounds, motivated to learn whether through personal interest or for professional reasons.

Sharon Hutchings, ACL Adviser RSC East Midlands

me of learning

Our initial focus has also been to help the National Institute for Adult and Continuing Education (NIACE), the managing agent for the extension of the NLN to the ACL sector, to support ACL authorities in the development of their ILT/e-learning strategies.

Alastair Clark is Development Officer at NIACE. He and his team work closely with us at the RSCs in managing this roll-out. 'It's invaluable having the RSCs involved', he says. 'They assist us in the process of encouraging every local authority (LA) to write their ILT strategy'.

Between the key partners we advise that these strategies show how providers intend to use information and learning technology. Each strategy should address issues such as connectivity, staff development and learning content.

Perhaps most importantly of all, we help LAs to navigate what may at first seem a bewildering world of acronyms to tap in to the wealth of knowledge and support

available. We also draw greatly on the expertise in our RSC teams, accessing advice on curriculum, learning resources and technical matters on behalf of ACL contacts.

But Alastair Clark is also keen to speak about the more practical ways in which partners cooperate: 'The joint training programmes have proved extremely helpful, and the RSCs have also been involved in the development of the e-Guides'.

The e-Guides staff development programme has been designed to support ACL staff in embedding the use of e-learning. Richard Green, technology project adviser, calls the website a 'single point of presence for the initiation of the ACL sector into the NLN'. The site contains a wide range of content, skills development advice, technical guidance, and a great deal more. Richard says that the site is growing in exciting and unexpected ways: 'The discussion lists and message boards are proving

particularly popular. We have not only a range of discussion lists for ACL practitioners, but increasingly they are developing along subject lines, for example, in languages. These are proving to be of immense benefit in connecting people and sharing knowledge'.

We are all quickly learning that there is a richness of experience and support which can be utilised by working collaboratively with the NLN Partners. The RSC ACL Advisers are working to foster that collaboration.

Helen Roberts
ACL Adviser, RSC Eastern

Partners in the NLN are: Becta, JISC, LSDA, LSC, NIACE, NILTA, UKERNA.
For further information, please go to:
http://www.aclearn.net
http://www.jisc.ac.uk/rsc

The JISC Support of Research committee funds a number of projects which support the use of Grid technologies. One important example of these is ARIA, which aims to make these technologies more directly relevant to the arts and humanities. Pat Leon investigates

Researching th

Many people mistakenly believe that technology sits uneasily with traditional arts and humanities subjects, such as history, languages and the performing arts, compared with the sciences. A growing number of arts and humanities scholars, however, are creatively using Internet and digital resources. Unfortunately they often work in isolation and others are not benefiting from their expertise.

Two new projects aim to tackle this knowledge and skills gap among researchers: the Arts and Humanities Research Board's ICT methods network, based at King's College London, and ARIA, funded by JISC on behalf of the AHRB, based at De Montfort and Salford universities. While the methods network is focussing on advanced use of digital resources, ARIA, which starts work this month, is aimed at the less computer-savvy.

David Robey, Director of the AHRB's ICT programme, says that ARIA has an important role to play as the board toughens up requirements on universities to improve generic research training. He says: 'Arts and humanities computing is a fragmented world in which many researchers fear to tread. ARIA's aim is to pick up the fragments and piece them together so that researchers will know where to go for help.

'There's lots of exciting advanced work going on in humanities research but a large section of the humanities community is not involved. They've got email, they can cruise the web, but they do not really know what computers can do. We want to give them a sense of the power of computers.'

Professor Robey, Head of the School of Languages at Reading University, chairs the ARIA advisory group. He believes the project will play a double role. 'A number of universities provide ICT training but it is often very generic, perhaps word processing or how to use spreadsheets or a database. Little is specific to arts and humanities usage. Part of the purpose is to show people where they can get materials or resources and to provide training materials.'

He predicts that as new researchers get more skilled in ICT there will be a knock-on effect on their colleagues and supervisors' computing skills and usage. 'We're not quite pushing at an open door but things are changing fast.'

The ARIA project team will start by surveying all higher education institutions and arts and humanities networks. Paul Sermon, reader in creative technology at Salford, says: 'The plan is to go methodically through all the websites, databases, and so on, and map what's available.'

They will be looking in particular for new research models. These may be in textual scholarship, visualisation, presentation and archiving; or in how researchers are discovering, evaluating and citing sources. They will see what digital tools and resources researchers are using in data analysis. They also want to see if scholars are finding new ways of collaborating, communicating and publishing their work.

Project leader Stephen Brown, director of Knowledge Media Design at De Montfort and president of the Association for Learning Technology, says that the end result of two years' work will be an interactive road map or gateway that will give access not just to existing online basic-level training resources but also to new training content that plugs

'There's lots of exciting advanced work going on in humanities research but a large section of the humanities community is not involved'

e future

the gaps. These might take the form of case studies, short examples and pointers to in-house and third-party training.

'De Montfort will do the building and then run field trials. We will be looking for critical feedback from Salford and also the team of eight subject experts we have set up to mirror the AHRB's eight panels,' he says.

ARIA will work closely not only with the AHRB, but also with the Resource Discovery Network (RDN) and the Arts and Humanities Data Service (AHDS), to which the project's assets are expected eventually to migrate. Sheila Anderson, Director of the AHDS, says the service is producing some complex resources and people need sharper computing skills if they are to access them fully, evaluate their usefulness and use them effectively. 'We're hoping ARIA will provide access to the sort of training material that they need,' she says.

The AHDS already has guides to good practice and runs a national training programme 'but there is a lot of more work going on in institutions that we hope will be made available through the ARIA gateway'.

'ARIA is the next step up from basic skills. For example, if I want to digitise a set of documents, I need to know what formatting to use – TEI, XML or PDF. Most

of the people who work in this area are self-taught. They speak to one another down university corridors and transmit bad practice as well as good. The idea of ARIA and the methods network is to give people a place to go to get good training and reliable advice.'

Peter Robinson, Director of De Montfort's Centre for Technology and Arts, is an ARIA subject specialist. Robinson, who is involved in online projects on Chaucer's Canterbury Tales, the Greek New Testament and Dante's Divine Comedy, says: 'The main problem for humanities computing is that there are lots of skills but they are narrowly held and there is an overwhelming number of people who want help. In our field we'd like to be able to tell people about how we work and give examples so that people can extract what they need.

'One example of how ARIA might work is when people want to be able to see editions of authors in electronic form. What do they do though when a document is heavily revised? For example, someone wants to edit a text, such as The Canterbury Tales, that exists in some 80 different versions. How do they compare? A gateway that held information about the work people were doing would be useful. We could see what had been done, what problems they encountered, and how that might help us.'
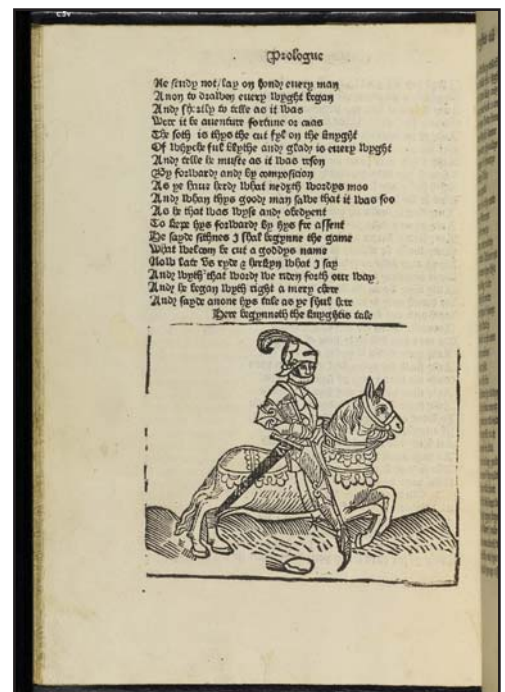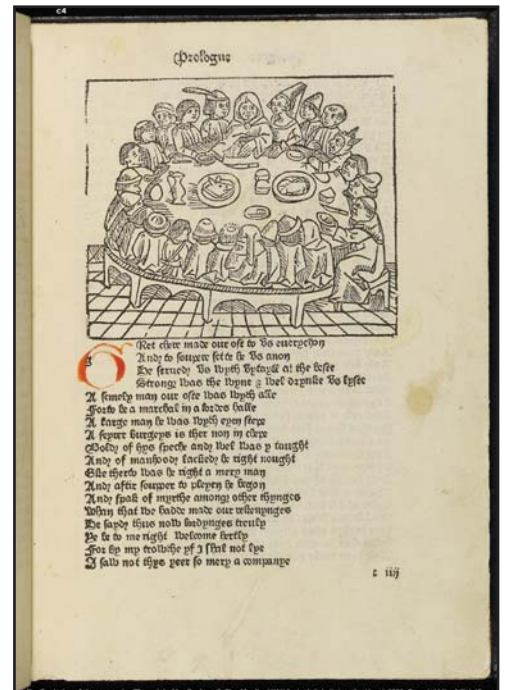
Images from Caxton's Chaucer

For further information please go to:
http://www.jisc.ac.uk/projects

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A JISC agreement makes available the full text of over 750 books in a range of subjects. Philip Pothen explores the benefits of this new and impressive resource

Scholarship unlimited

Oxford Scholarship Online offers the full and fully searchable text of over 700 complete titles, with the prospect of around 200 titles being added each year. Available to higher and further education at highly competitive rates through a JISC agreement, it currently has four subject modules – Philosophy, Religion, Economics and Finance, and Political Science.

Colin Gerrard, Head of Technical Services at the University of Kent, sees this as vital to its success at Kent: 'We've had very heavy use of this since the beginning of the academic year in certain key areas,' he says, 'History, Politics, History of Religion and Philosophy. So we're very impressed with this resource.'

Gerrard's colleague Sarah Carter, Law Librarian at Kent, goes even further: 'I'm an enthusiast. The resource is extremely

well designed. It's excellent for interdisciplinary study – at Kent, for students learning about medical ethics, globalisation, human rights and international relations. I argued strongly for the JISC agreement because this does something very different from ordinary

e-books: it enables cross searching, making it an essential resource.'

One innovative feature of the resource has been the specially commissioned keywords and book and chapter abstracts that help students and staff search the mass of materials effectively. Another key feature has been the unlimited access it allows. This is unusual in e-book packages but means enormous savings for hard-pressed library budgets.

Liz Stevenson, Electronic Services Librarian at the University of Edinburgh, explains: 'There's a very close match between the titles available through OSO and our reading lists, so for us this is the Holy Grail of online resources. But prior to this resource, the problem was always that we could never provide enough print copies of books. However much you spend, there are simply never enough to go round. Unlimited simultaneous online access means that we now have enough.'

But it is not only HE that has benefited from this resource. Deborah Duffy,

'I argued strongly for the JISC agreement because this does something very different from ordinary e-books'

Electronic Information Librarian at Bradford College, has been promoting it on Bradford's web pages. 'We were very surprised at the use it was getting,' she says. 'And it's not only staff who are using it but a lot of students too.'

Adding records of individual books within the package to library catalogues has helped the promotion of the resource. Records are available free of charge to subscribers which means that students can be pointed to any online book automatically through their catalogue search. For Liz Stevenson of Edinburgh this makes complete sense: 'Students never search under publisher, after all. They simply want the book, don't they?'

Philip Pothen
JISC

For further information, please go to:
http://www.jisc.ac.uk/collections

JISC Publications

Above: JISC Annual Review 2004

Centre left: e-Science data Curation
(Summary of the e-Science Curation Report)

Centre right: The Data Deluge: Preparing for
the explosion in data (JISC Briefing Paper)

Right: Deterring, Detecting and Dealing with
Student Plagiarism (JISC Briefing Paper)

To find out about JISC publications, and to order them, see:

www.jisc.ac.uk/publications

JISC Conference 2005

12 April 2005
International Convention Centre, Birmingham

Building on the success of last year's conference, the JISC Conference 2005 programme will be built around the twin themes of Impact and Integration. The conference will reflect the breadth of JISC activities in providing guidance, advice and opportunities for the use of Information and Communications Technology (ICT) in education and research.

Delegates will be given opportunities to learn about the full range of JISC's work by participating in seminars, debates, workshops and demonstrations. In the exhibition area, JISC services and initiatives will be able to provide you with advice and guidance on the range of support services available to your institution.

This free one-day event will be of interest to all those in further and higher education and research involved in planning for and supporting the use of ICT, including:

- Senior managers and those responsible for developing and implementing policy and strategy

- Staff who play a role in supporting the use of ICT in their institutions

- Teachers and researchers with an interest in the use of ICT

To book your place please visit the JISC Conference website at:
http://www.jisc.ac.uk/conf2005.html

A range of sponsorship opportunities are available. Please contact the Events Co-ordinator at: events@jisc.ac.uk or telephone 0117 954 5085

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