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CENTENARY

GREAT PAST ~ GREATER FUTURE

re:search

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Building a better life
Money, money, money
The children's doctor



re:search editorial

Making an impact

We are currently hearing a lot about the need to measure and report the ‘impact’ of research, particularly in terms of social, economic and policy outcomes and the contribution these make to the UK’s long-term prosperity and the well-being of society. Government wants to see examples of tangible returns for the billions of pounds invested in research; research councils are incorporating ‘impact plans’ into the grant application process; and impact will be assessed in the new Research Excellence Framework (REF) that will replace the Research Assessment Exercise (RAE).

Impact is far wider than the commercialisation of research by an industry partner, the creation of a spinout company or the licensing of intellectual property. Nor is it just about new technology and services or having a strong track record in translating medical breakthroughs from the laboratory into the clinic. What it is about is the demonstrable contribution that excellent research makes to society and the economy. It embraces all the extremely diverse ways in which research-related knowledge and skills benefit individuals, organisations and nations. Examples might include fostering global economic performance – and specifically the economic competitiveness of the UK; increasing the effectiveness of public services and policy; enhancing quality of life, health and creative output; or engaging with the public through a magazine such as this. Impacts from research can take many forms, become manifest at different stages in the research life-cycle and be promoted in many different ways.

Researchers at this university are increasingly having a major influence on public policy and many have key roles in enhancing the quality of life, health and well-being of individuals. We are proud of the fact that the University of Bristol is a research-intensive university that is truly world-class, and that the work produced here is having a tangible and demonstrable impact. The articles in this issue show just a few examples of how the University has had impact in these areas, at an international and national level, as well as regionally and city-wide.

Neil Bradshaw
Director of Enterprise

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Improving the quality of life

Professor Ken Fox was the first head of the Department of Exercise, Nutrition and Health Sciences, and throughout his career he has been dedicated to promoting exercise and public health. He served as a special advisor to the Health Select Committee Inquiry on Obesity, was a member of the Foresight report team on obesity and is currently a member of the scientific advisory team for the Government’s obesity strategy. He is also a Scientific Governor and Trustee of the British Nutrition Foundation.

The University’s Department of Exercise, Nutrition and Health Sciences (ENHS) was established in 1999 in response to increasing interest in the links between physical activity and health, and since then it has expanded into the closely related field of nutrition. It is quite unlike traditional exercise and sports science departments that work primarily with athletes, researching the physiology and biomechanics of performance. The ENHS team works with ordinary people, investigating how physical activity and healthy eating can prevent disease. Members of the team also collaborate with specialists in cardiovascular science, cancer and psychiatry to develop therapeutics for both preventing and combating disease.

A recent study (OPAL) led by Fox looked at the lifestyles, living conditions and behaviour of people aged 70 to 96. Healthy living can help prevent cardiovascular disease, obesity, type 2 diabetes and some cancers, and there is also increasing evidence that staying physically active can prevent or delay cognitive decline, dementia, Alzheimer’s disease and depression. Using the information gained about the patterns of activity in older people, OPAL has led to the funding of the Avon Network for Physical Activity Promotion for Older People, which brings together NHS services, local councils and planners, and academics in Bristol and Bath to deliver ‘best bet’ solutions for physical activity interventions.

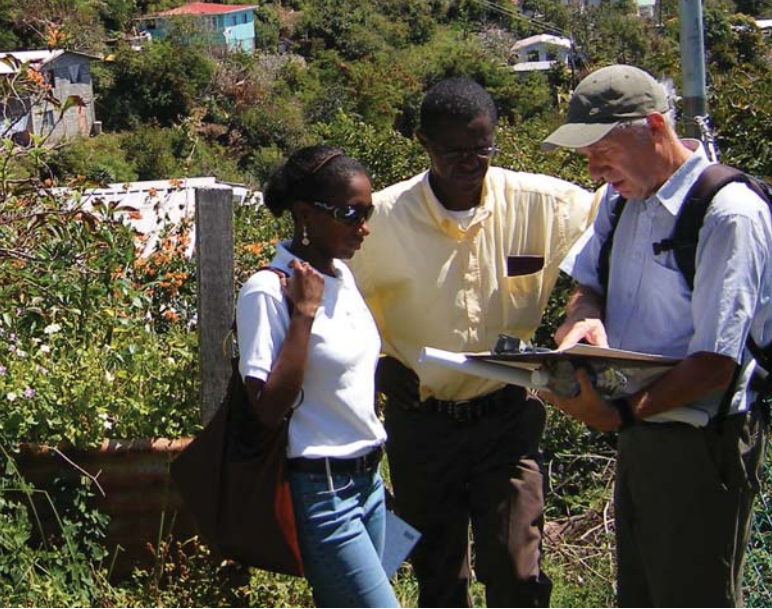
A similar project in children, led by Dr Russ Jago, focuses on understanding the physical activity patterns of 10- and 11-year-olds. This study examines the way parents encourage children to be physically active; the extent to which physical activity is undertaken as a family; and the types of non-family-based physical activities the children

commonly participate in. For although much emphasis has been placed on encouraging children to take part in more formal sporting activities, in fact most children’s activity takes place with their friends outside of school hours. Accelerometers were used as an objective measure of children’s and parent’s physical activity over a five-day period. Project PEACH, led by Dr Ashley Cooper, also uses accelerometry, but here combined with GPS technology, to study neighbourhood influences on children’s physical activity. Alongside these studies, a project led by Professor Janice Thompson, the current Head of ENHS, focuses on migration, nutrition and ageing amongst older Bangladeshi women and their adult daughters.

Results from these studies will feed directly into the Government’s obesity and physical activity strategies and the ENHS team are looking forward to conducting further research that not only informs policy and practice but also improves people’s quality of life through the promotion of healthy eating and regular physical activity. ■

www.bristol.ac.uk/enhs





Malcolm Anderson (left) and Liz Holcombe (right) discuss ideas with local residents.



Building a better life



The full impact of landslides is often underestimated because the losses they cause are not easily identified within larger-scale disasters such as hurricanes and tropical storms. Professor Malcolm Anderson and his colleague Dr Liz Holcombe, both in the School of Geographical Sciences, have been working in the Caribbean for several years, researching and mitigating the risk of landslides in the poverty-stricken townships.

In most cases, the accurate reporting of landslides is hindered by the relatively small scale on which they occur, but it is possible that these high-frequency, small and medium-sized disasters have as great an impact on the poor as larger disasters do. In developing countries these losses are greatest in the cities, where migration and urbanisation link poverty with vulnerability to landslides. Often only the steep slopes are available to the poor, who live there in densely populated, informal settlements. For these nations, the impact of landslide disasters can lead to the stagnation of economic growth or even recession.

About five years ago, Anderson realised that the research he had been doing on the stability of slopes could be applied in the Caribbean where the formation of deep soils on steep slopes, coupled with high-intensity and high-duration rainfall events,

Globally, more and more people are moving to urban areas where shanty developments are unregulated and unplanned

rendered this humid, tropical region particularly vulnerable. Furthermore, some climate change predictions suggested an increase in the number and intensity of extreme rainfall events in these regions. But one of the big problems Anderson faced was convincing people to spend money *before* the disaster happened, since demands for funds to mitigate health risks and other more obvious concerns always seemed to take priority. It was clear they needed to build up a chronology of evidence that would demonstrate the value of such work, so Anderson and

Holcombe established a major landslide risk reduction programme, MoSSaiC (Management for Slope Stability in Communities), which has since gained recognition within the eastern Caribbean and beyond.

Globally, more and more people are moving to urban areas where shanty developments are unregulated and unplanned. Typically, in the eastern Caribbean, more than 60% of the housing is of this nature. As a consequence, the susceptibility of slopes to landslides is increased by development activities that change slope geometry, strength, loading, vegetation cover, surface-water and groundwater regimes. So the risk of landslides is increasing simply because the population is increasing and the problem is growing at a faster rate than it is being solved.

Once Anderson and Holcombe identify an area that is particularly at risk, the first thing they do is to involve the local community. They hold meetings with residents who help them draw up detailed maps identifying past landslides, drainage issues and localised indicators of instability. Somewhat surprisingly, even in these unplanned developments, water companies often supply water to individual properties, but provide no drainage to take waste water away. So the skill is in managing the flow of water on the hill slopes to ensure that as

little as possible goes into the soil, thereby improving the stability of the slope. Using the landslide risk prediction software they have developed, they can model an individual scenario – the density of housing on the slope, the angle of the slope, the type of soil and the amount of water moving through it. The software then predicts whether removing water from the soil will make the development safer or not. It is important not to raise people's expectations unrealistically, as occasionally they find areas that cannot be improved.

Once the problems have been identified, the work is tendered into the community, the idea being that individuals develop some business acumen which they can then use elsewhere. The team also runs training courses in using the software and in the skills needed for putting in drainage and stabilising the slopes. These participants then become ambassadors for the scheme.

About 80 per cent of the funding Anderson obtains is spent in the community

As one of them recently told Anderson: "The thing you must understand here is that if you're lucky you might get just one chance in your lifetime of moving out and doing something with your life. I've learned how to build drains and why to do stuff and that's given me a chance."

"But," says Anderson, "it's not always straightforward. Not only do you have to get the science right, you have to get the engagement with the people right as well. When people have been unemployed for several years they're very keen to get paid and tend to rush the job, so it's vital to explain that the work must be done slowly and properly, rather than risk having the whole thing fall down again." Utilising the local community in this way not only gives individuals new skills, but also means that about 80% of the funding Anderson obtains is actually spent in the community, in the form of labour costs and construction materials for the drainage infrastructure. This is recognised in the region and beyond to be truly cost-effective. A further unintended benefit that has recently come to light is that putting drainage into an area also removes stagnant water;

consequently, the incidence of dengue fever and other diseases that flourish in such conditions declines and people's health starts improving.

The approach has fundamentally changed communities' perspectives: the landslide risks they face *can* be reduced and people *can* sleep again at night – a problem many have during periods of heavy rain. It is clear that 'end-to-end' community engagement encourages participation in the planning, execution and maintenance of the landslide risk reduction measures. The result is that the intervention is 'owned' by the community.

Having proved the concept, the next step is to provide remote access to Anderson and Holcombe's landslide risk prediction software. To this end, physicists at Bristol have suggested a collaboration, using their expertise on software development

already applied to the Large Hadron Collider project. This technology transfer would build sophisticated grid-computing capacity for MoSSaiC and tailor internet access to the software and data management system for all levels of aptitude, from complete beginners to technical engineers. The prototype was successfully trialled in the Caribbean earlier this year, returning landslide predictions within minutes. The team has now applied for funding to develop it fully.

Last year, as affirmation of their success in this arena, Anderson and Holcombe were asked by the World Bank to join its team in Washington that looks at disaster risk reduction. But this won't mean that they will now spend all their time formulating policies that take years to be implemented. On the contrary, they are both determined to continue making a real difference on the ground by applying the combined outcomes of their technical and policy research. ■

www.mossaic.org
www.ggy.bris.ac.uk



Landslip beneath a house in the Caribbean.



Local residents putting in a drainage system.

The science of farm animals

At the crux of most people's concerns about animal welfare lies the question 'Is the animal happy?' To answer this, researchers in the Department of Clinical Veterinary Science's Animal Welfare and Behaviour Group are developing techniques to assess an animal's emotional state, the results of which can then be used to inform legislation. Cherry Lewis talks to Professors Mike Mendl and Christine Nicol, and Dr David Main, about their work.

Cherry: How do you assess an animal's emotional state?

Mike: It's very challenging, but one new approach that we're developing is to train them that one cue, for example a tone of a specific pitch, predicts something nice such as food, and another cue, a different tone, predicts something less nice such as no food, or a noise. We then ask them – by presenting intermediate tones – 'What do these ambiguous cues predict?' We predict that animals in a positive emotional state, like happy humans, will tend to judge an ambiguous event as being positive – their proverbial glass is half full – and animals in a negative state with poor welfare tend to judge it negatively.

Cherry: It must be quite difficult to do.

Mike: It is technically quite difficult but currently it can be done in the lab under controlled conditions and early results are encouraging. Interpreting findings is difficult because of the problem of animal consciousness and whether animals really are experiencing emotional states in the way that we might. We can't yet tell whether an animal's apparent fear experience is similar to our fear experience, but the nature of that experience is probably similar in the context in which it happens.

Cherry: And do you test them physiologically?

Mike: There are many indicators of animal welfare, which include things like physiological changes – measuring levels of stress hormones, for example. Studies investigating the differences in welfare caused by the many different ways in which we keep or manage animals are often based on these kinds of measurements.

Cherry: Has this kind of work influenced decisions like that taken by the European Commission recently to ban battery cages for chickens in 2012?

Christine: Another approach that is used quite a lot is to actually 'ask' animals whether they want to be in a cage or not. Obviously you can't ask them with a questionnaire, but you can give them choices and see how hard they work for particular things. The classic approach is to gradually put the price up. So you might find that a chicken in a cage is willing to 'pay' for more space by putting effort into pecking a button that makes the cage bigger. With animals you assume that what they want matches what they need, so assessing how hard they are prepared to pay for something, tells you how much they need it. It is this kind of work that has contributed to the

ban on the conventional battery cage, because chickens will work very, very hard for a bit more space and also for a nest. So we continue to work on chickens – not just laying hens, but broiler chickens as well.

Cherry: How do you tell the difference between broiler chickens and laying hens when they are alive?

Christine: Well, in this country the broiler chickens are white and the laying hens are brown, but the broiler chickens we eat are basically enormous chicks. They are only five-and-a-half weeks old when they are killed, so they grow from tiny chicks to the size you buy them in the supermarket in an extremely short time. Laying hens, on the other hand, are skinny little birds that have been bred to be as small as possible and to lay eggs that are as large as possible. Over time, the size of the bird has gone down and the quantity of their food has dropped, but the number of eggs they produce has gone up. Consequently, all the calcium and nutrients go into the egg and there is nothing left to hold the bird together.

This highlights the other main issue in animal welfare: no matter how excellent your management is, if the animal is genetically selected for production at the expense of its body capacity, there is little you can do to improve its welfare. Our work shows that currently the broiler chicken falls into that category, as do some

of the laying hens. There are now some fundamental questions being asked about how robust these modern geno-types are. We've probably gone too far in selecting for production. So when you go to the supermarket you should try to buy RSPCA Freedom Food assured chicken where only slow-growing birds are used.

Cherry: But what exactly are assurance schemes and how is your work related to what they do?

David: The Agriculture and Horticulture Development Board charges farmers, growers and processors a levy which, in the pig sector for example, is used – among other things – to drive demand for quality pork and other pig meat products. This levy also means that the industry has money to spend on research and development. Since the industry wants to provide assurance to the consumer that their pigs are happy and healthy, it has developed assurance schemes, identified by the red tractor logo you see on some products. There is a system of inspecting farms to make sure standards are being adhered to, but the industry has realised that the system is not very good at assessing welfare on farms. They have therefore asked us to develop ideas of how this can be better assessed in order to provide better assurance to the consumer. This is an excellent example of taking the research that we do and applying it in a very practical sense.

Other work that we do is supported by charities and we have had a lot of funding from an organisation called Tubney Charitable Trust. They support activities that have a long-term, sustainable impact on the welfare of farmed animals. They funded our work on lameness in dairy cattle, example.

Cherry: What causes lameness in cattle?

David: It is a complicated mix of husbandry issues, like not having a comfortable lying area and not having the cubicles kept clean. In that instance, we knew the best way to approach the problem, but not how to encourage and support the farmer to change his husbandry system, and that is what the funding has enabled us to work on.

Mike: In summary, there are many other projects and forms of expertise within our group, particularly in the issue of slaughter and stunning of animals, where we lead the world in the development of systems that do it as humanely as possible. But the last point I want to make is that we try to provide a scientific basis for the decisions that government and society have to make about animal welfare. In doing so, we hope to give people a more level-headed and impartial view of the problem. ■

www.vetschool.bris.ac.uk/research/abw





Money, money, money



Professor Elaine Kempson

The Personal Finance Research Centre (PFRC) is an independent centre that specialises in social research across all areas of personal finance, mainly from the consumer's perspective. At its head is Professor Elaine Kempson, an internationally known and respected authority on consumer financial issues who in 2007 was awarded a CBE for services to the financial services industry. There are three areas in which the Centre has had most impact: financial inclusion, financial capability and debt.

Many people, particularly those living on low incomes, cannot access mainstream financial services such as banking, insurance, credit and savings products. Financial 'inclusion', a term coined by the PFRC, aims to tackle such exclusion by providing people on low incomes with access to appropriate and affordable financial services. In 2005 the Government set up the Financial Inclusion Taskforce, of which Elaine Kempson is a member. The Taskforce monitors progress on the objectives the Government has set out to achieve and makes recommendations on what more needs to be done.

As part of this work, Kempson and the PFRC team have explored what individuals on low incomes most need in the way of financial services and why the marketplace is not meeting those needs. They have designed basic bank accounts which are very simple, 'no frills' accounts that cannot be overdrawn, and which are now held by about seven per cent of the population. They also played a role in the design of a 'matched' saving scheme for

people on tax credits or unemployment benefit, whereby the Government will give qualifying individuals 50p for every pound they save. It is a very simple and time-limited initiative, but it will encourage people who struggle to save to give it higher priority. The PFRC evaluated the first pilot study of the scheme and it will be rolled out across the country next year.

Approximately 2.5 million people in the UK use home credit to smooth cash flow

The credit crunch is having a particularly adverse impact on those on low incomes, although much of the discussion has focused on the effects of tightening credit for those on middle incomes. Approximately 2.5 million people in the UK use home credit – small-sum, short-term loans – and depend on this type of finance to smooth cash flow and for events such as Christmas and children's birthdays. However, it comes at a high price due in part to the expense of the weekly door-to-door collection of repayments by

agents. Kempson and others undertook an evaluation for the Joseph Rowntree Foundation to determine whether a not-for-profit credit service might be a viable option. However, analysis showed that just to run a service on a break-even basis required an APR of 120%. Furthermore, they found that running costs would not be recovered for five years.

The seizing-up of the wholesale credit market on which the home credit lenders rely for their own funding has created a crisis of credit supply for these most vulnerable borrowers. One of the three largest credit companies specialising in this end of the market has just gone into administration and another has suspended all lending. Kempson was so concerned that susceptible people would be forced to turn to illegal lenders that she briefed Government ministers just ten days before the last Budget. The upshot

was that an additional £270 million was allocated to the Social Fund, the interest-free grants and loans scheme that people on benefits can access. This was a particularly significant achievement in the current cost-cutting climate.

Sharon Collard, Deputy Director of the Centre, has worked for some time on the problems caused by unlicensed, illegal lending where there is usually no written agreement, no fixed interest rate and no fixed penalty fees. Victims can be heavily penalised for being just a day late with repayments and may end up paying many times what they originally borrowed. At its very worst, women suffer physical violence or are forced into prostitution. The Government department that deals with credit became very concerned about this and the PFRC was heavily involved in research to scope the extent and nature of the problem and to evaluate a pilot scheme set up to take illegal lenders off the streets. This scheme has subsequently been rolled out nationally and there are now hotlines people can phone to shop offenders, many of whom are going to prison.

Over the past five years the level of consumer credit and borrowing has risen by 15% a year, such that by the end of last year the amount outstanding was around £112 billion, equivalent to a debt of £1,900 for every man, woman and child in the UK. But what these figures do not reveal is how the borrowing is distributed. In fact, at any one time only

half of the population owes anything at all, apart from mortgages, and within the half that does borrow, less than 5% will be seriously over-borrowed. Research into this group by the PFRC identified the emergence of some surprising attitudes to debt, particularly in those under 25 who considered themselves 'victims' of a consumer society that pressurised them to consume and thus borrow. When asked 'How do you recognise whether you are getting into difficulty?', the response tended to be 'When your creditors threaten to take you to court'. And when this was followed by 'What action do you take when you realise that you are over borrowed?', the majority view was 'You become bankrupt'. In contrast, the over-50s said they would cut up their credit cards. This major shift in attitudes towards debt had previously been reported by hearsay, but this was the first time that such clear evidence had been presented.

Over the past five years the level of consumer credit and borrowing has risen by 15 per cent a year

A recent report completed by the PFRC was commissioned by the Financial Services Authority (FSA) and designed primarily to help assess the extent to which consumers of financial products receive and use clear, simple and relevant information, since that would inform one of the FSA's three strategic objectives: 'to help retail consumers achieve a fair deal'. The report examined in detail consumers'

behaviour when purchasing products, and the availability, clarity, use and influence of information and advice on final product choice.

The results showed that there is a significant risk that consumers are not achieving a fair deal under the FSA's strategic objective. Few consumers, particularly those with lower levels of financial confidence, attempt to shop around for information and advice and many do not read or understand the information that is provided to them. There was also a high tendency for consumers to be influenced in their final purchase decision by a provider's reputation or an existing relationship with them.

As re:search went to press, it was announced that Kempson had been appointed to another taskforce – the Housing Market Taskforce – that will look

at ways to end the cycle of boom and bust in the housing market. She was looking forward to bringing to the table PFRC's considerable expertise to help resolve the root causes of instability in the housing market. The Taskforce will deliver its recommendations in 2010. ■

www.pfrc.bris.ac.uk





Professor Adam Finn

THE CHILDREN'S DOCTOR

Professor Adam Finn, from the Department of Cellular and Molecular Medicine, is an academic paediatrician who spends more time doing research than anything else. But rather than describe himself as a professor working at the University he prefers to say he is a paediatrician, because being a children's doctor is what really defines him.

Many medical researchers at the University also work in the local hospitals but increasingly they are being asked to demonstrate how their research 'translates' into benefits for the patient. This movement towards translational research is being facilitated by grants from funding bodies that see the advantages in helping clinicians and academics to work with each other more productively. To this end, Finn has recently been funded by the NHS to establish Bristol Research in Infection Immunity Collaboration (BRIIC). This is a joint venture between the University, which has the research expertise in immunology and microbiology, the NHS, which has the patients, and the Health Protection Agency, which does the clinical laboratory work – the diagnostics. While all of those organisations interact to some extent already, Finn strongly believes that if they come together in a

principally in the development of vaccines for children and much of this concerns clinical trials involving children, which is a relatively new field of investigation. Previously, people felt that they could not take risks with children by putting them in trials. This is, of course, a false argument because if trials do not involve children, the risks are taken in the clinic in an uncontrolled way, such that it is not always possible to detect when there is a problem. Now, however, the European Union requires companies licensing drugs to perform trials in children, unless there is no conceivable way in which a particular drug, such as an Alzheimer's drug, would be used in children.

One particular study that Finn has recently contributed to is for a new pneumococcal vaccine. Pneumococcus is a bacterium that causes meningitis and pneumonia. Globally, pneumonia kills

Globally, pneumonia kills between one and two million children every year

more coherent way, the whole will be greater than the sum of the parts. But it will require some thinking outside the box, for traditionally researchers and clinicians have been somewhat suspicious of each other. "This is a real opportunity," Finn says, "but it can only be done if we stop just thinking about what we do and start listening to what other people do."

Finn is already used to operating like this because much of his work involves collaborating with dozens of people across large networks, some of which are spread around the world. His expertise is

between one and two million children every year, so although we are all scared of meningitis, what we should really be concerned about is preventing pneumonia. Pneumococcus also causes ear infections, which, although they are not killers, lead to large numbers of antibiotics being prescribed for children. This, in turn, drives antibiotic resistance, as well as being a costly process. Thus the prevention of ear infections can also have a major impact on antibiotic resistance.

The picture is further complicated by the fact that there are 90 different types of

pneumococcus bacteria, at least 20 of which cause disease in humans. Furthermore, as the vaccine is introduced and the disease caused by those strains disappears, new strains appear to fill the gap, so the vaccines have to be reformulated with more strains, just to keep pace. Since 2006, a pneumococcal vaccine containing seven different strains of the pneumococcus bacterium has been made available to all babies. However, a second vaccine with ten strains was licensed earlier this year, and a third, with 13 strains, is expected to be licensed at the end of this year – this latter study is the one Finn has been involved in. The uptake of this vaccine is very high – more than 90% – so it is having a very real impact.

a consequence, in just ten years, we have seen the complete disappearance of meningitis C, which previously accounted for about 40% of meningitis cases. It has been a remarkable success – but meningitis B is still prevalent, so that is Finn's current target. The Bristol group has just finished recruiting more than a hundred children to the study; other centres around the country are doing the same.

A study Finn is just about to start is completely different from the others, in that it will be testing a live virus vaccine. It is designed to protect against two common viruses: RSV, or respiratory syncytial virus, and parainfluenza virus type 3, or PIV 3. Both viruses cause

Since 2006, a pneumococcal vaccine containing seven different strains of the pneumococcus bacterium has been made available to all babies

Finn is also in the middle of a vaccine study against meningitis B, caused by a bacterium called meningococcus. Back in the 1990s, he was involved in a series of studies for a strain of meningococcus that caused meningitis C and this work led to the licensing of a vaccine that became part of the routine immunisation schedule in the UK from autumn 1999. As

thousands of cases in babies every winter and hundreds of admissions to hospital of babies with breathing difficulties.

The study is a particularly difficult one to do because the babies first have to have blood tests and then washes need to be taken from their noses to see how long the virus from the vaccine persists.

Another difficulty is that the virus has been genetically engineered and the words 'genetic engineering' strike fear into everybody's hearts – not only those of parents, but also those of the regulators. In fact, it is only a cow parainfluenza virus that has had genes from the human RSV and parainfluenza viruses engineered into it. In the same way that the original smallpox vaccine came from cowpox and induced a very mild form of smallpox in the patient, the cow parainfluenza virus, which doesn't make humans sick, should result in a mild, non-symptomatic infection that is able to induce immune responses to the human viruses and protect babies against them. This latest study will be conducted all over the world and Bristol is the leading centre in the UK, with Finn as the UK's Chief Investigator. The first children are being recruited in Bristol as this article is being written. If it works, this vaccine has the potential to have an enormous impact on public health.

Finally, hot off the press, comes news that Finn and colleagues will be partners in a study to rapidly evaluate the antibody responses and side effects, in children aged six months to 12 years, of two new H1N1 swine 'flu vaccines. The study is still subject to ethics and MHRA approval, but the team expects to start work by October 2009. ■

www.bristol.ac.uk/cellmolmed





Professor Richard Buxton

For thousands of years, Greek myths have been retold in an inexhaustible series of variations and reinterpretations, and even today are replayed in software for interactive computer games. Richard Buxton, Professor of Greek Language and Literature in the Department of Classics and Ancient History, has for much of his academic career been concerned with exploring why the Greek myths have been so enduring. He is also the current head of a 40-year project to document and analyse all known images of mythology from the Greek, Roman and Etruscan civilisations.

Enduring myths

In the ‘Judgement of Paris’, Paris of Troy is asked by Zeus to judge who is the most beautiful of three goddesses – Hera, Athena or Aphrodite. In order to win the title, each attempts to bribe Paris. Hera offers him imperial power, Athena victory in war and Aphrodite the love of the world’s most beautiful woman – Helen, wife of King Menelaos of Sparta. Paris chooses Aphrodite’s gift, but his subsequent abduction of Helen leads directly to the Trojan War, the fall of Troy, and ultimately the foundation of Rome by the descendants of Trojan exiles. The story of the Judgement poses an ancient dilemma: which is best – to have power, to win, or to enjoy the best sex imaginable? The theme remained enduringly popular in Greek and Roman literature and art and exercised a huge influence over subsequent periods of cultural history, including the Renaissance.

“Greek myths endure,” says Buxton, “because however different ancient Greek society was from those that followed, there was always sufficient common ground, in terms of the issues and dilemmas that life presents us with, to enable people who came later to relate to the stories. For instance, when Ted Hughes’s *Tales from Ovid* came out in the late 1990s, it was a phenomenal best seller. The tales he translated were an Ovidian retelling of Greek myths for a Roman audience, but still they resonated with, and spoke to, people of the late 20th century.”

All these classical myths have now been captured in a monumental, 40-year, international project of which Buxton has been president since 2006. It is known as the *Lexicon Iconographicum Mythologiae Classicae (LIMC)*. The idea was initiated in 1969 by Professor Lily Kahil, the wife of Boutros Boutros-Ghali. Kahil recognised that scholars working in the fields of ancient myth, ancient religion and even modern art required a tool to help with their research: a repository where all the representations of the classical myths could reside. Take Achilles: a classical scholar can now find in the *Lexicon* all the images in which he was represented; see where they came

from and where they are located now; how they were divided between vase paintings, sculptures and wall frescos; what the motifs were, and how these depictions have developed over time; plus a wealth of other valuable information.

Initially, Kahil’s ideas were ridiculed – it would be such a massive undertaking that sceptics believed it could never be accomplished – but she persevered and translated the idea into



RICARDO ANDRÉ FRANTZ

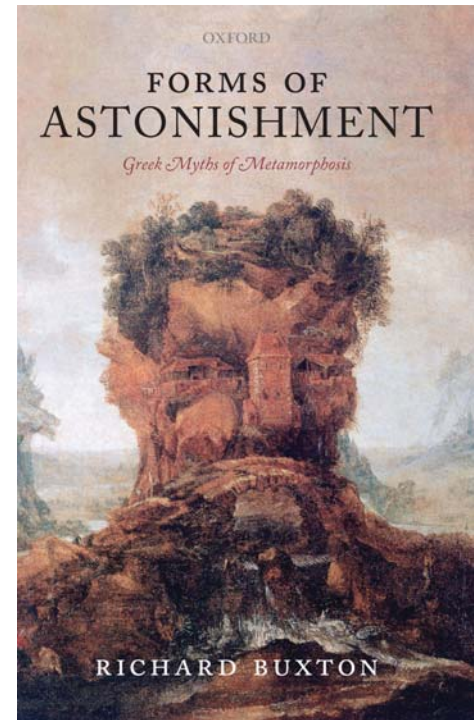
The ‘Judgement of Paris’ depicted in porcelain, from the Capitoline Museums, Rome.

Buxton uses the idea of astonishment to investigate the extent to which the ancient Greeks took these myths seriously

reality. In 1981, the first volume was published, comprising half of the entries for the letter ‘A’. No fewer than 87 authors contributed to this volume alone. Eighteen years later, in 1999, this remarkable project was effectively complete. Having become a worldwide collaboration by that time – altogether, 33 countries are involved – the finished work comprised 18 volumes, each of which consists of a volume of plates and an accompanying volume of text. A further ten years down the line and another two volumes (*Supplementum 2009*) have been added. These depict many new and hitherto unpublished representations of myths and bring the entire 40-year project up to date.

But the work doesn’t stop there. The LIMC Foundation has two major ongoing projects. The first, ThesCRA (*Thesaurus Cultus et Rituum Antiquorum*), documents ancient cults and rites; five volumes have been published so far with three more on the way. The second involves digitising all the images in the *Lexicon*, so as to put it online – and make it free to the user. Furthermore, what they plan to put online is not only the images that appear in the *Lexicon*, but the whole archive from which they were taken. In other words, if, worldwide, there are 3,000 images of Heracles slaying the Nemean lion, only a fraction of which could be illustrated in the *Lexicon*, the objective will be to put them all online. In spite of this huge task, and despite the increasingly challenging job of raising funds in today’s financial climate, Buxton anticipates that both ThesCRA and the digitisation project will be completed within three years.

Alongside all of this, Buxton continues his own research. His authoritative and influential book, *The Complete World of Greek Mythology*, has been translated into nine languages, including



Buxton’s latest book, *Forms of Astonishment*.

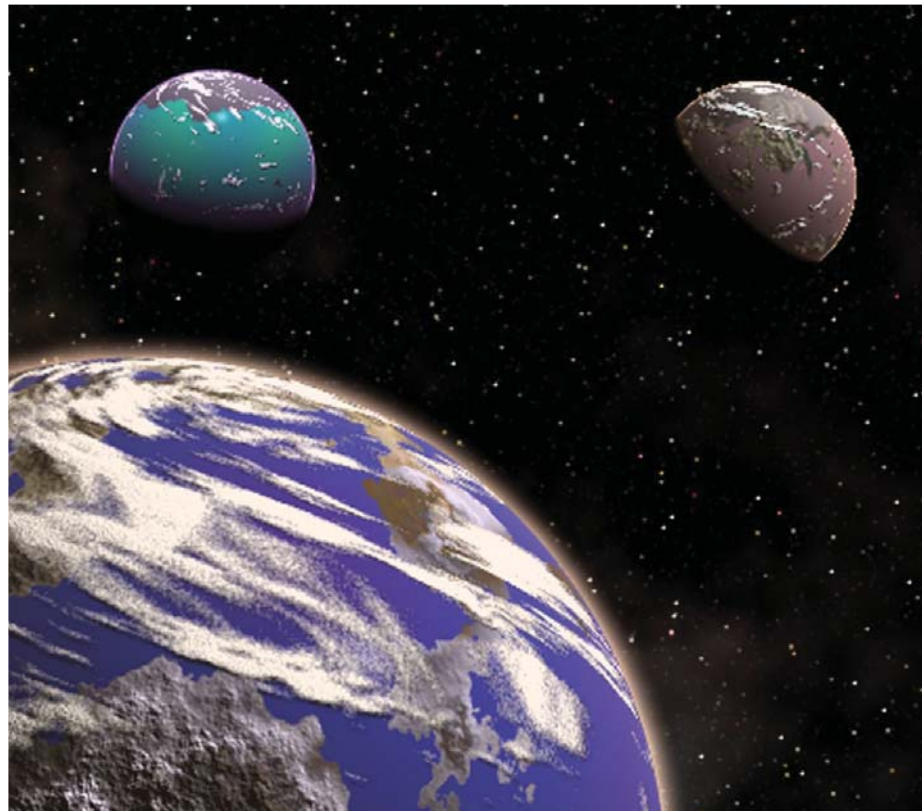
Japanese and modern Greek. The book discusses the origins of Greek mythology, examines the Greek landscape and its significance in the development of the narratives, and comes full circle with a concluding chapter on Greek myths after the Greeks, from Roman adaptations to modern transformations. It has become a classic example of a work which maintains scholarly rigour while engaging the interest of a broad public. His latest book, just published by Oxford University Press, is called *Forms of Astonishment*. This work sets out to interpret a number of Greek myths that narrate the transformations of humans and gods. “The Greek word θάμβος [*thambos*] means astonishment,” explains Buxton, “and is often found in stories about people being transformed into things that bystanders were astonished by, and about gods turning into shapes that were not anthropomorphic, such as Daphne turning into a laurel tree.”



Heracles fighting the Nemean lion. Detail of *The Twelve Labours* Roman mosaic from Llíria (Valencia, Spain), made in the first half of the 3rd century AD.

Buxton uses the idea of astonishment to investigate the extent to which the ancient Greeks themselves would have found such transformations strange; in other words, how seriously did they take these myths? This leads him to enquire into the role of things turning into other things in our own world, and to ask if we can retain a residual feeling of astonishment at the same time as intellectually understanding the processes involved. He thinks we can: “We can be astonished every time a butterfly emerges from a cocoon, while recognising the biology that underlies its metamorphosis.” The book raises issues relevant to an understanding of broad aspects of Greek culture and in doing so it also illuminates issues explored by anthropologists and students of religion, thereby confirming the legacy and relevance of the Greek myths today. ■

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Professor Marianne Hester



The Three Planet Model

Professor Marianne Hester, internationally recognised for her research on domestic violence, will head the School of Policy Studies' new Centre for Gender and Violence Research when it opens in October. She was appointed a Specialist Advisor to the House of Commons Home Affairs Select Committee's inquiry into domestic violence, was recently commissioned by the Ministry of Justice to provide an early evaluation of the effectiveness of the measures in the Domestic Violence, Crime and Victims Act 2004 and is currently heading a Home Office review of approaches to serial perpetrators.

A quarter of the work that the police have to deal with is concerned with domestic violence. This is a startling statistic, but it illustrates an important change in attitudes that has occurred over recent decades. Twenty or 30 years ago, domestic violence was very much a private matter; more recently, emphasis has been put on a criminal justice approach to the problem and domestic violence is now a crime. Alongside this growing awareness of domestic violence and its cost for women with children has come increasing public and political concern. As a consequence, the Government has put a lot of energy and resource into developing work in this area. Nevertheless, the problem continues.

Domestic violence is a complex issue that requires a common understanding of all the problems and a co-ordinated response from the many agencies involved. Traditionally, the abuse of women and the abuse of children were examined as separate issues, with services and policies being developed at different stages by different groups in isolation. We now have a much better understanding of the interrelationship between domestic violence and child abuse. For example, we now know that when a woman is being abused, not only is her parenting capacity likely to be affected, but there is also a heightened probability that her children will be abused as well. Despite this improved

understanding, Hester still feels that the agencies and services working to ensure the safety of women and children face particularly difficult challenges due to the contradictions that exist between the law and professional practices. To illustrate this, she has developed a 'Three Planet Model', where each 'planet' or region has its own history, culture and laws.

The domestic violence planet

On this planet, domestic violence is considered a crime. The father's behaviour is recognised by the police and other agencies as being abusive to the mother, so he could be prosecuted for a criminal or public order offence. He might also have a restraining or protective order

taken out against him. At the same time, support agencies provide protection and refuge for the mother. The civil and criminal laws provide intervention and support mechanisms, and on this planet the focus is on violent male partners who need to be contained and controlled in some way in order to ensure that the women and children are safe.

The child protection planet

When children are living with a mother who is experiencing domestic violence, another planet becomes involved where a different set of professionals live. Here, social workers reside alongside the National Society for the Prevention of Cruelty to Children – those who have a statutory duty to protect children – so this planet has a different population and consequently a different set of laws. Here public law deals with child protection and the approach is very different from that on the domestic violence planet. On the child protection planet, the emphasis is on the welfare of the child and its carer.

In order to protect the children, social workers are likely to insist that the mother removes herself and her children from the violent relationship. If she does not do so, it is she who is seen as 'failing to protect' and the children may then be removed into the care of the local authority. This puts the mother in a very difficult position and makes it more difficult for her to contact social services; thus the children remain vulnerable to abuse from the father. On the child protection planet, therefore, despite professionals identifying that the threat of violence comes from the man, it is the mother who is seen as responsible for dealing with the consequences and the violent man effectively disappears from the picture.

The child contact planet

On this planet there is yet another population because a different set of professionals reside here, governed by private, not public, law. The Children and Family Court Advisory and Support Service has tended to place less emphasis on child protection and more on the idea that children should have two parents. In this context, an abusive father may still be deemed a 'good enough' father, who should at least have contact with, if not custody or residence of, his child post-separation. So the mother who has tried to protect the child from his violent behaviour by calling in the police and supporting his prosecution on the domestic violence planet, and by leaving him as instructed on the child protection planet, is now ordered to allow contact between her violent partner and children, leaving her confused and fearing yet again for the safety of her children.

Aligning the planets

Hester's three planet model has now been taken up in the UK and across Europe, as well as in the US, by those who understand how important it is that a more co-ordinated approach should be taken to the issue of domestic violence. Apart from the misery it brings to the women and children who are its victims, domestic violence is also very expensive. In Bristol alone, the cost of domestic violence is estimated to be £26 million a

services involved. Furthermore, it is vital that the gap is closed between 'violent men' on the one hand and 'fathers' on the other hand, so that violent men can be dealt with both as violent fathers and as perpetrators of domestic violence.

The success of the work done by Hester and her colleagues in understanding and combating domestic violence, and the impact this has had on policy both nationally and internationally, has meant

Apart from the misery it brings to the women and children who are its victims, domestic violence is also very expensive

year if just the services are taken into account. This rises to over £1 billion when human and emotional costs are included.

Clearly, the challenge now is to bring the three planets into alignment so that the safety of women and children becomes paramount. This requires a better understanding of the dynamics of domestic violence and a co-ordinated approach by all the agencies and

that the research group has grown to such an extent that it now warrants being a research centre in its own right. The School for Policy Studies is a research-intensive environment, currently organised around four specialist research centres, but from October this year Hester will head the School's fifth centre: the new Centre for Gender and Violence Research. ■

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A car bomb in South Baghdad, Iraq

When scholarship meets politics

Traditionally, security studies focused on the study of strategic problems, especially those that relate to the use of military power by states, often in relation to other states. Before 1945, security studies was very much the preserve of the military. When nuclear weapons became viable, however, the US Government's effort to make sense of these new weapons led it to fund the creation of a body of civilian and academic strategists, which was emulated in other countries. Consequently, academic security studies has to a great extent been funded by the state in order to help the state address specific issues.

Saddam Hussein managed to secure his state for a considerable period of time, but at substantial cost to the inhabitants

The problems with that approach are twofold. Firstly, there are wider things that affect the security of states, such as environmental, social, political and economic concerns, so the threats to security are not just, or even mainly, military ones. Secondly, and more importantly, just because a state is secure, that does not necessarily mean that the population within it is secure. The

state may even be the main threat facing the population. For instance, Saddam Hussein managed to secure his state for a considerable period of time, but at substantial cost to the inhabitants. Even in liberal democratic states, individuals and groups may be insecure while the state is secure. Hence there are significant tensions between what the state means by national security and what security actually means to society within that state.

The notion of 'critical' security studies, the sub-field within which Herring works, gradually emerged to challenge traditional

security studies. Its premise is that the state, including liberal democratic states, can be as much of a threat to society as it is a provider of security. Furthermore, critical security studies seeks to challenge rather than assist states in ventures that could be described as 'imperial', such as when one state invades or pressures another, primarily for its own interests and in an exploitative manner.



Dr Eric Herring from the Department of Politics conducts research into critical security studies, which relates security scholarship to progressive social change. He is particularly interested in international policy on Iraq and was the Specialist Adviser to the House of Lords Select Committee on Economic Affairs for its inquiry into the UK's policy on economic sanctions.

One of the important aspects of critical security studies is that the current agenda is not accepted at face value, but must be examined to ascertain how it was constructed and what interests that might serve. Thus when Herring became interested in the United Nations Security Council's sanctions imposed on Iraq in August 1990, he began to research the political agenda around sanctions since he, personally, did not accept that comprehensive economic sanctions which have a devastating impact on the civilian population are a legitimate instrument of policy.

As a scholar, however, Herring's role was to understand and research what was happening and why, and assess the justifications for the policy. In the course of his research, he conducted fieldwork in Iraq and interviewed policymakers in New York and London in order to assemble a picture of the impact that the sanctions were having on the civilian population and on the political goals that were being pursued through them. This enabled him to contribute in a scholarly way to the debate about the legitimacy and effectiveness of such sanctions. Thus when Iraq was invaded by a US-led coalition in March 2003, the large number of contacts Herring had established,

enabled him to extend his broader thematic concerns – about how critical security studies scholarship relates to progressive social change – to the case of the occupation of Iraq.

One of the outcomes of this work was a book, *Iraq in Fragments*, jointly authored with Glen Rangwala at the University of Cambridge, which examined what kind of Iraqi state was emerging out of the

Iraq has become a fragmented state in which political authority is divided and disputed

occupation. Their conclusions were that while the US expected to be able to establish a liberal democracy with an open economy that would serve as a key US ally in the region, the very nature of the US and British policy in Iraq had created incentives for unregulated local power struggles because the two countries were more concerned with finding local allies than with building a coherent state. Thus the main legacy of the US-led occupation, the authors contend, is that Iraq has become a fragmented state in which political authority is divided and disputed. Herring was invited to give evidence to the House of Commons Select Committee on Defence regarding these issues.

In the meantime, a significant body of elite and informed public opinion had emerged against the kind of comprehensive economic sanctions that had been imposed on Iraq. When the House of Lords Select Committee on

Economic Affairs decided to conduct an inquiry into the UK's sanctions policy, Herring was invited to act as its Specialist Adviser in July 2006. The position involved duties such as providing background briefings for committee members, suggesting and preparing questions for witnesses, and acting as principal author of the Committee's report. The key findings of the Committee's report were that:

- comprehensive sanctions are likely to result in severe suffering among the general population, with Iraq being a prime example
- the Government should ensure that objectives are always clear and realistic, and that an exit strategy is developed before sanctions are imposed
- the Government should be more active in promoting systematic monitoring and independent expert review of sanctions policy
- the costs to British business arising from compliance with UK sanctions policy were relatively minor

The House of Lords inquiry found that although comprehensive economic sanctions had been discredited among most of the academic and policy community, the British Government made it clear in its oral and written evidence that it disagreed. Its view was that while the sanctions had been costly for the



civilian population – although they disputed the degree of cost – comprehensive economic sanctions may nevertheless still be worth imposing on a society, if the goal was sufficiently important. Consequently, other than minor concessions, the policy remained intact.

Although select committees can influence policy, Herring points out that wider political developments are often much more important. With regard to the Iranian and North Korean nuclear programmes, for example, the committee's report advocated a shift in emphasis away from sanctions towards positive incentives. Such a shift has in fact occurred, but as a consequence of the change from the Bush to the Obama administration, rather than because of any change in UK policy. ■

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JACKEY BRATT, U.S. NAVY



Poverty and social exclusion



Professor Ruth Levitas

Building a first-class reputation for a department takes many years of producing and publishing high-quality research. The University's Department of Sociology has done just that and is now among the best-known in the UK. Many of its members are highly regarded internationally, including Professor Ruth Levitas, one of the world's leading thinkers in utopian studies. She is the first to admit that her second area of expertise, social exclusion, has had greater policy impact, although all her work is concerned with 'what needs to change'. She has just stepped down as Head of Department, which will allow her more time to concentrate on research in both areas.



Before the Labour Government took office in 1997, the term 'social exclusion' was not widely used. It was confined largely to professional social policy circles, where it built on the concept of poverty pioneered by the late Peter Townsend. It was used to capture the dynamic and multi-dimensional character of poverty, and in particular the consequences of poverty in excluding people not just from levels of consumption, but from social activities others took for granted.

In the mid-nineties, 'social exclusion' was beginning to have wider currency in the European Union, with implications for national governments. In 1996, Ruth Levitas published a seminal article on the concept and successfully applied for funding to look at the place of social exclusion in emergent New Labour thinking. Months later, in the summer of 1997, Peter Mandelson announced the setting up of a dedicated Social Exclusion Unit and the term began to figure more prominently, although usually in the undifferentiated phrase 'poverty and social exclusion'. Levitas's 1998 book, *The Inclusive Society?: Social Exclusion and New Labour*, showed that the focus of social exclusion had shifted

away from the resources of the poor towards a preoccupation with integration through paid work and a focus on the behaviour of those experiencing hardship.

At the same time, colleagues in the School for Policy Studies, including Peter Townsend, David Gordon and Christina Pantazis, were, with colleagues at York and Loughborough, planning a new poverty survey. The funders, the Joseph Rowntree Foundation, specifically asked that the survey should incorporate measures of social exclusion. Levitas was thus co-opted onto the team and worked with Townsend to design this part of the questionnaire. The fieldwork for the *Poverty and Social Exclusion Survey* (PSE) was carried out in 1999, with an initial report in 2000. The results showed that the proportion of households living in poverty had increased under the Thatcher Government from 14% in 1983 to over 24% in 1999. Social deprivation was also reflected by the 10 million adults and one million children too poor to participate in common social activities such as visiting friends and family, having celebrations on special occasions, or attending weddings and funerals.

There was considerable unease about the consequences of this increase in deprivation and the lack of social justice that it implied, and the report detailed the scale of the task facing New Labour in its desire to end poverty and social exclusion. A fuller analysis, edited by Pantazis, Gordon and Levitas, was published in 2006. The study was the most comprehensive and scientifically

The proportion of households living in poverty increased under the Thatcher Government from 14 per cent in 1983 to over 24 per cent by 1999

rigorous survey of its kind ever undertaken, providing unparalleled detail about deprivation and exclusion among the British population at the close of the 20th century. It was the first national study to measure social exclusion and to introduce an internationally comparable methodology for poverty and social exclusion. The PSE questionnaire was made freely available at an early stage and was widely used. The insistence on direct measurement of economic and social deprivation also influenced the Government's mode of measuring child poverty.

In 2006, the Social Exclusion Unit commissioned the research team, this time led by Levitas, to review existing sources on severe forms of social exclusion, characterised as 'deep



exclusion'; to recommend possibilities of secondary analysis in order to explore the dynamics of deep exclusion; to identify any relevant gaps in the knowledge base; and to recommend research strategies for filling such gaps. This project reported in January 2007 as *The Multidimensional Analysis of Social Exclusion*. It showed

the limitations of existing data sets, especially in the complex area of social exclusion, and the need for a new, dedicated national survey. It also provided a coherent framework for assessing different domains and dimensions of exclusion based on a comprehensive survey of theoretical and policy literature. The Bristol Social Exclusion Matrix, or B-SEM, now forms the basis of the approach taken by the (now) Social Exclusion Task Force. In adding questions of social participation and quality of life to the usual indicators of low income and employment status, the B-SEM, like the PSE, 'puts the social back in social exclusion'. In response to the 2007 report, the Task Force commissioned four pieces of work on different stages of the life course, using the B-SEM as a common framework.

The team, this time led by Eldin Fahmy, successfully tendered for one element of this, which has just reported as *Understanding Social Exclusion Across the Life Course: Working age adults without dependent children*.

Back in 2007, the team started work on a major bid to the Economic and Social Research Council to carry out a new national survey of poverty and social exclusion in 2010. This will be anchored at Bristol but incorporate researchers in Northern Ireland, Scotland, the Open University, York University and the National Centre for Research Methods. Negotiations with the ESRC are ongoing. Sadly, Peter Townsend, who would have been consultant to the project, died this summer, and his loss is felt acutely by members of the team. But if this application for £4 million is successful, it will be the largest grant ever awarded for poverty research in the UK. It will also reflect the recognition that the team which Bristol researchers have collectively built over a period of two decades is the best that could be put together in the UK, and probably the best in the world. And it will, we hope, be one more step in the alleviation and eventual eradication of poverty and social exclusion – which is, of course, the point of it all. ■

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