

First full eco-census of !Gariep

Researchers wrap up the first full-length ecological census of the !Gariep – also known as the Orange River, South Africa's longest waterway



Source to sea: (From left) UCT's James Puttick, Sam Jack and Ian Durbach celebrate at the Orange River mouth, Atlantic Ocean, having completed their Senqu2Sea expedition, the first full-length ecological census of the river's vegetation and ecosystems. (Photo by Peter Jack.)

It was under cover of fog at 05h30 on 16 March, that three kayakers slipped quietly under the border control bridge linking Alexander Bay to Oranjemund, towards the roar of the Atlantic; 61 days and 2 125 km after embarking from Qacha's Nek in Lesotho, just downstream from the source of the !Gariep River – or the Senqu, as it's known in these parts.

The UCT trio had finally completed the last chapter of their Senqu2Sea expedition, the first mega-transect of South Africa's longest waterway, an artery that weaves through Lesotho, forms the border with Namibia, and provides vital water for irrigation and hydro-electric power.

On a sandspit at the mouth, the trio of Ian Durbach, Sam Jack and James Puttick were met by Jack's girlfriend and his father – with a magnum of champagne to cap their achievement, the first full-length ecological census of the river's vegetation and ecosystems.

"And all that we'd grown so accustomed to had now come to an end," Jack noted in their blog.

Abundant data

A couple of weeks later, PhD student Puttick, recent MSc graduate Jack, and Durbach, a statistical sciences lecturer, are back on campus, slowly reintegrating into a society with "too many people and too many cars", as Puttick puts it, sporting some "pretty weird calluses" – and even more data.

These will take some months to process: 61 diatom and water samples, one collected every 40km along the river; 53 isotope samples from the tributaries of the Senqu and !Gariep rivers; over 1 200 GPS locations of interest, including 500 water abstraction points – places where water is extracted for irrigation, mining or human consumption.

The expedition was supported by UCT's Plant Conservation Unit, the Mazda Wildlife Vehicle Fund, and the National Research Foundation's South African Environmental Observa-

tion Network (SAEON).

The diatom samples are for a SAEON project led by Dr Jonathan Taylor at North West University. Roger Diamond, who leads an oxygen isotope project in UCT's Department of Geology, will study the water samples to get a picture of the different conditions in the tributaries' watersheds during rainfall events.

The UCT trio also collected ornithological data from a host of sightings: Goliath Heron and Giant Kingfisher, and some 500 African Fish Eagle sightings.

The water quality changed markedly along the length of the river, starting with opaque water, dense with silt, streaming in from scores of rivulets and tributaries in Lesotho – evidence of unchecked erosion. Numerous weirs along the South African stretch have their own effects on alien plant growth, as well as on fish populations and migrations.

Closer to the Atlantic, diamond mining ramps up significantly, and mounds of stone, sand and debris were visible from the banks, prompting Jack's observation in their blog: "As ever, the search for balance between human and ecological needs goes on."

Photographic treasure chest

Puttick, who studies vegetation and climate change, has returned with a storehouse of photographs. They painstakingly document the river at two-kilometre intervals and from various elevations along its banks, capturing the surrounding landscape and its geology and flora. Each has a GPS position and will provide a good visual baseline for the effects of climate change.

With little paddling experience before they set out (Jack had done some river guiding "years ago"), the journey was not without minor mishaps, the result of beguilingly-named rapids (Sjambok, Gamkab, Rollercoaster, Rocky Horror). But they

met disaster only once, at a weir upstream of Orania, where Jack and Puttick's kayaks both sustained tail damage.

As luck would have it, a local manufacturer of plastic water tanks sorted out the problem in his workshop and put the two back on the water. It was not the first or last time local hospitality helped them on their way.

Paddling from the cooler highlands of Lesotho, temperatures soared to over 40°C at Augrabies, where their blog entry was headed: *Hot Like Vindaloo*. But the riverscape dictated the pace, and the simple life inventive (though Spartan) cuisine.

Naked nature

The trio were also privy to unusual sightings. Late one night they woke to thrashing sounds from the river. Torchlight revealed the heads of dozens of huge barbel, bunched together, mouths gaping open at the surface.

"We'd seen this phenomenon at our camp below the Kum-Kum Falls, and had debated whether it might be some form of migration, perhaps to deeper water," said Durbach. "However, the aggressive splashing and herding formation in the direction of the shallows suggested some kind of pack-hunting strategy. Indeed, closer inspection revealed numerous smaller fish hiding in the shallowest water between rocks and pebbles."

On another occasion they paddled up to a herd of gemsbok swimming across a channel in the river, only their heads and horns exposed.

Unforgettable, too, was the guided tour of the Gariep Dam wall, by safety manager Joseph Alexander.

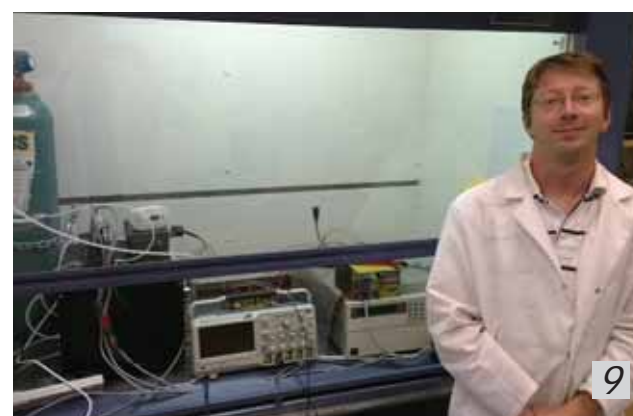
After the trio had explained their mission to paddle the entire river, Alexander's entreaty was to become a mantra on long days of hard paddling into headwinds and other discomforts: "Guys, please – you must enjoy!"

(Read more about their adventure at www.senqu2sea.wordpress.com.) ■



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1 A Biokinetic Humanitarian Project (BHP) initiative at UCT's Obz Square residence on 16 and 17 March saw participants being screened, tested, educated and given exercise programmes to do at home. BHP is a non-profit, community-based organisation that fosters physical activity and exercise education in underprivileged communities around South Africa. This is achieved through fundamental exercise testing and screening, patient education and exercise programmes. The initiative is open to interested students, communities and health professionals who would like to volunteer their assistance and support. In the picture, senior secretary Lance Walbrugh assists two of the roughly 250 participants at the event.

2 In partnership with the provincial Department of Health's West Coast District, UCT's Faculty of Health Sciences recently transformed a disused building at the Hanna Coetzee Clinic in Vredenburg into a student learning centre. Originally occupied by LoveLife, it now comprises two consulting rooms, a multi-purpose room for providing rehabilitation services, a patient waiting area and toilets. Students have been using this new facility since the beginning of 2013 to supplement the services already provided by the Hanna Coetzee Clinic to the community of Louwville, a socio-economically stressed township on the outskirts of Vredenburg. Seen at a gathering to mark the official opening of the Hanna Coetzee Clinic Student Learning Centre on 19 March are (from left) Carine Bester, Western Cape Government; Prof Steve Reid, Faculty of Health Sciences; students Ose Okharedia, Edwill Plaatjies, Mark Jali and Quentin Isaacs; and Sr Samantha Coraizin, Hanna Coetzee Clinic.

3 Back in time: UCT archivist Lionel Smidt with the first book of UCT Senate minutes, from 1829. The university's Senate is officially 175 years old this year, although it was actually constituted 184 years ago. The first meeting of Senate was held on 21 August 1829, but a new Senate was formally constituted by the ordinance of 1837, which came into effect in 1838 – hence the 175-year landmark. Until 1838 the College Senate consisted of equal numbers of Council members and academic staff (professors) and was chaired by a member of the Council. The 1837 Ordinance provided for a Senate of two directors, together with the professors (to this day Senate includes two Council members), and its role was set down in the ordinance.

4 Three UCT students wowed Paris judges of the Pernod Ricard International Business Game where their digital marketing strategy tied for first place with a team from Russia. (Left to right) Business Science students Tetlanyo Lekalake and Thembeke Setlogile from the Faculty of Commerce, who teamed up with computer science student Sizwe Ndlovu, represented South Africa at the finals in snow-laden Paris recently, winning internships in Europe as their prize. Their storytelling technique and passion for the African market helped to secure them the top slot. The UCT team beat competitors from Europe, Turkey and Russia. Dean of the Commerce Faculty, Prof Don Ross expressed his congratulations to the team.

5 UCT creative writing master's student Hennie Nortjé has just been awarded the Eugène Marais Prize for Debut or Early Work for his anthology of Afrikaans poetry, *In die Skadu van Soveel Bome*. The anthology is a collection of poetry that tells stories about indigenous trees, a deep love of Nortjé's. "In writing, you have to go for where your passion lies, and I found inspiration in indigenous trees and a deep longing to be immersed in nature," he said. Nortjé finished his master's at UCT at the end of 2011. He started writing the anthology soon after the course was completed, and the book was published in November last year by NB publishers (Queillierie). Last week he received the exciting news of his prize. "Eugène Marais is an iconic figure of the highest order when it comes to Afrikaans poetry. To receive this prize is such an honour for me," he said.

6 Wood you believe it: Professor Robert Cameron, of UCT's Department of Political Studies, was surprised to discover recently that the high-quality wood panelling in Vice-Chancellor Dr Max Price's office in Bremner Building, as well as in the lobby, was installed by none other than his late father, John (Jock) Cameron, in 1963. "I checked with the Registrar, Hugh Amoore, and he said as far as he was aware it is still the original panelling that had been put in place by my dad," says Cameron. His father was a shop fitter/carpenter who did his trade in the Clyde shipyard in the UK in the 1930s. He fought for the British army in World War II, and emigrated to South Africa shortly afterwards. He worked for chartered architects Brimble and Briggs, who had the contract for the UCT panelling work, and Cameron Jr found a reference from

the company commending his father for the skill and expertise with which the panelling was installed.

7 Jazz tenor saxophonist, Blue Note recording artist and winner of several Grammy Awards Joe Lovano presented a workshop at the SA College of Music in April. The 90-minute workshop, organised by Professor Mike Rossi for SACM, was presented to jazz studies students and staff. Lovano was a guest artist of the recent 14th Cape Town International Jazz Festival, performing with the Jack DeJohnette Trio. He began playing the alto saxophone at five, and switched to the tenor a few years later. By the time he turned 16, Lovano was a member of the Musician's Union, Local 4, and working professionally. He now travels the globe teaching and playing.

8 Vice-Chancellor Dr Max Price welcomed over 200 alumni from the US and Canada to the Faculty of Health Sciences centenary gala dinner in New York on 31 March. The dinner capped a year-long programme of activities that commemorated the birth of Sub-Saharan Africa's first medical school on 6 June 1912. Price, who hosted the event, said the occasion was also an opportunity to laud the achievements of alumni who had "spread our reputation far and wide". Guest speakers included former vice-chancellor and Head of Medicine at UCT, Emeritus Professor Stuart Saunders, and 2011 MBChB graduate Dr Vuyane Mhlomi. The incumbent Dean, Professor Wim de Villiers, who is concluding his work in the US till he takes up his position at UCT in July, was introduced to guests.

9 Chris de Beer, a UCT electrical engineering doctoral student, has won the best paper award at a major international energy research conference. De Beer's research into the condition monitoring of proton exchange membrane (PEM) fuel cells won top honours at the annual IEEE International Conference on Industrial Technology in February. The paper, titled *Degradation of High Temperature PEM Fuel Cells and the Impact on Electrical Performance*, was authored by De Beer, and co-authored by his supervisors at UCT's Department of Electrical Engineering, Dr Paul Barendse and Professor Pragasen Pillay, and collaborators Brian Bullocks and Professor Ragunathan Rengaswamy of Texas Tech University, where De Beer spent seven months doing research and prototyping new test stations. ■

‘Be more than just a good doctor’ Bateman wins 2012 Alan Pifer Award

A commitment to use his “academic and enquiring skills” to contribute to society beyond the perceived confines of the laboratory and surgical theatre bagged UCT’s Professor Eric Bateman the prestigious Alan Pifer Award for 2012.

This commitment was eloquently demonstrated by a lecture Bateman gave recently to the Thoracic Society of Australia and New Zealand, which he called *The Public Health Clinician*.

“The public health clinician is more than just a good doctor; he or she is someone who accepts the responsibility for taking their skills into the community and making a difference,” explained Bateman, Professor of Respiratory Medicine at UCT.

The award, which Bateman received on 9 April, is bestowed annually on one or more UCT researchers whose work has – as Professor Danie Visser (deputy vice-chancellor responsible for research) noted – demonstrated relevance to the advancement and welfare of South Africa’s disadvantaged people. Bateman received the award for the “impressive impact that his research has achieved, particularly in combating tuberculosis and improving primary healthcare”.

Bateman was appointed head of the Respiratory Clinic in the Department of Medicine at Groote Schuur Hospital in 1989, and established the UCT Lung Institute in 2000, pioneering crucial health science research, said Professor Bongani Mayosi, head of UCT’s Department of Medicine, who nominated Bateman for the award.

The UCT Lung Institute has become an international beacon of innovative research, from new tuberculosis (TB) drug develop-

ment to unique community-based, directly-observed therapy studies, and involvement in building and establishing infrastructure in clinics such as those in Langa and Chapel Street in District Six.

Bateman’s fundamental contribution has been to improve primary healthcare, added Mayosi.

“We are often accused of being elitist here at UCT, [of being] in our ‘ivory tower’, of not being relevant to people in the community, and I think the work that Eric

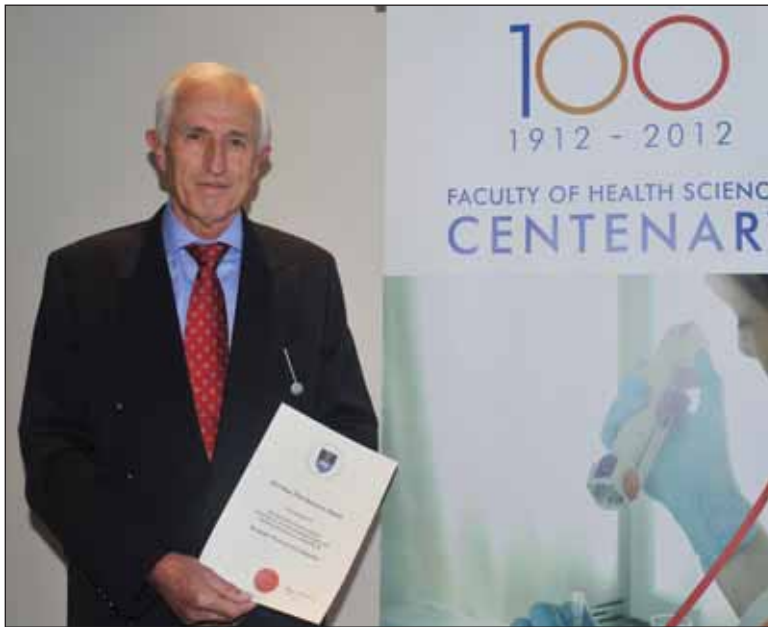
has done has shown that in fact, the opposite is true,” he said.

than being a good clinician, and that is to contribute as a member of society”.

The ground-breaking research he was able to lead, says Bateman, owes much to his “terrific” team.

“I see this very much as a team award.”

The veteran clinical scientist said he hoped that the award would further convince his colleagues (who already share his vision, he reports) that it was rewarding to do research that “makes a difference”.



Community spirited: Prof Eric Bateman was honoured with the Alan Pifer Award for 2012 for his pioneering clinical research.

has done has shown that in fact, the opposite is true,” he said.

Bateman was quick to pay tribute to those who instilled his sense of responsibility to society: his mentors. He credits one of those, Emeritus Professor Solly Benatar, with “having taught me, as a pulmonologist-in-training, that there was something better and even more important, perhaps,

“I was able to say recently at this lecture that the rewards of working in Africa and South Africa are tremendous. Whatever you put your hand to, there’s an opportunity to make a substantial difference. It’s exciting work. It’s the reason for getting up in the morning. Our researchers need to realise that they are in the golden age, the ideal place to make a difference.” ■



Centre stage: Professor Bongani Mayosi (left) and UCT Vice-Chancellor Dr Max Price (right) were on hand to congratulate Professor Eric Bateman, the winner of the Alan Pifer Award for 2012.



Hero: Professor Francis Nyamnjoh, seen here at UCT, was named African Hero of the Year 2013 by the African Student Union of Ohio University in the US.

Nyamnjoh honoured by US students

UCT’s internationally-recognised anthropologist, Professor Francis Nyamnjoh was named African Hero of the Year for 2013 by the African Student Union of Ohio University, US, in March.

The student union’s annual African Hero Day celebration honours one person from the continent who has made a significant contribution to improving the lives of its inhabitants.

Anthropologist Nyamnjoh follows a long line of distinguished African Heroes, the first of whom was former South African President Nelson Mandela, in 1993. Nyamnjoh’s honour recognises his “outstanding contribution to the advancement of Africa through your scholarship as well as teaching practice”, as the winner’s plaque reads.

“The award means a lot to me, for the simple fact that it comes from students who have followed my work from a distance and are able to appreciate it,” says Nyamnjoh. “This is most humbling and encouraging. I hope I am able to live up to the challenge they have thrown my way.”

Nyamnjoh chairs the Social Anthropology section of UCT’s School of African and Gender Studies, Anthropology and Linguistics, and boasts a prolific publications profile. His impressive bibliography includes work on media and democracy; mobility and citizenship; and the social shaping of information and communications technologies.

Rated as B2 by the National

Research Foundation, the scholar’s career began at the University of Yaounde, Cameroon, where he earned a BA (1984) and MA (1985) before completing his PhD at the University of Leicester in the UK in 1990. Prior to joining UCT in 2009, Nyamnjoh served as head of publications at the Council for the Development of Social Science Research in Africa from 2003 to 2009. In October 2012 he received a University of Cape Town Excellence Award for “Exceptional Contribution as a Professor in the Faculty of the Humanities” after being inducted as a fellow of the Cameroon Academy of Science in August 2011.

Nyamnjoh declined offers of permanent teaching posts at American and European universities, maintaining that he would rather plough his expertise directly back into Africa, and taught at various universities around the continent. Nyamnjoh was awarded the Senior Arts Researcher of the Year prize in Botswana.

He displays great confidence in Africa’s continuing contribution to academia.

“There are African scholars and scholarship of global stature in all disciplines, and Africa is increasingly the continent to turn to for new ways of theorising and understanding our world. It offers fascinating everyday examples of the complex, nuanced and accommodating negotiation and navigation of myriad influences by ordinary people.” ■

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Vitamin B12 transporter is key to understanding TB pathogen

A paper published recently in *Open Biology*, a new journal of the Royal Society, has pinpointed a particular protein as the transporter of vitamin B12 in *Mycobacterium tuberculosis*, the bacterium which causes tuberculosis (TB). The finding represents an important contribution to understanding the ability of the TB bacterium to cause disease – in particular, the possibility that it has the capacity to scavenge vitamin B12 from its human host.

This research, which was led by a team of scientists from the Molecular Mycobacteriology Research Unit at UCT's Institute for Infectious Disease and Molecular Medicine (IIDMM), will also shape thinking in related areas of microbiological research: it turns out that the system used by the TB bacterium is quite distinct from previously known bacterial B12 transporters.

Humans and plants don't make their own supplies of vitamin B12. It comes from a diet or food chain that includes 'contaminating micro-organisms'; in other words, bacteria that can manufacture the vitamin.

But not all bacteria make B12. Surprisingly, the TB bacterium is among those that can; yet it also comes armed with the ability to take it up from its host, possibly indicating the importance of vitamin B12 to the lifestyle of this major human pathogen.

Plotting this pathway should have been easy for the scientists. However, the TB bacterium's transport mechanism is nothing like those found in common bacteria such as *Escherichia coli*, or salmonella. Instead, it is genetically related to human B12 transporters.

The uptake of vitamin B12 in the TB bacterium has long puzzled researchers working to prise open its defences. The protein, designated Rv1819c, provides new possibilities for interventions.

The paper caps a four-year project that harnessed a multi-disciplinary team from research institutions in South Africa, Switzerland, Lithuania, and the US. A collaboration between UCT and the Swiss Federal Institute of Technology (EPFL) in Lausanne lay at the core of the work, and was funded by the Switzerland-South Africa Joint Research Programme, as part of a bilateral agreement between the Swiss and South African governments.

With IIDMM director Professor Valerie Mizrahi serving as the South African principal investigator on this Swiss-South Africa collaboration, it's another plaudit for the IIDMM, which will celebrate its 10th anniversary next year.

The UCT team of Dr Digby Warner and postdoctoral research fellow Dr Krishnamoorthy Gopinath led the project, applying a combination of innovative genetic and molecular tools to identify the protein that transports vitamin B12 in the TB bacterium.

Gopinath has a PhD in microbiology from the All India Institute of Medical Science in New Delhi – sister city of Johannesburg, where he first came to work as a postdoctoral research fellow in Mizrahi's previous research team at Wits University.

Warner followed an unlikely path to medical microbiology. He was an accountant at a paint and chemical factory, until one



New findings: In the laboratory, Prof Valerie Mizrahi (right) with Drs Digby Warner (middle) and Krishnamoorthy Gopinath, postdoctoral research fellow.

day he took a call on the helpline. The customer complained of peeling paint. The factory's chemist provided a simple answer: incompatible surface chemistry. This sparked a continuing fascination with science that saw Warner return to university, initially to study chemistry, and later, molecular biology.

At the IIDMM, the team does long-term work, trying to understand what makes the TB organism work at molecular and microbiological levels.

In previous experiments, a US research group had tested a mutant strain lacking the Rv1819c protein in a mouse model of TB. They found that the mice became infected, but did not die as quickly. But they couldn't work out why.

"They didn't know what the protein did. We've shown that it's critically important for B12 uptake," said Warner.

The findings are significant. TB is remarkably efficient; passing from one infected human to infect another, surviving and growing rapidly, primarily in the lungs. South Africa bears a huge TB burden, with approximately one per cent of the population affected by the disease.

"In South Africa we are in the eye of the storm, as HIV provides fertile soil for TB and other opportunistic pathogens," said Warner.

However, there's a twist to this microbiological tale. The fact

that the TB bacterium is able to take up a huge molecule like B12 is a big surprise. It is renowned for its tough, almost impenetrable cell wall, which resists most molecules, frustrating those who work in drug development.

It's this question that will determine the future of Gopinath's research: does the TB bacterium also take up other forms of B12, perhaps in the form of B12 precursor molecules? If so, is the TB bacterium an opportunist rather than a scavenger?

"The finding may not lead to a drug candidate, but it will provide some clues into how the TB bacillus takes up some very large molecules, and could shape thinking in other areas of microbiological research too," he said.

The results also present a theoretical possibility: that biochemists can design TB drugs as conjugate molecules; in other words, antibiotics piggybacking on the B12 molecule – a chemical Trojan Horse, as it were.

While there is always a translational component required in this kind of research (new drugs, etc), the excitement is that they are on the threshold of new knowledge.

"We don't know yet, but we're revealing new capacity of this organism that we're hoping will take us somewhere," says Gopinath.

"It's about understanding the enemy," adds Warner. ■

SHAWCO students shine despite adversity



To the top: Three Windermere students achieved top results in 2012, thanks to SHAWCO's after-school projects. Shamielah Reid, Aaliyah Agouhaar and Lindani 'Theo' Luningo were photographed with centre manager Karen Damon (left) and Principal Craig Leetz (right).

The community of Windermere, in Kensington, has been through some trying times, affected by socio-economic challenges which have resulted in – among other things – a police presence at the local high school, Windermere High, where pupils are searched for weapons on a daily basis.

But despite all this, a ray of hope shines through. Three pupils have decided to succeed in the face of these and other challenges, and they are being aided in their quest by SHAWCO.

SHAWCO and Windermere High have a partnership that spans over 20 years. Initially Windermere High and Kensington High Schools were involved with after-school SHAWCO activities such as netball and art. Early in the 2000s UCT student Anwar Parker was part of a team who created the KenSTEP, So Live and Learn and KenSMART projects, which focused more on education, by offering extra lessons in Science, Math-

ematics, English and Life Skills.

The three pupils who are reaching new heights despite adversity are participants in SHAWCO's education project. Shamielah Reid (Grade 12), Lindani 'Theo' Luningo (Grade 11) and Aaliyah Agouhaar (Grade 9) saw major improvements in their results last year, after joining the SHAWCO programme.

"SHAWCO taught me maths and helped me understand what they were saying in class," says Agouhaar. "I can't wait to go back this year." Last year this quietly-spoken teen achieved four As and two Bs, and she hopes to improve on this.

Reid says being part of the SHAWCO programme made a significant difference to her marks too.

"SHAWCO helped me focus on areas where I was battling," she says.

Luningo's marks have also improved, and he says attending SHAWCO's lessons is far better than studying alone. He wants to be a doctor when he leaves school, and

is determined to stay in the programme until the end of Grade 12.

Asked what facilities they would like to see at Windermere, all three agree that a bigger library is essential. They would also love to have a hall for assemblies, rather than having to stand outside in the hot sun.

Teacher Sadia Bester, who also acts as the link between SHAWCO and the school, says she is very grateful for the help her pupils are receiving. "There are lots of challenges at Windermere, but the hard work and commitment of the students involved in the SHAWCO programme is wonderful to see."

Headmaster Craig Leetz says when a school like Windermere is offered help by an organisation like SHAWCO, "we have to grasp it with both hands". He has been at the school only since the start of the year, but believes SHAWCO's contribution will have lasting benefits for the learners involved. ■



Finding solutions: (From left) Deputy Minister of Public Works, Jeremy Cronin; Dinesh Jain, Joint Secretary, Ministry of Rural Development, India; and, Berhanu Washie Director, Productive Safety Nets Programme, Ethiopia during the session: Lessons from development policy and praxis: South Africa, India and Ethiopia. (Picture by Liam Cornell)

Expand public employment programmes, says Hirsch

Public employment programmes (PEPs) have been widely used for many years to help mitigate the temporary effects of natural disasters and economic downturns, while stimulating employment and inclusive growth. Such programmes are well understood and documented. However, there is also a wider case for public employment programmes beyond times of crisis, as part of longer-term employment policies, says Professor Alan Hirsch, head of the Graduate School of Development Policy and Practice (GSDPP).

In response to the need to expand the scope for PEPs, the GSDPP held its fourth executive course in mid-March, titled *Innovations in Public Employment Programmes*. Run in collaboration with the International Labour Office's International Training Centre (based in Turin), the course was very well received, with nearly 50 policymakers and practitioners attending.

"Public Employment Programmes require policy debate as well as significant innovation, in relation to the types and quality of work, working conditions and the right to work," says Hirsch. "There is a need to significantly expand the range and scope of policy choices, including opportunities for public employment programmes, to address structural unemployment or serve as a component of a wider social protection scheme."

The GSDPP's latest executive

course aimed to do exactly that, and resulted in lively debate on tough issues, with participants expressing their appreciation for the opportunity to engage in stimulating discussion and to network with colleagues.

Deputy Minister of Public Works Jeremy Cronin presented an argument for PEPs' contribution to transformative development, raising thought-provoking issues, especially around the structural nature of unemployment in South Africa.

"If South Africa is to address this problem," he said, "our PEP initiatives cannot just be temporary placeholders [and] gap-fillers; they need to be integrated into a long-range, systemic [and] transformational response."

Presentations on innovative approaches to public employment programmes in India and Ethiopia were among the highlights of the week-long course. Berhanu Washie, director of the Ethiopian Productive Safety Nets Programme, highlighted innovative approaches to securing water resources in a country often beset by drought, while Dinesh Jain, joint secretary of the Indian Ministry of Rural Development, explained the Mahatma Gandhi National Rural Employment Guarantee Act.

As the name suggests, this Act guarantees rural people 100 days of work per annum, on demand, enabling them to plan and slowly develop their livelihoods to the point at which

they are no longer dependent on the programme. So far, this programme has benefited in excess of 66 million people. The programme is absolutely transparent, with all details – including all expenses and payments – catalogued on their website, open to everyone.

Both case studies demonstrated the ability of PEPs to support vast numbers of people by drawing them into participatory processes and helping them determine their own development planning. They also had significant impacts in terms of climate mitigation and adaptation strategies, especially related to water resources.

There was also considerable interest in and appreciation for South Africa's own public employment programmes, Working for Water being the best known. Christo Marais, chief director of the Department of Environmental Affairs, spoke passionately about PEPs and the restoration of natural capital, highlighting the important work being done to secure South Africa's water resources.

The course drew participants from Malawi, Zambia, Namibia and many corners of South Africa.

"A number of national government departments (such as Public Works and Social Development) sent strong delegations, and the demand both before and after the course has ensured that another course will be run next year," Hirsch added.

Stem cell technology aids disease research

The use of stem cells to develop 'disease-in-a-dish' models, for studying disease aetiology and for drug screening, is gaining popularity worldwide.

The UCT Stem Cell Initiative, headed by Professors Sue Kidson and Jacquie Greenberg and comprising scientists and students from the departments of cell biology, human genetics, neurology and other departments, is using a groundbreaking new technology, pioneered by 2012 Nobel prize winner Shinya Yamanaka, to turn cultured skin cells into stem cells.

Theoretically, these cells, termed induced pluripotent stem cells (iPSCs), can be differentiated into any cell type in the body, making them an ideal source of cells for the study of diseases affecting inaccessible tissues, such as the eyes and brain.

"Since these iPSCs are derived from adult skin, they also bypass many ethical issues associated with embryonic stem cell research," said Kidson.

In collaboration with researchers in Oxford and Japan, scientists from the UCT Stem Cell Initiative have established the first iPSCs from South African patients suffering from the inherited neurodegenerative disease spinocerebellar ataxia type 7 (SCA7).

This is one type of ataxia among a group of inherited diseases of the central nervous system. Like many other inherited ataxias, SCA7 stems from genetic defects that lead to the impairment of specific nerve fibres carrying messages to and from the brain. The result is a degeneration of the brain's co-ordination centre, the cerebellum. SCA7 differs from most other forms of spinocerebellar ataxia in that the earliest signs are usually visual problems, rather than poor co-ordination.

The group is also in the process of deriving cells from patients with the neuromuscular disorder myasthenia gravis. Myasthenia gravis is a chronic autoimmune neuromuscular disease characterised by varying degrees of weakness of the skeletal muscles.

The SCA7 patient cells have been successfully differentiated into neurons and retinal cells, which are now being used to investigate disease mechanisms in the laboratory.

The stem cell group is in the process of generating stem cell lines for a number of other conditions, which will be used for future investigations into disease modelling and possible therapeutic screening. ■



Team talk: (From left, back) Drs Lauren Watson, Melissa Nel, and Robyn Rautenbach. (Middle) Dennis Lin, Prof Jeanine Heckmann, Dr Robea Ballo, Danielle Smith, Dr Liz van der Merwe, and Esther van Heerden. (Front) Profs Jacquie Greenberg and Sue Kidson.

New additions to security fleet



Crime fighters: As part of its commitment to setting a new standard of professionalism and visibility in promoting safety and security on campus, UCT and security contractor GS4 are introducing four new security vehicles, all fitted with strobe lights for emergencies, spot lights for night patrols, and radio links to all GSCID and CPS patrols on campus. Bicycle patrols will also be launched to increase response speed. Here, crime prevention officers Lindelani Tyhilana and Sherryle Cupido are seen with one of the new security vehicles.

The Centre for Conflict Resolution (CCR), Cape Town, invites you and members of your organisation to a public dialogue on

SOUTH AFRICA AND THE BRICS GROUP (BRAZIL, RUSSIA, INDIA, CHINA, AND SOUTH AFRICA): PROSPECTS FOR THE FUTURE

SPEAKER

Dr Rob Davies

Minister of Trade and Industry, Tshwane

CHAIR

Ms Sanusha Naidu

Senior Researcher, South African Foreign Policy Initiative
Open Society Foundation, Cape Town

Date: Wednesday, 24 April 2013 • Time: 17h30 – 19h00

Venue: 6 Spin Street (between Adderley Street and Plein Street), Cape Town

RSVP: Lavenia Benjamin • Email: lavenia@ccr.uct.ac.za

Tel: (021) 689-1005 • Fax: (021) 689-1003 • Website: www.ccr.org.za

All are welcome and entry is free. Kindly RSVP for seating.



A DAY IN THE LIFE OF CHRIS TOBLER, IT LIAISON

MP: What is an average day like for you?

Every department on campus should have an individual who carries the IT Liaison (ITL) role, to act as a point of contact between their department and ICTS – especially during a crisis. I act as first point of call when there's an IT problem in the Percy FitzPatrick institute. I then diagnose whether the problem is user-related, a hardware or software problem, or a broader, more systemic issue. I deal with any immediate IT problems, fixing any issues that fall within the scope of my skills. I find that as an ITL, I often act as the 'canary in the coal mine', providing early reporting of system errors to ICTS.

MP: What are the biggest challenges?

Having patience; for example, a staff member calls me because they have no internet connection, and I see that they forgot to plug in their network cable to their laptop – again. Or trying to get users to understand that when a printer fails to print, for any number of reasons, that sending the document again and again doesn't push the print jobs out by the sheer weight of the documents accumulating in the queue!

Where issues fall outside my skill level or access authority, I log a call with the IT Helpdesk. Once an issue has been logged, I follow up with ICTS and report back on issues once they've been resolved.

Another one of my roles is to act as a communicator between ICTS and my department. I receive information from ICTS and then decide whether this information needs to be passed on to the students and staff in the rest of the institute and larger department. For example, I'll inform my users about upgrades and building-wide projects that may affect them.

MP: What are some of your job highlights?

I enjoy the problem-solving aspect of the job, and the fact that I have a solid network of contacts within ICTS to call on for urgent issues. For this reason, the ICTS departmental move from Upper Campus to Mowbray was challenging, because I can no longer simply pop next door for advice when I need it.

MP: What advice would you offer other IT liaisons?

A capable IT liaison needs good communication skills, a thorough understanding of their own skill set and



Problem solver: Chris Tobler, IT liaison and principle technical officer for the Percy FitzPatrick Institute of African Ornithology, Biological Sciences department.

a willingness to improve if necessary. An ITL should be patient, remain calm under pressure, not panic when things go wrong; and must be willing to hand over problems that exceed their own expertise promptly in order to ensure complaints are dealt with timeously.

I would advise departments without IT Liaisons to consider appointing one in order to boost productivity and to improve on issue resolution times. Nominees for the role should have experience and knowledge of a wide range of hardware, software and operat-

ing systems as well as a thorough knowledge of the ICTS procedures and policies at UCT, but this isn't always possible in all departments; but anyone with an understanding of technology and a natural curiosity can take on the role and learn on the way. ■

Online workshops, seminars develop postgraduate sector



A massive help: After postgraduate students, supervisors and postdoctoral research fellows expressed a need for workshops targeted at building specific academic skills, as well as aspects of their professional development, UCT's Postgraduate Studies office has arranged a new series of workshops, seminars, and Massive Open Online Courses (MOOCs), in tandem with weekly face-to-face discussions. Here, facilitator Ross Harvey puts a student through her paces.

In response to postgraduate students, supervisors and postdoctoral research fellows expressing a need for workshops targeted at building specific academic skills, as well as aspects of their professional development, UCT is now running a new series of workshops, seminars, and Massive Open Online Courses (MOOCs), in tandem with weekly face-to-face discussions.

The professional development aspects include, among others, grant application writing, conference preparation, reference management, writing an effective CV, course design and convening, and developing professional networks.

UCT's Postgraduate Studies office is drawing on MOOCs that have been developed by a consortium of 10 top

universities, and are free.

Dr Nelleke Bak, director of Postgraduate Studies, says students and fellows enrol online and complete the course over a set number of weeks. However, online courses tend to have high attrition rates, and in order to sustain interest and offer support, each MOOC also has an on-campus group that meets weekly to talk through the online material and tasks. These sessions are facilitated by PhD or postdoctoral mentors.

"Five MOOC groups have been meeting in Semester 1," says Bak. "The topics are on general academic writing, application of statistics in research, logical thinking, biostatistics and data management for clinical research. Facilitators Ross Harvey and

Opeoluwa Oyedele have reported that the discussions in their groups have been lively, open and enlightening. Students from an array of disciplinary backgrounds share their ideas and discuss the set tasks."

As this is the first time that MOOCs have been paired with weekly support groups, UCT's Centre for Higher Education and Development is interested in chronicling the experience and capturing students' responses to the initiative. If it is well-received, Semester 2 will offer a range of new MOOCs.

A complete list of 2013 postgraduate group meetings, seminars and workshops is available on www.uct.ac.za/students/postgraduates/administration/. ■

Law deans' conference strengthens Sino-African ties

Some 35 deans from Africa and China's leading law schools gathered for the inaugural conference on Sino-African legal education, hosted by UCT in March.

The conference was initiated by Professor Evance Kalula, former director of internationalisation and outreach in the Faculty of Law, and now director of the International Academic Programmes Office (IAPO).

The conference followed the signing of a Memorandum of Understanding with Renmin University of China School of Law in April 2011.

The purpose of the conference was to deliberate on the reform of Sino-African legal education, and find new mechanisms for cultivating legal talents in the era of globalisation. Delegates also explored possible student and staff exchange and co-operation strategies between African and Chinese law schools.

The opening address was delivered by Professor Muna Ndulo, director of the Institute of African Development (Cornell University), who provided an in-depth analysis of the need and manner in which law schools should adapt to the changing demands posed by globalisation.

The subsequent conference deliberations were arranged around several core themes, namely: the political context of legal education in Africa and China; challenges and opportunities in the area of research; curriculum development and teaching in Africa and China; and opportunities for fostering co-operation between African and Chinese law schools.

In his concluding remarks, Professor Sandy Paterson said the conference had been intended to provide the first step towards further collaboration, but had resulted in several tangible outcomes.

Paterson took over the internationalisation portfolio in the Faculty of Law from Kalula when the latter moved to head up IAPO in January 2013.

"All participants signed a Declaration of Intent to promote several forms of tangible collaboration in the next few years. There was also an offer from Renmin University of China Law School to host the second Sino-African Law Deans' conference in 2015, and there were discussions about several exchange opportunities between individual law schools in certain substantive areas of law," said Paterson. ■



Talking law: Some 35 deans from Africa and China's leading law schools met at UCT recently to look at a range of issues affecting legal education in China and Africa.

“Africa’s development must be generated from within” – Ndulo

Since the colonial era, the question of to whom Africa belongs has sparked furious debate. UCT’s All Africa House was the site of the latest discussion, at a student-organised gathering in late March.

Collaboration between UCT’s Students’ Representative Council (SRC), UCT’s Abantu Zambian Society and All Africa House brought keynote speaker Professor Muna Ndulo to address the full house on the topic. Ndulo, Professor of Law and Director of the Institute for African Development at the University of Cornell, spoke of Africa’s unique situation in an era of globalisation and the free market in relation to the theme, *To whom does Africa belong? The generation [of scholars] and the future of Africa.*

Despite describing the dangers of the “predatory capitalism” that was globalisation, Ndulo insisted that there was much cause for optimism about Africa’s future.

“Recent high growth rates and increased foreign investments in

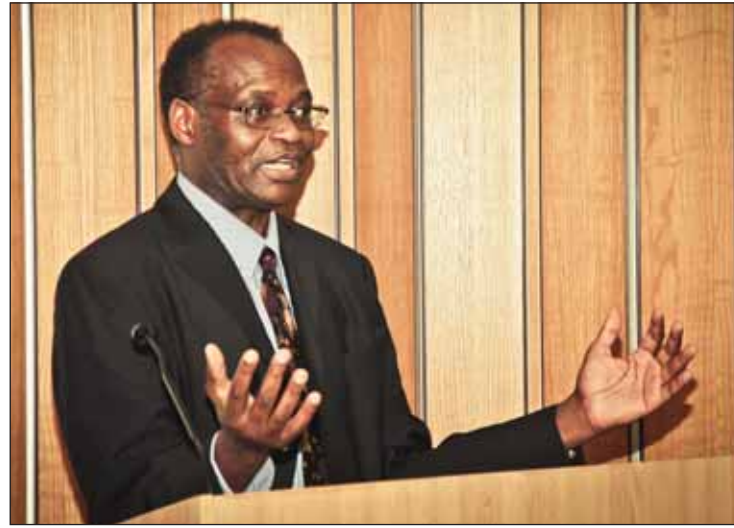
Africa have given rise to much hope,” he noted. “We have even begun to think that Africa may well be on track to becoming an economic powerhouse. The narrative is all over. *The Economist*, which in 2010 called Africa ‘The Hopeless Continent’, this year called Africa ‘The Rising Continent’.

Africa’s development had to be generated from within, Ndulo argued. While “inadequate leadership, corruption” and, as yet, a failure to optimise profits from Africa’s vast mineral wealth undermined the continent’s development, improving regional integration and intra-African trade could go a long way towards improving its fortunes.

Ndulo urged the younger generation to take charge of Africa’s destiny by maximising opportunities for academic engagement.

“If we are not developing our own research agendas, how are we going to address issues that are unique to us?”

Chanda Chungu, the SRC so-



Gather the forces: Professor Muna Ndulo urged a packed All Africa House to use the academic arena to take charge of Africa’s destiny and improve the continent’s fortunes.

cieties co-ordinator, said the talk was the first in a series designed to stimulate dialogue among UCT students about the challenges facing Africa and how they could be overcome.

“This series of talks will involve forums and discussions with African academics, lawyers,

politicians and possibly former UCT students making an impact in their careers,” says Chungu. “This will allow UCT students to engage with our role in building up the continent.”

The next instalment in the series is tentatively scheduled for 9 May. ■

Inaugural lecture charts roadmap to understanding brain function

It is every human being’s responsibility to understand how they use their brains.

This was the contention of Professor Lauriston Kellaway of the Faculty of Health Sciences’ Department of Human Biology during his recent Inaugural Lecture, titled *Neurons, Cells and Circuits – The Roadmap to Understanding Brain Function.*

So much has been written about the brain, yet so much remains to be explained.

“Why do we love? Why do we dislike? Why do we feel threatened? Why do we feel inspired? Why do we feel depressed? Why do we want to kill our fellow human beings? These are all questions that are answerable if we really understand how the brain functions,” said Kellaway.

Learning new tricks

Cognitive neuroscience, he said, has shown convincingly that the human brain can be shaped by external influences, “so we really do need to understand the interaction between our brain and the environment in which we find ourselves”.

There was no such thing, in the human sense, as not being able to teach an old dog new tricks.

“Our brains are extraordinarily plastic, meaning that we are activating synapses and forming new synapses all the time. We have the ability to learn well into old age,” Kellaway said.

The decade between 2000 and 2010, which was declared the Decade of the Brain, saw an explosion of scientific data in the arena. Many thousands of papers were published, and the number of delegates who

attended gatherings of the Society for Neuroscience, one of the biggest societies of its kind in the world, grew to beyond 34 000 over the decade.

The development of neuroscience has deep roots in Africa. Africa (and more specifically South Africa) has contributed some of the finest thinkers in the field, among them prominent neuroscientists Rodney Douglas and Kevin Martin, alumni of UCT who now work together and co-chair the Institute of Neuroinformatics in Switzerland.

Heading a core team

“Both are South African, born and bred. Both are graduates of UCT and have had an enormous influence in the development of neuroscience. They bring together the core team of multi-disciplinary

experts – ranging from neuromorphic engineers, to computational and mathematical gurus, biologists and neurophysiologists – currently supporting a huge team of doctoral and postdoctoral students at the institute,” said Kellaway.

As further evidence of the influence of South Africans in the world of neuroscience, Kellaway cited another UCT graduate: Henry Markram, director of the Human Brain Project.

He said the biggest funding award in the history of neuroscience – €1-billion (about R12-billion) – had been granted to the Project by the European Union (EU).

Offering a new understanding

The project is a large-scale, decade-long European research project which aims to simulate the most

exact human brain ever in a super-computer – a world first. The goal of the project is to pull together all existing knowledge about the human brain and to reconstruct it, piece by piece, for simulation models. The models offer the prospect of a new understanding of the human brain and its diseases, and of completely new computing and robotic technologies.

Referring to the pivotal role played by South Africans in the world of neuroscience, Kellaway posed the question: “What is it about towns in South Africa, like Cape Town, Kuruman and Beaufort West, that has produced these world-renowned scientists of such vision and genius?” – quipping that boerekos, Mrs Ball’s Chutney and biltong could have played a role. ■



Understanding the human brain: Prof Lauriston Kellaway, delivers his inaugural lecture, titled Neurons, Cells and Circuits – The Roadmap to Understanding Brain Function.

Sexual health intervention for youth

Growing concern around sexual violence and abuse in South Africa has called for new interventions to educate youth on how to deal with difficult situations. One such project, PREPARE, is an international HIV and intimate partner violence-prevention research project undertaken by UCT’s Adolescent Health Research Unit in the Division of Child and Adolescent Psychiatry.

PREPARE promotes sexual and reproductive health among adolescents in Southern and Eastern Africa by mobilising schools, parents and communities. There are four African and four European universities involved in the project which is funded by the European Union.

In the Western Cape, the project is a randomised control trial (RCT) involving 42 high schools with a total of 4,000 Grade 8 learners. The team is currently implementing its innovative and comprehensive school-based programme developed in collaboration with the Medical Research Council, the Centre for Justice and Crime Prevention and the Departments of Health and Basic Education.

The programme consists of three parts. The first is an interactive curriculum focusing on relationships, HIV, sexual violence and intimate partner violence. The second is a health and well-being school clinic run by nurses of the city and provincial Departments of Health. A nurse provides general health checks for each learner, as well as health education and a space to talk about their concerns relating to violence, abuse, and other matters. Another part of the programme is a partnership between teachers, parents, learners and police officers to improve school safety. School teams are trained in conducting participatory safety audits and safety planning. As part of the safety audits, students participate in a photography project to raise awareness about things in their school that make them feel safe or unsafe.

Intervention co-ordinator Joy Koech says: “It is not good enough simply to teach youngsters safety planning skills to improve their safety. No matter how good their safety planning skills are, there are many factors beyond their control that expose them to sexual and other violence. Principals, teachers, parents, police officers and others in the school community need to take action to decrease violence and make environments safer for young people.”

Colourful, self-administered questionnaires are filled out by the participating Grade 8 learners, once before – and twice after – the programme, so the team can assess whether the programme decreases incidents of sexual violence and its acceptability, and prepares learners to protect themselves from HIV and STIs. Thus far, according to research co-ordinator Petra de Koker, “Ninety-five per cent of the learners love the questionnaire. They say it’s interesting and educational, and they say they are learning a lot about themselves in the process.” ■