



UNIVERSITY OF CAPE TOWN
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UNIVERSITY OF CAPE TOWN
**INAUGURAL
LECTURES**
2014



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FOREWORD

THE PRACTICE OF GIVING INAUGURAL LECTURES

is an ancient and enduring one. In the Middle Ages it was in effect the final examination to obtain the licence to teach at a university, but over time it evolved into an opportunity for a new professor – having achieved the highest rank in the academic profession – to share, on a formal occasion, with the audience what he or she ‘professes’. At the University of Cape Town we ask the new professors, if they accept the invitation of the vice-chancellor to deliver a public inaugural lecture, to prepare a lecture that is accessible to a wider audience than the specialists in their particular field.

This approach allows the university to fulfil one of the important goals that it has set itself, namely to share the work that it does with as wide an audience as possible.

Lectures have the ability to excite, to amaze, to astonish, to cause controversy – and all of this they do regularly; sometimes more than the lecturer would have wished.

Spare a thought for RD Hampden, who was appointed to the Regius Chair of Divinity at Oxford in the early 19th century. His appointment was opposed by the traditionalist Oxford Movement (the Tractarians), who accused him of not being orthodox and worked very hard to have his appointment withdrawn by the Crown; and when that did not succeed, to limit the usual powers that accompanied this Chair. So when he arrived to deliver his inaugural lecture on 17 March 1836, he found the hall packed with a huge crowd, many of whom were his enemies. He presented his views with great care, but his attempt to dispel the accusations of heterodoxy fell on deaf ears as far as his

opponents were concerned. The inaugural lecture was subjected to attacks in the press, and led to – among other things – a hearing before the clergy at Canterbury. From a letter of Hampden’s (which was read out at this hearing) we get a glimpse of the pressure under which he found himself:

“It is further highly consolatory to me to know that there are candid spirits (and I am happy to say, the number of such, even here [Oxford], has increased) which sympathise with me against this persecution, and have remained uncorrupted by the misrepresentations which have so importunately sent forth in public. If only due to all those who have kindly interested themselves in my cause, to assure them, that the views and sentiments contained in my ‘Inaugural Lecture’ truly flowed from my heart, and that they have my uniform conviction.”

Universities are places where new ideas, and often controversial ones, are born; and it is important that the freedom to express such ideas – no matter how controversial – be protected. No university has the right to call itself that if people in Hampden’s position are prevented from speaking their minds.

This booklet contains a summary of all the exciting ideas expressed in the 2014 public inaugural lectures – hopefully with fewer unpleasant consequences than the unfortunate Hampden had to endure! We hope that reading these accounts of the inaugural lectures will be enlightening, and will inspire the reader to make a habit of attending these delightful events on the university calendar.

PROFESSOR DANIE VISSER

*Deputy Vice-Chancellor:
Research and Internationalisation*



‘Universities are places where new ideas, and often controversial ones, are born.’

– DANIE VISSER

EMERGENCY MEDICINE: THE NEGLECTED PANDEMIC

“No-one talks about emergency medicine or studies it; it’s not part of the Millennium Development Goals; there are no global funds fighting it; and the World Health Organisation has devoted few resources to it,” said Professor Lee Wallis in his inaugural lecture on 2 April, the first of UCT’s 2014 series.

“THIS NEEDS TO CHANGE.”

Wallis started that change process some years ago.

Graduating as a medical doctor in Edinburgh in 1993, Wallis trained in the Royal Navy (he’s a retired surgeon lieutenant commander) and was posted to Iraq for two years. En route from the Antarctic in 1998, his Royal Navy ship docked at Cape Town.

The view of Table Bay was alluring; he settled here in 2002, qualifying as a Fellow of the College of Emergency Medicine in London the following year, and adding a doctorate in paediatric disaster triage in 2006.

Frustrated by the huge amounts of energy and money poured into vertical programmes addressing single diseases such as HIV and tuberculosis, Wallis has tenaciously tackled the lack of resources and funding committed to injury care.

“Clearly these programmes have been very beneficial for those patients, but they come at a wider cost: they don’t benefit any other patients, and there’s evidence that where



20%
Africa has 2% of
the world’s cars,
but 20% of its
car accidents

countries put significant resources into vertical programmes, the rest of the health system suffers.”

URBANISATION

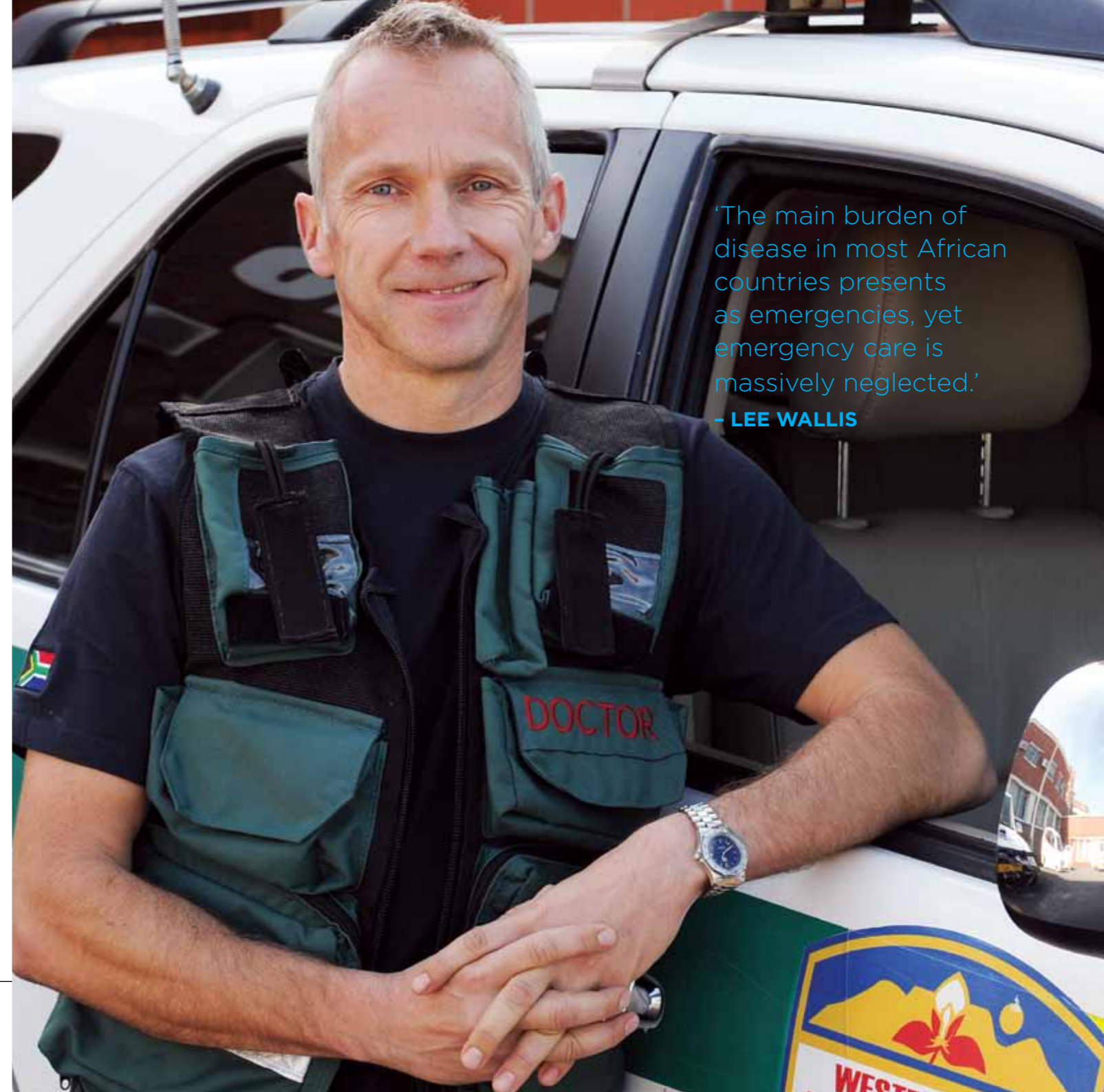
The main burden of disease in most African countries presents as emergencies, yet emergency care is massively neglected.

In the Western Cape alone, there are more than a million emergency-centre visits every year. Extrapolate that into Africa, where urbanisation (and all that accompanies it) is accelerating fast.

Currently, 37% of Africans live in cities, a figure expected to rise to 54% by 2030. And then consider just one scenario: Africa has 2% of the world’s cars, but 20% of its car accidents.

Wallis’ typical approach has meant “getting his hands and feet dirty” (as emergency personnel tend to do).

Take as an example the initiative in the gang- and crime-ridden suburb of Manenberg, which has a huge trauma problem, and where Wallis



‘The main burden of disease in most African countries presents as emergencies, yet emergency care is massively neglected.’

– LEE WALLIS



and the province's emergency services have trained 2 000 community responders.

Even rudimentary first aid can help save lives, he said.

"We train them – at low cost – and these are the people who help until METRO Emergency Services arrives. They provide basic first aid, using basic equipment. They save lives."

The same could be done for the *guard-tjies* on minibus taxis, for example.

250 FREE COPIES OF HANDBOOK PER COUNTRY

In order to assist national efforts to nurture emergency-care systems, Wallis has developed extensive networks in Africa and also founded the African Federation of Emergency Medicine (AFEM). After co-authoring the *Oxford University Press AFEM Handbook of Acute and Emergency*

Care, he lugged it across sub-Saharan Africa to ensure its distribution.

The handbook presents a unique, stratified approach, tailored to the African context.

"It starts with the premise that there are no emergency resources available, and says, *this is how you can manage specific emergency situations*. It's medicine in hostile environments. It's how we used to treat people in the old days."

There are plans to translate it for Francophone countries.

Wallis also began the quarterly, peer-reviewed open access *African Journal of Emergency Medicine*, published by Elsevier (and available as an iPad app).

It is the official journal of the African Federation for Emergency Medicine.

For Wallis, it's all part of an integrated plan to increase awareness of the need for injury-care education out there – and put it to work.

HOLDING THE PARADOX

Is business predominantly part of the problem or part of the solution to social challenges? Should scholars engage in practical problems, or should they stand apart for objective analysis?

THESE TWO QUESTIONS FRAMED THE INAUGURAL LECTURE OF PROFESSOR RALPH HAMANN, former research director of the Graduate School of Business, on 14 May 2014. He put these questions to the audience, comprising academics, students and members of the public.

Hamann began by describing the tensions between the roles of business and scholarship. Much of the time, he argued, we respond to these tensions by either ignoring or polarising them – meaning we often fail to grapple with the underlying causes of tension, or end up creating debilitating conflict between key role players.

Hamann argued that "holding the tension" between opposing perspectives and objectives – an approach he called "paradox thinking" – can provide fertile ground for social innovation.

LEADERSHIP BEHAVIOUR OF KEY FIGURES

In a recent research project, Hamann and colleagues found that the success of cross-sector collaboration aimed at addressing complex social problems depended on leadership behaviour. Effective leaders are able to work through tensions and arrive

at innovative solutions by reframing the identities of both the individuals and the organisations in conflict, reframing the problem, and developing novel options that address divergent needs simultaneously.

He used the Cape Town Partnership to illustrate this – an organisation created in the 1990s, in response to the fear that businesses and property owners might migrate from Cape Town's city centre. Initially, the organisation's mission was just to keep the streets clean and crime-free. This led to the criticism that it was placing too much emphasis on security, at the expense of social development and the rights of those living on Cape Town's streets.

Rather than ignore or polarise this tension, the Cape Town Partnership's leadership invited critics onto their board, and began facilitating difficult but constructive discussions, taking conflicting perspectives into account. This ultimately contributed to a broadening of the organisation's identity – from focusing entirely on ensuring Cape Town's city centre stays clean and safe, to ensuring it's also a caring space that takes into account the needs of the less fortunate.

With leaders who could 'hold paradox' at the helm of the organisation, the problem could



The handbook presents a unique approach, tailored to the African context

'If I had to use one word to describe Ralph Hamann's work and his person, it would be "generosity".'

- WARREN NILSSON

be reframed, by recognising that a security-focused approach could not be applied to a social problem. Reframing both the problem and the organisation's identity allowed for the creation of innovative solutions that responded to different objectives simultaneously. For instance, it led to the creation of new kinds of community courts, which deter social crimes while at the same time avoiding channelling offenders into the criminal justice system.

'SCHOLAR ACTIVIST'

Introducing Hamann at the lecture, Dr Warren Nilsson, Hamann's colleague at the Graduate School of Business, described him as a "scholar activist", who works hard at both "rigorous theory-building, and changing the world".

"If I had to use one word to describe Ralph Hamann's work and his person, it would be 'generosity'... I see that generosity in the kind of work that [he does] and how [he goes] about it. If you want to research cross-boundary and inter-organisational collaboration to confront complex social and environmental problems, you have to - like him - be the kind of person who can enter into a meaningful, trusting engagement with corporation CEOs, grassroots activists, city officials, and other academics," he observed.



DRAWING THE LINE

The arts have a vital role to play in the construction of a just society, by creating the space for new ways of thinking, speaking, and therefore understanding the world. Professor Carrol Clarkson explained how.

AESTHETICS HAS TO DO WITH KNOWLEDGE ACQUIRED THROUGH THE SENSES; and careful attention to what is available within a field of sensory perception indicates how a society perceives itself. So: what can be seen and heard? Who has a voice? What makes headline news? What is censored?

Answers to questions as these help us to understand better how a society delineates itself. Changing the field of perception may be one way of encouraging a different appreciation of what counts and of what matters - and hence, of opening up the possibility of imagining a more just society.

Speaking at her inaugural lecture: 'Drawing the Line', Professor Carrol Clarkson argued that aesthetic discourses are just as important as legal and 'rational' discourses - especially when it comes to matters of social justice. She also subtly demonstrated that the way we speak and think about ourselves has profound implications for how we behave, and for the decisions we make.

Weaving together strands from ancient Greek philosophy and contemporary political theory, as well as referencing post-apartheid South Africa's struggle with identity, Clarkson literally drew the line. She sketched a 'timeline' of her defence of critical theory's role in

transitional justice, with visual hooks guiding the audience through her argument.

OF ART AND MORALITY

"Art, like morality, consists of drawing the line somewhere," began Clarkson, quoting writer and philosopher GK Chesterton. "The act of drawing this line is an art as much as it is a question of morality."

The drawn line reconfigures space. "It divides, yet juxtaposes two entities; it connects two distant points; it includes some and excludes others; it marks a boundary between standing for, and standing against."

"What I want to suggest is that legal and political discourses on their own may not be enough to make sense of these lines," said Clarkson. "That is to say, I'll be making a case for the value of an aesthetic discourse - not least when it comes to thinking through questions of social justice."

In Plato's imaginings of an 'ideal' state, the Republic, the artists and the poets were not welcome, Clarkson explained. "It has yet to be proved that the arts have a place in a well-run society" was one justification. Law and rational principles were deemed the only lenses through which to see the world.

But it is the arts that create a lens through which to interpret society and its habitus, and thus provide a way to question norms and break a path to new and seemingly strange ideas, argued Clarkson. It is in the recognition of “the new in the utterance of ‘the other’ that the process of transitional justice can begin ... [And] if this is so, then the constitution of a new legal order has primarily to do with speaking a newly readable language” – a new form of expression.

PERCEPTION AND THE AESTHETIC ACT

Clarkson takes an “aesthetic act” (to borrow the phrase of Jacques Rancière) to be “any event, or an encounter with a work, a text, a painting, that brings about a different perception of one’s standing in relation to others”. Ideologies, values and ideals are bound up in what can be seen and heard, said Clarkson, and this field of sensory perception influences how we think.

“In her seminal paper on *ubuntu*, former Constitutional Judge Yvonne Mokgoro foregrounds the integral role of perception in political thought: *ubuntu* is a ‘world view’, ‘a determining factor in the formation of perceptions which influence social conduct’, Mokgoro tells us.

“What interests me is the context in which certain works, acts, or encounters, by creating a new field of perception, have the potential to bring about shifts in the way a community delineates itself in terms of what it perceives to be significant – or even noticeable at all.”

Clarkson used Nelson Mandela’s statement from the dock at the Rivonia Trial in 1964 as her primary example.

By representing himself and using the trial as a “showcase for the ANC’s moral opposition to racism”, the late freedom fighter was using an apartheid court of law as a channel for a political protest, said Clarkson. “As a result, the relationship between law and politics in South Africa became irrevocably troubled:

a political appeal to humanity’s conscience suddenly had a spectacular and legitimate place within the overall social configuration of apartheid South Africa.

“Mandela’s words radically altered the social system, determining what could legitimately be seen and heard, and hence brought out starkly the oppressive delimitations that had prevented people from perceiving what they actually shared in common.”

SOCIAL JUSTICE

An aesthetic understanding brings us back to our senses, said Clarkson; it allows us to question what is “salient, legitimate and meaningful” by drawing attention to the political implications of different modes of representation.

“It’s at the level of the materialisation of values and ideals – in writing, speech, and other forms of cultural production – that we are able to recalibrate the settings that have traction on the way we think.

“A shift in our modes of representation within given contexts has the potential to affect social perceptions of what can be seen and heard, of what counts and of what matters.”

These perceptions delineate the ambit of personal, political and cultural commitments, and our margins of exposure of one to another, said Clarkson.

“This is why I think aesthetic considerations are valuable in the thinking through of questions of social justice.

“So it’s not just a question of ‘what do I profess?’, but ‘how do I profess?’ This also inaugurates lines of force between you and me; what I like to think of as an ethics of address.”

Clarkson’s combination of detailed referencing and more light-hearted representations of the same arguments on the chalkboard left her audience with a succinct demonstration of one way to reimagine the ‘how’.



‘Art, like morality, consists of drawing the line somewhere. The act of drawing this line is an art as much as it is a question of morality.’

- CARROL CLARKSON

HOMEGROWN PAEDIATRIC CARE

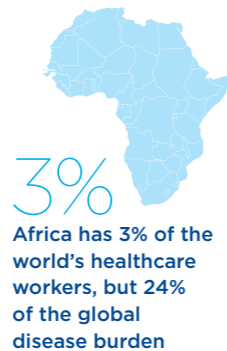
Africa faces a crushing child-health burden, with diseases such as epilepsy often going undiagnosed. But UCT is training and supporting a corps of African paediatricians to manage these unique situations, said Professor Jo Wilmshurst.

THREE YEARS AGO, newly qualified paediatrician Dr Kondwani Kwazi returned home to Malawi and implemented two low-cost, life-saving ideas at the neonatal unit in the hospital where he worked.

A 'graduate' of UCT's African Paediatric Fellowship Programme (APFP), Kwazi instituted kangaroo care – prolonged skin-to-skin contact between mothers and their premature babies, a method pioneered in Colombia and now used widely to support infants at risk. He also introduced 'bubble CPAP', innovative breathing support for newborns using a simple tank of water and a pair of aquarium pumps to control the air pressure delivered to the baby.

The interventions were cheap and effective; life-saving factors in one of Africa's poorest nations, with a mortality rate of 71 per 1 000 live births for children under five, according to World Bank 2012 statistics.

In low-income countries worldwide, children are 16 times more likely to die before their fifth birthday; 75% of these deaths are due



to avoidable diseases such as pneumonia, diarrhoea, malaria and measles.

Kwazi is one of 44 APFP fellows from 23 medical centres in 11 sub-Saharan African countries who have benefited from the training programme. The programme boosts their surgical and general paediatric skills – and helps them think on their feet in resource-poor settings. Right now, there are 22 fellows in the pipeline.

REVERSE THE EXODUS

Stories like Kwazi's were key to Professor Jo Wilmshurst's 30 July inaugural lecture title: Reversing the Brain Drain'.

Just the day before, SABC News quoted the Union for International Cancer Control's Riccardo Lampariello, who said that Africa had been hardest hit by the worldwide shortage of healthcare workers. Africa has 3% of the world's healthcare workers, but 24% of the global disease burden.

African governments are well aware of the problem, said Wilmshurst, but unable to stanch the flow.



'We need to be innovative about how we can work with the resources and facilities available.'

– JO WILMSHURST



EPILEPSY AS A MICROCOSM

As Wilmshurst is a paediatric neurologist, epilepsy takes centre stage for her – and it provides a good mirror for the kinds of problems doctors grapple with in Africa, where even standard levels of care are rare, and where HIV absorbs most resources.

Epilepsy is the fourth most common neurological disorder worldwide, affecting 80 million people, according to the World Health Organisation (WHO).

At Red Cross, Wilmshurst and her team run 80 neurology clinics each month. Sixty percent of their patients have epilepsy.

“Epilepsy can be notoriously hard to diagnose, and affects every child differently. In some ways, being a paediatric neurologist is one of the ultimate detective jobs.”

Without adequate resources, nine out of 10 Africans with epilepsy go undiagnosed and untreated – this on a continent where there’s huge cultural stigma attached to epilepsy.

“We deal with everything here,” said Wilmshurst, referring to her unit and the ripple effect of epilepsy. “They [the families] often have nowhere else to go. These children need special support, and have special needs. The burden on families is huge. We have to manage the child and their family holistically.”

She and her team have spearheaded several workshops in Africa, to strategically understand what occurs at the coalface and

‘The burden on families is huge. We have to manage the child and their family holistically.’

- JO WILMSHURST

tease out key themes and rallying points. The first workshop, in Uganda, was held under the auspices of the International Child Neurology Association, and attended by representatives from 34 African countries. Of high priority was the need for national guidelines for treating epilepsy.

“Only nine of the countries had guidelines; but when we delved deeper, we found they couldn’t deliver the level of care required by the guidelines. We need to be innovative about how we can work with the resources and facilities available.”

ADAPT AND ACCLIMATISE

A case in point is oral phenobarbital, which is widely prescribed. It’s an extremely effective anti-epileptic drug, and essential to have available for emergency management of prolonged seizures.

“But it’s rarely used in settings other than ours. It’s particularly utilised in resource-poor countries, because it’s cheap; and as such, more likely to be available. The limited usage in resource-equipped settings relates to concerns about learning and behavioural side effects reported to occur in children on the drug.”

Wilmshurst advocates that Africans should tap into resources that are specific to Africa, such as traditional healers. “They have fantastic observation skills, which have been effectively incorporated into healthcare programmes in Kenya, Cameroon and Uganda for early identification and referral of patients for treatment interventions.”

She also advocates that local clinicians adapt international trends and health guidelines to make them relevant to Africa. And she believes Africans should lobby big international groups such as the WHO to make themselves heard.

What did emerge from the workshops was a common call: “Empower us to move

forward to better care. Give us more skilled personnel, and we will change this backdrop, working in our own settings to change these discrepancies in healthcare.”

Wilmshurst is working with the International League Against Epilepsy, through the Paediatric Commission, to develop international guidelines for use at local level, with pilot studies scheduled in Kenya, South America and India.

THE RIGHT STUFF

As for the brain drain, training specialists in Africa does lead to better retention of the trainees when they return home.

“It means the training we give them is more relevant, and empowers them to cope better. The collaboration with the doctors we’ve worked with and trained has been phenomenal.” The circle has been enlarged to include nurses and allied personnel, under the leadership of Minette Coetzee and Brenda Morrow respectively.

“The APFP is developing hubs of expertise that will trickle all the way down from tertiary to primary care,” said Wilmshurst.

80

At Red Cross, Wilmshurst and her team run 80 neurology clinics each month



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Epilepsy is the fourth most common neurological disorder worldwide, affecting 80 million people, according to the World Health Organisation

THE PERILS OF SHARING TAX INFORMATION

Agreements to exchange citizens' tax information are nothing new. But in the last five years there has been a lot of activity in the international arena around this issue, with countries becoming increasingly enmeshed in ever-widening networks of agreements to share the tax details of their citizens.

PROFESSOR JENNIFER ROELEVELD OF UCT'S DEPARTMENT OF FINANCE AND TAX does not believe this exchange of information is necessarily a bad thing, but is concerned that it could infringe on people's right to privacy. She also worries that revenue authorities such as the South African Revenue Service (SARS) may be ill-equipped to deal with the sheer volume of information to be shared, in what she believes could result in a "tsunami of information exchange".

Roeleveld expressed these views in her 2014 inaugural lecture in August, titled 'The Coming Tsunami of Information Exchange: Crashing the Shores or Lapping the Beaches?' Her area of expertise is international tax, where the exchange of information - "a very powerful weapon against tax evasion" - has in recent times moved to the top of the research agenda.

THE NEED FOR INFORMATION EXCHANGE

The proliferation of agreements and conventions enabling information exchange resulted from countries needing to protect their tax bases, and an increasing concern about base erosion and profit shifting (known as BEPS - the new buzzword).

Information exchange has become particularly necessary with the advent of the digital economy worldwide. "There's a lot of uncertainty around where the profits of corporates such as Google and Starbucks should be taxed. Why shouldn't South Africa also get a cut from Google's profits, because we might also be generating an income for the company?" she postulated.

Previously, countries generally only shared tax information with other countries with whom they had a double tax agreement, and upon request. In 2009 the game changed. G20 countries declared the "era of bank



'Why shouldn't South Africa also get a cut from Google's profits, because we might also be generating an income for the company?'

– JENNIFER ROELEVELD

secrecy” over, and so-called tax havens such as Switzerland and Luxembourg committed to information exchange.

In a unilateral act, the United States of America forced the world’s hand, facilitating agreements for the automatic exchange of information. By 2013, more than 800 tax information exchange agreements (TIEAs) had been signed worldwide, particularly with ‘tax haven’ countries – allowing the exchange of information by request where no double tax treaty existed.

“In 2013, the G8 and G20 countries – as well as their central bank governors – committed to the automatic exchange of information,” said Roeleveld.

THE DIFFICULTY WITH AUTOMATION

Driven partly by the economic downturn in the United States in 2008/9, this year South Africa signed an intergovernmental agreement (IGA) with the United States. “This

means that all qualifying financial institutions (banks, trusts, insurers) will exchange information automatically with the US. This has meant substantial changes to our banking systems, probably at huge cost to you and me. All your information at these institutions will be passed to the US without you knowing about it. It will be done automatically, on an annual basis. The first reporting period started on 1 July 2014, with the first report due end February 2015 and then annually thereafter.”

And there’s the rub for Roeleveld, who is “greatly concerned” that taxpayers’ information is being shared without them knowing. “Taxpayers [currently] have no right to be informed when they [tax authorities] exchange information. Reputations can be damaged in the process if, for example, the information is incorrect and/or there is leakage, as well as where information has been stolen and sold to revenue authorities, which has happened in Europe.”



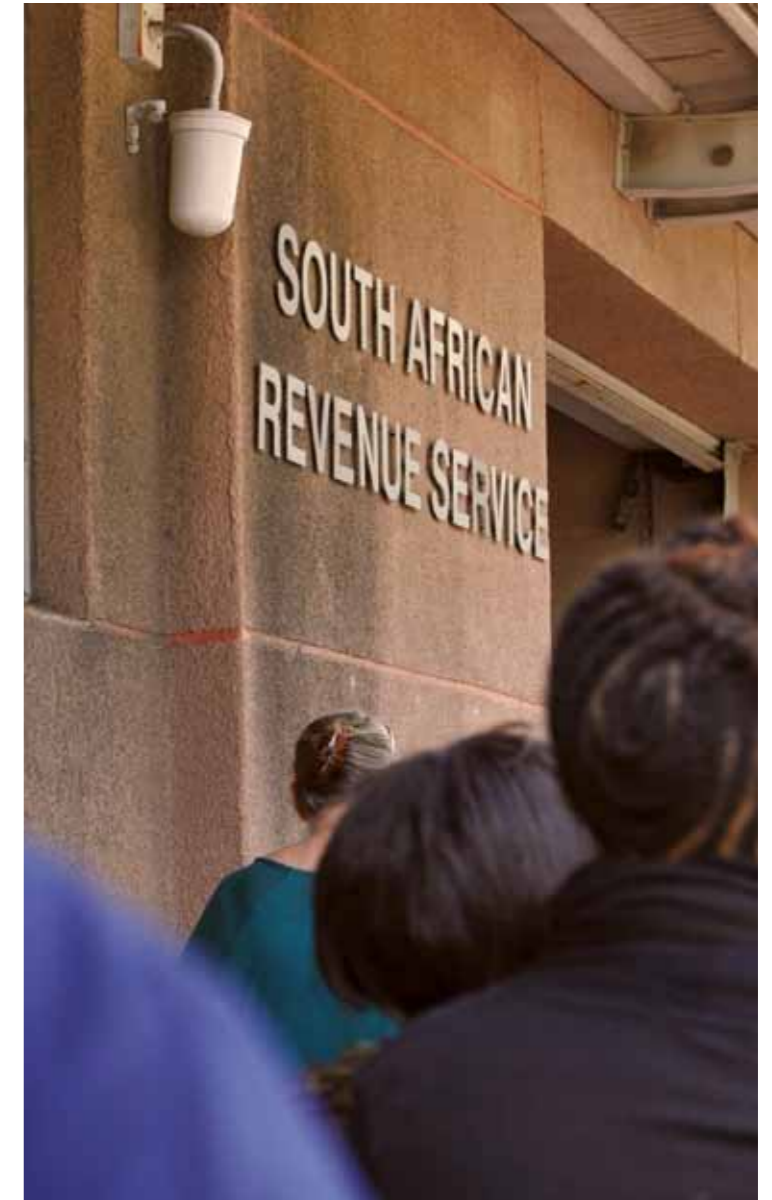
She is also worried that there will be no benefit for many developing countries, whose revenue authorities will most probably not be able to do much with the massive wave of information heading their way, or have the capacity to comply appropriately with requests for information.

VOTE OF THANKS

Associate Professor Craig West, head of the Department of Finance and Tax, considers it a privilege to have worked alongside Roeleveld for all of the 13 years he has been at UCT, ten of which were spent as Roeleveld’s co-researcher in the international tax arena.

He also mentioned Roeleveld’s scholarly activism in the field. “Jennifer has actively engaged in a variety of research projects that seek to disseminate the research to decision-making bodies around the world, and ensure that the voice of the developing world is heard. It is the study of issues affecting the forgotten that has been the focus of Jennifer’s research and whose cause she champions. She further champions the cause of the taxpayer’s right to be informed.”

Lastly, he expressed great admiration for Roeleveld’s way of thinking: “I am a fairly structured person in my research, teaching and other activities. Jennifer’s artistic nature has led her to think differently, and I can only describe my perception of her thinking by analogy. Imagine ideas and principles like rain falling on a page – it scatters everywhere. Now pick up that page and form a cone with the point facing down – all those scattered droplets run to the point, gathering all the idea droplets (sometimes seemingly unrelated) to form the pool of knowledge; and that is Jennifer’s tremendous skill, the gathering together and distillation of ideas and principles – a skill she performs with the greatest of ease.”



ENGINEERING RESPONSES TO GLOBAL CHALLENGES

If the disciplines of engineering strive to maximise benefit while minimising risk, what role should chemical engineers play in balancing human development with the creation of an environmentally sustainable society? It is this question that Professor Harro von Blottnitz – known as an industrial ecologist, and based in the Department of Chemical Engineering – interrogated on 27 August 2014, in an inaugural lecture that exuded both warmth and humour.

IN HIS INTRODUCTION, Professor Francis Petersen (who was, at the time, dean of the Faculty of Engineering & the Built Environment), described Von Blottnitz's early years, spent in what was then the occupied territory of South-West Africa, followed by his years as a student at UCT and later sojourns in Sasolburg and Aachen, Germany, where he learnt how to transfer skills from the field of mineral processing to recycling technology. Von Blottnitz became a member of UCT staff in 1998.

A HOLISTIC VIEW

"Sustainable development has always been the leitmotif of my work," said Von Blottnitz. "Growing up in Swakopmund, I had an early, intuitive introduction to life-cycle assessment – a cradle-to-grave technique assessing the environmental aspects and potential impacts of a product or process. I saw first-hand the



48%

48% of the 11 billion plastic bottles produced in South Africa last year were recycled

jobs and income that uranium mining brought to my town, while my cousin in Germany grew up in a community resisting the establishment of a nuclear waste disposal site in their back yard."

Among the numerous challenges currently facing our planet, Von Blottnitz identified three in which chemical engineering had an important role to play: those of plastic pollution in our seas, the extraction of resources (including ores, fossil fuels, biomass and construction materials), and climate change. While his daughters provided a reminder of the problem of ocean waste, by displaying an array of plastic collected on Cape Town's beaches, Von Blottnitz pointed out that in terms of climate change, global emissions have continued to rise, even in the face of attempts to decrease them.



'Sustainable development has always been the leitmotif of my work.'

– HARRO VON BLOTTNITZ

OUR PLANETARY ECOSYSTEM

“These are global challenges, and must be looked at from a global point of view,” he said. “If we look at the ecosphere, or planetary ecosystem, we can see that physical laws govern these processes. Indeed, from a thermodynamic point of view we can see the earth as a closed system which can cycle materials because of its energy balance. In effect, the earth is a giant heat engine.”

Can human technology mimic these natural global processes so as to better manage the side effects of the industrial economy?

“I believe the answer to that is ‘yes,’” said Von Blottnitz. “However, to do so requires a great deal of joint action and collaboration – ‘systems intelligence’. In my view, to create an environmentally sustainable society requires the closure of cycles of materials, which are powered by renewable resources.”

Signalling a change from theory to the more practical part of the lecture, and also to illustrate the role of technology in the university classroom, Von Blottnitz then asked the audience to fill out an online poll, which showed that 80% of them recycled and 25% had installed solar water heaters.

THE CURRENT STATE OF RECYCLING

According to Von Blottnitz, when it comes to recycling in South Africa, progress depends largely on the material in question. “Studies show that glass and paper are recycled to a greater extent than plastic and tyres,” he explained. “In the case of plastic bottles, 48% of the 11 billion bottles produced in this country last year were recycled, with the recycling rate increasing year-on-year. This is largely due to the costs of recycling being built into the price of the product. Setting up such systems requires time and money, of course. In the case of tyres, where we have all been given a free ride up until now,

this process is just beginning. Nonetheless, thanks to the Waste Act of 2008, the price of tyres will soon carry a levy of R2.30/kg, so as to implement a system for their end-of-life collection and recycling.”

SWITCHING TO RENEWABLE ENERGY

In South Africa, as in many other countries, we are taking our first steps toward renewable energy sources. For example, the Kalkbult 25-megawatt solar power station came online in September 2013. But global fossil fuel emissions are still rising. Why?

Here Von Blottnitz used a slide from the recent 5th assessment report of the International Panel on Climate Change to explain the multiple reasons: “Although the progress of technology makes it possible to use energy more efficiently, population growth and economic growth both drive emissions upward. Critically, our choice of fuels with a high carbon content in the last decade pushed global CO₂ emissions in the wrong direction.”

There are encouraging trends though, such as US emissions having peaked, and then declined, over the past five years.

THE NEED FOR SYSTEMS INTELLIGENCE

As an example of the need for systems intelligence to be built into global processes, and in particular the necessity of tools such as life-cycle assessment (LCA), Von Blottnitz cited the example of the energy life cycle of biofuels, an area in which he has published some of his best-known work.

“When we started to look at whether biofuels were really the positive development they were billed to be, around 2002, we discovered some problems. While our work posed the question, it couldn’t fully answer it at the time. Nonetheless, building on this

question, a Californian team later confirmed that in some cases, such as US corn-ethanol production, biofuels have a higher ecological impact than more traditional fuels, such as gasoline – even though they have a lower carbon footprint. This move points to the need to take a holistic view and to build systems intelligence.

“One definition of an engineer’s job is to apply science to the benefit of humanity. To do this well, maximising benefit while minimising risk, engineers must use judgement, and base it on ethics – including the moral necessity of conserving our ecosphere for future generations.”

AN APPEAL FOR COLLABORATION

Von Blottnitz ended his lecture with an appeal. “As I stand here before you, I have been on the field for 20 years. While I hope to play for many more, I think Team Green needs fresh legs; and so, I am appealing to students to take up these challenges.”

Von Blottnitz also made an appeal to his colleagues for collaboration on these issues, to the UCT executive to support the Green Campus Action Plan with an investment in renewables, and in his words, “to you, Mr President, to trust in the knowledge of local experts. Your democratic government employs skilled staff who have good processes to lead us through difficult decisions, such as those pertaining to shale gas and nuclear power. You do not want your administration to be the one blamed by future generations for having left a disastrous legacy!”

In closing, head of chemical engineering (and now dean of the engineering faculty) Professor Alison Emslie Lewis spoke about Von Blottnitz’s personal dedication to his professional pursuits, his “combination of idealism and deeply practical execution of

the ideal” – which have translated into his aspirations to become a raw-food vegan, his involvement in the language Esperanto, and “his very personal commitment to recycling and using solar power”.

“Perhaps what summarises Harro most of all is the true and inseparable integration of Harro the person and Harro’s research area. He is so committed, so engaged, and so deeply integrated into the subject of his research.”



‘I think Team Green needs fresh legs; and so, I am appealing to students to take up these challenges.’

– HARRO VON BLOTTNITZ

A PHILOSOPHY OF MEASUREMENT

If the university is to do justice to its mission of producing science graduates of the highest quality, it needs to embed a philosophy of science that places the role of observation at the forefront of its curricula. This was the thrust of Professor Andy Buffler's inaugural lecture on 10 September 2014, titled 'Science and Observation: Measuring for Knowledge'.

THE HEAD OF UCT'S DEPARTMENT OF PHYSICS

Buffler spends much of his research time in the realm of applied nuclear physics. Take his work on positron emission particle tracking (PEPT) as an example – an effective method of studying the flow of material using radioactive tracers and a medical PET scanner. In partnership with departmental colleague Dr Indresan Govender, Buffler established the second operational PEPT laboratory in the world, at iThemba LABS, a short drive east of UCT.

But the physicist also takes great care in passing on his expertise to students – a passion demonstrated in his early UCT career, which began with the Centre for Higher Education Development, and was recognised in 2002 with a Distinguished Teacher Award.

EDUCATION BY EXPERIMENTATION

Twenty years after the dawn of democracy, the South African education system remains a challenge. Of particular concern is the state

of mathematics and physical science teaching, said Buffler – there is evidence that teachers' abilities to deliver the curriculum is waning across the sector.

"Laboratory work, and the teaching of experimentation in science in particular, has suffered. Equipment is safely locked away for fear of theft or breakage, and teachers' confidence to lead laboratory work is reduced within the context of ever-changing curricula."

As part of a large research programme focused on lab teaching in physics, incoming science students were surveyed on their experiences of lab work at school.

"We have consistently found that only around half report that they undertook hands-on science activities themselves at their school," says Buffler. "One quarter report that only the teacher used the apparatus (in demonstration mode), and one quarter report that they had no experience with experimental work at all. And these are UCT students!"

2002
Professor Andy Buffler was recognised in 2002 with a Distinguished Teacher Award



'Laboratory work, and the teaching of experimentation in science in particular, has suffered.'

– ANDY BUFFLER



DOES SCIENCE UNCOVER TRUTH?

One of the main consequences of poor laboratory work at school is the cementing of a view in the minds of school learners and university students that nature is predictable and deterministic, “and unexpected results should be regarded as wrong, a consequence of faulty apparatus or student error”, says Buffler.

The majority of students believe that measurement within the scientific context is an exact activity, and will yield a “point-like” result, he says – meaning that, in principle, it is possible to reduce measurement uncertainty to zero.

This is not an entirely local problem, notes Buffler. Students in Australia, England, France, Germany, Greece and the United States demonstrate similar faith in this epistemology, “even though they are able to apply rigorous

techniques of data analysis and uncertainty estimates”, he says. “However, at UCT we need to constantly recognise and respond to the additional challenges associated with the diversity in the educational experiences of our students, particularly in mathematics and science. The communication of a consistent philosophy of science in our laboratory curricula will produce tangible advantages.

“Personally, I would advocate a philosophical framework in which the scientific model is seen to mediate between high-level theory and the results from observation in the real world.”

EMBRACE UNCERTAINTY

There’s a strong link between young people’s views of the nature of science and their ability to develop the tools of science, says Buffler.

“For example, in the most naïve sense, a belief in science as an activity to uncover the truths of nature results in approaches to learning science that are aligned with memorising facts and picking formulae to solve numerical problems.”

The role of measurement uncertainty – an aspect of laboratory work often maligned, by students and instructors alike – should be developed as a natural aspect of measurement, argued Buffler: “We have shown that the so-called ISO-GUM [Guide to the Expression of Uncertainty in Measurement] approach, as recommended by the International Organisation for Standardisation, offers tremendous pedagogical advantage, since measurement uncertainty is associated with the quality of the knowledge gained as a consequence of the measurement.”

Teachers should present students with laboratory tasks for which the outcome is unknown, cast in authentic contexts and aligned with real science, said Buffler. This not only adds motivation to the experiment, but could be linked to a useful philosophical framework of science.

“Parents with young kids, take note: do experiments with your kids that lead to unexpected results, and then don’t look too confused yourself.”

MEASUREMENT FOR ADVANCEMENT

Buffler’s applied research rests heavily on measurement. All measurement, he pointed out, is governed by a set of international standards. For instance, our understanding of weight can be traced to the international prototype kilogram that sits at the International Bureau of Weights and Measures, in Paris. Think of the neutron beam in the same way as the standard kilogram.

“In recent times we have developed our

fast neutron beams at iThemba Labs to a level which allows us to be part of some interesting projects, such as calibrating the same radiation detector that is presently on the *Curiosity* on Mars, or others which are presently flying on the International Space Station. A particular interest of mine is the consideration of new techniques for the detection of explosives in luggage, for example. Without careful measurement of the radiation we use to interrogate the object, none of these applications would be possible.

Speaking of the significance of this kind of applied research for UCT and South Africa, Buffler explained: “‘Big science’ is related to ‘big development’. The positioning of UCT as the premier university on the African continent, with a growing international reputation, places us at the gateway into Africa. Physics drives technological development, which in turn drives social development. Applied physics research at UCT locates itself within this institutional goal.”

A HISTORY OF SCIENTIFIC ENDEAVOUR

While arguing for a philosophy of measurement, Buffler’s lecture also traced a history of scientific endeavour – from Plato and Aristotle through to Galileo, Newton and UCT’s own RW James, a physicist who was also a member of Sir Ernest Shackleton’s ill-fated expedition to Antarctica aboard the *Endurance*:

“In the foyer of the RW James building at UCT is a cabinet with a few memorabilia associated with RW James. Included in the collection is an X-ray spectrometer on which both of UCT’s science-related Nobel Prize winners, Aaron Klug and Allan Cormack, learnt their art of scientific measurement. In the audience this evening lies the potential to follow these great scientists.”

SITTING ON THE FENCE AS IT GETS CUT FROM BELOW

South Africa's colonial and apartheid history denied the majority of its people their rights to its land. Meanwhile, the country's biodiversity is dwindling at an alarming rate. Titled 'Sitting on the Fence as it Gets Cut from Below: Co-managing Conservation and Land Reform Agendas in South Africa's Protected Areas', Professor Alexander Ross Paterson used his inaugural lecture in October to implore authorities to make the best use of the legal options available to both correct historical injustice and conserve our natural resources.

PATERSON, WHO TEACHES IN UCT'S INSTITUTE OF MARINE AND ENVIRONMENTAL LAW, shed some light on how the domains of land-reform law and conservation law need not necessarily be at odds with each other.

The 1990s in South Africa saw a shift in conservation discourse. Gone was the exclusionary, state-centred, protectionist view that exemplified the approach until the mid-90s, in favour of a more inclusive, participatory and human-centred approach.

There was the acknowledgement that communities previously excluded from owning land in South Africa could indeed play an important role in efforts to conserve the country's natural resources.

"Protected areas often sit at the intersection of these two worlds: conservation

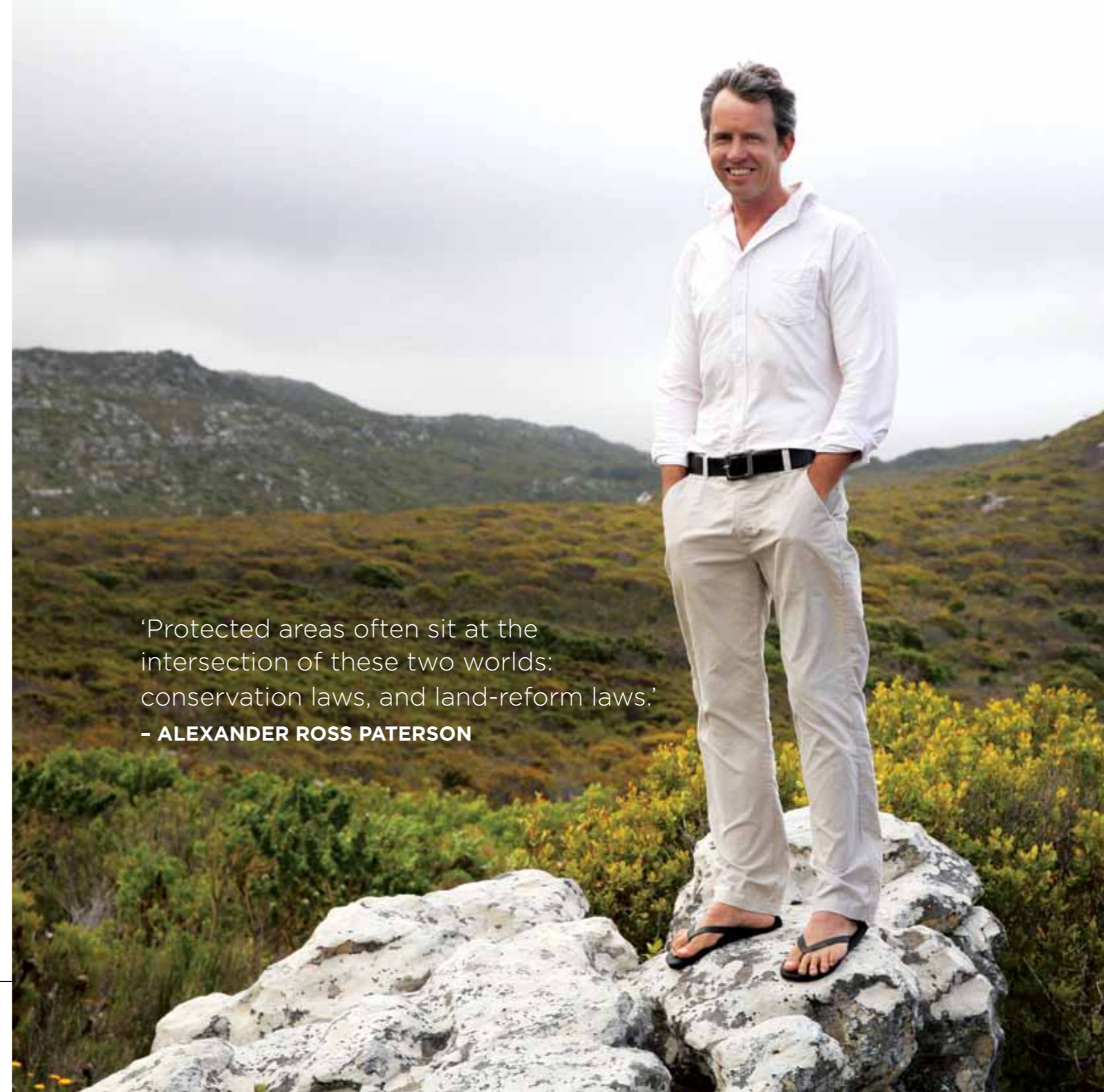
R29-billion
97% of 79 696 claims lodged in the first round were settled, comprising a total of 1.5 million hectares at a cost of R29-billion allocated to disenfranchised communities over the last nineteen years

laws, and land-reform laws," said Paterson. "It's often in the context of land-restitution claims lodged within protected areas that the troubling competing imperatives arise."

THE REALITIES

The numbers spoke favourably of South Africa's performance in the land-restitution arena: 97% of 79 696 claims lodged in the first round were settled, comprising a total of 1.5 million hectares at a cost of R29-billion allocated to disenfranchised communities over the last 19 years.

"But this belies the reality in the context of land restitution," said Paterson, explaining that two-thirds of the 150 claims in protected areas remain unsettled.



'Protected areas often sit at the intersection of these two worlds: conservation laws, and land-reform laws.'

- ALEXANDER ROSS PATERSON

The number of outstanding land-restitution claims in the Kruger National Park alone shows the scale of the problem, and presents a massive challenge to authorities: Unsettled claims amount to 1.4 million hectares in geographical scope, and a potential compensation budget of R20-billion.

“Similarly we have challenges in the context of conservation. Our biological resources are under significant threat. In the recent National Biodiversity Assessment [2011], it was estimated that 40% of our terrestrial ecosystem, 57% of our river ecosystems, 65% of our wetland ecosystems, 43% of our estuary ecosystems, and finally, 58% of our coastal and inshore ecosystems are threatened.

“The state of our biological resources is not pretty.”

WHAT ABOUT OUR PROTECTED AREAS?

While 6.5% of our terrestrial environment is incorporated within protected areas, the government has set itself a stiffer task, said Paterson.



“In the National Protected Areas Expansion Strategy, it sets a task of expanding our protected areas to 12% of our terrestrial environment by 2029.

“But we have a problem there, because a significant portion of South Africa – 79% of land, to be precise, in terms of the National Land Audit (2013) – falls within the hands of private landowners and communities.”

The state has effectively exhausted its avenues for expansion on state land, and needs to turn to private and communal landowners – which poses another challenge. “The national budgetary allocation to conservation has decreased from 0.28% in 1996 to 0.0047% in 2013. So where do we find the money to expand the protected areas estate?”

CO-MANAGEMENT MODEL

In 2010 the National Co-Management Framework was adopted, and remains the current policy framework for guiding the resolution of land-restitution claims in protected areas. This model involves three parties: claimant communities, land-reform authorities, and conservation authorities.

Paterson explained the model in its simplest form: “A community is required to establish a trust and/or a communal property association to hold the property rights accorded to them through the land restitution process. The land-reform authorities allocate the title deed to the communal property institution, which is in turn effectively compelled to simultaneously enter into a long-term lease and co-management agreement with the conservation authorities. The long-term lease curtails the community’s ownership rights in that it precludes residence in the protected area and generally significantly limits rights of access to, and the use of, the resources situated in the area. The co-management agreement purports to provide for the co-management of the

area by the community and the conservation authorities (and often details limited benefit-sharing arrangements) – but in reality, the management of the protected area often remains under the control of the government-appointed conservation agency, due to capacity and resource constraints on the part of the community.”

South Africa’s model is slightly more nuanced, as it distinguishes between protected areas with and without income-generating potential. The co-management model is reserved for protected areas with income potential, said Paterson. A lease model, meanwhile, is reserved for those with no income potential.

But has this nuance facilitated balance between land-reform and conservation authorities? “There’s tension,” admitted Paterson.

IS CO-MANAGEMENT THE BEST OPTION?

Co-management was initially designed to protect scarce resources, and not to deal with land reform, said Paterson. Add to this that the government has used it to co-opt support and improve their legitimacy rather than seeking to improve meaningful participation, and that the implementation ends up being more state-led than community-driven, and Paterson doubts that it is a theoretically appropriate model for land reform.

Commentators have identified prerequisites for co-management to succeed: trust between parties, certainty of tenure, appropriate institutions, and a common vision between the parties. But looking at many claims, settled or not, one can see that these prerequisites have often not been met.

By focusing almost exclusively on co-management, “South Africa’s policy-makers have perhaps missed a trick,” argued Paterson.

The international community is focusing



more and more on governance by indigenous peoples and local communities as the preferred governance model.

“Indigenous peoples and local-community-conserved areas are regarded as the most exciting development in the world of protected areas governance, according to many spectators. So why are we not focusing on promoting this form of governance?”

ROLE OF COMMUNITIES IN CONSERVATION

Paterson was unclear on the reasons for the anomaly – suggesting that perhaps it relates to a misunderstanding of the role communities could effectively play in protected areas.

The role of a community in a protected area stems from whether that community acts as the owner, manager or beneficiary of the land and resources, or a combination of the three, argued Paterson.

“Communities should not be regarded narrowly as passive land recipients, but also, where appropriate, as active and valued managers. Several options exist for promoting the latter role, and the question then is: do we have the legal mechanisms to promote their use in South Africa?”

79%
percentage of land that falls within the hands of private landowners and communities



“I’ve looked through South Africa’s land-reform legislation, I’ve looked through all of our protected-areas legislation and all our conservation legislation, and we have all the options. With a little bit of creative interpretation of the law, we have the options.”

So if we have these legal mechanisms to experiment with different models of governance, have we used them? For the most part, we’ve barely begun to explore the options, said Paterson.

“There are many other issues affecting the balance between conservation and land reform. Planning, institutions, land tenure, management issues, access and use issues, and finance and support issues.”

Land tenure, management, and land access and use stand out among these, and Paterson proposed solutions for improving these aspects of the land-reform process in the context of protected areas.

WHERE ARE WE IN THIS DIVIDE?

Having followed the proceedings of the National Land Tenure Summit held in Boksburg in early

September 2014 and having attended the People and Parks Conference held in Mthatha in mid-September, Paterson is of the belief that South Africa’s authorities are sitting uncomfortably on the fence between the country’s land-reform and conservation agendas.

Reflecting on three key issues emerging from these conferences, he highlighted the following concerns. In the context of conservation: the continued reliance on the National Co-Management Framework, which he believes is theoretically flawed; the failure to focus on land-tenure issues in the context of land-restitution claims in protected areas; and the continued and very slow progress of the resolution of land claims in protected areas.

And in the context of land reform: the failure on the part of the Department of Rural Development and Land Reform to resolve the issue of communal law tenure; the problematic functioning of communal property associations (CPAs) as effective and equitable land-ownership and administration structures in both urban and rural contexts; and the failure to resolve the relationship and roles of traditional leadership structures, CPAs and land trusts in the context of rural land administration.

These issues are about to be thrown into further turmoil by the recent re-opening of the land-restitution process in July 2014 – for a further window of five years, said Paterson.

Paterson concluded his lecture with an “inescapable truth” in this arena, courtesy of Barry Commoner, the noted scientist, activist and ecologist.

“In the words of Commoner, when any environmental issue is pursued to its origins, it reveals an inescapable truth: that the root cause of the crisis is not to be found in how people interact with nature, but in how they interact with each other; and to solve the environmental crisis, we have to solve the problems of poverty, inequity and racial injustice.”

‘With a little bit of creative interpretation of the law, we have the options.’

- ALEXANDER ROSS PATERSON

TRANSLATING YEATS’ POETRY INTO MUSIC

Professor Hendrik Hofmeyr explains the creative process behind translating WB Yeats’ *Byzantium* – a poem that in itself is a metaphor for the creative process – into music.

DESCRIBING THE CREATIVE PROCESS can be daunting, yet this is precisely the challenge Professor Hendrik Hofmeyr, head of composition and theory at the South African College of Music, took on when delivering his inaugural lecture at the Baxter Concert Hall in October. Hofmeyr began the lecture, titled ‘Sound as Symbol: Translating Yeats’ Poetry into Music’, with a disclaimer (of sorts):

“In my experience, there are few conversation-killers as deadly as a composer being asked by a well-meaning hostess to tell the company about his work. I am therefore perhaps foolhardy in having chosen as the subject of my lecture the way in which I as composer interact with a literary text in setting it to music.”

Hofmeyr used WB Yeats’ *Byzantium* – which he described as “one of the most fascinating [poems] in the English language” – as the basis for a symphonic tone poem for voice and orchestra. His aim was “to create a musical equivalent of the poem, in terms of both structure and meaning”.

He likened the process of setting literature

to music to “creating a garment for a specific body: the creator may choose to follow the underlying structure at times closely and at times loosely, may emphasise certain things and conceal others, may at times be guided by function and times by aesthetic considerations, or by the characteristics of his material. Both the body and the garment should be well made; but the success of the enterprise depends on the mutually beneficial interaction between the two”.

Citing literary critic Walter Pater, Hofmeyr said that his task was made easier by the fact that *Byzantium* already “aspires to the conditions of music”.

“The work is in fact almost symphonic in character; not only in the grandeur of its conception, style and imagery, but also in the almost incantatory use of recurrent words, images and ideas.” Hofmeyr quoted from Yeats’ esoteric work *A Vision* to evince his fascination with the culture of the city of Byzantium (modern-day Istanbul):

“I think that in early Byzantium, and maybe never before or since in recorded history,



‘Byzantium is one of the most fascinating [poems] in the English language.’

– HENDRIK HOFMEYR

religious, aesthetic and practical life were one, and that architects and artificers ... spoke to the multitude and the few alike. The painter and the mosaic worker, worker in gold and silver, the illuminator of the Sacred Books were almost impersonal, almost perhaps without the consciousness of individual design, absorbed in their subject matter and that of the vision of a whole people.”

According to Hofmeyr, the city, and more specifically the famous domed cathedral of Hagia Sophia, symbolise “a perfected afterlife”. The poem depicts “how the souls of the dead arrive in the holy city to be transmuted into flames of spiritual fire in the imperial smithies” – and can also be seen as a metaphor for the creative process itself: “The souls purified and refashioned in the Emperor’s smithies to attain immortality can be seen as markers for the experiences and perceptions that have to be distilled [by the artist] to extract their aesthetic essence, and transmute them from the personal to the universal.”

At the centre of the poem, and of its setting to music, are three themes – “man, the smithies and the dome” – representing “mortality, transmutation and immortality”. In Hofmeyr’s music, the theme of man is introduced at the outset in an expressive cello solo. It is interrupted by the full orchestra with the noisy theme of the smithies, “fashioned from fragments of the theme of man, which is broken up, as the ‘complexities of mire and blood’ are broken up by the smithies, and re-assembled through somewhat arcane musical procedures ... employed here as a musical symbol of the fabled craftsmanship of the Byzantine goldsmiths”.

The theme of immortality, introduced at the words “A starlit or a moonlit dome”, is again based on transmuted motifs from the theme of man, “but now circling serenely

around a central pitch”. The second and third stanzas of the poem deal with the two paths to perfection in Yeats’ esoteric system of spiritual evolution, designated respectively as the starlit and the moonlit phase.

The moonlit phase represents perfect plasticity (or life-in-death) and is symbolised by a guiding spectre, rather like Virgil in Dante’s *Divine Comedy*, depicted in the music by an eerie instrumental texture derived from the incomplete dome theme and “floating in a kind of musical limbo”.

A crowing golden bird of the type for which the Byzantine goldsmiths were particularly renowned symbolises the starlit phase, representing perfect form (or death-in-life). Its music is refined from the elements of the smithies theme. These two symbols are linked by a quatrain (a stanza of four lines) which makes it clear that they represent the superhuman state. The text features curious mirrorings, which lead up to a perfect palindrome (a phrase that reads the same backwards as forwards) at “I call

it life-in-death and death-in-life”:

At “A mouth that has no moisture and no breath/Breathless mouths may summon”, this mirroring is reflected in the orchestral writing, which is reduced to “a kind of desiccated four-part mirror canon ... in which each new entry inverts the preceding”. A canon is a piece of music in which two or more voices (or instrumental parts) sing or play the same music, starting at different times.

The canon introduces a new motif representing the superhuman; and in the final two stanzas the two opposing elements of this motif are integrated to form the motif associated with the flames of spiritual fire. In the flitting dance of these flames, which forms the basis of the musical fabric from this point onwards, all the themes of the work are alloyed and transmuted as in a purifying furnace, explained Hofmeyr.

The lecture concluded with Hofmeyr playing a recording of the music, accompanied by slides illustrating the intricate relationship between poetic and musical symbols.

Before me floats an image, man or shade, Shade more than man, more image than a shade



May unwind the winding path



A mouth that has no moisture and no breath Breathless mouths may summon



I call it death-in-life and life-in-death



A SENSE OF PLACE: NEW FRONTIERS FOR THE LAW

Professor Loretta Feris almost chose archaeology over law. As dean of the Faculty of Law Professor PJ Schwikkard mentioned in her introduction to Feris' inaugural lecture in October, "the statute books almost lost out to the fossils". Even after she decided to pursue law, Feris' focus was on human rights law. It was only during her postgraduate studies at Georgetown University that she came across environmental law. Within this specialisation, Feris recognised the effect that environmental rights have on human rights in general, and she has dedicated herself to the subject ever since.

WHAT IS A SENSE OF PLACE?

According to Feris, a sense of place is a subjective concept, but not an abstract one. "Space and place' is imbued with meaning; it speaks to a dimension of the self that operates in a narrow relationship to the physical environment through a complex pattern of beliefs, values, practices and emotions. A sense of place is about identity and relationships, the identity of a place and relationship that people have with it, as expressed in both intangible and tangible ways."

Feris describes a sense of place being constituted of three elements: identity, attachment and dependence. In this context,

'identity' refers to the particular experience of a person in a particular setting that describes the way a person sees him or herself as related to culture or heritage.

'Attachment' on the other hand refers to the symbolic relationship formed by people ascribing shared emotional or cultural meaning to a place - urban or rural - which helps to define their relationship to their environment. Lastly, 'dependence' refers to the degree to which occupants feel associated with, and dependent on, a particular space. "This is most often associated with a specific need," explains Feris, "such as the need of being close to a place of employment, for example."



'At present, the question of whether a sense of place is captured in South African law is dependent on the landscape in question.'

- LORETTA FERIS



THE KAROO AND FRACKING

Home to large deposits of natural gas, created around 275 million years ago, the Karoo is considered a viable site for fracking, the process by which gas is extracted through the high-pressure injection of liquid into subterranean rock. The idea of a sense of place, made up of identity, attachment and dependence, has played an important role in the opposition mounted against proposed fracking in the Karoo.

“Ever since the announcement that shale gas extraction was being considered in the area, the idea of fracking in the Karoo has been seen as undesirable; on the grounds that it would fracture more than just the rock, but also the identity, heritage and meaning associated with this iconic place.”

What makes the Karoo iconic? According to Feris, “The Karoo personifies the type of biophysical environment that creates a sense of place: it is an ancient landscape with a unique geology, home to one of the best fossil

records of the radiation of reptiles in the world; and it is a biodiversity hotspot. It has been inhabited by humans for over 500 000 years, and is laden with story and myth.”

It is no surprise then that threats to the biophysical landscape are perceived as a threat to the way of life in the Karoo. What possible impacts will these be? “Contamination and exploitation of already scarce water resources (one well can use the equivalent of 150 swimming pools every day), air pollution through methane emissions, dust pollution and seismic activity,” says Feris.

SENSE OF PLACE, SOLASTALGIA AND THE LAW

What role can sense of place play in opposing this kind of development? Feris points out that sense of place has already been used to legally block developments locally, as in the case of the development of a shopping mall that was blocked at Princess Vlei, here in Cape Town, and the development of mining that was blocked at St Lucia in KwaZulu-Natal in 2002.

To explore the scope of the legal possibilities of a sense of place, Feris also describes a case decided last year in New South Wales in Australia, in which the court recognised a new term that is fast gaining traction, and which was coined by the Australian environmental philosopher Glenn Albrecht in 2003: solastalgia.

Albrecht defines ‘solastalgia’ as “the pain or sickness caused by the loss or lack of solace and the sense of desolation connected to the present state of one’s home and territory. It is the ‘lived experience’ of negative environmental change. It is the homesickness you have when you are still at home.”

Feris is quick to point out that to some degree, the term ‘solastalgia’ is already present in South African law with regard

to the conservation of protected areas and environmental impact studies, which through environmental impact assessments (EIAs) take into account such diverse aspects as fauna, flora, aesthetic factors, palaeontology, noise pollution and heritage factors.

“At present, the question of whether a sense of place is captured in South African law is dependent on the landscape in question. When it *is* captured, it is mostly linked to visual or aesthetic impacts. In the context of the question of fracking in the Karoo, it may not be possible to engage with the loss of a sense of place except in this narrow sense,” she explains. She offers that an analysis of sense of place in the context of the environmental right, section 24 of the Constitution, is perhaps better placed.

“The lack of jurisprudence around section 24 of the Constitution means that the court has provided little guidance on how the law protects our health and well-being with regard to environmental change.” In Feris’ view, while health is the easier of the two concepts to define, well-being – both physical and mental – is more opaque. Well-being suggests social, economic, mental and emotional factors. This includes the idea that human well-being can be impacted by environmental degradation.

“I would argue in the case of the Karoo that fracking may well infringe human health, but also well-being; through potential loss of ground water, impacts on landscape, and through socio-economic impacts. I would suggest that such infringements are capable of causing genuine anxiety and stress. However, the value of the human rights approach forces us to look at all the human dynamics of a biophysical place, including dignity and equality (something which a solely EIA approach lacks).”

For Feris, this necessitates asking some hard questions regarding the Karoo. “Historically

this area has represented poverty for the landless black population, which is not only economically excluded but also socially invisible. Do such communities feel a spiritual connection to this biophysical space, or would they welcome the potential economic benefits of shale gas production?” A recent study at the University of the North West compared the economic benefits to the potential for environmental degradation. It recognised that there is genuine economic stimulus offered. “Will the poorer members of society benefit from any of this economic development, however?” asks Feris. She argues that one must be mindful of the nexus of poverty and environmental degradation in this country. “At present the poor are bearing the brunt of environmental change. *They* are the ones who are experiencing a loss of sense of place, and solastalgia.”

In closing, Professor Evance Kalula congratulated Feris on being the first black South African woman to give a professorial inaugural lecture in the Faculty of Law at UCT: “Professor Feris is a sign of what is to come, and while we cannot expect her to bear the burden of putting all historical wrongs to rights, she is already a role model. For Professor Feris, the best is yet to come.”

‘I would argue in the case of the Karoo that fracking may well infringe human health, but also well-being; through potential loss of ground water, impacts on landscape, and through socio-economic impacts.’

– LORETTA FERIS





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