



UNIVERSITY OF CAPE TOWN

INAUGURAL LECTURES 2011





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INAUGURAL LECTURES ~ RITES OF PASSAGE

This publication brings the core message of each of the public inaugural lectures delivered at the University of Cape Town to a wider audience – because an important part of UCT’s mission is not to live in isolation, but to inform the community of, and engage it in, the university’s search for answers to the big questions of our age.

The practice of delivering inaugural lectures is a very old one. In an enlightened and enlightening analysis of inaugural lectures, W Carr (‘Professing education in a postmodern age’ 31 (1997) *Journal of Philosophy of Education* 309-317) explains that – unlike the ex cathedra exposition of the knowledge of the lecturer that many inaugurals had become since the 19th century – the original purpose of the medieval inaugural lecture was not so much for the lecturer to showcase his (as it then inevitably was) knowledge, but rather to be subjected to a final rite of passage: “Just as the medieval ceremony of knighthood signified the initiation of a knight bachelor into the brotherhood of arms, so the ceremony of inception marked the initiation of the scholastic bachelor into the brotherhood of teaching. And, just as the new members of any other craft guild had to produce a ‘masterpiece’ before they could gain the status of Master Craftsman, so the newly licenced Master of Arts had to give a public demonstration of his craft.

“To this end the inceptor was required to deliver a formal lecture inaugurating a disputation on previously selected quaestiones, using the dialectical method to

examine arguments pro and contra. Having successfully presented this inaugural lecture, the inceptor’s formal admission to the Mastership was signified by his donning a biretta and putting a ring on his finger.

“After the ceremony, the new Master was required to act as host to his new colleagues at a post-inaugural celebration. (At 321)” In 21st-century Cape Town, the inaugural lecturer arrives already wearing the biretta, but we have dispensed with the ring – although not with the party afterwards!

Carr urges that the modern inaugural lecture should return to its medieval roots, and be an occasion at which the new professor puts out his or her ideas to be debated, rather than a showcase of knowledge. Where do we stand on this at UCT? The vice-chancellor’s letter inviting a new professor to deliver an inaugural lecture puts an option to the newly elevated staff member: to deliver either a public inaugural lecture, which should be such that it ‘translates’ his or her work for a wider audience, or a faculty-based lecture, which gives the inaugural lecturer the opportunity to present his or her work to a specialist audience.

The public inaugural is of course a showcase (in the positive sense of facilitating the public understanding of the research of the new professor, rather than an assertion of professorial authority that eschews dissent), while the faculty-based inaugural – though also displaying the lecturer’s knowledge – is probably more in the nature of putting one’s ideas up for discussion and debate by the experts in the field.

So, one could say that inaugural lectures at UCT reflect either something of the 19th-century model, or of the medieval model, or of both – depending on the mode chosen.

The fate of inaugural lectures – and of those who deliver them – is, inevitably, varied. Take the inaugural of the German poet Friedrich von Schiller at the University of Jena on the eve of the French Revolution (‘What is, and to what end do we study, universal history?’ *Was heisst, und zu welchem Ende studieren wir Universalgeschichte*, 26 May 1789): it is very famous (albeit pockmarked, to the contemporary eye, by some startling prejudices) but it did not lead to the successful career in academia that he was hoping for. In the lecture, Schiller urged students not to enter the university merely to be prepared for the professions as *Brotgelehrten* (‘bread-and-butter scholars’) but to embrace the love of learning.

This stirring message, as the editor of the Wesleyan University translation of the lecture (1972) reports, “was a great success with students, who overflowed



the largest lecture hall in Jena”. But in the end “Schiller attracted few fee-paying students and became quickly disenchanted as a professor, never recapturing the fine rapture of his first academic hour”.

Fortunately, however, an inaugural lecture more often signals the beginning of the best part of an academic’s teaching and research. Although few can hope for the kind of success that the 29-year-old Technical Expert (Second Class) from the Swiss Patent Office would achieve subsequent to his inaugural lecture as *Privatdozent* at the University of Bern in Switzerland on 27 February 1908, each inaugural carries within it a vision of the deepening of knowledge and understanding, and epitomises the essence of academic life through its democratic act of sharing knowledge and allowing new ideas to be debated.

In 2011, twelve inaugural lecturers presented their work. This booklet summarises each of these lectures (<http://www.uct.ac.za/news/lectures/inaugural/2011/>)

Professor Danie Visser
Deputy vice-chancellor responsible for research

A MORE NUANCED TAKE ON RACE NEEDED IN SOUTH AFRICA

Even the Constitutional Court doesn't always get race quite right, suggested Professor Pierre de Vos in his inaugural lecture, *The Past is Unpredictable: Race, redress and remembrance in the South African Constitution*, delivered at UCT on 14 September.

De Vos, who holds the Claude Leon Foundation Chair in Constitutional Governance in the Department of Public Law, started his lecture close to home, though, with UCT's admissions policy (one of the countless issues he's covered in his many media commentaries and in his [in]famous blog, *Constitutionally Speaking*). If the university has taken a beating in the media and in various corners of the country for this policy, which uses race as a proxy for disadvantage, said De Vos, it's because its critics have overlooked the reality that the issues of race "continue to permeate every aspect of both public and private life" in South Africa.

There is a paradox at the heart of attempts to rely on race in order to overcome the effects of past and ongoing racism and racial discrimination. While it is necessary to invoke racial categories in order to address the effects of racism and racial discrimination effectively, a reliance on those categories runs the risk of perpetuating the inequalities and race-based hierarchies of apartheid.

The Constitutional Court, too, has not always taken sufficient care when

bandying about those racial categories, especially when tackling the issues of race and redress, said De Vos.

It is true that the Constitution prohibits unfair discrimination on the basis of a range of criteria – race included. On the other hand, it does not prohibit (and sometimes even requires) the use of race when addressing the "effects of past unfair discrimination or when addressing the lingering effects of racial discrimination and racism", he pointed out.

The Constitutional Court understands the need for race-based corrective measures, but also appreciates that there are limits to such corrective measures. (And that redress can be a win-lose thing, where one group benefits at the expense of another.)

But while race-based measures of redress are required to address the effects of past and ongoing racism and racial discrimination, this must be done by having "regard to South Africa's past", a past that not all South Africans always see in the same light. A little more finesse, more "nuance", is also required when dealing with the country's history, said De Vos.

"Neither attempting to sweep the past



↑ Race ahead: According to Prof Pierre de Vos, South Africans – and the courts – need a richer look at racial issues.

racism and racial discrimination and its ongoing manifestations and effects, which continue to haunt our country, under the carpet; nor reducing or simplifying the story of our past to one in which human beings only existed as markers for their racial identities."

This will mean, argued De Vos, renouncing simple "grand narratives", whether the one of a dark and treacherous Africa populated by "corrupt, untrustworthy and lazy" Africans, on one hand, or another – which the Constitutional Court has embraced, says De Vos – of a "heroic and

noble anti-apartheid struggle led by the ANC against an evil apartheid regime".

Both threaten to reduce individuals to mere symbols or representatives of a particular racial or language group. Instead, South Africans should embrace "many small micro-narratives that recognise the individuality of each person".

"Like Jacob Dlamini did in his book *Native Nostalgia*, we want to tell stories that humanise our lives and particularise our experiences; without airbrushing away the past, and without denying the lingering effects of ongoing racial injustice around us. III

"Like Jacob Dlamini did in his book *Native Nostalgia*, we want to tell stories that humanise our lives and particularise our experiences; without airbrushing away the past, and without denying the lingering effects of ongoing racial injustice around us."

GIVING A VOICE TO THE DEAD

You needed a strong stomach for Professor Lorna Martin's inaugural lecture. But it wasn't just because of the graphic images dotted throughout the lecture, titled *No Woman No Cry – A journey into forensic pathology services and violence against women*, delivered in September. More brutal, perhaps, were the stories and statistics.

In what was in many ways a straightforward recounting of her career as a forensic pathologist, Martin started, more or less, with her medical studies at Wits University. It was here that she was "enticed" into forensic pathology as a fourth-year student by an "inspirational teacher" in one Dr Patricia Klepp.

Martin couldn't immediately follow in her mentor's footsteps, though. Unable to find a post in forensic pathology, instead she began as a district surgeon in Hillbrow in 1991. The post was in effect that of a catch-all clinical forensic medical practitioner, and Martin worked with everyone from drunken drivers to political detainees. And rape victims.

"It proved to be quite fortuitous," Martin says of the job, "because among these other things it exposed me to the clinical management – or lack thereof, actually – of rape survivors."

The job also got her picture in the

papers. In 1992, she appeared in *Die Beeld*, when she testified in the case of bodybuilder Gary Beuthin, charged with the kidnapping, assault and attempted murder of a former girlfriend. In an even more high-profile case, Martin had to treat serial killer Moses Sithole, who committed the so-called 'ABC Murders'.

The post also inspired Martin's first research. In December 1993, her study of rape in Johannesburg was published. Already a disturbing pattern was becoming clear – many victims were raped by men they knew.

That research persuaded her to establish the country's first medico-legal clinic for rape survivors, set up in Hillbrow in 1992. Hand in hand with the clinic, Martin also developed examination and management protocols for rape survivors, and a training programme for staff of that and other (possible) clinics.

More high-profile cases would →

In 2004 Martin contributed to a national female murder study which revealed that a woman is killed by an intimate partner every six hours.

↓ Office hours: Prof Lorna Martin, in her scrubs at the Salt River Pathology Laboratory, remains a hands-on pathologist, despite her duties as head of UCT's Division of Forensic Medicine.



follow, such as that of the 'Nasrec Serial Killer', Lazarus Mazingane. And when Martin moved to Cape Town in 1996, her research would also blossom under the mentorship of Professor Deon Knobel, who was beginning to put together a formidable team in UCT's Division of Forensic Medicine and in the province's State Pathology Laboratory.

Martin's 1996 to 1998 study of the Cape Metropole showed that coloured women made up the overwhelming proportion of rape-homicide victims, a full 70% of cases. More often than not, the perpetrator was someone the woman knew, sometimes intimately. (It's here that the graphic images of brutalised victims came in.)

Those trends would be mirrored when Martin later tracked rape-homicide statistics in the province up to 2005, in a study conducted in partnership with colleagues from the School of Nursing at Johns Hopkins University in the US.

If there was good news to come out of this research, it was that it prompted Martin and colleague Professor Lynette Denny to develop a rape management protocol and training manual for the province. It also sparked new undergraduate courses in women's health, especially dealing with violence and health.

Martin's advocacy work also took off. She was invited to talk at a meeting of Amnesty International in 1998. She worked closely with the South African Police Service and a number of women's health groups, contributing to new

legislation. She consulted to the World Health Organisation – and still does – on the health sector response to sexual violence. She published prolifically. In 2004 she helped set up the Gender, Health & Justice Research Unit at UCT. She was part of the team that did a prospective study of post-exposure prophylaxis following sexual assault in South Africa. That same year she contributed to a national female murder study, which revealed that a woman is killed by an intimate partner every six hours. (Coloured women were again the most common victims.)

There was more research, there were more headline-catching cases, more terrifying crimes and statistics. Martin also got to meet murder-mystery writer Patricia Cornwell, creator of famed medical examiner Kay Scarpetta, lead character of 19 of the author's novels thus far.

Now head of forensic medicine at UCT, Martin is looking ahead. The department is growing. There's the work on the digital-age Pathology Learning Centre, and the dream of a UCT Forensic Medicine Institute, which would be a first for Africa. Parts of this institute are already falling into place, including a new high-tech mortuary on the grounds of the Groote Schuur Hospital, courtesy of the provincial government's Department of Health, and a new master's programme in forensic medicine, a first for the country.

All this in aid of a single objective, explained Martin. "Basically our core business is providing a voice for the dead. And we are the only ones able to do it." III

CRIME AND PUNISHMENT THE PERILS OF EYEWITNESS ACCOUNTS

It was the advent of DNA profiling in the 1980s that confirmed the scale of a problem that many law courts around the world had long recognised but underestimated – that eyewitness identification frequently leads to miscarriages of justice. This was the message of Professor Colin Tredoux in his September inaugural lecture, *Pragmatic Psychology and the Perils of Eyewitness Identification*.

Since 1990, Tredoux explained, 273 prisoners in the US – each having spent an average of 13 years in prison – have been exonerated by DNA typing of biological evidence. Seventeen were on death row. In 75% of these cases, the accused had been found guilty, in large part, on the word of eyewitnesses.

"The testimony of eyewitnesses has long been of considerable importance in criminal cases, and it has also long been clear that mistaken eyewitness identifications can lead to terrible travesties of justice."

Tredoux, of UCT's Department of Psychology, cited many examples, including that of Norwegian émigré Adolf Beck, who, in 19th-century London, was

mistakenly identified as a conman and spent years in prison as a result. Then there's the case of the so-called Eikenhof Three in South Africa, imprisoned for the murder of three people in 1993 but released in 1999.

Psychologists have naturally been intrigued by this phenomenon, what with its questions of memory, perception, and even suggestibility. As a discipline, over the years, psychology has adopted a hands-on approach to the problem, explained Tredoux.

"The approach has been thoroughly pragmatic, and I can summarise it for you very simply as 'study something you can do something about'."

Psychologists have researched →

and written about many aspects of eyewitness identification, including how eyewitnesses are interviewed by police and how line-ups – mythologised by Hollywood – are put together.

Tredoux has been particularly interested in line-ups, and how fair they are; or, at least, how fair they are meant to be. To be fair, he explained, suspects and ‘foils’ – the other people in the line-up – have to bear some resemblance to each other.

For his own studies, and inspired by work done in similar fields elsewhere in the world, he has called upon his training and experience in psychology, statistics and computer science.

When using pictures – rather than ‘live’ people – Tredoux and others have explored the use of computer-generated ‘eigenfaces’ to create “artificial or synthetic foils”. Eigenfaces are constructed by analysing sets of face images with statistical techniques. New faces can be created by combining the eigenfaces using what’s known as a weighted sums approach, where different eigenfaces are given different ‘weights’ or values, and then added together.

Not only could Tredoux use eigenfaces to measure the fairness of police line-ups, but also to construct better quality, fairer line-ups. (Along the way, Tredoux and some

collaborators won a science photography prize for their eigenfaces – in work not related to eyewitness identification – after creating a set of images of average Irish faces.)

But “pragmatic psychology” has had only “moderate” success in combating the errors of eyewitness identification, according to Tredoux.

He presented, in closing, some controversial considerations about the case of the ‘Station Strangler’, thought to be responsible for at least 22 murders in the Western Cape between 1986 and 1994. The identification of the person convicted for one of these murders, Avzal Simons, was itself suspect – the trial judge took a “superficial resemblance to a face composite” into account, the line-up contained members who were not similarly dressed, and only the suspect had a distinctive facial scar. The validity of Simons’ confession is also disputed, and biological evidence at two of the murder sites did not match Simons, but did match each other, said Tredoux.

Some theory is needed to balance out the ‘gumboots and all’ approach of psychology, he proposed. And that theory should go further than offering a ‘black box’ explanation, telling us why changes in procedures used to elicit identifications should yield more accurate results. III

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↓ Face off: Prof Colin Tredoux’s inaugural lecture examined eyewitness identification and how it frequently leads to miscarriages of justice.



NEW VACCINES ARE THE WEAPON AGAINST TB

There are few better placed than Professor Willem Hanekom to present new and unpublished data on the work of the South African Tuberculosis Vaccine Initiative (SATVI).

Described as an “entrepreneurial clinician” and “an outstanding role model for SATVI and UCT”, Hanekom, an internationally-recognised immunology expert, gave up a promising career in the US to work in South Africa, which has the second-highest number of TB cases in the world.

Now a co-director at SATVI, he is playing a leading role in developing TB vaccines, the basis for his inaugural lecture, *Vaccines to Prevent TB*, delivered on 4 May.

For Hanekom, TB deaths can well be compared to the recent earthquakes and tsunamis in Japan that killed about 10 000 people.

Every year 1.7 million people around the world die of TB.

“I don’t think TB deaths are any less devastating nor have any less impact on the economy of a community or households,” Hanekom said. “So really, we should do something.”

Vaccines, he believes, have the best chance of making an impact on the disease.

To this end, SATVI is in the process of clinical development of new vaccines, and is conducting numerous studies to address critical questions in TB vaccine development.

Hanekom and his team are working on everything from new ways to test



↑ Advocate: Prof Willem Hanekom believes that vaccines will have a huge impact in the fight against TB.

potential vaccines and how safe they are, to assessing whether the vaccines will work and how our genetic make-up will determine vaccine success.

The four vaccines SATVI has developed over the years have shown incredible results, he reported. “All vaccines tested so far are very safe.”

But will they protect people against *Mycobacterium Tuberculosis*, the bacterium that causes TB?

One problem, Hanekom said, is that we still do not know what to measure in people’s blood (after they have received

a vaccine) to tell whether they will be protected against TB. This is a major focus of his research group’s effort.

“In studies of vaccinated babies, we were surprised to see that the currently-used tests may not measure the right things to show whether they are protected or not,” he said.

The SATVI group has already discovered new markers that are likely to show whether a vaccine will work. This information is also exploited to better understand how people protect themselves against TB; which, in turn, should lead to the development of even better vaccines. III

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GENE EXPRESSION KEY TO MORPHOLOGICAL DIVERSITY

As her topic, *Evo-Devo: Clues to morphological and functional diversity in bats and resurrection plants* indicates, Professor Nicola Illing had some educating to do in her inaugural lecture on 19 October.

Evo-Devo, noted Illing from her ongoing work with a team of UCT students and collaborators from abroad, is a term coined in the 1990s to explain the evolution of morphology in living organisms through the lens of developmental genetics.

It is known that a common toolkit of genes regulates development in animals, and a different common toolkit of genes does likewise in plants.

But if you are using the same toolkit, where does morphological variation stem from? Illing asked.

Bat wings, with their extra-long fingers linked by a membrane, are a good example of such variation, highlighted by Darwin 150 years ago when pondering the question of the evolution of limb diversity in vertebrates. Unlike in human hands, in which webbing between fingers regresses during embryonic development to free fingers, bat wings retain the inter-digital webbing.

Illing and her research group have shown that expression of Sonic hedgehog, a gene known to be important for patterning hands and feet of all vertebrates, is uniquely reactivated for a second time

during bat wing development.

In the 1970s, she said, the accepted model was that gene duplication was a prerequisite for a change in gene function. But more recently, it has been revealed that changes in regulatory elements that turn the genes on or off during development may also play an important role in generating functional diversity.

“We’ve shown that the reactivation of the Sonic hedgehog signalling loop is important in extending the outgrowth of bones and retention of the inter-digital membrane in the bat wing,” Illing said.

Turning to plants, she noted that the “cool” Evo-Devo question was whether the desiccation tolerance in the leaves and roots of a specialist group of plants known as resurrection plants evolved from the activation of seed desiccation genes. Desiccation tolerance refers to the ability of an organism to withstand or endure extreme dryness, or drought-like conditions. In plants, it could mean species that revive after seeming to be dead.

After studying *Xerophyta humilis*, a plant whose family members are widespread in



↑ **Evo diva: Prof Nicola Illing explained the evolution of morphology in living organisms through the lens of developmental genetics.**

southern Africa, Illing and her research group have highlighted the importance of the central regulators of germinating seed in the desiccation response of leaves in resurrection plants.

“What we have seen is the reaction of existing genes’ regulatory pathways, which play an important role in generating functional diversity.”

But why are these findings important to humans?

Much of our current insight into how genes are regulated during development has been obtained from researchers working on

human diseases. Illing noted that the study of the genetic basis of morphological diversity in bats and plants provides invaluable alternative insights on how this occurs.

“Our lessons on the genetic basis of diversity of morphology have taught us about development in the limb and the importance of Sonic hedgehog in stimulating bone growth and preventing regression of inter-digital membranes by cell death. This is important, because cancer arises when the processes of growth and cell death go wrong. We need to follow up these leads in future research.” Ill

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FISHY CAUSES OF ALLERGIES AND ASTHMA

The rise of occupational asthma, particularly in the fisheries industries, took centre stage at Professor Mohamed Fareed Jeebhay's inaugural lecture, *From Farm to Fork – A Fishy Story of Allergy and Asthma*, to a packed theatre on 20 April.

Over the past decade, Jeebhay, who is based in the Centre for Occupational and Environmental Health Research (COEHR) in the School of Public Health & Family Medicine, has focused his research on the relationship between airborne food allergens and allergy and asthma. He paid special attention to identifying the occupational risk factors for disease, in order to develop strategies for prevention.

While the vast majority of published reports focus on allergic symptoms following ingestion or skin contact, it's the lesser spotted route – the inhalation of aerosols – that Jeebhay addressed in his presentation.

"Aside from the commonly encountered oral route in domestic settings, seafood also finds its way into the human body through inhalation in domestic, recreational and work settings," he said.

In both shellfish and fish factories, airborne wet and dry particles are produced during processes like degutting, mincing, boiling of freshly caught fish and bagging of fishmeal. And it is these particles, containing aerosolised allergens, that are inhaled by workers and that, much like common environmental allergens such as house dust mites and pollens that feed

off a genetic predisposition, also cause allergy and inflammation of the bronchial tract, resulting in rhinitis and asthma.

Enter occupational asthma.

The first case report of seafood allergy was reported in 1937 by the Norwegian bacteriologist Arent de Besche, who wrote of a fisherman who developed allergic symptoms and asthma when handling codfish. This report sparked Jeebhay's interest in occupational asthma.

Not surprisingly, the number of reported allergies went hand in hand with the growth of the seafood industry.

"The increased demand for and consumption of seafood and its by-products has been associated with a concomitant rise in fishing and aquaculture activities. Aside from the potential depletion of marine stocks if not managed in a sustainable manner, recent studies suggest more frequent reporting of allergic health problems among consumers as well as processors of seafood."

A large scale epidemiological study of workers by Jeebhay and his co-investigators along the west coast of St Helena Bay, the epicentre of fish harvesting and processing in South Africa, showed that symptoms of work-related asthma may



↑ In the air: Prof Mohamed Fareed Jeebhay is investigating occupational asthma in the fishing industry.

develop after only a few months to several years of commencing work.

Yet, numerous studies show that a large proportion of occupational allergy and asthma remains under-detected and poorly managed, despite the knowledge that work-related factors are responsible for between 15 to 30% of adult asthma.

Jeebhay's research not only accounts for the cause and prevalence of the disease, but looks to identification, prevention and cure. Molecular studies identified several forms of seafood proteins, some known as parvalbumin, found in indigenous pilchard species that have been linked to seafood allergy. Jeebhay and his group have subsequently developed a model of fish allergy that could form the basis for testing different

fish allergen recombinants, which could be used in the future for developing immunotherapy, which is currently not available for those who suffer from seafood allergies.

In addition to treating asthma and rhinitis symptoms, Jeebhay's research calls for a change in food processing practices, better exposure control, mandatory product labelling, and regular medical surveillance of workers to reduce the incidence of allergic reactions to inhaled seafood allergens.

"Exposure control measures include eliminating exposure or worker relocation," he said. "This can be done by identifying high risk activities for aerosol exposure such as fishmeal bagging and gutting machines, and the introduction of improved local exhaust ventilation systems." III

The first case report of seafood allergy was reported in 1937 by the Norwegian bacteriologist Arent de Besche, who wrote of a fisherman who developed allergic symptoms and asthma when handling codfish.

THE RARE HEART DISEASE THAT KILLS AFRICAN MOTHERS

After Professor Karen Sliwa delivered her inaugural lecture on 16 February, colleague Professor Valerie Mizrahi described her as the “consummate clinician/scientist”, someone whose work stretches “from the intricacies of cell biology and genetics through to primary health care and intervention”. And she is always thinking of the “wellbeing of the patient and the population”, Mizrahi added.

These aspects of her work were clearly illustrated in Sliwa’s lecture, *Capturing and Preserving the ‘Heart’ of Africa*, her coming-out as UCT’s new professor of cardiac research and successor to Professor Lionel Opie as director of the Hatter Institute for Cardiovascular Research in Africa.

Firstly – the primary health care and intervention focus – Sliwa spoke of the surveillance of cardiovascular risk factors and disease, specifically in Africa. She pointed out that chronic disease, especially cardiovascular disease (alongside diabetes and cancer), is fast becoming the leading cause of death and disability worldwide.

More worrying is that 80% of deaths from chronic disease occur in low- and middle-income countries. These are statistics that Sliwa confirmed in the Heart of Soweto Study, a ground-breaking project that she established and led at Wits University to look into the emerging causes and consequences of cardiovascular disease in South Africa, specifically in a community in transition. In that study, she and colleagues screened over

8 000 people between 2006 and 2008, and started a primary care registry of the 1 300 patients at risk for cardiovascular disease, particularly because of hypertension (aka high blood pressure).

In addition, they also launched an intervention trial, a study now managed from the Hatter Institute.

As the Heart of Soweto Study also demonstrated, the burden of chronic disease is growing in South Africa, spurred on by obesity and hypertension, said Sliwa.

“It will be a challenge to prevent the escalation of this problem.”

Underpinning that big picture, however, is a series of “interesting” cardiac diseases, said Sliwa. One that attracted her attention is peripartum cardiomyopathy, a condition more common in Africa than in other parts of the world.

This often-fatal condition – it kills about 20% of patients affected – is a rare disorder in which women are diagnosed with a weakened heart within the final month of pregnancy or within five months after delivery. So feeble is the heart that it cannot

contract forcibly enough to pump enough blood to the rest of the body.

“These are totally healthy women; they get a child, they go home, and they develop this disease.”

Scientists struggled to pin down a determinable cause of the heart failure, however; even after looking at a number of possible suspects, such as autoimmune response and genetic factors.

It was only through a chance meeting with Denise Hilfiker-Kleiner, now professor of molecular cardiology at the Hannover Medical School in Germany, that Sliwa struck a possible answer. In work totally unrelated to peripartum cardiomyopathy, Hilfiker-Kleiner had found that many of her model mice would die after giving birth, for some inexplicable reason.

A conversation over a cup of coffee grew into a five-year study into how a dearth of STAT3, a gene that triggers a series of chemical pathways, could lead to heart failure. By 2010, the two reported in a proof-of-concept study that treatment with a drug known as bromocriptine could preserve blood vessel formation and cardiac function, and so make up for the STAT3 deficiency.

This is but one of the research studies that Sliwa has introduced to the Hatter Institute.

More worrying is that 80% of deaths from chronic disease occur in low- and middle-income countries.



↑ **Hearty talk: Prof Karen Sliwa.**

Another is the Heart of Africa, the umbrella title for a medley of projects that follow up and expand on the Heart of Soweto study into eight sites in Africa.

So Sliwa is shaking things up at the Hatter Institute. Little wonder, then, that she’s earned a couple of nicknames at UCT already.

On the night of her inaugural, Professor Bongani Mayosi, head of the Department of Medicine, assigned one: Lindiwe, which in isiXhosa means ‘the one we have been waiting for’, and is given to a bride taken from another nation. (Sliwa was born in Germany.) The first nickname Sliwa overheard at UCT may be more apt, however: Hurricane Katrina. III

ACT NOW ON ENERGY AND CLIMATE CHANGE

We don't know all the answers to climate change, but we do know more than enough to take action now. It's clear from a South African point of view that we need to take action in four big areas: electricity and liquid fuels on the supply side, and transport and industry on the use side. It's an energy problem and a problem of energy development. If we can change the quality of how we develop that energy and address the challenges of both poverty and reduced emissions, then we can have an economy and society that can work in the future."

In sum, this was the key message from Professor Harald Winkler of UCT's Energy Research Centre when he delivered his inaugural lecture, titled *Climate Change Mitigation in the Context of Development*, on 17 August.

"It's a problem that has become too political for the technicians and too technical for the politicians," he said about climate change. But politics aside, the realities of climate change and the urgent action it requires are irrefutable.

Scientists estimate that if climate change is ignored, temperature will increase by up to 6°C by the turn of the century. But following the Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report in 2007, there is some political agreement to keep temperature increase below 2°C above pre-industrial levels, Winkler said. However, studies show that these actions (that countries

have pledged politically) add up closer to the 3.2°C mark.

"The problem we face with the lack of action is not due to a lack of information. We know that to have a 50% chance (depending on how risk averse we are) of keeping temperatures below 2°C, we can afford another 1 440 gigatons of CO₂ to be emitted over the first half of the 21st century."

If that sounds like an unimaginable amount, the problem is we've already spent 210 gigatons of that future carbon budget in the first seven years. If we keep going at that rate, we will blow the carbon budget – and pay with the resulting impacts.

There are areas ripe for quick action in South Africa, Winkler explained – energy efficiency, managing demand, and legislating for efficiency. A carbon tax can also be implemented without delay. Changing

the fuel mix of our country will take a bit longer; and the most fundamental, long-term change is to our economic structure, from a minerals-energy-intensive focus to a more carbon-resilient economy.

"Mitigation is at the heart of our economy. It is a big contributor to our GDP. We cannot address this problem without Eskom and SASOL, but we can't address it by focusing on them alone."

Smart changes reap great rewards. Talking on energy efficiency, he said that newly electrified houses use about 150 kiloWatt/hours (kWh) per month. If these increased to the consumption levels of middle-class houses, which use up to 1 000 kWh/month, that might increase emissions by only 0.3%. The big savings are in industry, transport and more well-off households, not among the poor.

But it's not just about electricity. "It's also about urban form. Gauteng is very dispersed. The numbers are similar to, say, London, and this has huge implications for the amount we spend on transport and emissions. We

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↑ In the red: We've already eaten substantially into our future carbon budget, explained Prof Harald Winkler in his inaugural lecture.

should look at safe, affordable public transport for all – and for those who can afford them, hybrid electric vehicles."

In a nutshell, the bottom line is to read – and react to – the signs of the times.

"We need development that shares information, taxes the bad and incentivises the good; that keeps the climate safe for future generations and that accepts that we can be happy with less." III

VALUE CREATION THE KEY TO SUSTAINABILITY

Looking at his track record, it would be fair to conclude that Professor Eric Wood is the kind who walks the talk.

After he bought a majority stake in a loss-making business 10 years ago, Wood managed to turn it around in a short time. And his weapon of choice was value creation – the topic of his inaugural lecture, titled *The Art of Value Creation*, on 7 September.

Wood, who teaches innovation and entrepreneurship at UCT's Graduate School of Business and in the Netherlands, believes that value creation is central to the sustainability of any society. Yet it is a struggle to create value as a nation, and failure to do so is typically shouldered by the poorest of the poor.

Wood's views are backed up by the Global Entrepreneurship Monitoring survey, which shows (among other findings) that productivity per employee in South Africa declined by 6% between 1994 and 2007, that the country has the lowest survival rate of young firms among developing nations, and that there is large-scale value destruction in both the public and the private sectors.

According to the government's Special

Investigating Unit, a state body that investigates corruption, 20% to 25% of state procurement expenditure (amounting to R30 billion a year) is wasted on overpayments and corruption. In addition, there has been "appalling" anti-competitive behaviour and other abuses of market power by the private sector in many prominent industries.

"Value creation is important to South Africa, and the country offers fertile ground for deepening our understanding of which principles make value creation, and which don't," Wood said.

He added that the fundamental problem is the possibility that one stakeholder may make gains at the expense of another, which is not value creation but value transfer.

He argued that it is the so-called 'softer' fields of stakeholder theory, business ethics and sustainability that produce the most helpful and inclusive insights into value creation.

"I propose that value creation occurs



↑ **Meaningful practice:** According to Prof Eric Wood, value creation can benefit from insights from the 'softer' fields of stakeholder theory, business ethics and sustainability.

when all of an organisation's stakeholders, such as customers, end-users, employees, the communities in which the organisation is operating, the environment, the taxman – as well as its owners – are so rewarded that they are positively inclined to dedicate the same amount or more of their applicable resources to it in future, even if for no better real rate of return than before.

"If, as managers, we have a responsibility to ensure value creation, it means we have

to ensure that none of our stakeholders is left out or exploited in the process."

Ultimately, this requires that all stakeholders accept responsibility for their respective parts in delivering the necessary rewards to all other stakeholders.

To achieve that, Wood proposed that stakeholders should strive to create meaning in their practices, be obsessed with excellence, invest in the truth and be willing to subject themselves to scrutiny. III

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CAPE TOWN A MELTING POT OF SLAVE HISTORY

While not without its troubles – Irish republicanism, the rise of Russian communism, the first hints of uprising in India, a world war – George V's rule of the British Empire from 1910 to 1936 would, on the face of it, have come too late to have had much to do with slavery as it's traditionally understood. Even less, then, with slavery in the early Cape colony.

But even if it's not that straightforward, there is in fact a connection, as explained by Professor Nigel Worden in his inaugural lecture, *The Global Cape: Breaking the boundaries of the early Cape colony*, which he delivered on 21 September. It's all about the study and origins of history as an academic discipline, argued Worden, who since 2009 has held UCT's King George V Chair of History. (He was first promoted to full professor in 1997, but had never delivered an inaugural lecture.)

History, as an academic discipline, was really only developed in the mid- to late 19th century, most notably in the German state of the period, Worden explained.

"Just at a time when nationalism was at its fore."

History as a subject would underpin that nationalist impulse, its purpose to build up a nation's historical credentials.

"The subject of history was seen as being a necessary part of the construction of a nation state. It was important that a nation state had its own archives, its own collection of documentary material, which are by definition the product of a government of a particular nation."

That rule of thumb would also apply, no less so, to the British Empire.

This explains the establishment of the King George V Chair of History at UCT's forebear, the South African College, in 1902, just at the end of the South African War. The incumbent was expected to make a special study of the history of the new nation coming out of that divisive conflict.

(Because that history was likely to be partisan and partial to the British version of the story, the Victoria College of Stellenbosch, which would later become Stellenbosch University, rebutted with a rival chair in history in 1904.)

But the study of a country's history was an isolated affair, said Worden, elevated and taught separately from the history of other places. (The university he worked at in Scotland went so far as to set up its own department of Scottish history.) So, too, the history of South Africa is often treated as distinct from the history of the rest of Africa and the rest of the world.

Universities, whether in the teaching or researching of history, have also fallen into that model. As Worden himself has, he confessed.

But Worden, in his study of slavery in

South Africa and Cape Town, has had a conversion of sorts over the past decade.

Inspired by other scholars, he became interested in the links between slavery in the Cape and elsewhere. Slave practices here, he now argues, often reflected slave practices in other corners of the world. (In parts of Asia, for example, slaves would be freed after working off a debt; in one document discovered by Worden, a Cape slave beseeches his owner, after 10 years of such indentured labour, to be released from his obligations. His request was turned down.)

The link between Cape history and other countries and regions was clear, if unexplored.

"Here were signs of the impact of places from which many of the slaves at the Cape had come, but about their previous lives – in Madagascar, or in South East Asia, or in India, or in Sri Lanka – we were completely ignorant," Worden said.

Retracing those lives and stories was not easy, though. Records were few and far between. ("The nature of slavery is that it ruptures life experiences.")

Over the years, however, Worden has been able to piece together some stories from official documents and archived correspondence, be they about the Cape Slave Uprising



↑ Talking history: Prof Nigel Worden

of 1808, the networks between the Cape and the slaves' homelands, Malagasy refugees, or the social mobility of women slaves.

"The Cape, at least as far as this period is concerned, was not a closed world, it wasn't an isolated bubble; it wasn't just an outpost of Europe. It was an Indian Ocean and Southern Atlantic settlement in all its diversity, and it was connected directly to the networks of these regions."

And as his further study has shown, the social aftershocks of that period have been felt through the subsequent ages, its social and racial orders extending into later periods, even today.

Fertile ground, Worden suggested, for the teaching and study of a new kind of history. III

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SPORTS SCIENTIST'S EXTRAORDINARY JOURNEY

Even after he'd finished his medical studies, Professor Wayne Derman was unsure in which direction his medical career was heading.

After a stint in the surgical pit at Baragwanath Hospital, he soon discovered that acute medicine, ie treating those who line hospital corridors, was not for him. But his professors didn't think much of at least one of the jobs he had lined up: a medical doctor at a Club Med resort. (The other was ship's doctor on the ill-fated MS Achille Lauro.)

But he dodged those bullets (literally, in the case of the Lauro), and it all worked out pretty well in the end, as Derman explained in his four-stage inaugural lecture, *Broken Hearts, Wattle Trees, Spacemen and a Man With One Leg: My extraordinary journey in medicine*, delivered at the Sports Science Institute of South Africa on 5 October.

It all changed when Professor Asher Dubb at Baragwanath Hospital, where Derman was based, suggested Derman fly to Cape Town to meet one Professor Timothy Noakes, to pursue a career in sports medicine. This, suggested Dubb, would allow Derman to marry his passion for sport with his passion for medicine.

It did, and in more ways than one.

Broken Hearts. Initially, sports medicine was simply a byword for the treatment of sports injuries. That's changed. Sports and exercise medicine, as an increasingly reputable medical specialty, has a strong focus on the prevention and management of patients with chronic disease. Much of Derman's early work – with what was to become the Medical Research Council/UCT Research Unit for Exercise Science and Sports Medicine (ESSM) – was on the association between exercise and heart disease.

That research spilled over into more "holistic" studies on muscular damage, diabetes, cancer, peripheral vascular disease, psychosocial stress and a range of chronic diseases; with exercise, diet and stress management emerging as an important lifestyle intervention in the management of the above-mentioned 'chronic diseases of lifestyle'.

Wattle Trees. Derman was chief medical officer for the South African teams that took part in the Sydney Olympics in 2000 and the Athens Olympics in 2004. He was also medical officer for the squad



↑ Lift-off: Prof Wayne Derman's career has had many memorable moments, such as when he (middle) joined Mark Shuttleworth and Russian cosmonauts for a bit of zero gravity training.

that travelled to the Paralympics in Beijing in 2008, and the medical officer for Cape Town at the FIFA 2010 World Cup.

And, again, if anyone thought that injuries would account for most of the medical team's labours, Derman's studies showed quite the contrary. Illnesses and allergy, particularly related to the respiratory and ear, nose and throat systems, were as much of a

concern, he found. (That applied to rugby's Super 14, too, a later study showed.)

"These medical conditions are as important as injuries are," Derman said.

Take his experiences before and at the 2000 Olympics. Fearing that Sydney's wattle trees would be a major hurdle, Derman and colleagues at the UCT Lung Institute ran a series of tests with the athletes, and found →

“I think how it works is that if you can accept maybe some of the toughest hands that life can deal you, and truly are able to integrate that into your being, then the gift you’re given is one of perspective.”

that more than half of the SA team were atopic, ie prone to allergic reactions.

Derman – along with ESSM colleague and good friend, Professor Martin SchwelInus – would eventually contribute those and other insights to the International Olympic Committee’s Consensus Statement on Period Health Evaluation of Elite Athletes.

Spacemen. Here Derman described his role as flight surgeon to Mark Shuttleworth, on the latter’s space flight to the International Space Station aboard a Russian craft in 2002. Over the months working with Shuttleworth, Derman would learn much about space science and medicine, from the Russian doctors – some of whom had worked with Yuri Gagarin, the first human to travel into outer space – and from his own experimentation with floating in simulated zero gravity.

A man with one leg: “My core passion” is how Derman described his work with South Africa’s Paralympic athletes. If the world imagines the likes of Usain Bolt as the paragon of athleticism, the Paralympians have taught him differently.

These athletes are able to bounce back from injury, logistical hiccups – even defeat – with unparalleled aplomb, he

added. Similarly, they can embrace victory with self-deprecating humour.

It’s work that has inspired papers that contain words you wouldn’t normally expect to see in peer-reviewed scientific journals – transcendence, acceptance, integration and resilience, aka humour.

“I think how it works is that if you can accept maybe some of the toughest hands that life can deal you, and truly are able to integrate that into your being, then the gift you’re given is one of perspective.”

Sports medicine isn’t just about sport, Derman explained in conclusion. For example, he and SchwelInus are among the authors who penned a 15-part series of articles titled *Healthy Lifestyle Interventions in General Practice* – targeting chronic diseases – for the *South African Journal of Family Practice*, between 2008 and 2011. An important North American journal now wants them to update that series for publication in the US.

“We believe that in the future, sports and exercise physicians will play a vital role in the form of comprehensive lifestyle change, which can make a very, very big impact on people’s lives and on their health.” III

INCLUSIVITY, PARTICIPATION AND DIVERSITY – KEYS TO HEALTHCARE

When he delivered his talk, *The Music of Health for All*, on 24 August, Steve Reid, professor of primary health care, tapped into his other passion: music. Not only did he use music as an analogy for his theme, he also played the piano and violin, getting the audience to participate in the performance – in order to underscore his message.

Central to Reid’s argument was the “woeful” state of health in South Africa, which he says continues to worsen. This while other middle-income countries such as Brazil and Thailand have improved on all their health status indicators, and are well on target with regard to reaching the Millennium Development Goals (MDGs) of the United Nations.

South Africa has the means, resources, knowledge and understanding to prevent, cure or reduce most of the country’s burden of disease. But it founders on some basic principles of social justice and solidarity, and a lack of the collective will to actually make the necessary changes.

“In the context of a constitution that states that access to healthcare is a human right, this is quite unacceptable. Compared to the general standard of our

clinical method with the individual patient, it is atrocious,” he noted.

Demonstrating his point through music, Reid suggested that South African healthcare should be like jazz icon Abdullah Ibrahim’s compositions – world class, but also accessible to all.

Reid explained some basic principles of primary health care by describing three themes, which he illustrated through musical items, namely inclusivity, participation, and diversity. By inclusivity, he referred to the so-called “population at risk”, consisting of those who are not ill, or do not know that they are ill. Health practitioners should extend their work beyond the patient in the sick bed to include those in the community who are not ill now, but who may fill that same bed at some time in the future. →

“We need to act in this population-at-risk area, proactively identifying those who are at greatest risk and providing them with access to prevention strategies and diagnosis, access to care as soon as possible when it is needed, and to rehabilitation and follow-up when it is called for. It’s what I call community engagement, which is also described as community-oriented primary care.”

If music is a collaborative activity, so too is participation a central component of primary health care, as shown in Brazil, Reid argued. Brazil, he explained, has implemented a system of family health teams consisting of a doctor, a nurse, an assistant nurse and between six and nine community health workers, with each team responsible for 3 000 to 4 000 people. This has significantly improved health outcomes for the whole population.

He illustrated the theme of diversity by pointing out the range of musical preferences in any group of people, and played some improvised jazz – with his brother, Matthew, on the saxophone – to demonstrate the point. He drew a parallel with

clinical practice, in which the diversity of patients needs to be acknowledged: from their cultural differences to their unique characteristics as individuals.

“We cannot achieve any progress in health without people taking responsibility for their own health, and participating in their own healing in partnership with professionals – through a balanced diet, exercise and avoiding high-risk or unhealthy habits, for example – and at a collective level, through community participation.”

He ended his address with a piano trio, *Nocturne* by Max Bruch, to illustrate the synergy of different parts in creating a whole, suggesting that this is what is needed in the health system.

“Other developing countries have shown that it is possible to reverse the trends towards greater inequality, and to actually achieve the MDGs, through courageous leadership, effective management, and civil participation around a common vision. This is what the National Health Insurance plan, announced by the Minister of Health recently, sets out to do. And it deserves the full support of us all.” III

South Africa has the means, resources, knowledge and understanding to prevent, cure or reduce most of the country’s burden of disease. But it founders on some basic principles of social justice and solidarity, and a lack of the collective will to actually make the necessary changes.

↓ Message underscored: In his inaugural lecture Prof Steve Reid called for a new perspective of primary health care, illustrated by analogies in music.





what is an inaugural lecture?

Inaugural lectures are a central part of the University of Cape Town's academic life, celebrating an important milestone in an academic career: the inaugural lecturer's appointment to full professorship.

These lectures also provide an important platform for the academic to present their body of research, much of which is funded by government, industry and other benefactors.

The lecture also provides UCT with the opportunity to showcase its academics and share its research with members of the wider university community and the general public in an accessible way, demonstrating the benefits of the research to broader society.

www.uct.ac.za/news/lectures/inaugural/2011/

