

LIMPOPO leader

NUMBER 21
AUTUMN 2010

DISPATCHES FROM THE UNIVERSITY OF LIMPOPO



WORLD CUP COULD BRING NEW VIRUSES —

Medunsa virologists are on the ball

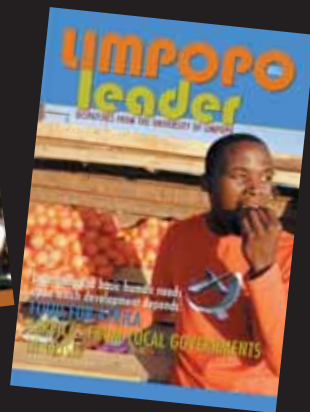
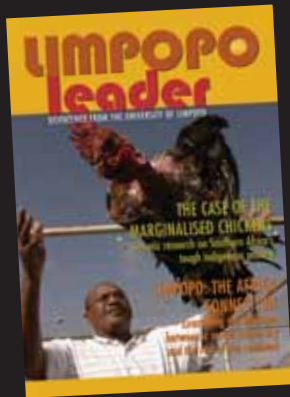
HUMAN GENOME SEQUENCING —

Turfloop's involvement in state-of-art research

What have you been reading lately?

SUBSCRIBE SUBSCRIBE SUBSCRIBE

to *LIMPOPO LEADER* and be informed by the province's most dynamic magazine



Students SUBSCRIBE NOW and SAVE 50%

Subscribing to *Limpopo Leader* magazine for ONE YEAR costs just R50 per annum for Students & R100 per annum for Alumni and local subscribers!

- **Student subscriptions** MUST include your **student number**
- Subscribe by post and include your proof of payment
- Subscriptions can be paid directly to **DGR Writing & Research's** account
- Or by cheque made payable to **DGR Writing & Research**
- Proof of payment FAXED with subscriber's full details to: (+27) 011 782 0335

Account Details:

Bank: Standard Bank
Branch: Melville
Branch Code: 00-61-05
Account Number: 002 879 336
Account Name: DGR Writing & Research cc
Reference: Subs/(+ your initials & surname)

Contact: Clare-Rose Julius

Tel: (+27) 011 782 0333 **Fax:** (+27) 011 782 0335 **Cell:** 072 545 2366

Email: info@developmentconnection.co.za

PO Box 2756, Pinegowrie 2123, Gauteng, South Africa

LETTERS TO THE EDITOR

PREFERENCE WILL BE GIVEN TO SHORT LETTERS. Aim for a maximum of 100 to 150 words or expect your epistle to be edited. Please give contact details when writing to us. No pseudonyms or anonymous letters will be published.

ADDRESS YOUR LETTERS TO:

The Editor *Limpopo Leader* PO Box 2756 Pinegowrie 2123 South Africa
Fax: (011) 782-0335 E-mail: dgrwrite@iafrica.com

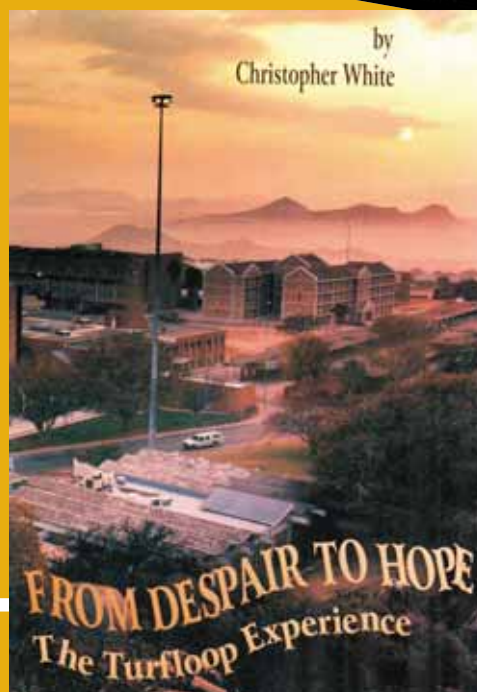
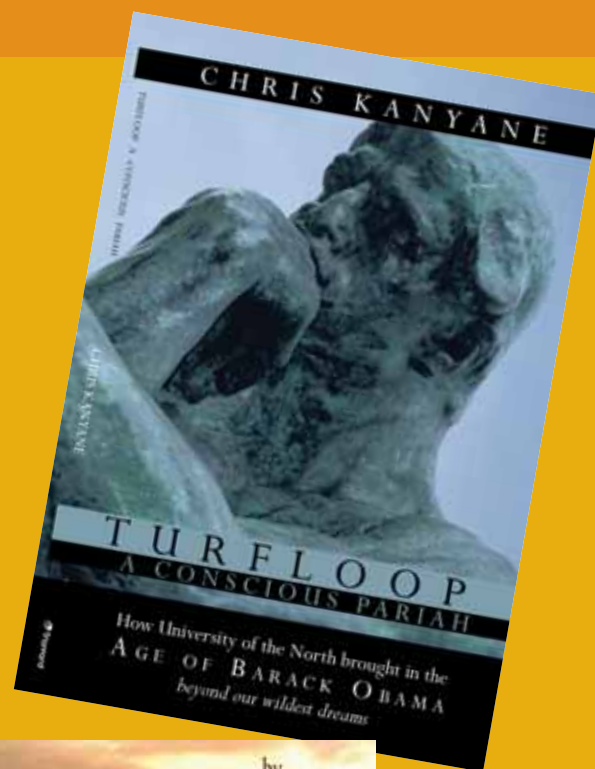
THE LETTER:

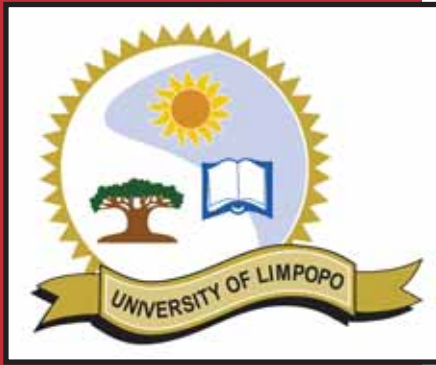
SOUTH AFRICA IS MY HOME. I've been talking to Chris regarding his book about Turfloop. It is clear that his inspiration and influence is 110% derived from the magazine written for what is today called the University of Limpopo. The book's website is www.turfloop.com. I am in a foreign land now, but I am assisting Chris's book here in the United States. I'm doing it as a hobby in my spare time. People here in US enjoy reading a lot, unlike there at home.

Phumla Mkhize
Somewhere in the USA

THE EDITOR REPLIES: *We appreciate the vote of confidence given to Limpopo Leader. The book to which Phumla Mkhize refers is Turfloop – a Conscious Pariah by Chris Kanyane, published earlier this year. It has an intriguing subtitle: 'How the University of the North brought in the age of Barack Obama beyond our wildest dreams'. It's good to learn that the University of Limpopo is being promoted and read about in America. Do readers remember that other book about Turfloop, also written by a Chris? I'm referring to From Despair to Confusion – the Turfloop Experience by Christopher White. Published in 1997, it analyses the failures of the apartheid education system, particularly as it related to the university at Turfloop, and provides a context for the new directions being pursued by the University of Limpopo today.*

Books are permanent records. Do readers have any comments regarding either of these two? Write to us and we'll publish your views.





LIMPOPO LEADER is published by the Marketing and Communications Department, University of Limpopo, PO Box X1106, Sovenga 0727, Limpopo, South Africa. HYPERLINK "<http://www.ul.ac.za>" www.ul.ac.za

EDITOR: David Robbins.
Tel: 011-792-9951 or
082-787-8099 or
dgrwrite@iafrica.com

ADVERTISING:
Clare-Rose Julius
Tel: 011-782-0333 or
072-545-2366

EDITORIAL COMMITTEE:
DK Mohuba (chairman)
Daphney Kgwebane
David Robbins
Gail Robbins

ARTICLES:
by JANICE HUNT – pages 8, 11,
13 & 16

PHOTOGRAPHS:
by LIAM LYNCH – cover,
pages 10, 11, 13 & top 23
by DAVID ROBBINS – pages 7,
28 & 29

by PictureNet – pages 19 & 21
by MEDUNSA CAMPUS –
pages 16, 17 & 18
by the office of ARCHBISHOP
TUTU – pages 23 & 25

DESIGN AND LAYOUT:
Sarita Rheeder-Rosa
JAM STREET DESIGN (Pretoria)
PRINTING: Colorpress (pty) Ltd
PRODUCTION MANAGEMENT:
DGR Writing & Research
Tel: 011-782-0333 or
082-572-1682 or
www.dgrwriting.co.za

ARTICLES MAY BE REPRINTED
WITH ACKNOWLEDGEMENT.

ISSN: 1812-5468

EDITORIAL

HERE'S LIMPOPO LEADER'S 2010 WORLD CUP EDITION, COMPLETE WITH A FOOTBALL ON THE COVER. Accompanying the football is a virologist – Dr Thanda Kyaw – from Medunsa's Department of Virology, who has been talking to health professionals for months on the potential viral dangers that need to be factored into South Africa's response to the exciting sports events planned for this winter. New viruses will be imported into the country by the visitors, the visitors will be vulnerable to our local viruses, and the reality of crowds would certainly not inhibit the transmission of viral infections. Read Dr Kyaw's fascinating story on page 13. Actually, it's one in our eight-page coverage of the Virology Department: some of the people involved, some of the research, and some of the postgraduate successes.

Extensive coverage has also been accorded to the University of Limpopo's link to advanced human genome sequencing research. Central players in this exciting series of events have been Professor Philip Venter, a human geneticist working on the Turfloop campus, Archbishop Desmond Tutu, and a prominent South African molecular geneticist now living in Ausatralia. Scientists freely refer to the human genome sequence as 'the complete blueprint for building a human being'. The ability to unlock such detailed information has huge implications for mapping our genesis as human beings, our interconnectedness with each other, and not least our understanding of diseases and their evolution in various ethnic and racial groupings. Involvement in such a project brings the university, and the entire southern African region, into the scientific, and especially the pharmacological, mainstream.

There's also coverage of the institutional audit that will take place throughout the year and culminate in September; as well as profiles of the two winners of the 2009 Onkgopotse Tiro Excellence Awards – and an introductory piece on Tiro himself.

Finally, a word about our Reader Survey. We've been disappointed by the response. A few people have responded, and some useful remarks have been made. We had planned to share these with readers in this the Autumn 2010 edition, but the demand for space from other aspects of our coverage – and some additional advertising – has prompted us to delay our Survey coverage to *Limpopo Leader 22*. The good news here is that this gives readers another six weeks to make their response and help us to make their magazine even more absorbing than it currently is. PLEASE SEND IN YOUR COMPLETED SURVERY FORMS WITHOUT DELAY.

NEXT ISSUE

THERE'S A NEW WIND BLOWING THROUGH BOTH CAMPUSES OF THE UNIVERSITY OF LIMPOPO. It's chief characteristic is a determination for excellence and efficiency. So we'll be homing in on the Centre for Academic Excellence and on the recently installed student mentoring programmes (already touched on in the article on page 16 of this current edition), as well as the new support structures being put in place for postgraduate students. All this is part of the long road from a previously disadvantaged institution to a place in the front rank of South African universities generally.

IN THIS ISSUE

cover picture:

Dr Thanda Kyaw from the Medunsa-based Department of Virology uses a football – appropriate for South Africa's World Cup year – to demonstrate the essential characteristics of viruses.

page 4:

The university audit. **ANOTHER STEP ON THE ROAD TO EXCELLENCE.** Meet Dr Abbey Ngoepe

page 8:

Virology. **VIROLOGY KEEPS ITS RESEARCH RELEVANT TO SA'S NEEDS.** Meet Professor Jeffrey Mphahlele

page 11:

Virology. Meet Dr Zinhle Makatini. **SA'S FIRST BLACK CLINICAL VIROLOGIST IS MAKING A DIFFERENCE**

page 13:

COVER STORY. Virology: **KEEPING VIRUSES OFF THE FIELD DURING THE WORLD CUP**

page 16:

Mentoring: **STUDENTS SUPPORTING STUDENTS – SUCCESSFULLY.** Mentoring takes hold at the University

page 19:

Genetics: **CUTTING-EDGE GENETICS AND THE UNIVERSITY OF LIMPOPO**

page 22:

Genetics: **HOW DID THE UNIVERSITY BECOME INVOLVED?** And will it lead to a world-class genetics research centre for Limpopo?

page 25:

Genetics: **TUTU SPEAKS.** The Archbishop is the first African to undergo detailed genome sequencing procedures

page 27:

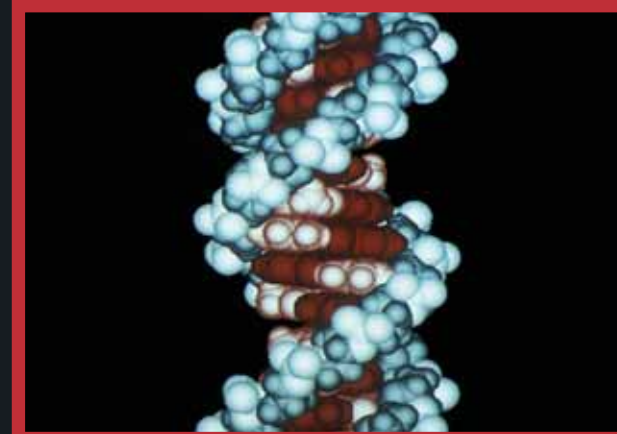
The Tiro Awards: **THE LEGACY OF ONKGOPOTSE TIRO**

page 29:

The Tiro Awards: Judge Monica Leeuw, **A CHAMPION FOR GENDER PARITY IN THE JUDICIARY**

page 31:

The Tiro Awards: Jabu Mabuza, **FROM DROPOUT TO CHIEF EXECUTIVE OFFICER**



The University's Audit Year

ANOTHER STEP ON THE ROAD TO EXCELLENCE

'THE PENDING INSTITUTIONAL AUDIT WILL ADD MORE VALUE TO OUR UNIVERSITY. It will provide comparisons, via national and international benchmarks and standards, with the best institutions in the land and elsewhere. It will keep us on our toes. It will definitely enhance our future efforts. And it has the power to do this by laying a foundation upon which confidence in the institution can be built; and of course, without confidence, the university will attract little support.'

This is the opinion of Dr Abbey Ngoepe. He's Director of Quality Assurance at the University of Limpopo. His office is situated on the Turfloop campus, but his responsibility extends across both main campuses and all satellite campuses. And it certainly does so in his added role as co-ordinator of the extensive preparation required for the university to undergo this institutional audit.

Such an audit is required by the provisions of the Higher Education Act of 1997. According to this legislation, higher education institutions are responsible for their own internal quality assurance, but under the jurisdiction of a national body, the Higher Education Quality Committee (HEQC), which is a

permanent committee of the Council on Higher Education (the CHE), the supreme authority responsible for policy advice, including quality assurance matters, to the Ministry of Higher Education and Training.

HEQC institutional audits across the higher education sector began in 2006, and are supposed to take place at each university approximately once every six years. But those institutions – like the University of Limpopo – affected by restructuring through mergers and incorporations have been left until last to allow extra time for the mergers to settle and take effect. In fact, the University of Limpopo, with one of the most complex and difficult mergers undertaken anywhere in the country, will be among the last of the 23 public universities in South Africa to be audited.

The HEQC's institutional audit is a complex procedure, and culminates in an official visit by an independent external panel of educational experts appointed by the HEQC. The official audit visit to the University of Limpopo will take place over the week beginning on Monday 27 September and ending on Friday 1 October 2010. But there's a huge amount to do

before the actual visit takes place. Just how huge can be seen from the tasks outlined in the Institutional Audit Project Plan that was prepared by Ngoepe last year.

To begin with, a steering committee needed to be appointed. This was established last July under the chairmanship of Professor Peter Franks, Deputy Vice-Chancellor: Academic and Research. Then ten committee members are: the Deputy Vice-Chancellor from the Medunsa campus, the university Registrar, the four Executive Deans, the Executive Director of the Centre for Academic Excellence, and the various directors of Quality Assurance, Institutional Planning and Research.

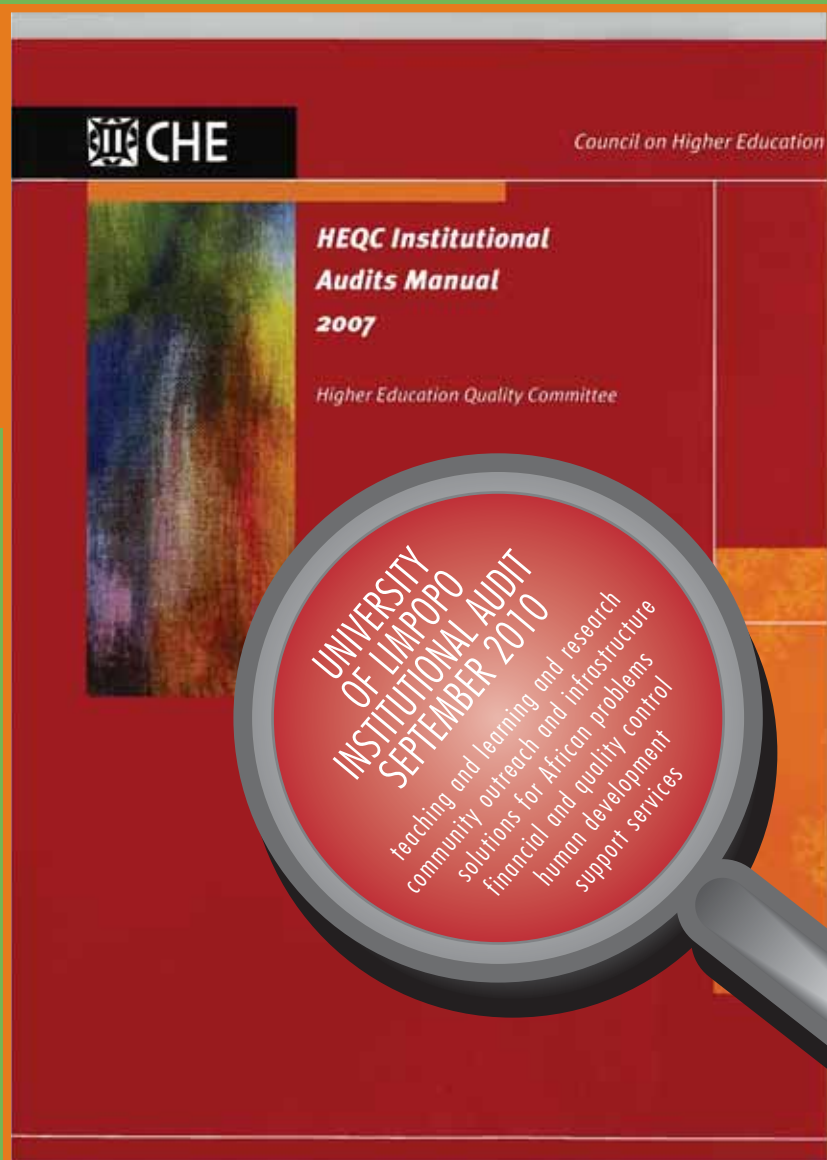
Then a set of working groups was set up to deal with the 19 audit criteria that the HEQC has laid down, and upon which the assessment will be based. These criteria shine a spotlight onto the effectiveness of the university in terms of its triad of focuses that constitute its core business, namely teaching and learning, research, and community engagement.

Look at these examples of the criteria set by the HEQC:

- Criterion 1: *The institution has a clearly stated mission*

and purpose with goals and priorities which are responsive to its local, national and international context and which provide for transformational issues. Are there effective strategies in place for the realisation and monitoring of these goals and priorities? Are human, financial and infrastructural resources available to give effect to them?

- Criterion 2: Objectives and mechanisms for quality management are integrated into institutional planning. Is financial planning such that it ensures adequate resource allocation for the development, improvement and monitoring of quality in the core activities? Are there regular reviews of the effectiveness and impact of the integration of the mechanisms for quality management with institutional and financial planning?
- Criterion 4: Academic support services (eg library and learning materials, computer support services, etc) adequately support teaching and learning needs and help to give effect to teaching and learning objectives.
- Other criteria focus specifically on finances, institutional



planning, human resources, research, as well as on the Executive Deans and their respective faculties.

What is significant about the institutional audit is that it is based on a self-evaluation report. In other words, how does the University of Limpopo rate itself in relation to the HEQC's 19 criteria? The most critical thing here, says Ngoepe, is the evidence given to support and validate the self-evaluation.

'Documentary evidence serves as a basis upon which a self-evaluation portfolio is developed and validated,' he explains. 'In accordance with the HEQC

institutional audits manual, the evidence is classified into four main categories: strategic, governance, core functions, and faculty and support services.'

The strategic evidence includes the university's current Strategic Plan, its Institutional Operating Plan, the Programme Qualifications Mix and the overarching Academic Structure. The governance arrangements are presented in the Standard Institutional Statute, the University Rules, and an organogram that outlines the senior management structure and the various administrative and academic divisions aligned to each position contained in the organogram.

The University's Audit Year

ANOTHER STEP ON THE ROAD TO EXCELLENCE

The core functions come in the form of the annual Institutional Calendar (from 2007 to 2009), the annual Institutional Reports (including reports on student access and throughput and graduation rates, the university's policies and procedures, general admission requirements, its policy on the recognition of prior learning, its short courses policy and the policy on academic quality assurance, as well as research policies and procedures, including the Research Strategic Plan.

All this – and more – represents a huge amount of documentation that must be collated into the self-evaluation audit report. For Dr Ngoepe it's virtually a full-time job for most of the coming year. He explains that the self-evaluation audit report, plus the mountains of supporting documents, is then presented to the audit team in time for the site visit.

'We have an opportunity to influence the makeup of the external audit team. It's going to be extremely important that we have people from other historically disadvantaged institutions, people who have gone through an institutional merger, and people who know what it means to teach students from the rural education system with all its built-in disadvantages and potential for under-preparedness.'

Ngoepe explains that after the audit team's visit, a report will be generated that, as its main feature, provides a list of commendations dealing with those aspects of the institution that are sound, and a parallel list of

recommendations to identify weaknesses and gaps in the way the university runs its business.

'Flowing from this report,' explains Ngoepe, 'the HEQC will expect us to formulate sustainability plans to support those elements of our business which are good, and improvement plans – short, medium and long term – designed to improve matters in our areas of weakness.'

'Yes, it's a huge, ongoing and exciting task. But it's going to be crucial for enhancing and sustaining our effectiveness into the future. There are some who complain of increased workloads and overregulation,' Ngoepe says. 'But we must never forget that we're spending taxpayers' money here. Full accountability is essential. The institutional audit and the legislation behind it force us to be accountable. It does more than that besides. It gives the institution as a whole an opportunity to excel and to be recognised for our excellence – and also for our responsiveness to suggestions for improvement, not to mention our determination, if necessary, to do more with less. It's difficult to calculate the dividends that could accrue from such a reputation. In fact, the level of such dividends from all sorts of quarters could decide the difference between a reasonably good higher education institution and an excellent one.'

The choice, says Ngoepe, lies in the hands of the university itself.

MEET THE MAN IN CHARGE

HE'S IMMACULATELY DRESSED AND FASTIDIOUSLY POLITE. In fact, Dr Abbey Ngoepe is an altogether charming and engaging man. Beneath this general exterior, however, are substrata of resolve and commitment that are impossible to ignore. Such characteristics are essential to the responsibilities of Director of Quality Assurance at the University of Limpopo.

The characteristics are certainly in evidence in, and lend credibility to, Ngoepe's central statement – his premise or starting point, he calls it – about quality.

'My premise,' he insists, 'is that the maintenance of quality assurance is not about compliance. Compliance implies raising one's game for the special occasion – like institutional audits. Rather, quality assurance should be about best practices that we should strive to achieve on a sustainable basis. If this is the target, then quality assurance becomes embedded in the systems and practices being used; and, finally, embedded in the ethos and culture of the institution itself, particularly in its core business. That is what I am striving for in my current position – this embeddedness.'

Where does this extraordinary commitment and determination originate?

Ngoepe himself talks about his origins at GaMatlala, a rural settlement about 80 kilometres west of Polokwane. 'I come from a humble but solid family,' he

says. 'This provided me with a firm emotional foundation – and also served as a strong base for my later academic achievements. Like any other boy growing up in a rural area, I was involved in all the chores associated with a rural environment, such as herding my father's cattle.'

His academic achievements were considerable. By the mid-1980s, he was a young student at the University of the North (now the University of Limpopo) and in 1989 he had completed his first degree, a Bachelor of Arts in Education. This was followed the following year with a full B ED degree.

He then began work as a high school teacher, while continuing his studies part time through Unisa. The result was a BA Hons degree in History and a job as part-time lecturer in the Department of the Philosophy of Education at Turfloop.

Ngoepe has stayed with his alma mater throughout his career, lecturing in educational studies until 2005 when he took up his current position as Director of Quality Assurance. But his own studies never ceased. By 1997 he had achieved a Masters in Education from Unisa. In 2006 he completed a Certificate in Higher Education Management at Wits, and a year later he was awarded his Doctorate in the field of Educational Leadership and Policy at the University of Nottingham in the United Kingdom.



Dr Abbey Ngoepe

He has put his fundamental value system (learned from his rural family upbringing) and the depth of his studies (from a variety of tertiary education institutions) to extensive use. His CV contains several pages that outline his activities outside the lecture hall and seminar room. But it is his behind-the-scenes work relating to the merger of Turfloop and Medunsa that is perhaps most relevant to the challenges associated with being the co-ordinator of the merged university's pending institutional audit.

Since 2005, Ngoepe has been involved in the University of Limpopo merger process, either as co-ordinator or task team member, in many areas, including:

- The development and approval of academic policies and procedures
- The merging of quality

assurance systems of the institutions being merged, according to Higher Education Quality Committee guidelines

- The development and approval of the policy and procedure relating to the appointment and promotion of academic staff
- The technical task team responsible for the development of a draft statute for the merged university
- The development of the new academic structure for the merged university

'Having helped to create the merged university,' Ngoepe says, 'my task now is to ensure that it is represented in the best possible light to the scrutiny that the institutional audit implies. I am determined to do the university proud in this process.'

Virology

VIROLOGY KEEPS ITS RESEARCH RELEVANT

RESEARCH IS CREATING NEW KNOWLEDGE, SAID ASTRONAUT NEIL ARMSTRONG. According to this premise, the Department of Virology at Medunsa is exceptionally creative. Research is fundamental to its core purposes and is taken very seriously at all levels.

The department has the recognition to back its positioning: it has achieved top prize for the 'Most Committed Department' at Medunsa's Academic Research Day six times since the award was introduced in 1994. That's more than any other single department has achieved.

Head of Department since 2005 is Professor Jeffrey Mphahlele, who is justifiably proud of his department's contribution to the university – and to medicine.

Virology's responsibilities are four-fold: teaching and training; research; community engagement; and providing a pathology service to the Dr George Mukhari Hospital (DGMH) and surrounding clinics in Gauteng, as well as serving as a tertiary referral laboratory for Limpopo, North West and Mpumalanga. All are key to Virology's activities.

Teaching and training is provided to undergraduates in the allied health sciences, dentistry, and medical students, as well as to postgraduate honours, MSc Med, MMed and PhD students. The department also contributes to the Research Methodology course run by the university's research office.

Research is the sector that's earning significant kudos, funding and awards for the department – through its own endeavours and those of its two high-profile research centres of excellence – the MRC Diarrhoeal Pathogens Research Unit (DPRU) and the HIV and Hepatitis Research Unit (HHRU). A quick skim through the 2009 departmental annual reports gives an idea of the intense and productive levels of activity prevalent across all sectors. Last year, of the department's 48 staff members, nine were involved in research in the department itself, with a further 15 involved in research in the DPRU and seven in a vaccine trial.

35 projects are under way across the department's and its unit's activities and include PhD, MSc Med, MMed, and BSc (Med) (Hons). Three research articles were published in the last year by HHRU and 17 by the DPRU. 12 papers and posters were presented at local and international conferences and seminars by Virology and 22 by DPRU.

Awards granted to the department last year included the Abbott Award presented to Pieter Bos for innovative research and development in the field of virology; a best poster presentation award to Andronica Rakgantso at the MRC Research Day; and Mphahlele's prize for 'Researcher with the Largest External Grants in the School of Pathology' at the 5th UL Academic Day, as well as the 'most committed department' award in the university.

'The department's successes are accomplished in conjunction with the units, which are achieving recognition on a global scale because of the groundbreaking research work they are producing,' explains Mphahlele.

In fact, based on work done by the DPRU, a rotavirus vaccine was rolled out nationwide last year to children that has the potential to reduce childhood deaths. South Africa was first to pioneer the introduction of rotavirus vaccine in Africa; and first with pilot introduction in September 2008 in the Eastern Cape, followed by the nationwide rollout.

The DPRU's history leads it to this tremendous highlight in its timeline. The unit started as a laboratory for rotavirus research in 1980 and attained Unit status in 1996 when it became the first MRC Unit at an historically disadvantaged institution (HDI). It's still the only MRC Unit in an HDI. The major focus of the DPRU is to address a diarrhoea caused by rotavirus in Africa – a disease that was under-researched but was claiming the lives of more than 500 000 children annually (www.rotavirusvaccine.org). Most deaths occur in developing countries where

TO SOUTH AFRICA'S NEEDS

access to treatment is limited; but states the website, almost every child in the world will suffer a rotavirus infection before age five.

A rotavirus vaccine was identified as one of the ways to contribute towards global achievement of Target 4 of the UN's Millennium Development Goal no. 4, to '*reduce by two thirds between 1990 and 2015, the under-five mortality rate*'. The research undertaken at the DPRU provided the Department of Health (DoH) with the expertise to prioritise the proposed introduction of a rotavirus vaccine by the Expanded Programme on Immunisation to prevent childhood morbidity and mortality.

'These trials revealed some interesting results,' notes Mphahlele. 'Co-administration of oral poliovirus vaccine with the vaccine trial demonstrated that the vaccine (RotaRix) is well-tolerated and immunogenic in infants and in HIV-infected infants. The clinical trials showed an efficacy of 61.2 percent in preventing severe rotavirus diarrhoea in SA and Malawi. And finally, the studies helped to create an awareness of the burden of rotavirus on our healthcare system, to paediatricians, the community at large and policy makers. This is research with relevance at its best.'

Mphahlele says that based on these results, the WHO's Strategic Advisory Group of Experts recommended in 2009 that the rotavirus vaccine should be included in all national childhood vaccination programmes of developing countries. The DPRU serves as WHO Regional Rotavirus Reference Laboratory and hosts Annual Training Workshops at Medunsa in partnership with WHO. The Unit has also pioneered establishment of the African Rotavirus Surveillance Network (ARSN), which systematically creates regional awareness of the burden of rotavirus disease, facilitates collection of data, skills development, and training of regional scientists. 'This collaboration is supported by WHO and partners and has been ongoing for nearly 10 years with the collection of

data and training of scientists from many African countries,' he adds. During this period, the DPRU organised nine workshops and trained 51 participants from 19 African countries. The ninth ARSN training workshop was held in May 2009, with nine participants from Cameroon, Ethiopia, Kenya, Senegal, Tanzania, Togo, Uganda, Zambia and Zimbabwe. These collaborative efforts supported by WHO has resulted in 93 publications.

The second research unit within the Department of Virology is the HHRU, which is involved with viral hepatitis prevention and control studies, co-infection of chronic hepatitis viruses with HIV, as well as basic HIV research as part of the SA Aids Vaccine Initiative (SAAVI). The research findings provided baseline information and resource materials for the DoH to include hepatitis B vaccine as part of a universal childhood immunisation programme in April 1995. The HHRU still serves as the major resource centre for issues relating to prevention and control of viral hepatitis in Africa. Recent research projects in the unit include studies to assess how the hepatitis B vaccine is performing in the public sector, including prevention of early childhood infections in HIV-positive babies.

As part of community-related services and engagement, Virology, in collaboration with the Departments of Nursing Science and Medical Microbiology, School of Public Health, and University of Antwerpen, Belgium, formed a partnership with the DoH that aimed to develop a centre of excellence on Vaccines and Immunisation – the SA Vaccination and Immunisation Centre (SAVIC) – which was acknowledged by the Minister of Health, Director General of DoH, and UL's Executive Management, and of which Mphahlele is Head and Scientific Co-ordinator. SAVIC's mission is to improve the health of future generations by strengthening immunisation programmes and services in southern Africa. SAVIC has organised symposia and workshops, and hosts a WHO Vaccine

Virology

VIROLOGY KEEPS ITS RESEARCH RELEVANT TO SOUTH AFRICA'S NEEDS

Safety Network accredited website (www.savic.ac.za).

The Virology Pathology Laboratory serves DGMH and surrounding private and public clinics with both routine and advanced virology pathology services,

and also serves as a teaching laboratory for medical technologists and registrars in Virological Pathology, Clinical Pathology, and Chemical Pathology.

VIROLOGY'S MAN AT THE HELM



Professor Jeffrey Mphahlele

IT'S NOT EASY PERSUADING PROFESSOR JEFFREY MPHAHLELE TO TALK ABOUT HIMSELF. He's far quicker to talk about his department – and its myriad of activities and achievements.

The Virology Department has been a part of his life for about 17 years now. He joined the Department of Microbiology as Junior Lecturer in 1994, having obtained his BSc Med Honours (Medical Microbiology) at Medunsa in 1993. His first degree, BSc (Biological Sciences), was obtained at Wits University in 1992. Mphahlele then went on to achieve his MSc (Medical Virology) in 1995 and his PhD (Medical Virology) from Medunsa in 1999.

Initially, Virology functioned as a division within the Department of Microbiological Pathology, but in 1993 it achieved full departmental status. Mphahlele became Research Assistant in the department in 1994 and Medical Natural Scientist a year later.

Then in 1997 he joined the Institute of Virology, University of Glasgow, Scotland, as a Visiting Research Fellow for 18 months, after which he returned and joined the Department of Medical Sciences, University of the North, as Part-time Lecturer, followed by an 18-month stint in the same post for the Department of Microbiology at the University of Venda.

One of the highlights that Mphahlele identifies in his career is successfully training and supervising postgraduate students at PhD, MSc, Honours and undergraduate levels since 1995. Overall, there have been six PhDs, 21 MSc and MPH students, 14 BSc Hons and eight BSc students. Of that number, seven are ongoing and all but one of the rest have graduated.

But what it's really all about for this man is making a contribution. And that's what he does.

SA'S FIRST BLACK CLINICAL VIROLOGIST IS MAKING A DIFFERENCE



DR ZINHLE MAKATINI'S STORY IS A GOOD ONE. It's one of determination and hope – and hope is what she constantly strives to inspire in young women from disadvantaged backgrounds in South Africa.

Makatini (no h's in her name; she dropped them after several years of battling with the spelling in Britain) is South Africa's first black clinical virologist. It's an achievement she is proud of because it has been a long road from the Durban township of Lamontville where she was born 40-something years ago.

Her family was poor, but her mother would never let that be an excuse for not reaching dreams. Displaying the determination that her daughter no doubt inherited, Makatini's mother encouraged her four daughters to be achievers, to be creative, and to recognise that regardless of what the ruling regime dictated, 'you are equal to anyone; you are not above them, you are not below them'. She had sayings that Makatini has kept with her and still repeats to herself when facing life's obstacles, such as, 'Whatever the mind of man may conceive, the will of man may achieve' – quoting Shakespeare's character Prospero in *The Tempest*.

Dr Zinhle Makatini

SA'S FIRST BLACK CLINICAL VIROLOGIST IS MAKING A DIFFERENCE

At age 15, Makatini's potential was spotted by Quakers, who were giving disenfranchised black girls opportunities to study in the USA. She duly went to Poughkeepsie in New York State to do her last two years of high school with the Quakers. Was it hard? No, she says, the Quakers were very caring and it was a wonderful experience.

Thereafter – by now it was the early 80s – Makatini decided to stay in the US and work for the ANC in New York. Still with the ANC, she moved on to Sweden and then London. By then she was ready to embark on a new chapter in her life and she completed her BSc (Biochemistry) and a Masters in Immunology at the University of London.

'I always wanted to be in medicine and the opportunity to pursue this dream came when I was accepted by the University of Sheffield to do a medical degree. Once I achieved that, I worked in Scotland and England for a while, concentrating on infectious diseases. This also included a stint running a travel clinic,' she says.

In 2000, Makatini returned to South Africa and joined the National Institute of Virology – now the National Institute of Communicable Diseases – where she worked for more than three years.

Then she was approached to get involved with a collaborative effort to run clinical trials on HIV by the USA's Bethesda Naval Health Centre, the US Defence

Force and the SA National Defence Force. That was the start of the Phidisa Project, a clinical research project focused on the management and treatment of HIV infection in the uniformed members of the SANDF and their dependants. It was one of the largest clinical trials in the country and Makatini was Project Manager and Head of the Laboratory.

After three years she joined the Department of Virology at Medunsa to do her Clinical Virology exams, which she completed in 2008. She says she chose Medunsa because – apart from Virology's good reputation – she wanted to be in an environment where it would mean something to say, 'I have done it. You can too!' She wants to inspire youngsters to put excuses aside and to work towards achieving their dreams. 'It should be easier for them than it was for me because I'm so much older,' she smiles. Quips aside, Makatini feels very strongly about education and the opportunities it offers to previously disadvantaged youngsters (or not so youngsters!).

Having joined the small and elite group of Clinical Virologists in South Africa, Makatini has set her sights on the niche area of HIV drug resistance. In this field, she applied for funding and won the Fellowship Award from Discovery Health, a R750 000 grant to continue research, and a further R500 000 from the Department of Science and Technology.

As a trained clinical specialist and a scientist, Makatini is in the unique position to be able to wear all the caps needed for the successful progress of the trial – from seeing patients and extracting blood, to conducting the resistance tests and then analysing the results and advising doctors. Apart from the benefits of managing the whole process herself, Makatini does add wryly that budget doesn't yet allow for someone else to join the project, but that efforts were being made to source further funding. 'The fact is,' she states, 'this research is in line with the national strategic objectives in health.'

Makatini's career growth in research has also seen her appointed to sit as a member of the Medicines Control Council's - Clinical Trial Committee.

She believes that Medunsa – and UL as a whole – can play a key role in providing valuable research information that can be of great benefit to HIV health care in the future. 'We can be the leaders in this field; we have the platform and the skills to accomplish it. We can make a fundamental contribution. We just need to focus.'

Thus speaks determination with more than a soupcon of hope for a better future – and the ability to contribute towards it.

Virology COVER STORY

KEEPING VIRUSES OFF THE FIELD DURING THE WORLD CUP

IT SEEMS APPROPRIATE; PARTICULARLY NOW ON THE EVE OF THE 2010 SOCCER WORLD CUP; THAT ONE OF THE MOST COMMON STRUCTURES OF THE VIRUS – THE ICOSAHEDRON – IS A GEOMETRICAL SOLID, OFTEN RECOGNISABLE AS A SOCCER BALL STRUCTURE. It has 12 vertices, 20 faces, and 30 edges. Its behaviour, however, cannot be deemed as predictable as the soccer ball's!

'Viruses are well-known for their ability to adapt to the environment they're in and can change their genetic structure very quickly,' says Dr Thanda Kyaw (pronounced Chaw), Senior Lecturer and a Clinical Virologist (Pathologist) in Medunsa's Department of Virology and with the National Health Laboratory Service. 'Their potential to develop a new, novel virus that can emerge as a serious human pathogen is a constant threat.'

It's facts like these, and many others, that fascinate her. Her passion for virology spreads into the realm of teaching where her love of medicine as a whole is being shared with lay people, healthcare workers, and students alike. Kyaw has been presenting a talk to various interest groups on the topic of 'The World Cup and Viruses' for some months now.

It's viral threats – apart from the general trauma and injuries that are likely to occur during the World Cup – that she believes the healthcare sector must be aware of. 'Infections could present as outbreaks or as sporadic cases and the overcrowding that occurs during tournaments will favour the spread of infections. Infectious agents not usually seen in South Africa could possibly be imported with the influx of visitors, and visitors are likely to be exposed to infectious agents already circulating in this country.'

'Although the times and places of likely threats are uncertain, the healthcare sector needs enough knowledge to be able to make appropriate decisions on how to handle these infections before the threat is imminent,' she explains.



Dr Thanda Kyaw

Virology COVER STORY

KEEPING VIRUSES OFF THE FIELD DURING THE WORLD CUP

Kyaw has been talking to groups of environmental health officers, emergency services workers, students, and at local hospitals, tackling all the likely viral threats.

‘Important viral pathogens to focus on for the event are respiratory and gastroenteritis viruses, as well as sexually transmitted infections. ‘Zoonosis and haemorrhagic fever are also included as potential threats because of their tendency to cause serious outbreaks.

Of particular importance during the World Cup and something that has been raised as a point of concern in government and healthcare circles, is the globally spreading pandemic influenza A H1N1 – known to lay people as ‘swine flu’.

Immunisation against the virus is considered safe with no serious side effects and, at this stage, SA’s Department of Health has allocated H1N1 vaccine for frontline health workers, HIV-positive children under the age of 15, pregnant women and people with chronic lung and heart problems. ‘The healthcare sector also needs to strengthen infection prevention and control practices to prevent nosocomial infections as a matter of some priority,’ adds Kyaw.

Another flu virus that needs careful monitoring is avian H5N1. The virus is highly pathogenic and mortality rate in humans can reach 40%. At this stage WHO reports that a total number of 489 cases have been reported worldwide, of which 289 have resulted in death. While the virus has not yet developed efficient human-to-human transmission, Kyaw advises that healthcare professionals be aware of the potential transmission of this flu from migratory water birds and land poultry to humans.

Kyaw’s careful research into viral threats during the World Cup has taken her into the realm of food and water-borne viruses. ‘Catering for large crowds can encourage contamination of food and water if special precautions aren’t taken.’ Culture negative gastroenteritis is mostly due to viruses, such as rotavirus, which can cause severe gastroenteritis in babies, children and adults.

There are more viruses, including many sexually transmitted viruses (such as HIV, hepatitis B and C, herpes simplex, and human papilloma virus), various haemorrhagic fever viruses (Lassa fever, Rift valley

fever, Crimean-Congo haemorrhagic fever, dengue fever, and others). Kyaw believes that increased vigilance will prevent further transmission of viral infections during the World Cup.

Kyaw is Burmese by birth and South African by naturalisation, having come here to work and further her studies in the early 90s. Her qualifications include MBBS (Bachelor of Medicine and Bachelor of Surgery) from the Institute of Medicine in Rangoon, Burma, in 1982; a Diploma in Tropical Medicine and Hygiene from the School of Pathology at Wits University in 2003; a Fellowship of Colleges of Medicine, Pathology (Virology) in 2007; and Master of Medicine (Virological Pathology), from Medunsa in 2008.

Her work experience included nine years as a family practitioner in Danabyu in Burma until January 1992, when Kyaw came to South Africa with her family to work as Principal Medical Officer at Dr Machupe Mphahlele Memorial Hospital in Limpopo province. From 1996 to 2001, Kyaw worked as a Principal Medical Officer at Pretoria West Hospital.

Kyaw’s interest in virology had been growing as steadily as the subject itself. Until the 80s, it had largely been the domain of scientists, but steadily – particularly with the global explosion of HIV – the need for clinicians within the discipline was being recognised. ‘The combination of clinical experience and scientific knowledge of virology is successful in research. This branch of virology is still new though, and at this stage, there are only about 20 clinical virologists in South Africa.’

Kyaw joined Medunsa’s Department of Virology at the end of 2001. ‘In those days there was no structured course for clinical virologists here, so I had to learn from others in the field.’ Kyaw subsequently developed a structured course for clinical virology, which produced a registrar in 2008.

In Kyaw’s current research, she is placing extensive focus on the study of latent infections – lingering infections that can lie dormant in the body for a while but then under certain conditions, may become active – or ‘jump out’ as she aptly describes it. ‘The body can’t fight back because the immune system wasn’t aware of the infection and did not develop the mechanism to clear it out.’

This interest has taken her to CMV – human cytomegalovirus – and its activity among immunocompromised patients such as post-transplant patients, those undergoing chemotherapy, as well as those who are HIV positive, and new-born babies. 'CMV is serious in Africa where we have an 80-100 percent prevalence of the virus.' Kyaw is hopeful that her research will contribute to the development of policy guidelines on the management of CMV.

'In my research, my interest is in studying the science behind human suffering; if we know the science, we can determine the cause of the suffering

and thus treat it.' Her down-to-earth approach extends to her teaching as well. 'I tell my students that medicine is one of the easiest subjects to study,' she states. 'Your own body is your reference book and it's a subject that has been endlessly researched and documented. There are so many other fields that deal with sectors that are as yet unknown – and therefore a lot more difficult. With medicine, everything happens for a reason; it's the cause and effect relationship – it's really that simple!'

Budget Accommodation (Cape Town) Riverview Lodge (Observatory)

- FIVE-STAR budget accommodation
- Ideal for large/small GROUPS
- CONVENIENTLY situated close to UCT and all that CAPE TOWN offers
- HOLIDAY accommodation
- RATES: From R140 per person sharing (BED & BREAKFAST)
Meals available upon request

Phone: (021) 447 9056
Fax: (021) 447 5192
Email: info@riverview.co.za
Website: www.riverview.co.za

Medunsa puts some action where it's STUDENTS SUPPORTING STUDENTS

THE ENTHUSIASM IS PALPABLE. And it's not just Professor Monie Naidoo's response – though her level of positivity would take some beating – it's tangible throughout UL's Centre for Academic Excellence (CAE) based at Medunsa, and it is targeted largely at the revitalised student assistance programmes that are running across both the UL campuses – Medunsa and Turfloop.

In the article on Professor Errol Holland's first 100 days at the helm of UL's Faculty of Health Sciences in *Limpopo Leader no. 19*, he stated that providing student support to improve the graduation rate was one of the areas that would receive his attention. 'Students completing their studies in the minimum time allowed means that the university receives full funding from the Department of Education for every graduate, and it also improves the profile of the university. The aim is to provide support for students who have potential, but whose educational background has placed them at a disadvantage. This support will not only help them to succeed in their studies, but will also give them the impetus to excel in future studies.' The support envisaged by

University Workshop under way



Holland was not of a purely academic nature.

Naidoo, who is Executive Director of the CAE, explains. 'Many of our students come from poor, rural backgrounds. They often choose to come to one of the University of Limpopo's campuses because these are less likely to be totally foreign environments than, say, other city universities. Nonetheless it's invariably a huge transition for the students. We do understand the difficulties that they face, which are frequently as basic as hunger and severe financial constraints. They need support.

'They need help with social adjustments, as well as with their academic responsibilities, both of which are different to anything they have probably experienced before. Often this university environment is the first exposure they have to large-scale community living.

'In this scenario, there are a tremendous number of risks involved, and as the belief of the CAE – and the university as a whole – is that students need not be left to face academic challenges and university life pressures alone, the commitment is to offer them the best support we can,' says Naidoo.

University Success Workshop



mouth is – SUCCESSFULLY

Holland endorses this position wholeheartedly. 'In accepting this responsibility, we also acknowledge that these students are battling against the vast injustices of the past that have largely left them without an adequate standard of education or social privileges. We often have no idea exactly what they are up against when they first walk in through our gates. We have to find ways to address all the issues that they face to make sure that they will be able to take their rightful places in society, unencumbered by the chains of the past.

'In fact,' he adds, 'these issues of appropriate orientation – on much more than just an academic level – are confronting higher education institutions on a global scale. I believe that our university can establish a benchmark in the process of proper initiation into university life. No longer can universities afford to be cocoons of intellectualism; they must be accessible to a far wider sector of the world's population – they must give society what it needs.'

The two main programmes designed to assist students in their daily university life are a brand-new lifestyle workshop for first-time, first-year students, called University

Success, and the Student Mentoring Programme. Though the latter has been operating for some years, it needed a boost and a bit of restructuring to reduce the fallout rates among mentors and mentees. And that's what it got.

The one-day University Success Workshop covered a wide variety of topics, including goal setting and personal values; relationships (which led to fascinating and eye-opening debates between the young men and women and incorporated relationship violence, rape, quality in relationships, and the importance of friends); sexual and other risks (which covered male and female anatomy, STDs, alcohol and drugs, and smoking); and closed with reflection. The workshop used a lot of role-playing, discussion and interaction, to impart messages to the students, and their responses to the course content were exceptionally positive. Here's the last thought the students were given at the end of the day. 'We wish for you, comfort on difficult days ... smiles when sadness intrudes ... rainbows to follow the clouds.'

The Student Mentoring Programme had been operating separately on each campus, with different programme content. The first step, says Naidoo, was

Mentor training programme, where the discussion groups were always lively



Professor Naidoo addresses students in the University Success Workshop



Medunsa puts some action where it's mouth is

STUDENTS SUPPORTING STUDENTS – SUCCESSFULLY

to make sure that the same programme is run across both campuses. Potential mentors were interviewed and 210 were selected at a ratio of between 1 mentor: 5 first-year students and 1:10 across the different programmes in the various schools. Each school (or sometimes department, depending on size) has a staff member responsible for the programme in its sector.

Five-day training programmes were held for the mentors, based on Stephen Covey's book, *The Seven Habits of Highly Effective People*, which included a lot of role-playing and interaction, which the mentors entered into whole-heartedly. This was followed by a 'getaway' weekend session for the mentorship programme executive committees – both staff and senior mentors from both campuses – to finalise the structure and running of the mentorship programme. 'The enthusiasm for this joint activity was remarkable,' comments Naidoo, 'it was as if everyone had known each other forever. There were loud calls from all sides for more joint activities. It was incredibly encouraging.'

Basic principles of the Mentorship Programme include:

- Every first-year student who comes to UL must have access to a mentor from the time they enter.
- Students must get adequate support from their mentor, or be guided on where or how to source additional help.

- The structure of the programme must be adhered to by both mentors and mentees.
- Confidentiality is key. Always.
- If a lecturer sees a student struggling in class, they pass on the information to the relevant mentor.
- Record-keeping of interventions is vital to make sure that the system is working, mentors are meeting with their mentees on a weekly basis, and that outcomes are positive.
- Mentors must be recognised and rewarded for their sterling efforts on behalf of their mentees.
- Mentors must have access to support as some of the situations they face with mentees are harrowing and emotionally draining.

One of the most encouraging aspects of the mentorship programme in Naidoo's view is that most of the mentors, when asked in the interview session, why they want to be mentors, invariably reply, 'I remember what it was like and how scared I was when I first came to university...'

'This is destined to be an extremely positive programme because it is so centred on goodwill – from student to student, from staff to students, and from campus to campus. We will be vigilant to make sure that the vision of the programme is maintained as its mandate,' says Naidoo.

University Success Workshop – learning to work together

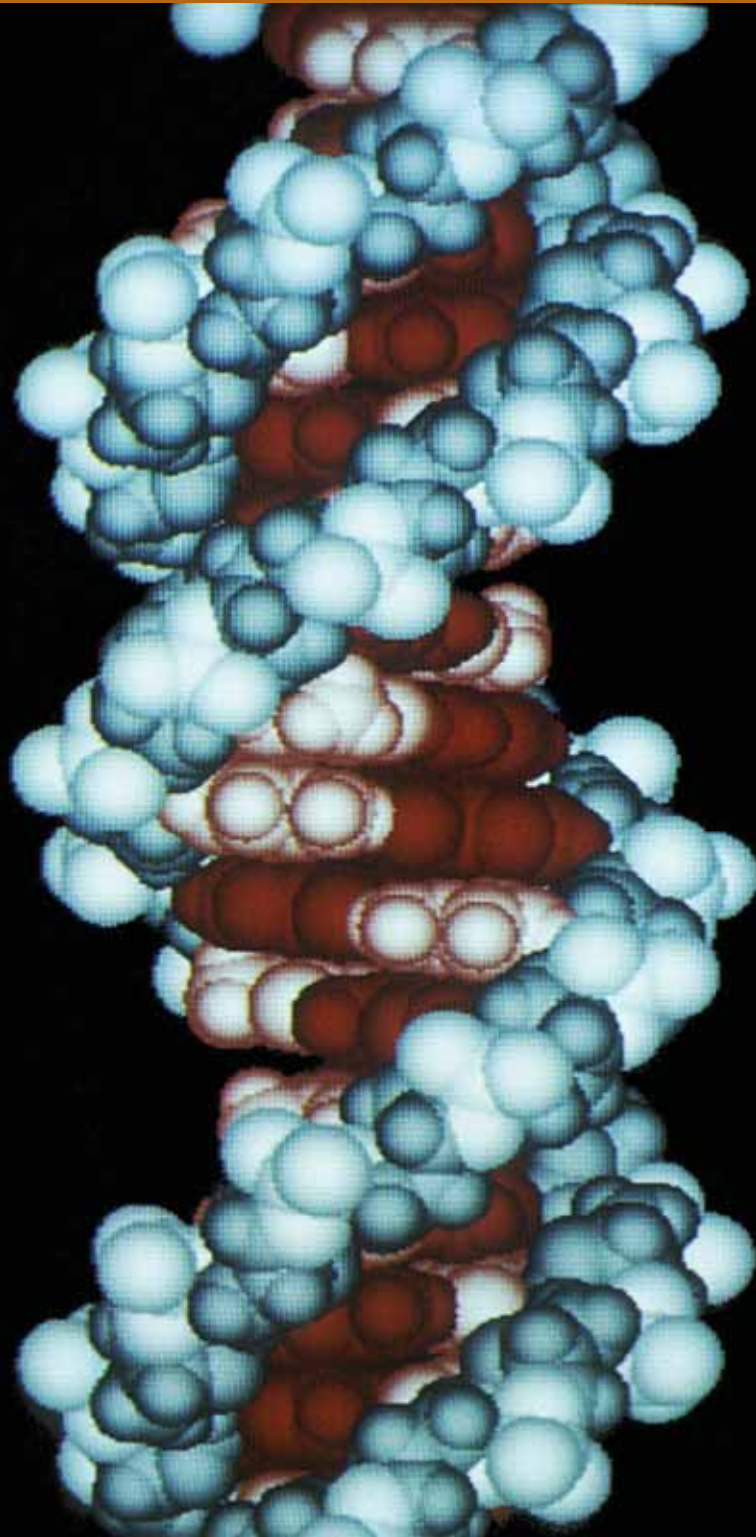


Mentors with T-shirts and bags



Turfloop's genetic connection

CUTTING-EDGE GENETICS AND THE UNIVERSITY OF LIMPOPO



DNA double helix

Turfloop's genetic connection

CUTTING-EDGE GENETICS AND THE UNIVERSITY OF LIMPOPO

WHERE DOES ONE BEGIN WITH A STORY LIKE THIS? In a nutshell, the ability of life scientists these days to use the technique of detailed human genome sequencing for advanced medicinal and therapeutic purposes, not to mention anthropological and human history purposes – is one of the most exciting growth points in modern medical science.

But will the benefits, as so often happens, bypass sub-Saharan Africa?

The answer this time around seems to be a reassuring NO, thanks to the efforts of a small team of geneticists, one member of which holds a senior position on the Turfloop campus of the University of Limpopo. The result of this involvement is certain to have important consequences for Africa, for South Africa – and for practical genetics in Limpopo province.

The Turfloop connection is via Professor Philip Venter, currently Director of the School of Health Sciences on that campus. Venter is also one of the first human geneticists to be trained in South Africa (in the 1960s), and he has done groundbreaking work in community genetics, helping to reduce the high rates of congenital anomalies in babies in even the most remote rural settings.

We'll return to his contribution later. But first there are important questions surrounding the most recent advances in 'human genome sequencing' that need to be answered. For a start, what is this form of sequencing, and why is it so valuable to the pharmaceutical response to human health? To fully appreciate the questions, we need to embark on a brief tour of the history of genetics.

Let's make sure we understand what the science of genetics is. It's that branch of the life sciences concerned with the study of heredity (inheritance) and variation in succeeding generations of organisms. Gregor Mendel (1822-1884) is generally reckoned to be the father of genetics. This Austrian monk, through a series of experiments with ordinary pea plants, discovered the fundamental laws of inheritance. Work continued in Switzerland and elsewhere, but it was not until the first half of the 20th century that scientists began to uncover the chemical mechanisms through which Mendel's laws were carried out.

Deoxyribonucleic acid (DNA) was established as the molecule that contained in chemically coded form all the information needed to build and maintain a

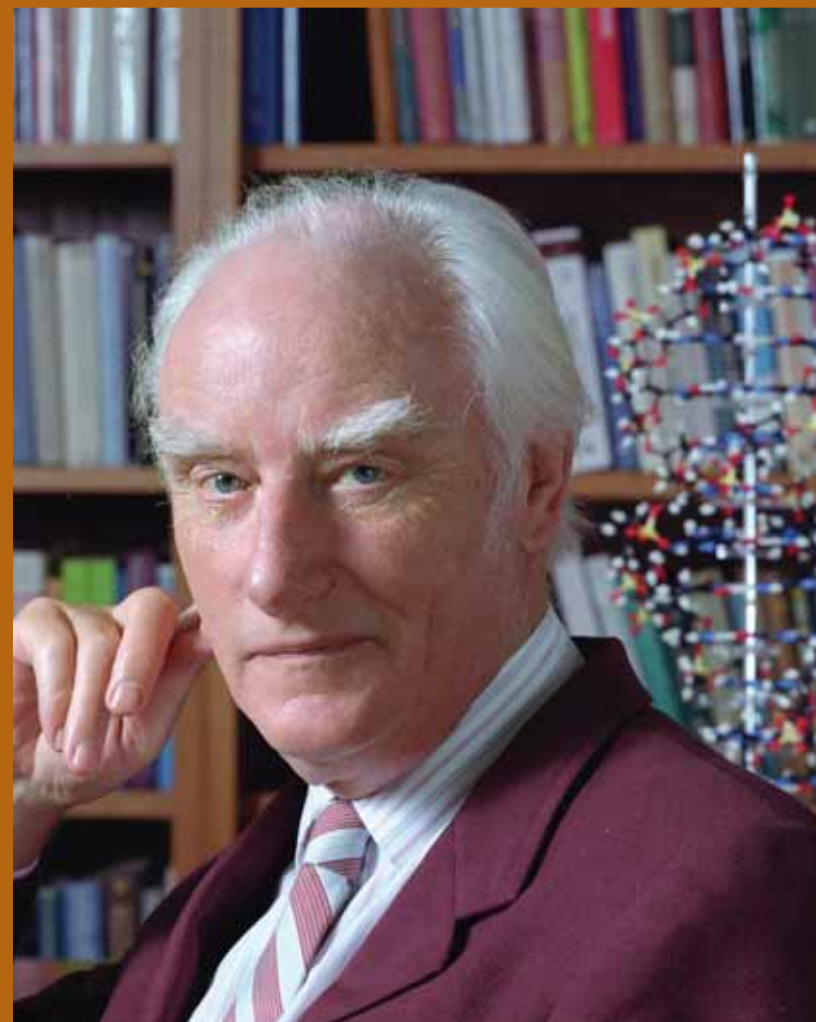
living organism, and forms the basis of genetic inheritance. By the early 1950s it had been established that the DNA nucleotides were joined in a double spiral formation (called the double helix) in which four basic proteins were stacked in very specific sequences. Two scientists, Francis Crick and James Watson, were awarded a Nobel Prize for these discoveries.

Crick died in 2004, but the younger scientist, American-born Watson, is still alive. In 1990, he was appointed head of the Human Genome Project at the US National Institutes of Health. He was later closely associated with scientists at the Human Genome Sequencing Center at the Baylor College of Medicine in Texas. By the early 2000s, advances in the field of genetics had made it possible for the first time to read nature's complete genetic blueprint (called the genome) for building a human being; and in 2007 Watson became one of the first people to undergo a complete genome sequencing procedure, the results of which were published on the internet.

He said at the time: 'I am putting my genome sequence on-line to encourage the development of an era of personalised medicine in which information contained in our genomes can be used to identify and prevent disease and to create individualised medical therapies.'

This statement indicates something of the immense preventive and therapeutic power of genome sequencing. In theory, it would be possible to identify at birth the sort of weaknesses and diseases that will manifest in later life. But the technology is hugely expensive. The human genome is made up of over 3-billion pairings of the four types of nitrogen base contained in the DNA double helix: adenine, thymine, cytosine and guanine. Someone in the Human Genome Project once calculated that, if each base pair could be sequenced (or established and recorded) for US\$3, then to fully sequence one human being would probably cost in the region of US\$10-billion.¹ Even the simpler genes-based sequencing version (human beings are made up of approximately 24 000 genes) costs more than US\$1-million (or about R10-million in South African currency). But this simpler version provides brand new insights into how genes express themselves,

¹ Costs are decreasing all the time.



Francis Crick

and hence into how diseases are caused.

Genomics is a brand new science, but evolutionary psychologists are already predicting that careful analysis of the results of genome sequencing 'will show significant genetic differences between racial and ethnic groups, despite the overall intra-specific consistency of the human genome'.² In simpler language: the genome of Europeans will be different from the genome of Africans, although both will easily be defined as human genomes.

There are huge implications in such a reality. Genome sequencing has been done on only two people, both of European extraction, and most notably on James Watson, one of the men who discovered the

² Quoted in Wikipedia, the on-line encyclopaedia.



James Watson

DNA double helix in the first place. Does this mean that Africa, with its own variations of genome sequences – in other words, its specific disease susceptibilities – will be left behind when it comes to the rapid advances in genetically-based disease treatments that lie just around the corner?

The answer must be YES – unless an African can be found, preferably an African of similar standing to James Watson, to undergo the in-depth sequencing procedure.

This is where the University of Limpopo comes into the picture. To cut a long story short (although it is told in some detail in the pages that follow), with active help from Professor Venter, just such an African has been found. He's famous, and not only as a Nobel prize winner. His name is Archbishop Desmond Tutu.

Turfloop's genetic connection

HOW DID THE UNIVERSITY OF LIMPOPO BECOME INVOLVED?

IT ALL BEGAN WITH PROFESSOR PHILIP VENTER, DIRECTOR OF THE SCHOOL OF HEALTH SCIENCES AT TURFLOOP AND A HUMAN GENETICIST DEEPLY INVOLVED IN VARIOUS COMMUNITY PROJECTS IN LIMPOPO. In the mid-2000s and funded by the Medical Research Council (MRC) he launched a comprehensive genetic research project dealing with breast and prostate cancer across four population groups. Working with Professor Riana Bornman of the University of Pretoria, Venter began a comprehensive search for the genetic mutations that would foretell a breast cancer risk in black women. Two mutations had already been identified for white women, but with African women even more vulnerable than their European counterparts, Venter was anxious to be able to identify potential sufferers in Limpopo's disadvantaged communities before they actually contracted the disease.

One of the difficulties encountered by the researchers related to modern genome sequencing, a technique necessary to identify a range of genetic mutations in their search for those that indicated cancer-susceptibility. The trouble was that such techniques were expensive and currently not yet available in South Africa.

In August 2006, Venter took these concerns to the International Congress of Human Genetics, which that year was held in Brisbane, Australia, where he set about looking for someone who might be able to help him. He established contact with a South African molecular geneticist, Professor Vanessa Hayes, who had been trained at Stellenbosch and in the Netherlands before moving to Australia in 2003. There, she worked for the Garvan Institute for Medical Research and more latterly at the Children's Cancer Institute in Sydney. She agreed to provide the necessary assistance to Venter and his team. This lent real impetus to the Limpopo-based project, and the search for the telltale genetic mutations in black women is ongoing.

But there was another result of the association that had been established in Brisbane, one that is certain to yield important results for health care, both

preventive and curative, in sub-Saharan Africa. As well as all her other activities, Hayes had become closely associated with Professor Stephan Schuster and other genetic researchers at Pennsylvania State University in America. These were among the scientists who had established that detailed genome sequencing was capable of showing significant genetic differences between racial and ethnic groups. Schuster and Hayes were working on a project involving San hunter-gatherers, and they were looking for a prominent African who would be willing to have his detailed genome sequence made known to the international scientific community.

In 2007, Hayes approached Venter and asked for his help in identifying a suitable candidate? A person with an international profile was needed

'This was really exciting,' Venter explained. 'What the researchers were proposing to do – to do a detailed genome sequencing exercise on a black African would be of unbelievable value to the scientific world. It would pull Africa into the scientific mainstream right at the start of the revolutionary benefits surrounding genomic medicine.' The immediate result of this new relationship – between Venter and the Penn State researchers and Hayes – was that Venter and his institution became the research team's official South African link. 'This puts the University of Limpopo well and truly on the genomics map,' Venter added.

When Archbishop Desmond Tutu was approached, he agreed with real enthusiasm. (see story on page 25) His, and the San hunter-gatherers' sequencing was undertaken in 2008/09.

From the subject's point of view, this sophisticated new technology doesn't amount to much more than the extraction of a series of blood samples. It's what happens afterwards that makes the process special. From the blood samples – in fact from the nucleus of a blood cell – the DNA is extracted and broken down into the tens of thousands of genes which contain the billions of building blocks that make up what scientists are calling 'the entire blueprint of human life' or genome.

From top to bottom: Professor Phillip Venter, Professor Vanessa Hayes and Archbishop Desmond Tutu

Tutu's genome sequencing results were fed into a comprehensive research undertaking that compared his typically Bantu genome with the sequences of the hunter-gatherers, as well as with the previously sequenced human genomes of more recently diverged populations (from Europe and Asia). The results were published in an article in *Nature*, the world's most prestigious health science publication, early in 2010. The title of the article was 'Complete Genomes of Hunter-Gatherers and a Bantu Representative from Southern Africa', and there were no fewer than 48 authors, from Pennsylvania State University and other illustrious American universities, from the National (American) Human Genome Research Institute, from the Children's Cancer Institute for Medical Research in Australia, and including Philippus Venter from the University of Limpopo.

The article, of course, is highly technical. The abstract provides an overview, and here are some of the salient pointers established by the research:

- The genetic structure of the indigenous hunter-gatherer peoples of southern Africa holds the key to understanding humanity's early history
- To place these data (which represents the first complete genome sequence of the oldest known lineage of modern man) in the context of the majority of southern Africans, the personal genome sequence of Archbishop Desmond Tutu, an ideal representative of southern African Bantu diversity, is compared.
- A million genome-wide DNA differences and 27 000 amino-acid differences (between San and Bantu) are discovered, which will allow more accurate tracing of genetic relationships among southern Africans, as well as human expansion out of Africa.
- Perhaps most immediately important, this variation will greatly assist in tailoring medical research and ultimately improved medical care to all indigenous peoples in southern Africa.



Turfloop's genetic connection

HOW DID THE UNIVERSITY OF LIMPOPO BECOME INVOLVED?

These findings were made public at a press conference in Windhoek on 16 February this year when the *Nature* article was launched. The University of Limpopo was represented by Venter and by Professor Errol Holland, Executive Dean of the university's extensive Faculty of Health Sciences.

In his short statement to the press conference, Professor Holland acknowledged the importance of the research as a 'clear demonstration of the use of the most advanced technology being appropriate to improving the lives of communities and contributing to a global transformation in human interrelationships'.

'These research findings,' Holland declared, 'are the scientific bridge to attaining uniquely African solutions for specific African problems in future. What marks this particular project as socially responsive is that it opens up the means towards African self-sufficiency in the use of the highly sophisticated technology required in the follow-up work which will need to be carried out. The University of Limpopo is eagerly looking forward to becoming a partner in future scientific projects which will flow out of this seminal work.'

'I think,' Venter summed up, 'that it's essential for our African people that our region is kept in the loop in this way. I'm not a molecular geneticist. I'm rooted in the community. I'm concerned above all with addressing the needs of the disadvantaged. This is in any case my understanding of the University of Limpopo's mission: finding solutions for African problems. To be linked to this human genome research as it highlights specific African realities and points towards specifically African solutions represents an astonishing opportunity for our university. I am grateful that I have been able in a small way to connect the University of Limpopo to the international mainstream, and to keep it connected. It's been an exciting and fulfilling time.'

A GENETIC RESEARCH CENTRE FOR THE UNIVERSITY OF LIMPOPO?

SOMETHING GOOD WILL ALMOST CERTAINLY COME OUT OF ALL THIS SCIENTIFIC – AND DIPLOMATIC – ACTIVITY THAT HAS BEEN OCCURRING AT TURFLOOP IN RECENT YEARS. In short, it seems possible that the University of Limpopo will soon be able to establish a special breast and prostate cancer research unit to help with the research into these diseases that has already been on-going for around five years.

'But there's nothing substantial yet,' warns Professor Philip Venter. 'We mustn't count our chickens before they're hatched.'

Yet the clues are beginning to accumulate. In January of this year, Professor Vanessa Hayes of the Children's Cancer Institute in Sydney visited Turfloop. *Limpopo Leader* has heard that the National Institute of Health in the United States has expressed strong interest, as has South Africa's Medical Research Council and the recently formed Technology Innovation Agency. In fact, Professor Venter has admitted that detailed proposals relating to the mooted research unit are currently being prepared.

Even at the launch of the *Nature* article earlier this year, Professor Errol Holland concluded his remarks by saying that the university was looking forward to the prospect 'that this highly sophisticated technology (used in the research upon which the article was based) will, through our partnership in the project, be allowed to take root and grow within the University of Limpopo'.

'The possibility of getting the centre that is now proposed, plus the full backing of the Medical Research Council, is a real first prize for us,' said the university's Vice-Chancellor, Professor Mahlo Mokgalong. 'A facility of this quality and with these international linkages fits well with our current efforts to establish a state-of-the-art health science training platform in Limpopo province.'

And Professor Peter Franks, Deputy Vice-Chancellor in charge of academic affairs and research, added: 'A well-connected cancer research unit will be a welcome addition to the university's research armoury. It will also serve as a testament to the pioneering work done by Professor Venter and others in the province.'

Continue to read *Limpopo Leader* for further developments.

Turfloop's genetic connection

TUTU SPEAKS

WHEN APPROACHED BY *Limpopo Leader*, ARCHBISHOP DESMOND TUTU AGREED IMMEDIATELY TO TALK ABOUT BEING THE FIRST AFRICAN TO UNDERGO DETAILED GENOME SEQUENCING PROCEDURES. Here is a summary of what he had to say.

'It was Professor Philip Venter of the University of Limpopo and Dr Vanessa Hayes of the Children's Cancer Institute in Sydney (Australia) who approached me to take part in the genome sequencing project. They explained that the goal of the project was eventually to enable researchers and pharmaceutical companies to personalise medicine for people of all ethnicities and societies. Of course I am excited about the results. I am glad to have had the opportunity to take part in this project because, on a personal level, it is able to discover that one might be in danger of genetic disease. Although I am Bantu, I am aware that there are very few pure ethnic groups. But now the sequencing has revealed that through my mother, I am related to the Khoi, a San people.

'I remember a ridiculous thing that happened to me when I was issued with my ID document during the apartheid era, my nationality was described as 'undeterminable at present' –



Turfloop's genetic connection

TUTU SPEAKS

this despite the fact that both my parents had been born in South Africa. An added irony is that my oldest ancestors, the San, were the first people to inhabit southern Africa. I suspect that if each of us, regardless of race or ethnicity, looks far enough back into their genetic make-up they will discover that, indeed, we are all related.

'Given the fact that people in southern Africa have not been exposed to this type of study, I felt it was important to take part and thus to dispel any myths about our humanity and our place in the great human family, that might still be in attendance over the African genome. I will not pretend that I didn't have some jitters. But I also understood that the goal of this study would have far-reaching consequences, greater than my personal fears of the unknown. Until now, most of the genomes that have been decoded were those of Europeans. Beyond wishing to rectify that imbalance, it seemed that through genome sequencing, it would enable researchers to gain further deep insights into the origins and inter-relationships of different human populations. Indeed, the results of the research further highlight our common ancestry, and underscore how closely people are related to one another as part of the extended human family.

'I am also aware that the participation of the University of Limpopo is of great importance to our previously disadvantaged apartheid universities generally.

As these institutions struggle through their often-dubious legacies towards a legitimate place in the academic architecture of our country, linkages with international research efforts add considerable credence to their efforts. The University of Limpopo's relationship with some of the leading genome sequencing institutions in the world is no exception.

'I definitely think such linkages will assist our local researchers to figure out how to best combat some of our most widespread diseases, and to improve the chances of an extended, healthy life for all ethnic groupings. It is exciting that science is finding evidence of genetic diversity among groups of people, as well as among individuals, and this discovery should be embraced, not feared. It would be disastrous if scientists were to ignore the diversity of the human race, because this is one of the greatest assets that humanity has. But while we celebrate the enormous potential for good of the genome project, we should not ignore the dangers that could arise should this information, or distortions of this information, fall into the wrong hands and cause potential harm to individuals and groups.

'I have heard that one possible result of the University of Limpopo's participation in the project could include the establishment of a prostate cancer research unit at Turfloop with links to Professor Hayes' work in Australia, as well as a close

research relationship with Penn State University in the US. By building on these beginnings, the University of Limpopo could become involved in important genetic research of great benefit to many people in southern Africa.

'These are positive developments that should be fully supported. The goal of such research will help in the development of appropriate medicines to target regional manifestations of various diseases. Until now, most of the genome sequences that have been decoded have been those of Europeans. Now we have new insight into specific African sequences, with huge implications for the treatment of African disease variations. I've been privileged to have played a part in this process. Given the opportunity, I would certainly lend my support to the research efforts that will now follow at the University of Limpopo and elsewhere.'

The Tiro Awards

THE LEGACY OF ONKGOPOTSE TIRO



IN THE LATE 1960S, AN INTENSE YOUNG MAN WITH A HIGH FOREHEAD ENROLLED AT THE UNIVERSITY OF THE NORTH FOR A BA DEGREE HE NEVER COMPLETED. By 1970, he had been elected President of the Students' Representative Council. In April 1972, he made a controversial speech at a graduation ceremony that led to his expulsion from Turfloop. Shortly afterwards, he became the permanent organiser of Saso (which had held its inauguration as the first black student organisation in the country at Turfloop a few years before). But by early 1974 he was dead, blown up by a parcel-bomb as he tried to continue his studies in Botswana. He was 29 years old.

The esteem in which this young Black Consciousness activist is held at the University of Limpopo today can be gauged by two specifics. The first is that the main assembly hall on the Turfloop campus is named after him: the Great Tiro Hall. It was not originally named that, but successive waves of students insisted on the name, until finally it was officially endorsed. The second is that in recent years, an annual award for excellence is made to outstanding alumni from the University of Limpopo Student Trust

Fund. The name: the Onkgopotse Tiro Excellence Awards.

Lybon Mabasa, a contemporary of Tiro and now on the board of the Student Trust Fund, described the intention of the awards as honouring 'great merit and achievement' in people associated with the university. 'It's for people who have acknowledged through their actions that higher education qualifications would be of limited value unless they are used in the service of others. We're looking not only for success in the various fields, but also for service, and the winners must have done something exceptional to enhance the name of the University of Limpopo.'

Mabasa, who is currently President of the Socialist Party of Azania, recalls the temper of the times when he and Tiro were students at Turfloop. 'Some of our white lecturers were not averse to telling us that it would be impossible for us to successfully develop. One of them even said it constantly surprised him that we didn't all commit suicide in face of the enormity of the task. But Tiro was undeterred. He felt impelled to go on organising and speaking out against injustice, even though he knew there could be serious political repercussions from the authorities.'

The Tiro Awards

THE LEGACY OF ONKGOPOTSE TIRO



Lybon Mabasa

Tiro was certainly born into political turmoil. In the mid-1950s, his school in Dinokana (not far from Zeerust, now in North West province) was closed due to strikes that were held in protest against reference books for women. For five months, he worked on a nearby manganese mine as a dishwasher in the canteen. His education was again disrupted when attending a high school in Soweto. This time he was arrested for a pass offence. Finally he went to Mafikeng, where he matriculated from the Barolong High School.

At Turfloop, he became immediately involved in student politics. Saso had not long previously been formed, and one of Tiro's first encounters with the university authorities concerned the expunging from the student records (kept by the SRC) of Saso's policy manifesto and its declaration of student rights. As a protest against this interference, students burned the mutilated records in a large bonfire kindled on campus.

But the real trouble came when Tiro (at the request of fellow students) spoke on their behalf at the 1972 graduation ceremony. It was a forthright speech.

He attacked separate (or so-called Bantu) education, adding that students wanted 'a system of education which is common to all South Africans'. He attacked the arbitrary way in which the university dealt with students' parents: 'Right now, our parents have come all the way from their homes only to be locked outside' while 'the front seats are given to (white) people who cannot even cheer us'. And he attacked the nepotism evident in the way in which the university was supplied with various commodities. Finally, he spoke of the responsibility of black students to fight apartheid: 'To those of you who support apartheid ... the day shall come when all shall be free, and when that day comes, no man, no matter how many tanks he has, will reverse the course of events.'

His immediate expulsion followed, and two years later, his violent death.

'Who murdered him?' asked Lybon Mabasa with some irony, then providing his own answer. 'Considering the circumstances in which he was murdered – and Dulcie Spetember in Paris, and Ruth First in Maputo – it is difficult to conclude in any other way but that their only enemy was the South African state.

'Of course, the state had reason to fear Onkgopotse,' Mabasa continued. 'He was active in Saso politics even after he was chucked off the campus, and even when he was in exile. In due course, he was elected President of the Southern African Students' Movement, which was affiliated to the All-Africa Students' Union. He was becoming a powerful figure. He was a new man, a new kind of activist, and he was without doubt one of the forerunners of the people's revolt of 1976. In many ways, he helped to lay the foundations for the events that followed so soon after his untimely death. His name is up there with people like Steve Biko and Robert Sobukwe. These are the saints.'

Tiro's courage and resolve, and particularly his concern for others, lends lustre to the awards that carry his name. Now TURN THE PAGE to learn more about the two remarkable people, both alumni of the University of Limpopo, who were honoured in 2009. Their names are Judge Monica Leeuw and businessman Jabu Mabuza.

The Tiro Awards

A CHAMPION FOR GENDER PARITY IN THE JUDICIARY

'I HEARD TIRO GIVE HIS FAMOUS TURFLOOP GRADUATION SPEECH. I was a student then, and I was in the choir. We all tried to join the choir – it was the only way to get into the ceremony. I could not have imagined, then, that he would soon be assassinated, that an important award would be named after him, and that one day I would win it.'

But this is exactly what happened to Monica Leeuw, a young law student in the early 1970s, and now the acting Judge President of the High Court in the North West province. In November last year, at a banquet held at the Gallagher Estates to raise funds for the University of Limpopo Student Trust Fund, Judge Leeuw received the Onkgopotse Tiro Excellence Award for her lifetime of work within the South African judicial system.

Tiro, as an outstanding student leader, was fighting for ordinary human rights. Now the country has a Constitution that guarantees those rights. The Constitution speaks as clearly about gender equality, but that fight is still going on. This seemed to be the tenor of much of what Leeuw had to say.

'When I was at Turfloop there were very few women doing law,' she recalled, 'only four or five out of a class of about thirty. These



Judge Monica Leeuw

inequities persist into the present. My belief is that gender parity inside the judiciary is of crucial importance – if the demands of the Constitution are to be fulfilled.'

Leeuw admits to not being 'too politically involved' as a student. 'I wasn't an activist or anything like that, but I was aware. Once I

got hit by a police baton. Many of us did. But often it was more fun than anything else.'

But the young law student was no stranger to the darker sides of the apartheid regime in which she grew up. She was 14 when her family was forcibly removed from the Pretoria black spot called Lady Selborne to the peri-urban

The Tiro Awards

A CHAMPION FOR GENDER PARITY IN THE JUDICIARY

wilderness of Ga-Rankuwa. Since no high school then existed in Ga-Rankuwa where she could matriculate, Leeuw was sent to Hwiti High School in the then Northern Transvaal and within walking distance of the Turfloop campus.

'This was quite a famous school,' Leeuw recalled. 'There were good teachers who produced really good results. Among my fellow students, for example, were Mahlo Mokgalong, now the Vice-Chancellor of the University of Limpopo, Malegapuru Makgoba, now the Vice-Chancellor of the University of KwaZulu-Natal, and Lucy Mailula, now a High Court judge in the South Gauteng High Court and the chairperson of the Council of the University of Limpopo.'

Leeuw's own academic career was forging ahead. She began by studying for a B Juris degree but changed midstream to B Proc, graduating in 1976. With this qualification she began at the Ga-Rankuwa Magistrate's Court as a legal assistant working in the estates office. Meanwhile she had married a pharmacist who moved to Mafikeng to complete his internship. Leeuw accompanied him, working in the then Bophuthatswana as a public prosecutor until 1981, thereafter serving as senior control prosecutor, first in Mafikeng and then in the Bophuthatswana West regional division. At the same time she was studying for her LLB, a qualification she was awarded in 1985. Five years later, she did her pupillage at the Pretoria Bar and became the first black

woman ever to do her pupillage there.

'The Pretoria bar in those days was very conservative and very white. It was difficult for black people, and possibly doubly so for black women,' Leeuw recalled. 'But throughout our careers, we women have to prove ourselves and assert ourselves to be taken seriously. Mind you, I've always worked well with men, white or black.'

Leeuw explained that gender disparities remained a problem in the South African judiciary. 'So my possible appointment as a permanent Judge President would be an important breakthrough.' (see STOP PRESS on this page)

Asked what her Turfloop experience had meant to her, Leeuw replied: 'It taught me to know myself. It taught me not to allow my situation – either as a black person or as a woman – to pull me down. The idea of black empowerment and black pride was very strong in those days. That is what Saso taught me. That

is definitely what Tiro believed. It helped me a great deal in my personal life. As black people, we didn't want handouts; we wanted fair opportunities. It was at the university that these precepts were embedded in our thinking.'

After a spell of teaching at the University of Bophuthatswana – Leeuw lectured in civil and criminal procedure and in practical legal training – she was elevated to the bench in 1999. She has served as a High Court Judge in the North West Judicial Division ever since. She is also a permanent judge of South Africa's Labour Appeal Court.

She is a woman of clear thought and serious humanity. She is a deserving winner of the Onkgopotse Tiro Excellence Award. Above all, though, the impression she leaves is one of a woman whose course has not yet been fully run. There's a lot more to come from Judge Monica Leeuw.

STOP PRESS STOP PRESS STOP PRESS STOP PRESS STOP PRESS

THE COUNTRY'S FIRST WOMAN JUDGE PRESIDENT

ACTING JUDGE PRESIDENT OF THE NORTH WEST HIGH COURT, MONICA LEEUW, HAS BEEN APPOINTED PERMANENTLY TO THE LEVEL OF JUDGE PRESIDENT. Her appointment was confirmed during April of this year. This is the first time in the history of South Africa that a woman has been elevated to this position. 'My appointment should be regarded as an important breakthrough in our struggle for gender equality in the judiciary,' Leeuw said. 'There's still a long way to go, but at last the equalities espoused in the Constitution are beginning to come to pass on the ground.'

The Tiro Awards

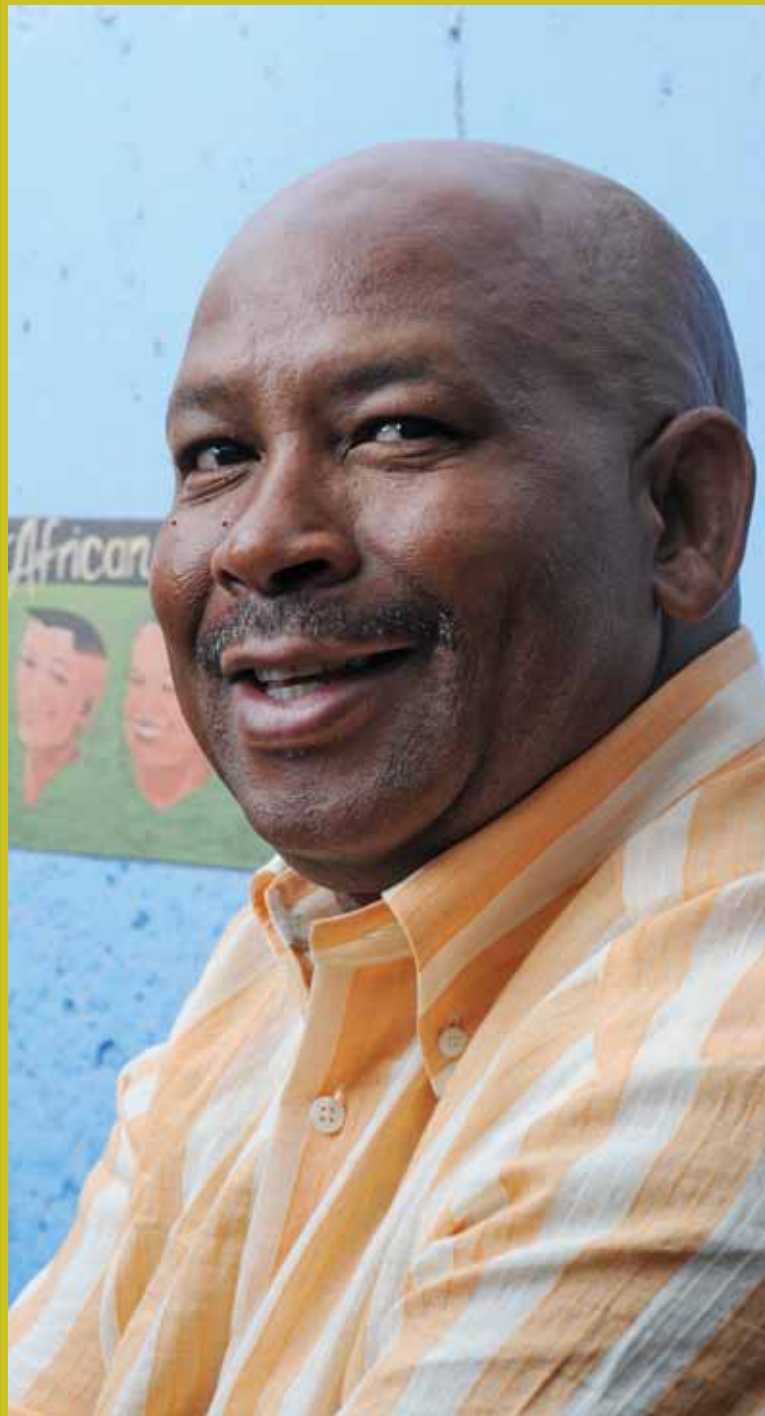
FROM DROPOUT TO CHIEF EXECUTIVE OFFICER

THERE WAS SOMETHING QUITE PROPHETIC ABOUT JABU MABUZA'S BIRTHPLACE. The CEO of the hugely successful hotels and gaming enterprise, Tsogo Sun Group, was born in Waterval Boven. That's an important railway centre on the line the old Transvaal Republic built between Pretoria and Lourenço Marques (now Maputo) in the last decade of the 19th century. Waterval Boven is situated at the top of the great Drakensberg escarpment and Waterval Onder is situated at the bottom. Between the two stations lay the most tortuous section of railway ever built in South Africa. Originally, more than 200 metres of altitude were accomplished in a mere eight kilometres. For half that distance, a rack-rail system first used in the Swiss Alps helped the trains from Onder to Boven at walking pace. The ascent was a symbol of struggle and great effort that certainly presaged the life and achievements of Jabu Mabuza.

And these achievements were honoured when he received an Onkgopotse Tiro Award for Excellence in Business at the award banquet in November last year.

Mabuza was overjoyed at this recognition. 'I stand here with joy, pride and humility,' he said in his acceptance speech, 'as I receive this award from my alma mater – the University of Limpopo. Often, the success that endures is not that which happens to land in your lap. Rather, it is through toiling that our determination is harnessed. When I was admitted to study at Turfloop, it was still a rarity for an African child like me to complete matric and then proceed to university.'

But it was by sheer perseverance that he broke the mould. He was raised by his grandmothers, both maternal and paternal, in a small rural village outside White River. After completing his primary schooling there, he proceeded to Kwa-Lugedlane, a village that at the time, as he describes it, 'was thick with SADF soldiers and Frelimo freedom fighters'. Finally, he found his way to KwaZulu-Natal where, at Ohlange



Jabu Mabuza

The Tiro Awards

FROM DROPOUT TO CHIEF EXECUTIVE OFFICER

High School in Inanda, he secured his matric in 1979.

'For a year, I worked in a government office in Benoni. Then I got my chance at tertiary education. I decided on law, enrolling for a B Proc degree. I did my first year. I did my second. I was flying. Then disaster struck. My father got retrenched from his job. There was economic hardship at home. I was left with no alternative but to drop out. I have never had the opportunity to go back. This is the biggest regret of my life.'

The gradients through his private escarpment were getting steeper, but he didn't quit. He already knew – perhaps from the wisdom of his grandmothers – that 'it is only through toiling that our determination is harnessed'. He drove taxis, not infrequently spending uncomfortable nights at taxi ranks. 'I endured that,' he told his audience in his award acceptance speech, 'not knowing what luxury car I might or might not one day drive. All I knew was that I wanted to be somebody in life.'

After more taxi driving and working for a marketing research company, Mabuza at last found his way into the Foundation for African Business and Consumer Services (Fabcos). There, his leadership qualities and his talent for strategic thinking soon came to the fore. While still in his early thirties, he became the chief executive of Fabcos; and then, in 1993, he joined the South African Breweries group of companies where he worked at central executive level.

Before long, he found himself heading up the gaming operations of one of the SAB companies, Southern Sun Hotels. It was around this time that he went to the United States to broaden his executive

skills. He enrolled in an Effective Leadership Program at the University of Pennsylvania in 1996, and a few years later attended an Executive Development Program at the University of California.

Apart from his position at the top of the Tsogo Sun Group, he has held, and continues to hold, directorships for numerous South African companies, including Amalgamated Retails Ltd, Amalgamated Banks of Southern Africa (Absa), OK Bazaars and Amalgamated Beverage Industries Ltd. Mabuza has also served as chairman of the Mpumalanga Development Corporation, the Southern African PGA Tour, the Casino Association of South Africa, the South African Tourism Board, as well as chief executive of the South African Black Taxi Association.

'One of the side effects of adversity is that you get tossed overboard,' Mabuza remarks. 'You either sink or swim. If through hard work and determination you can make it to the shore, then in retrospect you have to say that adversity was a good thing.'

'Having said that, though, I must admit that not having a university degree was the hardest thing. And that is why this award from my alma mater is so special to me. They have honoured me even though I had to drop out. This award makes me feel that at last I have outlived my deepest disadvantage. It is my most profound recognition.'

In this way, Mabuza has reached the top of his long ascent, and has been welcomed like the trains before him into the station at Waterval Boven, the town where he was born.

Secure your future



Tsireledzani vhumatshelo ha^u
Tihlayiseleni vumundzuku bya n'wina
Šireletša bokamoso bja gago
Verseker jou toekoms
Vikela ikusasa lakho

UNIVERSITY OF LIMPOPO

Telephone: (015) 268 9111

Have you considered the number of career options within the **Finance and Accounting** sector?



From the exciting, edge-of-your-seat world of stockbroking to the highly valued practice of financial planning, the Finance, Accounting, Management Consulting and other Financial Services (Fasset) Sector has a career for every aspiring number cruncher. Just some of the many careers in the finance and accounting sector include accountancy, bookkeeping, debt collecting, tax practising and accounting technicians. There are so many opportunities available in the fields of finance and accounting that the possibilities are truly endless.

Make the future count

086 101 0001
fassetcallcentre@fasset.org.za
www.fasset.org.za

Fasset is the Sector Education and Training Authority for Finance, Accounting, Management Consulting and Other Financial Services.

