

GRA 1/3/80
(with errata)



UNIVERSITY OF NATAL

GRADUATION/DIPLOMA CEREMONY

1995

WEDNESDAY 20 DECEMBER

18h30

DURBAN

THE CHANCELLOR

"Chancellor" is an office that goes back to Antiquity: the original *cancellarius* regulated access to the Roman Tribune. In medieval times, the office became associated with the heads of the writing departments of the early kings. Because so few people were literate, a chancellor was automatically learned. This explains why the heads and spokesmen of the early universities were also accorded the title. More recently, the office has become largely symbolic. The executive head of a university is its vice-chancellor.

Archbishop Hurley is the fifth Chancellor of the University of Natal. His predecessors were: The Honourable D G Shepstone (1949-1966), Dr G G Campbell (1967-1973), Dr B A Armitage (1973-1983), and the Honourable R N Leon QC (1983-1992).

THE MACE

The Chancellor's Mace, generally referred to as "the Mace", is used on ceremonial occasions presided over by the chancellor and is regarded as the Chancellor's "staff of office". It symbolises the University's protection of its Chancellor.

The use of the mace as a symbol of authority has a long history. The head of a copper mace, which apparently dates back to the 12th Century before Christ, has been excavated at Beyce Sultan in Asia. In the early centuries, churchmen who went to war often carried a mace in preference to a sword. One side of the mace-head was beautifully decorated with the owner's emblem and on the other side was a large knob which served as a weapon, and was always round so that the church law never to shed blood was always carefully observed! In the early centuries the mace was a symbol of the king's authority. During the power struggle between the king and the Commons in the 13th Century, the king gave the speaker the mace as a symbol of his indemnity against arrest.

The Mace was designed by Mr G H Atkins, senior lecturer in sculpture in the University's Department of Fine Arts, was made in England and was first used at the 1970 graduation ceremonies.

THE ARMORIAL BEARINGS (See front cover)

The armorial bearings of the University of Natal were awarded by the College of Arms in London.

The two black wildebeest come from the arms of the Province of Natal. They are shown in full course to symbolise movement and progress. The two open books represent the universal heritage of knowledge and the two centres of the University, Durban and Pietermaritzburg. The five pointed star refers to the naming of Natal by Portuguese navigators when they landed for the first time at Durban on Christmas Day in 1497. *Stella Aurorae*, star of the dawn, symbolises the role of the University in bringing to light new knowledge and spreading the enlightening influence of education.

ACADEMIC DRESS

The wearing of gowns by judges, ministers, teachers and scholars is an ancient and impressive custom. When the graduating students at universities receive their diplomas or degrees, they, too, (and perhaps, for some, only this once in their lives), wear the caps and gowns of this long tradition. By wearing the ancient regalia, they hold hands with students past and students present.

In modern times the standard cap and gown are almost universally worn. Of all the components of the costume, the hood conveys the greatest amount of information: it makes clear the level of the degree, the faculty in which it was given, and the institution which awarded it.

CONVOCAATION

After being capped by the Chancellor, each graduate moves across the stage and hands to the President of Convocation or his representative a hood incorporating colours that indicate the degree being awarded and the Faculty in which it is being awarded. The President places the hood upon the graduate's shoulders, and, at the end of the ceremony, after the Chancellor's procession has left the stage, leads a procession of the new graduates out of the hall, row by row, to symbolise their acceptance into, and future membership of, the Convocation of the University of Natal, the statutory body through which graduates have the opportunity to play a continuing part in the affairs of the University.

ERRATA IN GRADUATION PROGRAMME ON 20 DECEMBER 1995

cum laude	MScEng	Chathury	Ashendra Sewkumar
fix - Aaron	BSc(EL)	Ntshangase	Bhekani Aaron
OMITTED	BSc(EC)	Reddy	Thiagarajen Valoo
fix - Willemse	BSc(EC)	Willemse	Martin Louis
DELETE - NOT COMPLETE	BSc(ME)	Eksteen	Markus Sven

OFFICERS

Chancellor	The Most Reverend D E Hurley, OMI, DD Archbishop Emeritus of Durban <i>PhL (Rome), STL (Rome)</i>
Vice-Chancellor and Principal	B M Gourley <i>CTA (Witwatersrand), MBL (Unisa), CA(SA)</i>
Chairman of Council	C van der Pol <i>BSc, PhD (Witwatersrand)</i>
Deputy Vice-Chancellor and Durban Principal	C F Cresswell <i>BSc (Hons), MSc (Rhodes), PhD (Bristol)</i> <i>FRSSAF, M.A.S.S.Af</i>
Deputy Vice-Chancellor Research and Development	E M Preston-Whyte <i>BSocSc (Hons), PhD (Natal)</i>
Deputy Vice-Chancellor Planning and Resources	E Ngara <i>BA (Hons), MPhil, PhD (London)</i>
Deputy Vice-Chancellor and Pietermaritzburg Principal	D A Maughan-Brown <i>BA (Cape Town), MA (Cantab),</i> <i>DPhil (Sussex)</i>
Vice-Principal Durban	J Volmink <i>BSc, BSc (Hons) (Western Cape), MS,</i> <i>PhD (Cornell)</i>
Vice-Principal Pietermaritzburg	E Bawa <i>BSc (Unisa), BSc (Hons) (Natal), MSc (UDW),</i> <i>PhD (Durham)</i>
Registrar	G J Trotter <i>BA (Hons), MA (Duke)</i>
Convocation Representative	B F Van Dyk <i>BA, BA (Hons), MA</i>
Orator	J U Jacobs <i>BA (Pret), THED BA (Hons) (Unisa), MPhil,</i> <i>PhD (Columbia)</i>

Dean of Faculty

Engineering	L W Roberts <i>PrEng MScEng (Natal), PhD (London)</i> <i>DIC MSAIMechE, MASME</i>
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PROGRAMME

The Academic Procession enters the Hall

The Chancellor constitutes the congregation

WELCOME TO GUESTS

The Vice-Chancellor

PRESENTATION OF DOCTORAL GRADUANDS

The Deans of Faculties

HONORARY DEGREE

Mr. Andrew Tracey, *MA (Oxford)*

ADDRESS

Dr. Andrew Tracey

MUSIC

The Natal University African Music Ensemble - directed by Geoffrey Tracey
Traditional/fusion music, eclectic in style and influenced by the music of Africa and the West Indies

Organist - Mr. Cameron Upchurch

PRESENTATION OF GRADUANDS AND DIPLOMATES

The Deans of Faculties

The Chancellor dissolves the congregation

The congregation is invited to join in the singing of the National Anthem

The Academic Procession leaves the Hall

The congregation is requested to stand while the academic procession enters and leaves the hall and, during the ceremony, to remain seated until its conclusion.
Only officially authorised persons may take photographs during the ceremony.

The operation of cellular 'phones is not permitted in the hall.
Refreshments will be served to graduands and their guests in the first floor Gallery above the main entrance facing Francis Farewell Square at the conclusion of the ceremony

DOCTOR OF PHILOSOPHY IN THE FACULTY OF ENGINEERING

Discipline

- Ferreira, Jacques Henri, *MScEng*** Mechanical
Thesis: High temperature fatigue crack growth behaviour of TIMETAL 21S in
an oxidising environment
(Dr. E. E. Aghion)
- Levy, David Charles, *MScEng*** Electronic
Thesis: A development environment for high performance embedded real-time
control systems
(Prof. H. L. Natrass)

HONORARY GRADUAND

Tracey, Andrew Travers Norman, *MA (Oxford)*

MASTER OF SCIENCE IN ENGINEERING

Discipline

- ♦ **Burton, Bruce, *BScEng*** Electrical
Dissertation: Analysis and practical implementation of a continually online trained
artificial neural network to identify and control VSI fed induction motor
slator currents
(Prof. R. G. Harley and Prof. J. L. Rogerson)
- Chathury, Ashendra Sewkumar, *BScEng*** Electrical
Dissertation: Two quadrant digitally controlled force-commutated rectifier with near
sinusoidal line currents at unity poewer factor
(Prof. R. G. Harley and Mr. G. Diana)
- Katz, Moran, *BScEng*** Electronic
Dissertation: An Integrated robotic handling system
(Mr. D. C. Levy and Prof. Z. Katz)
- ♦ **Kleinhans, Charl Edwin, *BScEng*** Electrical
Dissertation: Simulation and practical implementation of field oriented control on
the current source inverter-fed induction machine
(Prof. R. G. Harley and Mr. G. Diana)
- ♦ **Marais, Stirling Vaughan, *Masters Diploma in Technology*** Electronic
Dissertation: Fluorescent lamp characterisation and the design of an optimal battery
powered ballast
(Prof. R. C. S. Peplow)

Discipline

McQuirk, Deon Michael, BScEngCivil
Coursework and Dissertation: The selection of a traffic signal control method for a small CBD
(Prof. C. S. Roebuck)

Stewart, Ray William, BScEngMechanical
Dissertation: Design of structural components made of fibre-reinforced materials using finite elements
(Prof. S. Adali and Prof. V. E. Verijenko)

Weale, Keith Harding Morey, Beng (Hons) (Pretoria)Civil
Dissertation: Road traffic safety priorities in South Africa
(Prof. C. S. Roebuck)

✧ degree awarded *cum laude*

BACHELOR OF SCIENCE IN ENGINEERING

(Chemical Engineering)

Balgobind, Praveen

Bhimsan, Vimal

Charalambous, Harris✧

Cooper, Richard Donaldson

Curren, David John

Dickens, Joanne Nicola

Govender, Lynette

Govender, Nirushanan

Greig, Shane

Harribhai, Rakesh Ratilal

Hurburun, Randhir Tikaram

Hurrinanan, Sanjeev

Kathrada, Muhammad

Lawrenson, Gavin Peter

Mangali, Nirendra

Mputamputa, Jacob Molefe Vuyani

Naidoo, Veerendren

Naidu, Thubendran

Padayachee, Luvashi

Papli, Ravinash

Pryce Lewis, Hilton Gavin★

Radebe, Dumisani Zeph

Rana, Kerwin

Semnarayan, Pravin

Shabu, Abdool Sacoer

Shah, Pragna

Shah, Simmie

Sherliker, Cara Nicola

Shirley Possolo, Joao Pedro Gaines

Singh, Shivani

Sweeney, Shannon Mavorneen★

Zaborowski, Mark Richard

✧ degree awarded *cum laude*

★ degree awarded *summa cum laude*

(Civil Engineering)

Bezuidenhout, Sarel Jacobus

Clothier, Antony Neil

Desai, Safya

Dickson, Roger Keith

Glass, Sean

Gould, Anthony Bryden

Hein, Michael Hugh

Hooper, Gareth Wallace

Jackson, Brian Richard

Jackson, Neil Andrew

Lourens, Clinton
Lubbe, Jene Nicola
Muchanya, George
Muller, Richard
Muthen, Kubendhran Marshall
Nel, Trevor Clive
Nell, Andrew Louis
Ngumbe, Sibongile Hazel

Pieters, Eben
Pillay, Kollan
Rikhotso, Khetela Richard
Ross, Matthew Paul
Seesurrin, Sanjeev
Slater, Kendall Lloyd
Trevethan, Bradley David

(Electrical Engineering)

Ally, Muhsin
Carter-Brown, Clinton Geoffrey✧
Chetty, Jayalogan
Dama, Geetesh Kantilal
Hambidge, Shaun Douglas
Kaura, Abiud Hiskia
Kekana, William
Magenuka, Thokozani Raymond
Maharaj, Suvir
Mazibuko, Thokozani Kenneth
Mistri, Jayant
Mohabeer, Aresh

Moodley, Geeven Valayatham
Moodley, Kirshnee
Naidoo, Rajendran Moonsamy
Naidoo, Vijandren
Ntshangase, Bhekani Aron
Patterson, Gregg Richard
Prato, Oren Roy
Reddy, Thireshan
Stevens, Michael James
Takoordeen, Mitesh Dharamrajh
Williams, Gary Langford
Wright, Shawn Wesley

✧ degree awarded *cum laude*

(Electronic Engineering)

Baranyay, Guy Miklos
Beutels, Leo Patrick
Budd, Damian Andrew John✧
Chana, Amish Harkisan
Colyvas, Spero
Davies, Mark Thomas
Debipersad, Sanjeev Chundurduth
Govender, Diagasen Moghambaram
Govender, Thaigananthan
Green, Breton Anthony★
Hallett, David Edward
Harilal, Kamal Balgopal
Huri, Jitesh
James, Gareth Robert
Judge, Garth
Makan, Divesh Kanthylal

Moodley, Perumal Shunmugam
Naidoo, Irvintra Thangavalu
Naidoo, Maxim
Oellermann, Timothy Ralph✧
Oxlee, Darren Neil
Pillay Narrainen, Rosy
Reddy, Nevindren
Schutte, Erich Kurt
Snowden, Michael
Somaroo, Priyend Sewlal
Sooful, Jayren Jugpal
Stone, Gavin
Vally, Shueyb Yunus
Willemsen, Martin Louis
Willemsen, Lloyd Andrew✧
Wood, Shawn Charles✧

✧ degree awarded *cum laude*

★ degree awarded *summa cum laude*

(Mechanical Engineering)

Allinson, Paul James
Cameron, Luke
Eksteen, Markus Sven
Elliott, Dean Justin
Fong, David Wingson Kai★
Gabriel, Carl Sunil
Gibbs, Dereck Brian
Gifford-Nash, Timothy Peter
Govender, Yougan
Jajbhay, Mohammed Iqbal Ahmed
Law, Stephen Mark
Maduramuthu, Poovenasen◇
Mason, Maurice John
Mbatha, Zamimpilo Dennis
Mendes, Arlindo Gil Paulo◇
Midgley, Kim Arthur
Mseleku, Benson S'Khumbuzo
Niedinger, Sascha

Osborne, Simon Miles
Palmer, Ian George
Perry, Gregory Marc
Poynton, Kenneth Taylor◇
Raghavjee, Rian Mansooklall
Ramsudh, Ashwin Inderjith, *BSc*
(UDW)
Reynolds, Jason James
Seetal, Rakesh
Telian, Ryan David
Vahed, Abdul Qader
Van Kan, Michael Nicolas
Von Klemperer, Christopher Julian
Weinert, Horst Dieter
Welch, Bradley Kenneth
Wenman, Bruce Grant
Wessels, Christopher John

◇ degree awarded *cum laude*

★ degree awarded *summa cum laude*

BACHELOR OF SCIENCE IN LAND SURVEYING

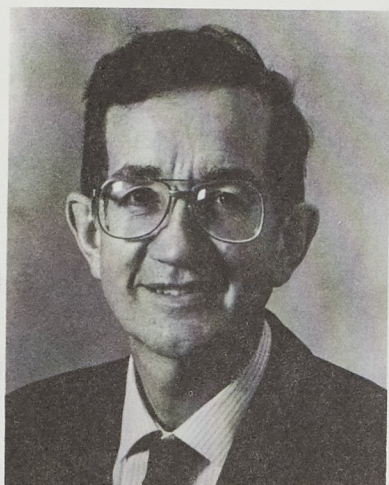
Akerman, Charles Conrad
Bradford, Angus Robert
Davies, Craig Allan
Du Toit, Ian

Hicks, Patrick Scott
Hitchins, Dudley Myles
Motala, Siddique
Thrash, Kenneth

POSTGRADUATE DIPLOMA IN ENGINEERING

Brand, Christiaan Pieter, *BScEng*
Harriram, Vishaykanth Ramdeo, *BScEng*

Meintsma, Jelle, *BScEng*
Moodley, Ganasen Yulganathan, *BScEng*



CONFERMENT OF THE DEGREE OF
DOCTOR OF MUSIC
HONORIS CAUSA, UPON
ANDREW TRAVERS NORMAN TRACEY

Andrew Tracey is one of South Africa's foremost authorities on African music. He is the son of Dr Hugh Tracey who was the founder of the International Library of African Music at Rhodes University. Andrew Tracey was born in Durban on 5 May 1936. He was educated at the Durban Preparatory High School and at Charterhouse in England. He studied at Exeter College, Oxford, where he obtained an MA in Social Anthropology.

His has spent a lifetime researching, performing, publishing, promoting and continually learning the many musics of Africa. In 1960 he assisted in founding the Kwanongoma College of African Music in Bulawayo, Zimbabwe. During the mid-60s he was Musical Director and also a performer in *Wait a Minim*, the South African stage show which played for seven years in Southern Africa, England, the United States, Canada, New Zealand and Australia. From 1961-63 and again from 1969-77 he worked as staff musicologist at the International Library of African Music. Since 1969 he has been editor of its journal, *African Music*. Since 1977 he has also been Director of the International Library of African music, its research institute and its archive of African music. After lecturing in music for two years at the University of the Witwatersrand, he was appointed lecturer in African Music at Rhodes University in 1979. Since 1980 he has been Organiser of the series of Symposia on Ethnomusicology and also editor of the proceedings.

His fieldwork research has taken him into all parts of South Africa and the subcontinent: Zimbabwe, Mozambique, Malawi, Zambia and Namibia. He has been productive not only in presenting aspects of his research at conferences and workshops in various centres in Southern Africa and as far afield as Jamaica, Norway and Portugal, but also in film production, recording of music, performing, playing and teaching instruments and adjudicating at eisteddfods. This includes writing and producing ethnomusicology films for Pennsylvania State University, performing the music for the film, *The Gods Must Be Crazy*, being leader of the Andrew Tracey Steelband since 1969, adjudicating at the Roodepoort International Eisteddfod, and playing more than six African and six non-African musical instruments. He has been invited to give guest lectures at most South African universities, as well as at various universities in the United States, Germany and Portugal. Through his exhibitions of African musical instruments and his performances he has shared his knowledge and love of African music with audiences throughout South Africa and in Europe.

National Anthem of South Africa

Nkosi sikelel' i-Afrika,
Maluphakanyisw' uphondo lwayo.
Yizwa imithandazo yethu,
Nkosi sikelela,
Thina lusapholwayo.

Morena boloka
Setjhaba saheso.
Ofedise dintwa lematshwenyeho

O se boloke, O se boloke
Setjhaba saheso
Setjhaba sa, South Africa
South Africa

Uit die blou van onse hemel
Uit die diepte van onse see
Oor ons ewige gebergtes
Waar die kranse antwoord gee
We can hear the land rejoicing
With a voice not heard before
Let the people of our country
Live in peace for evermore

A BRIEF HISTORY OF THE UNIVERSITY OF NATAL

In 1910, partly on the initiative of the Natal Colonial Government, the Natal University College (NUC) in Pietermaritzburg enrolled its first 57 students. A handful of Professors taught in various venues, even in a corrugated iron annexe behind Maritzburg College! In 1912 the Old Main Building at Scottsville opened.

But from the beginning there had been a strong feeling that Durban, too, should have the advantage of tertiary education. Here the Natal Technical College supplied the foundation, though by 1922 NUC had taken over courses in engineering and commerce. In 1932, Howard College opened on the Durban Berea. Thus was born an abiding feature of the NUC - its dual-based character. In scale it remains unique in South Africa.

With the dedicated assistance of the Fabian Socialist, Mabel Palmer, classes for so-called "non-europeans" were run by NUC from 1936 onward. Gradually the non-racial character of the institution established itself; though the Medical School, founded in 1951 for African, Indian and "Coloured" students still fitted the segregated pattern of the surrounding society. The National Party Government's University Act of 1959 was a blow to this emergent non-racialism. Overriding all protest, it not only imposed apartheid on the institution but also drew strict limits around the "autonomy" that the NUC had achieved in 1949 as the "University of Natal". Aside from the Medical School, persons of colour were forbidden to enter the University till racial restrictions were partly lifted in 1983. Since then the University has welcomed increasing numbers of students who are not white, whose overall numbers in 1993 stood at 48.8% of the University's total enrolment.

A major step in developing "dualism" was taken in 1952, when Dr E G Malherbe moved the administrative function from Pietermaritzburg to Durban. Departments in the two centres separated in 1973; though when academic expertise is needed, there is still much fruitful interchange between Durban and Pietermaritzburg. Today 9500 students are in the former centre and 5500 in the latter. There is a considerable overlap of subjects offered in Arts, Humanities, Law, Commerce and Natural Sciences. However, the Durban campus has long been recognised for its Engineering, Architectural and Medical Faculties; while Pietermaritzburg developed its highly regarded Agricultural Faculty.

The University of Natal has been fortunate in having some outstanding men as Principals and Vice-Chancellors. A sign of changing historical times has been the recent appointment of the first woman to achieve this status at a South African university, Professor Brenda Gourley. The largely ceremonial Chancellors, too, have been distinguished, not least the present incumbent, Archbishop Hurley. Among the alumni are men as renowned in their somewhat different fields of endeavour as Alan Paton and Steve Biko; while Honorary Graduates include Roy Campbell, Abdullah Ibrahim and Nelson Mandela.

The old order yields to the new. Today the University has embarked on a major re-evaluation of its role in future South African Society. This is reflected in its Mission Statement 1989, which dedicates the University in practical and realistic terms to service of the whole regional community, irrespective of race, sex, colour, creed or nationality. In incorporating development as a key component of its Mission besides teaching and research, the University has declared its commitment to upliftment but not at the cost of academic standards. This is the responsibility the University will have to shoulder in the stirring times that stretch up to the Centenary Year 2010.

