

This history of agricultural studies in KwaZulu Natal over a period of 75 years, from 1934 to 2009, gives a detailed overview of the establishment of formal agricultural studies in the province and focuses on the Faculty of Agriculture at the University of KwaZulu Natal. Alumni of “AgFac”, as it was affectionately known, have made their mark in agricultural research not only in South Africa but also internationally.

Today the School of Agricultural Sciences and Agribusiness, which replaced the old “AgFac”, has extended into the sociological and ecological significance of agriculture for the continent as a whole through its African Centre for Food Security (ACFS), and the African Centre for Crop Improvement (ACCI). Much attention is also being paid to the improvement and popularization of traditionally useful food and craft plants indigenous to Africa.

“Bill Guest’s scholarly research confirms that the original AgFac model, and its new millennium successor have much to be proud of ... it is therefore both timely and a cause for celebration that Bill Guest’s scholarly book is available for all those with an interest in the topic, as well as future scholars. This book also comes at a time when the achievements of the old order tend to be ignored, downplayed or even misrepresented ... congratulations to the author and to the publisher.”

(Prof. (Emeritus) B. Nigel Wolstenholme)



W.R. (Bill) Guest is a Professor Emeritus and Senior Research Associate in Historical Studies on the Pietermaritzburg campus of the University of KwaZulu-Natal. A doctoral graduate of the Howard College (Durban) campus of the former University of Natal, he has published a variety of articles and authored, co-authored and co-edited ten books on South African history, focusing primarily on the Natal-Zululand region.

(Photo: Cynthia Guest)



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A Fine Band of Farmers Are We!

Bill Guest



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*A History of Agricultural Studies
in Pietermaritzburg*

1934–2009

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PIETERMARITZBURG
2010

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FOREWORD

After a prolonged gestation, outlined in Chapter 1 of this book, the first agricultural students for a B.Sc. Agric degree enrolled for their first year science courses in 1947. The following year saw the first courses offered in the new Faculty of Agriculture. A small band of agricultural academics, representing the main production disciplines plus supportive disciplines unique to the Pietermaritzburg campus, bunkered down in Spartan conditions in the old military hospital at Oribi. They were appointed with dual loyalty as civil servants, paid by the Union government, but in other respects full university academics. The National Party was about to come to power, and the country was financially squeezed.

What came to be known as the “AgFac”, a term of affection as well as abuse depending on one’s viewpoint, in reality ceased existence as a Faculty in its own right in 1999. Major organizational changes in the University led to abolishment of all Departments, consolidation of Faculties (hence the new Faculty of Science and Agriculture), and establishment of Schools of like-minded disciplines. Old AgFac departments were allocated to several Schools in the new Faculty, with most landing in the School of Agricultural Sciences and Agribusiness. Hence, when 60 years of agricultural education were celebrated in November, 2008, the commemorative booklet was titled “Celebrating 60 years of agriculture”, rather than 60 years of AgFac. The University of Natal had become the University of KwaZulu-Natal in 1999 after merging with the University of Durban-Westville.

When, at the time, I found myself on a nostalgic visit to Ukulinga Research Farm and seated next to well-known historian Prof. Bill Guest, I wondered what attracted him to an agricultural occasion. I learnt that he was working on a research project – the history of agricultural studies on the Pietermaritzburg campus. His sources were mainly the University Archives and library collections, with many gaps. He was seeking the help of past and present AgFac academics and students for their recollections, insights and opinions, and stories to provide a more human face to an academic treatise. This was indeed welcome news, for many of us “old timers” had bemoaned the absence of such a work.

My personal association with the AgFac, as student and academic, was from 1955 through 1999 (one year as Honorary Research Associate) and therefore entirely with the now defunct Faculty of Agriculture at the University of Natal.

Today, a whole host of Centres and Programmes, often with strong environmental and sociological underpinnings, impinge on agricultural education in the broad sense. In the School Agricultural Sciences and Agribusiness, the African Centre for Food Security, and African Centre for Crop Improvement (ACCI) have been particularly successful in attracting donor finance and students. The end result was the virtual disappearance of the old AgFac collegiality, with a very different student in a very different milieu (I hasten to add, a no less worthy student!).

There are those (and I am one) who worry about the change of emphasis away from the core B.Sc. Agric. degree (and the reduction in students with the science and mathematics background and desire to tackle this degree). The result is a drying up of well-trained animal, crop, horticulture and pasture scientists and technologists, plus supportive scientists from more basic disciplines. These scientists are increasingly needed to keep our agriculture competitive as we head towards projected climate change and world food shortages. Radical change at UKZN since 1999 has produced both winners and losers.

Bill Guest's scholarly research confirms that the original AgFac model, and its new millennium successor have much to be proud of. It is remarkable how many AgFac innovations were later adopted by the University as a whole, including semesterization, student councils, student course evaluations, and supplementary examinations (a mixed blessing). The first two AgFac Associate Professors in the University went on to much greater things – Pete Booysen to Vice-Chancellor during challenging times, and Malcolm Sumner to a distinguished career in Soil Science at the University in Georgia. Brian Roberts founded the land care movement in Australia and received national honours. Many other examples could be cited. Let us take from the past what was good (and there was plenty), and build on it.

It is therefore both timely and a cause for celebration that Bill Guest's scholarly book is available for all those with an interest in the topic, as well as future scholars. This book also comes at a time when the achievements of the old order tend to be ignored, downplayed or even misrepresented. I trust that the book finds a ready market, even if the field is restricted. Congratulations to the author and to the publisher.

Prof. (Emeritus) B. Nigel Wolstenholme
Pietermaritzburg
September 2010

ABBREVIATIONS

ACCI	African Centre for Crop Improvement
ACFS	African Centre for Food Security
ACRU	Agricultural Catchments Research Unit
AIPF	Associated Institutions' Pension Fund
ANC	African National Congress
APC	Alan Paton Centre (UKZN, Pietermaritzburg Campus)
APRU	Agricultural Policy Research Unit
B Agric Mgt	Bachelor of Agricultural Management
BMT	Burning and Mowing Trial
B Sc	Bachelor of Science
B Sc (Agric)	Bachelor of Science (Agriculture)
CAABM	College Academic Affairs Board Minutes
CAADP	Comprehensive Africa Agriculture Development Programme
CEAD	Centre for Environment Agriculture and Development
CERDES	Centre for Rural Development Systems
CQCM	College Quality Committee Minutes
CSIR	Council for Scientific and Industrial Research
CUED	Centre for University Educational Development
DAAD	Deutscher Akademischer Austauschdienst
DACT	Department of Arts Culture and Tourism
D Agrar	Doctor of Agriculture
DBSA	Development Bank of Southern Africa
DET	Department of Education and Training
DNA	Deoxyribonucleic Acid
DP	Duly Performed Certificate
D Phil	Doctor of Philosophy
DRIS	Diagnosis Recommendation Integrated System
D Sc	Doctor of Science
EM	Environmental Management
FABM	Faculty of Agriculture Board Minutes
FRD	Foundation For Research Development
FSABM	Faculty of Science and Agriculture Board Minutes
FSG	Farmer Support Group
FTE	Full-Time Equivalent (Student)
ha	Hectare
HEQF	Higher Education Qualifications Framework
HSRC	Human Sciences Research Council
IDT	Independent Development Trust
ICFR	Institute for Commercial Forestry Research
ICPL	International Centre for Protected Landscapes
kms	Kilometres

KZN	KwaZulu-Natal
LEAP	Leadership Equity Advancement Programme
LIM	Land Information Management
M Ag	Masters in Extension and Resource Management
MBE	Master of the British Empire
M Env Dev	Masters in Environment and Development
MIDI	Msunduzi Innovation and Development Institute
MP	Malherbe Papers (In UKZNA)
M Sc	Master of Science
NASA	National Aeronautical and Space Aviation
NEHAWU	National Education Health and Allied Workers Union
NEPAD	New Partnership for Africa's Development
NRF	National Research Foundation
NUC	Natal University College
NUDF	Natal University Development Foundation
NCT	NCT Forestry Co-operative Ltd
NQF	National Qualifications Framework
PAABM	Pietermaritzburg Academic Affairs Board Minutes
PAM	Protected Area Management
PECM	Pietermaritzburg Executive Committee Minutes
PMB	Pietermaritzburg
QPA	Quality Promotion and Assurance
SAC	Science Advisory Council
SADC	Southern African Development Community
SAPSE	South African Post Secondary Education
SAQA	South African Qualifications Authority
SASC	Senate Academic Steering Committee
SATAP	Standardised Assessment Test for Access and Placement
SEAD	School of Environment and Development
SENEX	Senate Executive Committee
SERG	Science Education Research Group
Sci Fest	Science Festival (Grahamstown)
SFP	Science Foundation Programme
SFYP	Science Foundation Year Programme
SPAC	Soil-Plant-Atmosphere Continuum
TIETAC	The International Education and Training Advisory Centre
UKZN	University of KwaZulu-Natal
UKZNA	University of KwaZulu-Natal Archives (PMB Campus)
UN	University of Natal
USAID	United States Agency for International Development
VFT	Veld Fertilizer Trial
WRC	Water Research Commission

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I am indebted to the staff of the University of KwaZulu-Natal Archives and Library in Pietermaritzburg for facilitating my research in those repositories. I am grateful also to several staff members, ex-staff members and former students of the University for supplying me with their recollections and applying their various areas of expertise in commenting upon draft chapters of this book. Peter Allan, (Horticulture), Rob Gous (Poultry Science), Jeff Hughes (Soil Science), Kevin Kirkman (Grassland Science), Arthur Lishman (Animal Science), Michael Lyne (Agricultural Economics), Gerald Ortmann (Agricultural Economics), George Quicke (Biochemistry), Frits Rijkenberg (Plant Pathology/Microbiology), Michael Savage (Agrometeorology), Neil Tainton (Grassland Science), Mike and Pat Wallis (Microbiology and Genetics), Nigel Wolstenholme (Horticulture) and Pete Zacharias (Grassland Science) all read the text in whole or in part, providing invaluable input from the perspective of their general and expert knowledge in specific fields of agricultural studies in Pietermaritzburg. The inaccuracies and shortcomings that remain are entirely my own responsibility. Not least, I thank my wife, Cynthia, for her enormous contribution in typing and correcting this work to ensure its successful completion.

I am grateful also for the Durban-Pietermaritzburg 'inter-college' competitions of the early 1960s which, as a Durban participant, first aroused my interest in 'Ag Fac' through the prominence of its students at these sporting events. This youthful curiosity was fed many years later when, as a member of the University Research Committee during the 1980s and 90s, I was occasionally sent by its chairman (Professor Denys Schreiner), presumably as an outsider, to interview 'Ag Fac' applicants to the University Research Fund. This confirmed in my mind that it was, in some ways, very different from other sections of the University community, though it has taken many years (and semi-retirement) to embark on an exploration of that interest.

My thanks are also due to the Trustees of the Natal Society Foundation for accepting this book for publication, and to Peter Croeser and Jo Marwick for undertaking the onerous tasks of editing and page layout.

W.R. (Bill) Guest
September 2010.

W.R. (Bill) Guest is a Professor Emeritus and Senior Research Associate in Historical Studies on the Pietermaritzburg campus of the University of KwaZulu-Natal. A doctoral graduate of the Howard College (Durban) campus of the former University of Natal, he has published a variety of articles and authored, co-authored and co-edited ten books on South African history, focusing primarily on the Natal-Zululand region.

THE FACULTY ESTABLISHED: 1934–1949

The limited but expanding literature on the history of scientific research and the conquest of livestock and crop diseases in South Africa has hitherto been characterised by a pronounced emphasis on developments in the Cape. Notable exceptions have been some studies focusing on aspects of agricultural activity in the Transvaal, including veterinary training and research undertaken at Onderstepoort.

Relatively little attention has been given to the KwaZulu-Natal region, apart from a longstanding interest in the fortunes of the sugar industry, the expansion of wattle production and the conservation of indigenous game. The establishment of faculties of agriculture was an important further step towards the institutionalisation and sophistication of scientific research in that sector of the national economy.

The first three of South Africa's university faculties of agriculture experienced long gestation periods.

The oldest, at Stellenbosch, had its origins in the Agriculture Department which started in 1887 with five students at the Victoria College. It was removed in 1898 to Elsenburg and formally established in 1918 as a full faculty at the new University of Stellenbosch.

The second, in Pretoria, began with the agricultural science courses taught from 1907/08 at the Frankenwald estate north of Johannesburg as part of the Transvaal University College. It began to take shape from 1916 at what, in 1930, formally became the University of Pretoria.

The third agricultural faculty, established in 1948/49 in Pietermaritzburg, was the outcome of a prolonged campaign on the part of educational and other public figures in the Natal-Zululand region.¹

Foundations

The need for agricultural research and the dissemination of knowledge about local farming conditions was recognised nearly a century before Pietermaritzburg's Faculty of Agriculture came into existence. In its draft Rules of 17 June 1851, the newly-formed Natal Society included among its professed areas of interest 'the physical capabilities' of the region, its 'peculiarities of Climate and Soil' and the effective agricultural and commercial exploitation of its resources.

During its early years the Society organised appropriate lectures and encouraged farmers to contribute information 'on Agriculture and other subjects of general utility'. In pursuit of these educational objectives, the Natal

Society Library was launched, as well as an embryonic museum collection, which was subsequently to form the basis for the Natal Government Museum opened in November 1904.

A variety of research and teaching collaborations were to follow between that institution and the local Natal University College, founded six years later. These were initiated by Dr Ernest Warren, the Museum's first Director (1904–1935). In his capacity as one of the University College's initial eight professorial appointments, Warren conducted all his Zoology classes amongst the specimens and models he had on display, as well as making his office available as a venue for Senate meetings. Surprisingly, the close association between the two institutions was only formalised in a Memorandum of Agreement signed as late as February 2003.²

Two other significant cornerstones for potential future collaboration were laid at the turn of the century. In 1898 Natal's colonial government established the Allerton Veterinary Laboratory in Pietermaritzburg in response to the outbreak of rinderpest. It subsequently became an adjunct of Onderstepoort and a national monument. In 1902 a government agricultural research station was founded at Cedara. This was part of a broader post-Anglo-Boer War policy to develop the agricultural sector in southern Africa through the introduction of scientific farming methods. These were based on research emanating from university faculties of agriculture abroad which, it was hoped, would be implemented and adapted in ways appropriate to regional conditions by institutions like Cedara.³

At least one local farmer, Joseph Baynes, was already applying progressive farming techniques to develop his property at Nels Rust, not far from Pietermaritzburg, into a model estate. Baynesfield, as it became known, comprised approximately 9 716ha with a variety of altitude, soil and pasture conditions. In common with many other nineteenth century colonial farmers, Baynes experimented with several crops before specialising in ranching and dairying. Following his death, childless, in 1925, his will dictated that the Baynesfield Estate was to be administered for the benefit of the people of Natal by a Trust whose function, in part, was to promote agricultural research. The manager at Baynesfield, John Grant, recognised the need of farmers for higher educational standards as agriculture became more scientific. He became closely associated with Cedara and favoured the establishment of a Faculty of Agriculture at the Natal University College. In this way yet another potential cornerstone was laid for future collaboration.⁴

The establishment of that facility still lay far in the future. Such a proposal did not feature at all in the protracted negotiations which preceded the foundation of the Natal University College in 1910, though the first eight chairs created did represent a careful balance between the humanities and the sciences. In 1909 an article in *The Natal Witness* responded to the proposal

that ‘holiday courses’ in Agriculture might be given as funds became available by arguing that ‘in a country like ours, agriculture should be made the subject of a chair of its own and not be relegated to mere holiday courses.’

As early as 1928 John William Bews envisaged the creation of a Faculty of Agriculture on the campus in Pietermaritzburg and of a Medical School in Durban. At Inchanga that year he persuaded a crucial meeting of wavering delegates from both centres that a dual-campus university for the two cities was indeed viable. His ambitions for the development of these two new faculties had to be held in abeyance while the University College struggled to establish Arts and Science and to balance the competing expectations of both urban centres in this regard.

On arrival in Pietermaritzburg Bews immediately found a local research interest (see ‘The vegetation of Natal’, published in the *Annals of Natal* Vol 2, 1912). In the following year he published ‘An ecological survey of the midlands of Natal, with particular reference to the Pietermaritzburg district’ in the *Annals of Natal*.

By the 1920s Bews had firmly established his international reputation as a scientist, his interest in Botany having been thoroughly subsumed into an all-embracing study of ecology. This was reflected both in his teaching and in extensive publications on the fascinating environment in which he found himself. These confirm his broadening scientific interest and explain his enthusiasm for the establishment of a Faculty of Agriculture in the region. Among the more notable of his thirty papers and books were *The Grasses and Grasslands of South Africa* (1918), *An Introduction to the Flora of Natal and Zululand* (1921), *Plant Forms and their Evolution in South Africa* (1925), and his most acclaimed *The World’s Grasses – their differentiation, distribution, economics and ecology* (1929).



John William Bews

John William Bews, professor of Geology and Botany from 1910 at the Natal University College and its first principal (1930–1938). Born in 1884 in the Orkneys, Bews had the benefit of a broad education before graduating in 1907 with a B Sc from the University of Edinburgh, majoring in Botany. After lecturing briefly at Manchester and Edinburgh, he spent the rest of his academic career in Natal, except for a twenty-month interlude in Newcastle-on-Tyne which served to convince him that his future really did lie in southern Africa. He was awarded a doctorate in Edinburgh for his work on the ecology of the Natal midlands.

During the 1930s he went on to produce *Human Ecology* (1935) for which his friend General J.C. Smuts wrote a foreword, and *Life as a Whole* (1937). Both of these works clearly expressed the extension of his ecological interests to human society and to the philosophy of holism with which Smuts was associated.⁵

By the mid-1930s, as South Africa emerged from the prolonged 'Great Depression', Bews had become convinced of the need for a local Faculty of Agriculture. Since the establishment of a College of Agriculture and Forestry there in 1905, Cedara had been providing invaluable practical training for farmers but there was a growing demand for more locally-focused research and better qualified, scientifically trained research workers.

This emerged at what proved to be a seminal meeting on 19 June 1934 between a delegation of University College staff members led by Bews and Cedara staff headed by their Principal Dr John Fisher. The event was almost certainly arranged by these kindred spirits, for Fisher, like Bews, was deeply interested in the local environment and had already established himself as an expert on grasses, especially *kikuyu*. Just three years younger, he had acquired diplomas in Agriculture and Dairying in his native Lancashire before graduating from the University of Edinburgh two years after Bews (1909) with a B Sc in Agriculture. He had immediately started teaching Biology at Cedara and, after a brief stint in 1916 as vice-principal at Elsenburg, had commenced a thirty-year career as Cedara's head. In that capacity he dedicated himself to providing the sound training for which the College was renowned and to guiding its research into the improvement of pastures and livestock.

In 1936 the University of South Africa, through its constituent Natal University College, awarded him an honorary doctorate for his service to local farming and, in particular, his research on cultivated pastures. He subsequently went on to publish *Farming – practical and scientific* (1949) and *Agricultural science for secondary and high schools* (1951).

Fisher's concern for improved teaching and research in Natal was already evident at the June 1934 meeting when he pointed to the absence of any post-diploma agricultural education in the high rainfall eastern region of the country which was comparable to that provided in other parts of the Union. He stressed that 'mere practical training' was insufficient in an age when 'more scientific knowledge' was essential to make smaller farms profitable.

He advocated closer co-operation between the University College and Cedara in the training of agricultural teachers and argued that his institution should be allowed to provide higher level education than the current diploma in agriculture.

The meeting agreed that the 'unilingualism' which characterised agricultural education in Stellenbosch and Pretoria needed an English-medium complement in Natal and that the agricultural training provided

should be appropriate to a much wider range of employment opportunities than those offered in government service. There was also unanimity that some co-operative arrangement should be formulated 'in the public interest' between Cedara and the Natal University College in order to address 'local problems' that could not effectively be resolved elsewhere under other climatic conditions.

The difficulties referred to were associated with various agricultural activities in three broad bioclimatic zones within the region. By the 1930s sugar was well-established as the dominant crop in the Natal-Zululand coastal lowlands, which rise to approximately 400 metres above sea level. During the latter half of the nineteenth century a combination of inadequate capital, expertise and local markets, coupled with difficult to control insect pests and diseases, had conspired to prevent arrowroot, indigo, tobacco, cotton, coffee and tea from becoming the major coastal staple that the region desperately needed.

Since 1911 the area under sugar-cane cultivation had increased nearly fourfold and production more than sevenfold, with the result that it was contributing approximately ten per cent of the gross value of South Africa's agricultural output and the country was rapidly becoming a net exporter rather than importer of the product.

In Natal's midlands mist belt, stretching roughly from Ixopo to Greytown, rising to an altitude of between 900 and 1 400 metres and enjoying annual rainfall of 800 to 1 600mm, wattle (Australian acacias grown for bark tannins) had become prominent. This tree crop had initially been introduced during the mid-nineteenth century to meet the local demand for building materials and firewood, and to soften the bare inland landscape.

The international demand for the tannin content of wattle bark, and subsequently wattle extract, for the leather tanning industry, had promoted a major export staple during the late nineteenth and early twentieth centuries. During the 1920s wattle products actually outstripped sugar as a foreign exchange earner and emerged as South Africa's fourth largest export. Wattle export earnings continued to increase during the 1930s and 40s and only began to lose momentum in the following decade. They were eventually eclipsed in importance by eucalypt and pine plantations.

Mixed farming (cattle, sheep, maize, fodder crops and vegetables) declined significantly in the midlands as more land was brought under wattle cultivation, but continued to predominate in the highlands of the province, which constituted its third broad bioclimatic zone at an altitude of 1 400 to 1 950 metres. The wattle and sugar industries established their own research institutes (in 1947 and 1949 respectively) but there were numerous other 'local problems', as Fisher termed them, to attract the attention of agricultural scientists and their students.

These did not yet include the difficulties faced by peri-urban Indian market gardeners, and by subsistence farmers in the over-crowded and under-resourced black reserve areas. They were related more specifically to the efforts of white commercial farmers to produce subtropical fruits along the coastline, as well as to their dairy-farming, cattle, sheep and poultry breeding activities, and to soil conservation, pasture management (including both cultivated introduced species and indigenous grasslands) and crop production in the midlands and northern districts.

The challenges faced were by no means all unique to the region which, in turn, had also contended with a variety of scourges that were widespread in southern Africa. Not the least of these were the livestock diseases rinderpest, east coast fever, bovine lung sickness and glanders.⁶

Fisher subsequently elaborated on some of the points he had made at the June 1934 meeting in a detailed Memorandum. He again emphasised the urgent need for a more advanced level of agricultural research and teaching in Natal-Zululand, arguing that, in the modern world, 'anyone who lays claim to being considered a skilled farmer should be professionally as well-equipped as a professional engineer.'

He prefaced his remarks by illustrating Cedara's capacity to provide the advanced research and tuition needed with reference to the College's recent experimental successes in grazing and milk production. Fisher argued that graduates in agriculture should no longer regard themselves simply as prospective employees in specialised government service posts.

Proposals in Natal to introduce more agriculture into school curricula would, he believed, create a demand for suitably qualified teachers, while in business and industry there was also a growing need for 'a wider acquaintance with scientific agriculture'. He expressed confidence that the initial expenses involved in establishing a Faculty of Agriculture in Natal would be 'very small' as the 'main item in costs – a suitably situated, well-stocked farm within easy reach of the Natal University College – is already provided for' (in the form of Cedara.) He did envisage some subsequent expenditure as the final years of study were introduced, such as a bacteriological laboratory to support dairy science, a couple more lecturers, a librarian and further library facilities. Fisher suggested that the staff at the Allerton Laboratory might be allowed to teach whatever veterinary science courses were included in the curriculum, in the same way as Onderstepoort assisted the Faculty of Agriculture in Pretoria. A fully-fledged school of veterinary science in that mould was really much more than could be hoped for but not a Faculty of Agriculture.⁷

A faculty proposed – and delayed

There was some uncertainty as to whether the proposal should be broached with the Union Ministry of Education or of Agriculture but, in January 1935,

after Fisher's Memorandum had been forwarded to the latter Department, it was rejected. In doing so the point was made that, although farming conditions did indeed vary in different parts of the country, agricultural training at university level involved imparting 'basic scientific principles' which were 'fundamentally the same irrespective of the centre at which these are taught.' The need for higher agricultural training therefore had to be considered on a national rather than a regional basis.

The findings of the 1921 Committee on Agricultural Education to the effect that the training of degree-level agricultural students should be restricted to the University of Stellenbosch and the Transvaal University College were deemed still appropriate in view of the fact that those two facilities had not yet been utilised to their full capacity. It was also argued that Cedara's 'important function' of training future farmers and providing extension services would be 'seriously curtailed', necessitating the provision of another School of Agriculture in Natal, if it were to take on the additional task of teaching to degree level, appointing additional staff and incurring further expenditure.

The Department of Agriculture did give the assurance that it was 'not unmindful of the claims of the Natal University College to a Faculty of Agriculture' and that these would be given 'due consideration' when 'population and conditions' warranted it. The reference to 'population' did not, apparently, refer to the region's vast black majority.⁸

Conditions were already changing as local public interest in the issue increased. A sub-committee of the Pietermaritzburg City Council had met with Natal University College representatives in November 1934 to discuss the establishment of such a Faculty.

In July 1935 the Natal Provincial Executive Committee, prompted by similar discussions, raised the matter with the national Department of Education. It repeated the arguments presented in Fisher's Memorandum, adding to it a plea for the provision of agriculturally-related courses in English and pointing to the urgency to train black as well as white students in this field.

The Ministry was unmoved, ignoring the rare reference to black educational needs and contending that the issue of medium of instruction did not provide 'sufficient justification for duplicating the facilities for higher agricultural training.'⁹ By August 1936 the Minister of Agriculture had decided that the idea was, after all, worth investigating more fully, appointing a three-man Departmental Committee comprising I.P.J. du Plessis, the Principal of Glen School of Agriculture (chairman), J.W. Bews of the Natal University College and Professor J.C. Ross, Dean of the Faculty of Agriculture, University of Pretoria.

Fisher submitted another long Memorandum on behalf of Cedara, elaborating upon his earlier arguments in support of more sophisticated training for the region's prospective farmers and for those teachers who wanted to work in rural schools with an emphasis on agriculture.¹⁰ The Committee duly reported

in mid-October 1936. It concluded that the facilities at Cedara could indeed serve as the basis for a Faculty of Agriculture at the Natal University College but that additional staff, buildings and equipment would be necessary if existing functions were also to be maintained. These would amount, conservatively, to £34,500 in initial capital expenditure in addition to the current annual £20,000 to run Cedara as a College of Agriculture. The estimates were supported by pointing out that the already established 'School-Faculty combination' at Elsenburg-Stellenbosch cost £54,000 a year to maintain.¹¹

These calculations were, nevertheless, more than sufficient to delay the development of Natal's Faculty of Agriculture even further. Public support for the proposal continued to gather momentum, with the Natal Agricultural Union and the East Griqualand Farmers' Congress both passing resolutions in support of it.¹² During the 1938 parliamentary session F.N. Broome, M.P. for Pietermaritzburg District, organised a deputation of Eastern Transvaal, Eastern Cape and Natal parliamentarians to stress the need for a Faculty of Agriculture, that would serve the eastern region of South Africa, upon the Departments of Agriculture and Education.

Broome's document to that effect, which highlighted the 'special facilities' that Pietermaritzburg already enjoyed in the form of Cedara, the Allerton Laboratories and Natal University College, was signed by all members of the deputation and supported by memoranda from Fisher and R.B. Denison, the new Principal (1938–1944) of the University College following the untimely death of Bews. It was to little avail, for the Minister of Agriculture, Colonel W.R. Collins, responded that 'owing to financial stringency' the Finance Ministry was unable to include this item in the current estimates 'but hoped for better luck next session.'¹³

While Government continued to prevaricate, the Pietermaritzburg City Council again took the initiative by convening a meeting of various local public bodies to approve a resolution in support of establishing the envisaged Faculty 'without any undue delay'. Fisher's earlier arguments were echoed in stressing that South Africa's eastern grassveld regions were 'not receiving adequate study' and had 'potential' that was 'not fully appreciated', yet the existence of Cedara and Baynesfield could minimize the expense of launching the proposed agricultural faculty.

On 15 June 1939 a Natal Agricultural Research Advisory Committee was formed and, as a demonstration of broad local enthusiasm, it was decided that the resolution carried at the meeting would be presented to the then Deputy Prime Minister, General J.C. Smuts, and to the Minister of Agriculture when they visited the Royal Show in Pietermaritzburg.¹⁴ This strategy did not have the desired effect but, undeterred, the campaign continued. As one of its champions, J.H. Farrant (chairman of Pietermaritzburg's Publicity Association), observed to Denison, 'if we ever let go and allow the question to slide, we shall never get the Faculty, so many influences are at work' – a

dark reference to suspected, unexplained obstructionism in Pretoria which was probably financially motivated.

The cause did gain an additional influential voice in Senator F.C. Hollander, whose repeated efforts to convince Government of the need for further agricultural education in the region were highlighted in the local press. In an April 1943 editorial *The Natal Witness* argued that a 'Chair' of Agriculture at the Natal University College

'would do much to remove agricultural education and research from the Department of Agriculture and political influences. ... Agricultural research and education should be taken out of the hands of the department, and given the freedom so necessary if the future of farming in this country is to be developed along modern scientific lines.'

It insisted further that the curriculum in all the province's rural schools should have 'an agricultural bias', which would only become feasible if the local University College was endowed with the requested 'Chair' to assist in overcoming the current scarcity of suitably qualified teachers.¹⁵

This point was reiterated by a deputation from the Natal Agricultural Union when it met with Denison in December 1943. A.J.W. Bayer, the Natal University College's Professor of Botany, gave the assurance that the Minister of Agriculture accepted Natal's claims but was delayed only by the prevailing war-time situation. Denison concurred with the Agricultural Union that it and local private donors could not be expected to provide much financial support for the proposed Faculty and that Government would have to bear the expense, as it did at Onderstepoort-Pretoria and Elsenburg-Stellenbosch. He nevertheless insisted that it should be given a further indication of costs and anticipated student numbers, undertaking to consult Fisher, in his capacity as Principal at Cedara, in this connection.¹⁶

The latter put his now extensive experience in preparing memoranda on the subject to good effect and wasted no time in completing his report on 5 January 1944. In it he revived his and Denison's previous arguments, envisaging a Faculty of Agriculture that would draw upon the combined resources of the Natal University College in Pietermaritzburg, the Agricultural College at Cedara and the 9 716ha Baynesfield Estate, left in trust to advance the cause of agricultural research and education. His estimates of costs were substantially higher than those put forward by the 1936 Departmental Committee: £50,000 in initial capital expenditure and £11,000 for annual maintenance.

In Parliament Pietermaritzburg MPs R.M. Fawcett and Colonel O.L. Shearer took up the cudgels, gaining a sympathetic ally in J.G.N. Strauss, the then Minister of Agriculture in the war-time Smuts Government. *The Natal Witness* editorials supported Fawcett in urging the relevant public bodies to join forces

again in demanding a Faculty of Agriculture at the Natal University College so that it could offer adequate training for returning soldiers and meet the peculiar needs of the region's farming community.

The Natal Witness repeated Denison's point that 'the crux of the matter is finance', and that Government needed to be given some indication as to the extent of local support it could expect in that regard. It called upon the Pietermaritzburg City Council to vote a substantial increase to its small annual grant to the campus, pointing out that while it had provided the original Scottsville site for that institution, the latter generated approximately £600 a year in rates as well as an incalculable amount of staff and student expenditure in the City.

The Natal Witness further declared that the town had hitherto 'done disgracefully little' for the University College and that it now faced 'a very real danger' of losing this valuable asset to the 'strong forces' which were urging its complete removal to Durban as soon as it acquired its status as a fully-fledged university, independent of the University of South Africa. A Faculty of Agriculture, it contended, would strengthen the City's status as an educational centre and might help to maintain it as a university town.¹⁷

The imminent attainment of full university status and the perceived threat that the institution might be concentrated entirely in Durban became major distractions from the campaign to realise the Faculty for Pietermaritzburg. Nevertheless, influential voices off-campus continued to give their support to the cause.

In the Natal Provincial Council Captain B.H. Henwood proposed a motion in favour of establishing such a Faculty and Shearer organised a deputation of all United Party Members of Parliament, including the current Minister of the Interior, Natal's own Senator C.F. Clarkson, to impress upon the Minister of Agriculture the urgency of providing that facility. Strauss reiterated his earlier sympathy for the proposal, indicating that he would request the Minister of Finance to include it on the supplementary estimates, but conceding that it would be difficult to change his Department's earlier recommendation against its establishment.¹⁸

E.G. Malherbe takes the initiative

On 26 July 1945 Strauss conferred with the directors of the Baynesfield Estate and the following day met a large deputation of public representatives in the Pietermaritzburg City Council Chamber, led by Shearer, which was unanimous in its support for the establishment of the Faculty. Dr. E.G. Malherbe pointed out that the Faculty of Agriculture in Stellenbosch had no less than twelve professors and twenty lecturers while that in Pretoria had a complement of fifteen professors and seven lecturers, not counting the

veterinary staff at Onderstepoort. However, Natal University College could provide the necessary basic sciences: chemistry, botany, physics and zoology, while after the first year of training Cedara could be utilised if its resources were further developed. Research at the two institutions would have to be integrated for the regional and national benefit and the research potential of Baynesfield further explored.

J.S. Marwick, chairman of the Board of Trustees of the Baynesfield Estate, indicated its 'willingness to co-operate in the enterprise' and pledged £3,000 towards the launch of a public appeal for financial support. Minister Strauss confirmed that the proposal would indeed involve considerable expenditure and that a committee should be formed to establish what contributions the various interested parties would be willing to make and how much would be expected from Government so that he could inform the Cabinet.¹⁹

The committee, chaired by Malherbe, who now emerged as the chief protagonist of the cause, was duly drawn from the various representatives at the meeting. It was, in *The Natal Mercury's* estimation, 'a big step forward'. Malherbe's war-time service as Director of Census and Statistics (1939–45), Director of Army Educational Services (1941–45) and Director of Military Intelligence (1942–45) gave him influential connections in the Smuts post-war Union Government, not least with the Prime Minister himself, whose close acquaintanceship through family friendship was already several years old.

As a former Director of Educational and Social Research (1929–39) Malherbe was also well aware of current policy to provide training opportunities for ex-servicemen in the face of a serious post-war shortage of expertise in a variety of fields. These included agriculture, for which there were also ambitious developmental plans. After launching the University College's ten-year



E.G. Malherbe

E.G. Malherbe, newly-appointed Principal of the Natal University College (1945–1965), expressed his confidence in the triple foundation upon which it could be built – Cedara, Baynesfield and the Natal University College. These, he contended, were 'assets' probably far in excess of those available to South Africa's other agricultural faculties when they were established. He did caution that a new faculty would 'cost quite a bit of money', necessitating the creation of more than one academic chair.

£1.2 million general expansion scheme he succeeded in attracting an initial £150,000 from the province's business sector as well as its sugar and wattle industries. He also made numerous weekend trips to various rural centres to appeal for further support. 'Natal', he declared, 'will get as good a University as it deserves – as it is prepared to exercise its own generosity in building up.'

There was some local concern that while the cost of the proposed new Faculty of Agriculture should be borne primarily by the Department of Agriculture, 'it would most certainly lose its independence under such an arrangement.' Malherbe, meanwhile, pointed out that the £21,000 a year currently spent by Government on Cedara was by far the lowest outlay on the Union's leading agricultural institutions, and that another £24,000 would be needed to run a fully-fledged Faculty of Agriculture as well as between £75,000 and £100,000 in capital expenditure on buildings and other facilities.²⁰

Following a meeting with the Minister of Education J.H. Hofmeyr, and Shearer, Smuts agreed to set aside part of the Oribi Military Hospital on the outskirts of Pietermaritzburg as a university residence for between 200 and 300 ex-sevicemen. This saved them from the all-too familiar discomfort of being accommodated in tents. Before the end of 1945 the conversion of the barracks into 200 single rooms as well as sixteen flats for married students had started and the necessary furniture was ordered. It was seen as an interim measure prior to the completion of a proposed £120,000 men's hostel to be built on land recently granted by the Pietermaritzburg City Council near the site of Epworth School.

On 26 November 1945 Malherbe, now fully in charge of the whole scheme, announced that the projected Faculty of Agriculture Building would also be erected on this site and not at Cedara as previously envisaged. Experimental work would continue to be conducted at the latter and later possibly at Baynesfield as the soil at the Epworth site was poor. Cedara would continue to offer its diploma courses, with its work being enriched by the input of the professors employed at the envisaged new Faculty. Building plans for the latter were already being drawn, though the estimated initial capital expenditure had risen to £161,000 and annual maintenance expenditure to £38,000. This, Malherbe argued, compared favourably with Stellenbosch's £63,000 a year and Pretoria's approximately £103,000 a year if one included the latter's veterinary dimension. He cautioned that even if Government was to grant immediate approval for the new Faculty it would not be able to open its doors before the end of 1946.

The shortage of readily-available qualified staff was another challenge, though preliminary enquiries had elicited some favourable responses from South African researchers currently working abroad.²¹

The Faculty of Agriculture approved and financed

In February 1946 Malherbe was at last able to announce that on the 11th inst. Government had approved the establishment of a Faculty of Agriculture at the Natal University College. Further, that it was prepared to finance the construction of an agricultural science block at an estimated cost of between £100,000 and £150,000 as well as estimated annual running expenses of between £30,000 and £35,000.

These allocations were conditional upon the University College sharing with Government the estimated £40,000 cost of providing new residential accommodation for agricultural students and the estimated £70,000 expenditure involved in extending the existing biological science block to meet their requirements.

This meant, as Malherbe indicated, that the public would have to demonstrate that it really wanted such a facility, to which Grey University College in Bloemfontein (founded in 1904) also aspired (and, as the University of the Orange Free State, subsequently acquired in 1958.) The Natal University College's £55,000 shortfall would have to be met by further public donations. Student fees covered only one third of current annual running costs and the salary bill would have to be increased by £20,000 to provide teaching staff for agricultural students.

The local press called upon the Natal Provincial Council, larger municipalities and private donors to respond and highlighted the enthusiasm which Malherbe had already aroused for this cause in the province's white farming communities. *The Natal Mercury* suggested, hopefully, that Government's unwillingness to meet all the costs was 'a blessing in disguise' because it would 'ensure that the new Faculty will enjoy freedom of action and decision instead of being tied to the apron strings of the Department of Agriculture', as was the case with existing agricultural faculties.

The Natal Witness expressed regret that Government's conditional allocation of funds 'prevents the immediate establishment of the Faculty' but considered it appropriate that the local public should contribute towards 'providing facilities which promise to be so beneficial to the economic life of the Province.'

It suggested, more cautiously than *The Natal Mercury*, that the relationship between the Department of Agriculture and the nation's faculties of agriculture should now be 'modified'. Instead of close ministerial control, as in the past, to the extent 'that they might almost be regarded as Departmental stations' such institutions, it argued, should be free of 'administrative' and 'political' influences by being situated in an academic atmosphere in which 'scientific research workers are guided by one consideration alone: the advancement of learning.'²² It was to take another three decades before that ideal was achieved.

On 26 February 1946 male students began moving into the converted facilities at Oribi Military Hospital, even though some rooms were without doors and floor mats and were awaiting the teak furniture acquired from the War Disposal Board. Married quarters were also still being completed but the facility was already fully staffed under the supervision of Dr R.L. Rosenberg as warden. An ex-army troop carrier was made available in terms of a government 'ex-servicemen's study agreement' to enable students, including first-year 'Agrics' taking basic science courses, to get to the Scottsville campus and back, mornings and afternoons, on a regular basis.

On the same day (26 February) the White Paper on Agricultural Policy presented to the House of Assembly in Cape Town formally announced the establishment of South Africa's third Faculty of Agriculture. Shearer revealed that it was intended to appoint professors in the fields of dairying, animal husbandry, field husbandry, pasture research, entomology, horticulture, biochemistry, agricultural engineering, agricultural economics and genetics, with a senior professional officer in charge of biometry.²³

The White Paper stressed the need for more agricultural research and commensurate expenditure in the post-war era, thereby illuminating the broader context in which the new agricultural faculty had been approved. In May 1946 Dr Philip, Director of Research for the South African Wattle Growers' Union, announced that plans for the establishment of a wattle research institute adjacent to the new Faculty of Agriculture were already at an advanced stage. The Wattle Growers had agreed to contribute £12,500 of the estimated £25,000 in costs while Government had increased its initial offer of £7,500 to £10,000 and building would start within two months if the shortfall could be found as the plans had already been drawn. The former were also willing to contribute £14,500 a year in maintenance costs for the first three years and the latter a maximum of £5,000.²⁴

Bridging the financial gap in order to launch the new Faculty in all its dimensions became one of Malherbe's major pre-occupations. In February, after some dissension, the Pietermaritzburg City Council granted the Natal University College £10,000, with the possibility of as much to follow in 1947, though the money was not specifically earmarked for the new Faculty. At a meeting in Estcourt Malherbe suggested that a hundred communities in the province should each raise £1,000 a year in memory of those who had fallen during World War II.

Fund-raising for the Faculty soon became enveloped in the broader campaign to achieve full university status for the Natal University College and to strengthen this with significant indications of local support in the form of public donations. Some modest contributions were earmarked specifically for financing the new Faculty of Agriculture: £26–5 shillings from the Lion's River District Dairy Farmers' Association, £100 as the first of an intended annual

grant from the Pietermaritzburg Milk Interests' Association and a promised fund-raising drive by the Richmond Farmers' Association.²⁵

The Faculty established and staffed

On 9 March 1946 Malherbe informed the Department of Agriculture that the Natal University College undertook to accommodate all agricultural students and to cater for their initial instruction in basic science by extending its existing laboratory facilities. He also gave the assurance that agricultural courses would be taught in both Afrikaans and English, modifying earlier demands for a unilingual English-medium Faculty.

The Department, in return, undertook to finance the new Faculty building in its entirety and to meet the annual running expenses. The plan of the building was formally accepted and in September 1946 the Natal University College Senate and Council approved the appointment of the Faculty's first Dean. Unfortunately, no salary had been provided for him in the 1946 Budget so he could only assume the post on 1 April 1947.²⁶

It remains uncertain to what extent Malherbe himself was responsible for identifying an appropriate individual, a fellow-Free Stater, for the crucial role of launching the new Faculty of Agriculture. In accepting the Deanship Dr A.R. (Rabie) Saunders also simultaneously became Professor of Genetics (with responsibility also for Agronomy) and Director of the Natal Agricultural Research Institute, based in Pietermaritzburg in conjunction with the new Faculty. The latter post made him responsible to the Department of Agriculture (subsequently the Department of Agricultural Technical Services) for all agricultural research in Natal, except for that on sugar. His earlier career reflected the necessary energy and versatility which these tasks demanded of him.

In 1925 the Department of Agriculture appointed him research agronomist at the Potchefstroom College of Agriculture. There he conducted a major research programme on the cultivation of soybeans, cowpeas and maize, establishing himself as South Africa's leading plant breeder through such achievements as the production of a non-shattering soybean, an upright cowpea and so-called 'Potchefstroom Pearl maize'. In 1933 the University of Pretoria awarded him a D.Sc. (Agriculture) for his research on *Striga lutea* Lour., the "witchweed", a major plant parasite of grasses, especially maize. He was invited back to the USA to advise on the control of that parasite before enlisting in the South African armed forces during World War II and being assigned to special duties as Deputy-Director of Food Production.

In October 1945 he was appointed Assistant Director for Agricultural Education and Research. In that capacity he represented the Department of Agriculture on a scientific mission to Britain and was back in the USA studying



A.R. (Rabie) Saunders

A.R. (Rabie) Saunders was born and educated at Boshoff in the Orange Free State. He took an Arts degree, majoring in Classics and Philosophy at Grey University College in Bloemfontein before being sent by the Department of Agriculture to study Agronomy in the USA. He returned with qualifications not only in that field but also in Genetics and Plant Pathology after completing Honours and M Sc degrees at Kansas State College and the University of Wisconsin (1920–24).

the organisation of agricultural research and training at the time of his triple posting to Pietermaritzburg.²⁷

It was an inspired appointment for, as one of the Faculty's foundation staff members (Arthur Rayner) later observed, 'it is difficult to imagine anyone more suitable for the job of founder and first Dean'. Initially Saunders was a Dean without a Faculty and without an office on campus. The estimates for the new Faculty Building were approved in May 1947 but tenders were not called for until December 1949, due to numerous delays. Saunders and his clerk, R.L. Colenbrander, were allocated rooms at the regional headquarters of the Division of Soil Conservation and Extension Services in the old police barracks in Alexandra Road. Not surprisingly, under the circumstances, he placed his initial emphasis upon the Directorship of the new Natal Agricultural Research Institute, publicising the 'wide programme of research' upon which it intended to embark into problems peculiar to the eastern region of southern Africa.

This post subsequently became the Directorship of the Natal Region in the Department of Agriculture. In 1947 the first batch of 54 agricultural students were accepted, though Saunders did not see them until they had completed their basic first-year courses in the Faculty of Science. In October 1947, in anticipation of their promotion to second-year level, the Natal University College accepted his proposal that the new Faculty of Agriculture should comprise twelve departments and Government approved the creation of 25 posts to enlarge Saunders' initial staff of one administrative clerk. Applications closed on 25 October and the first appointees were announced in February 1948.²⁸

At that stage, although under the academic control of the Natal University College, the Faculty of Agriculture was administratively still part of the Natal Agricultural Research Institute and therefore under Saunders' authority in his capacity as Director of the Natal Region. So too was Cedara College, the region's various experimental stations and its conservation and extension services. As such it was financed by the Union Department of Agriculture, subsequently known as the Department of Agricultural Technical Services.²⁹

In terms of the 1948 Agreement (amended in 1963) between the Minister of Agriculture and the Natal University College, staff members were appointed by consultation between the two. As was the case with South Africa's other two agricultural faculties, all staff appointments had to be approved by the Public Service Commission and any confidential documents received from that quarter relating to appointments could be considered only by a special committee of the Faculty Board. Staff members were both officers of the Department of Agricultural Technical Services and of the University College. As such, they were subject to an anomalous combination of Public Service and University conditions of employment. Unlike the University College's other faculties, in Agriculture all staff members had to be bilingual (Afrikaans and English).

After the preliminary year of study instruction was to be given in both official languages 'on a basis of equality', the language used in any particular course being at the discretion of the instructor concerned, subject to Faculty approval. Whenever possible, lectures in a particular course were to be given in one language and practical instruction in the other. This posed a particular challenge for the many Kenyan and 'Rhodesian' students who had little or no Afrikaans and constituted a large segment of the Faculty's student body in its early years. Unilingual students were encouraged to register for the University's special language courses, as appropriate, in their first year of preliminary science studies but were free to use English or Afrikaans when writing their examinations.³⁰

By the end of 1948 the Faculty had appointed eleven members to its academic staff, excluding Saunders himself, and had attracted 86 students, rising to 92 registrations by March 1949. Among its earliest students were future staff members Peter Allan, George Hunter and Dieter Reusch. Its initial staff complement, some of them quite unknown in South Africa's still small academic world, were to prove themselves an impressive teaching and research team which attracted students from all over South Africa and its neighbouring states.

Staff and students were all white, and were to remain so for nearly forty years, for the campaign to launch a Faculty of Agriculture had been fought almost entirely with the interests of white education in mind. The University did, unsuccessfully, forward to Government an appeal for the provision of similar training facilities for blacks, which had been led primarily by Professor D. Coles of Onderstepoort and Senator E.H. Brookes (later Professor of History and Political Science in Pietermaritzburg, 1960–62). By 1948 the new Faculty was, in practice, already functioning but technically, as far as the Natal University College was concerned, Saunders and his colleagues were still members of the Faculty of Science.

The University of South Africa, of which the Natal University College was a constituent part, did not have a Faculty of Agriculture under whose academic umbrella they might otherwise have fallen. The Faculty of Agriculture therefore only came into official existence on 15 March 1949, when the University of Natal was recognised as an institution in its own right, independent of the University of South Africa.³¹ But, contrary to earlier expectations, administrative independence from the Union Department of Agricultural Technical Services only came about much later.³²

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- 29 UKZNA UN Senex Minutes, 28 April 1949, pp 7–8; UKZNA UN Faculty of Agriculture Board Minutes (FABM), 21 July 1953, Attachment, 1; Behrmann, ‘Agricultural Economics’, p 1.
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- 31 UKZNA File H1/3/1–17 Guy Dubbeld, ‘A Chronology of the University of Natal’ (Typescript n.d.); UKZNA *Natal University College Magazine 1949 Commemoration Number*, p 102; UKZNA File H1/3/1 S.A. Hulme (Dean), ‘The Faculty of Agriculture’, 14 February 1967, pp 3–6; Brookes, *University of Natal*, pp 100–1; Dicks, ‘Reflections on Sixty Years of Agriculture’, p 2.
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THE FACULTY CONSOLIDATED: 1949–1966

The Board of the new Faculty was formally constituted on 28 April 1949 under its first Dean, Dr A.R. (Rabie) Saunders.¹ His tenure in that office was extended to 1950 and in 1956 he left the province at the request of the Minister of Agriculture to develop a similar Faculty at his *Alma Mater* which had become the University of the Orange Free State. There, as in Pietermaritzburg, he displayed his ability to ‘turn his hand to almost any job’ from scientific research to bricklaying. In both centres he was involved in planning the new faculty buildings and, in Pietermaritzburg, he personally laid the strip of slate paving between the roadway and the granite front steps up to the edifice which was to bear his name.

Saunders also took a friendly interest in student welfare and actively encouraged the teaching and research efforts of his academic staff. He maintained a life-long interest in the genetics of the cowpea, conducting much of his research in his own garden. In 1935 he had published *Statistical Methods with Special Reference to Field Experiments* (Science Bulletin No. 147) and in 1951, with colleague Arthur Rayner, he found time to co-author the third revised edition (Science Bulletin No. 200). Prior to the subsequent appearance of Rayner’s acclaimed Biometry Handbook in 1969, these works were the definitive guides for agricultural researchers as far as the analysis of results from planned field experiments was concerned. Following his retirement the Western Transvaal Farmers’ Co-operative Society employed him as agronomist and plant breeder to improve crop production in that region. Among other acknowledgements of his reputation as a researcher was his co-option onto the editorial board of the *Empire Journal of Experimental Agriculture*. In 1961 the University of Natal rewarded him with an honorary D Sc (Agriculture) for his considerable contribution to its early development.²

The foundation staff and departments

The Faculty was also fortunate in the strength of its other foundation members, though initially its Professors, unlike all others in the University of Natal, were not required to demonstrate their academic prowess by delivering inaugural lectures. This was reversed following a plea by the University’s ‘Agricultural Scientific Society’ and the first in the series was given in 1955, with Saunders leading the way in order of seniority. By 1957 the Faculty had developed a 36-strong academic staff complement, based on the University’s acceptance in October 1947 of Saunders’ proposal that it should comprise 12 departments and Government’s agreement to create an initial 25 posts.³



James Donald (Hamish) Scott

James Donald (Hamish) Scott was South Africa's first Professor of Pasture Management and Soil Conservation. A graduate of Rhodes University, he was responsible for the organisation of most of the country's pasture research stations during the 1930s before being placed in charge of those at Estcourt and Thabamhlope (1937–47). In 1951 he was awarded a doctorate by the University of the Witwatersrand for a dissertation on problems pertaining to the Drakensberg conservation areas.

The Department of Pasture Management and Soil Conservation was launched by James Donald ('Hamish') Scott. He was the Faculty's first elected Dean (1950–51) in succession to the Government-appointed Saunders and was one of four professorial appointees to the Faculty announced in February 1948. By the time of his retirement in 1973 he had made a significant contribution to veld and pasture management as well as to the Faculty and University. Apart from becoming the campus timetable expert and serving on numerous committees, including the Students' Disciplinary Court, he promoted student sport as president of several clubs and was heavily involved in establishing the University squash courts and Olympic-size swimming pool, the latter being named after him in 1973. He died aged 79 in 1987. One of Scott's many successful students was Dr Brian ('Prawn') Roberts who subsequently settled in Australia. He became known as the 'Father of Landcare' for his work there and was included in Her Majesty Queen Elizabeth's 1999 Honours List as a 'Member in the General Division of the Order of Australia'.⁴

Agricultural Chemistry, which then included Biochemistry, had another early stalwart as its first Professor in Edwin Retief 'Jimmy' Orchard. He initiated the Tugela Basin Soil Survey which marked the beginning of modern soil survey in South Africa, involving the use of aerial photographic interpretation. This later gave rise to the Binomial Soil Classification System which came to be the norm in South

Africa. Orchard also conducted field experiments on the fertilization of maize which led to a lengthy research programme into soil acidity on the part of his protégés and established an international reputation for his Department in that connection. He served a term as president of the Society of Soil Science of South Africa and, following his retirement in 1972, became a Professor Emeritus and ran an arboretum of wild flowers in Hermanus. He died in 1988, in which year the E.R. Orchard Laboratories were opened on the Pietermaritzburg campus in his honour.⁵

The chair of Horticultural Science and Forestry (subsequently renamed Horticultural Science) was initially occupied by J.C. ('Sas') le Roux, from 1948 to 1969. He was also a Stellenbosch graduate (B Sc Agric) and acquired Masters degrees at the Universities of California and Hawaii before extending his research at the Citrus and Sub-Tropical Research Institute in Nelspruit. After settling in Pietermaritzburg he produced numerous papers on the selection and propagation of pecans and avocados, and had the 'Lerouk' pecan nut cultivar partly named after him (the term being a combination of 'le Roux' and Ukulinga).

A highlight of the year for students majoring in Horticultural Science was a July training tour, the first organized in 1951, of commercial farming estates and research institutes in the Lowveld. Staff and students from the University of Pretoria, and later also from Stellenbosch, subsequently joined these excursions, which built good relationships among horticulturists at the three institutions. For a time it also led to Pietermaritzburg students joining their Stellenbosch associates on summer tours in the Western Province. Unfortunately, in the 1990s, these excursions became too large and too expensive, and were discontinued.

Animal Science and Poultry Science was entrusted to the fourth of the Faculty's 1948 crop of professorial appointments, G.B. Laurence. His chair was, by his own admission, 'a kind of setee', also accommodating Poultry Husbandry and Anatomy, Physiology and Animal Diseases. There is little information in the University records about his brief but crucial tenure, which ended with his departure in 1953.⁶

The same is true of some other February 1948 appointees whose contributions to the Faculty are largely unrecorded. These include P.H.C. du Plessis (lecturer in Animal Science and Poultry



Edwin Retief (Jimmy) Orchard

Edwin Retief (Jimmy) Orchard was the first Professor of Agricultural Chemistry. Appointed in February 1948, he was also the Faculty's second elected Dean (1952–53). A son of the Boland with a distinctive 'Malmesbury Bray', Orchard was a graduate of Stellenbosch (B Sc Agric) and London (Ph D). He was awarded the military M.B.E. for his wartime work on chemical warfare and enemy war materials and established himself as an eminent soil scientist before his arrival in Pietermaritzburg. There he soon established a reputation for his extensive scientific knowledge and ability to explain complex issues in simple terms.



W.H. (Willem) Weyers

W.H. (Willem) Weyers who arrived in 1947 as senior lecturer in Genetics, studied for his doctorate under the world-renowned plant breeder Professor Brink at Wisconsin in 1956. There he also encountered Joshua Lederberg, later Nobel Laureate in microbial genetics, who introduced him to the genetics of micro-organisms which became a lifelong passion. In 1960, following his return, Weyers succeeded Saunders to the chair of Genetics. He subsequently served as Dean of the Faculty (1967–1969) and, in 1986, together with his senior technician, Pat Wallis, he initiated molecular biology (then called recombinant DNA technology) on the Pietermaritzburg campus.

Science, 1948–52), W.J. Fölscher (lecturer in Agricultural Chemistry) who taught the first Biochemistry courses in the B Sc Agric degree, and J.W. Klassens (lecturer in Dairy Science).

Much better remembered is W.H. (Willem) Weyers who arrived in 1947 as senior lecturer in Genetics and undertook most of the initial teaching in that discipline because Saunders was pre-occupied with his other responsibilities and gave only five lectures a year on maize breeding, his area of specialization. He eventually retired in July 1988 but then returned and continued to lecture until July 1993 when he retired to Barberton. In recognition of his contributions to the field the W.H. Weyers Research Laboratory was established in his honour.⁷

The Department of Dairy Science acquired the also well remembered C.W. (Clem) Abbott. He arrived as senior lecturer after graduating from the University of Pretoria (B Sc Agric) and Iowa State College (M Sc and Ph D) and familiarising himself with nearly all of South Africa's creameries and cheese factories during a five and a half month tour as member of a committee appointed to investigate butter and cheese production costs nation-wide. In 1967 he combined his interests in nutrition and game by spending a year-long sabbatical in the Lotheni Nature Reserve studying the habits and protein yields of domesticated and wild eland at the request of the Natal Parks Board.

He subsequently advised eland breeders as far afield as the Cape Province, the then Rhodesia, Tanzania, Britain and Brazil. He became an active member (and first Honorary Life Member) of KZN Wildlife (previously the Natal Parks Board), with a particular affection for and knowledge of the Cathedral Peak area.

Abbott was also a member of the Mountain Club of South Africa, long-serving President of the local campus Mountain Club and a lifelong member and

sometime chairman of the Pietermaritzburg Ramblers' Club. At 80 years of age he was still leaving companions half his age incredulous at his level of fitness. He endeared himself to students not only through his vigorous outdoor activities but also because of his warm personality as a teacher and supervisor and the generous hospitality of the 'open house' which he and his wife offered, among others, to fellow members of the campus Dramatic Society.

Many undergraduates long-remembered the delicious ice-cream produced in his 'practicals' and his insistence on prescribing Gower's *Complete Plain Words* for the Dairy Science course – a reflection of his deep respect for the English language. Following his retirement he was awarded the title Professor Emeritus and taught for a time at an agricultural college near Empangeni. In 1994 the Pietermaritzburg City Council honoured him with a Civic Award for Environmental Excellence for his work in connection with the Metropolitan Open Space System. In 1997 this was followed by an Award of Merit from the South African Society of Dairy Technology, of which he had continued to be an active member. He was 87 years of age when he died in 2001.⁸

During the course of the year the nine 'Agriculture originals' of February 1948 were joined by two more colleagues. Agricultural Economics gained the services of H.I (Ian) Behrmann who proved to be the most long-serving of all the 1948 appointees. His association with the Faculty of Agriculture extended for 35 years from his arrival in April that year as lecturer until his retirement as Professor (from 1960) on 31 December 1983.

Thereafter he pursued his interests in agricultural development, farm management, production economics, agricultural history and farm appraisal.

He produced four economic surveys of sugar-cane production in collaboration with the South African Cane Growers' Association. He also completed surveys



Clem Abbott

Clem Abbott held the chair of Dairy Science in Pietermaritzburg from 1954 until his retirement twenty years later, served two terms as Dean of the Faculty (1954–55 and 1969–71) and published 45 scientific papers, mostly on dairying but also on game conservation and general agriculture. His interest in nutritional welfare and conviction that even a small daily intake of milk could prevent kwashi-orkor led him to becoming co-founder of the Pietermaritzburg and District Malnutrition Relief Organisation which, fifteen years later, (1974) was catering for 5000 children on a daily basis.



H.I. (Ian) Behrmann

H.I. (Ian) Behrmann joined Agricultural Economics in 1948. His association with the Faculty of Agriculture extended for 35 years from his arrival until his retirement as Professor (from 1960) on 31 December 1983. A Maritzburg College matriculant and M Sc graduate (Pretoria), Behrmann worked for the Department of Agriculture and taught agricultural economics and farm accounting at the Colleges of Agriculture in Potchefstroom, Boschetto and Cedara before arriving in Pietermaritzburg. In 1960 he completed a doctorate there on the economics of sugar cane production in Natal, for which the Economic Society of South Africa awarded him its Founders' Medal and Prize.

on beef, cotton, dairy and pineapple farming in the Natal region as well as on farm labour and land values. During his career Behrmann taught most of the courses offered in the Department, supervised 16 Masters and two doctoral candidates and witnessed a steady increase in student numbers. He chaired the Economic Society of South Africa's Natal Branch and served as president of the Agricultural Economics Association of South Africa and of the Agricultural Scientific Association of Natal. A keen hockey player in his younger days, he subsequently became involved in swimming administration and played tennis until his mid-eighties. He died tragically in a road accident, aged 88, in December 2006 in Pietermaritzburg.⁹

Animal Husbandry boasted the last of the eleven academic members of staff to join the Faculty in 1948. P.L. (Piet) Kotze was appointed senior lecturer in that discipline and became first non-departmental head to represent lecturing staff on the Faculty Board. In 1954 he succeeded Laurence to the chair and occupied it until his retirement in 1970.

His 'practicals' at Cedara were always interesting and his lectures sometimes spiced with humour. One of his students, Harvey Dicks (later a staff member in Biometry), recalled his description of a 'good dairy cow', with details of the pelvic region which, though it may seem hard to believe in this more casual era, greatly embarrassed male members of the class in the presence of a single female student (whose own response is not recorded). As if suddenly noticing their discomfort, and with a characteristic grin, Kotze observed 'Hell chaps, I am talking about dairy cattle NOT the way you choose a wife'!¹⁰

In December 1948 another nine appointments to the Faculty were approved. Due, in some cases, to early resignations there is little surviving information on F.X. Laubscher (who temporarily relieved Saunders as Professor in Genetics)

and J.E. van der Plank (briefly Professor in Plant Pathology), who both became highly respected and innovative plant breeders, P.E. de Waal (Lecturer and subsequently Professor, 1951–53, in Agricultural Economics), J. C.Erasmus (Lecturer in Agronomy), O.J. ('Okkie) Olivier (Lecturer in Horticulture) who subsequently worked at Roodeplaat Research Station outside Pretoria, and A.J. Pienaar (Lecturer in Pasture Management and Soil Conservation).

Some remained to make significant contributions to the Faculty. One of these was M. J. (Martinus, 'Oosie' to students) Oosthuizen was employed briefly as senior lecturer in Entomology before being promoted to the chair (1952–71) and subsequently serving as Dean (1959–60). A graduate of the Transvaal University College (B Sc Agric) and of the University of Minnesota (M Sc Ph D), he had a particular interest in stored-product insects and later in the life cycle of the tumba fly, whose maggot, he established, causes myiasis in both human beings and animals over a large part of Natal – Zululand. Affectionately remembered by former colleagues as 'a true gentleman', who had great dignity and empathy for students, he died in 1998.¹¹

A.A. (Arthur Asquith) Rayner occupied the chair of Biometry until 1973 when he became head of the newly-formed Department of Statistics and Biometry, a position he held until his retirement in 1982. His publications included three outstanding books on statistics, *A First Course in Biometry for Agriculture Students* (Pietermaritzburg: University of Natal Press, 1969) being tailored for a compulsory module in the four-year B Sc Agric degree. It came to be known, unaffectionately, among students as the 'Biometry Bible' or 'Rayner's Book of Revelations.' Most students objected to no avail at being obliged to take such an exceptionally difficult course (initially a year course, later two semesters) but learnt much about the design and analysis of experiments from the 600 pages of his book. Many attested to the great value of this course in their subsequent careers.



P.L. (Piet) Kotze

P.L. (Piet) Kotze was appointed senior lecturer in Animal Husbandry in 1948. In 1954 he succeeded Laurence to the chair and occupied it until his retirement in 1970. He was a graduate of Stellenbosch (B Sc Agric) and Pretoria (M Sc Agric) Universities and brought to the campus extensive experience of the cattle industry in various parts of South Africa in his previous capacity as an extension officer for the Department of Agriculture.



**A.A. (Arthur Asquith)
Rayner**

A.A. (Arthur Asquith) Rayner arrived in 1949 as senior lecturer in Biometry but was quickly promoted to the Professorship for which he had applied. After a brilliant student career (MA Otago and Ph D Edinburgh), he worked as a government servant in New Zealand where he was born and served with a Survey Battery in the Middle East and Italy during World War II. He never lost his 'Kiwi' accent and was nicknamed 'Ba-Ba' ('x-bar' – a statistical term) Rayner in Pietermaritzburg, where he offered students South Africa's first Biometry major and probably the first of its kind in the world.

A stickler for formality, Rayner always wore his academic gown when teaching, as most staff members did only for the first few years, and legend had it that, on his return home of an evening, even the cat snapped to attention. He took a roll call at every class, his own punctuality being assured by living in a house in Shores Road, close to the Agriculture campus but initially so in advance of Scottsville suburban expansion that students considered it eccentric. Rayner was also a stickler for regulations and chaired the Faculty Rules Committee for most, if not all of his tenure. He was renowned for his encyclopaedic knowledge of ALL the rules, which he insisted be followed to the letter. He was never short of an opinion at Board and Faculty meetings, and was also sharp-witted. When an American scientist asked if he was 'not *the* Rayner?' he replied 'no, A.Rayner.'

He served as Faculty Dean (1958–9) as well as on numerous committees in and outside the University. Rayner was vice-president and president of the South African Statistical Association (1964–66), of which he was elected a Fellow as well as a member of the International Statistics Institute. Following his retirement, a campus computer laboratory was named in his honour. A keen cricketer and a rugby referee, he was still a member of the Pietermaritzburg Rugby Referees' Sub-Union at the time of his retirement and died in 1994 at 77 years of age.¹²

P.J.C. (Pieter) Vorster only assumed the post of lecturer in Agricultural Engineering in April 1951. In his absence, the first two service courses were given by a Mr Geiger who also acted as a service engineer to the Faculty and the Department of Agriculture.

Pieter Vorster subsequently served as Dean (1964–66) and helped to establish the South African Institute of Agricultural Engineers, becoming its first chairman of Council in 1964. In 1974 he was appointed senior professional adviser to the Water Research Commission,

charged with the promotion and co-ordination of water research for the country's agricultural sector.¹³

Prior to Vorster's eventual arrival in 1951 there were other significant additions to the Faculty's early staff complement. I.J. (Sakkie) Smuts was appointed senior lecturer in Agronomy and became Professor in succession to Saunders from 1953 to 1958. A man with vast practical knowledge of agricultural crops and a true gentleman, one student suggested he should be known not as 'Prof' but as 'Tribal Elder'.

Dr G.P. (Bollie) Bishop came as senior lecturer in Veterinary Science and left in 1964. Saunders is reputed to have visited his office, close to his own, from time to time, for personal diagnoses and medication. It is not clear whether this was motivated by a sense of economy or by trust in an 'Ag Fac' colleague which was deeper than that in the medical profession. Bishop must have enjoyed the novelty of being able to speak to a patient but hopefully Saunders' condition was never serious enough for the resident vet to consider putting him down!

Susarah J. Truter joined the Faculty in 1949 as senior lecturer in Plant Pathology. There she developed the old military hospital dispensary at Oribi as her first practical laboratory for students and in 1955 was promoted to the newly-created chair of Plant Pathology and Microbiology. During her career she is reputed to have trained, in addition to numerous renowned microbiologists, more plant pathologists than all the other South African Plant Pathology Departments combined. Truter retired in mid-1976, subsequently returning to serve for two brief periods as temporary departmental head.

A perfectionist, 'Prof Susie' regularly berated students, male and female, for dressing unsuitably but was impressed when three males wore suits to an early morning lecture, being blissfully unaware that they were *en route* home



P.J.C. (Pieter) Vorster

P.J.C. (Pieter) Vorster, was another December 1948 appointee who had a long and distinguished career in the Faculty. Vorster was a Pretoria (B Sc Agric Engineering cum laude) graduate who had previously worked for the Division of Soil Conservation and Extension in Pretoria and Stellenbosch as well as lecturing part-time at the Stellenbosch-Elsenburg College of Agriculture. In 1958/9 he completed a post-graduate diploma in engineering hydrology at Imperial College, London and in 1959 was promoted to Pietermaritzburg's chair of Agricultural Engineering.



Susarah J. Truter

Susarah J. Truter was appointed senior lecturer in Plant Pathology in 1949. She had matriculated at Aliwal North High, completed a B Sc at Grey University College (Bloemfontein), a Masters in Mycology cum laude at Stellenbosch and a doctorate at the University of Utrecht in the Netherlands under the supervision of the first female professor in the Netherlands, Johanna Westerdijk. Her sojourn extended to eight years due to the outbreak of World War II, during which she was briefly interned and narrowly escaped deportation to a German concentration camp. She worked as a plant pathologist in the Western Province Fruit Research Laboratories until the Secretary for Agriculture persuaded her to move to Pietermaritzburg.

from an all-night party. She also abhorred whistling in the corridors, admonishing many a student for this misdemeanor. Inevitably, some students chose to live dangerously and deliberately infringed, beating hasty retreats before she could storm out of her office.

Truter is remembered for the high academic standards established in her department, which had grown to five academic staff members as well as numerous technical assistants when she left it, and for becoming the first female Dean of Agriculture (1960–62) in the world, according to the *Guinness Book of Records*. In 1986 the 'Susarah J Truter Laboratory For Phytopathological Research' was named in her honour. She died in her Pietermaritzburg home at 97 years of age in May 2007.¹⁴

Karl Nathanson was another significant addition to the academic staff during 1949, lecturing in Agronomy, Plant Pathology and the Didactics of Agriculture as well as conducting research on maize and soybeans until 1953 when he became senior agronomist at Cedara.

His major impact on the Faculty followed his return to the University in 1961 as senior lecturer in Agronomy and subsequently as Professor of Crop Science from 1968 until his death in 1982. His outstanding doctorate (Pretoria, 1963) on the effect of fertilizer application and crop rotation on maize crop yields was followed by the supervision of several M Sc and Ph D research projects on maize, sugarcane, groundnuts, sunflowers, lucerne and cotton, from which a number of publications followed.

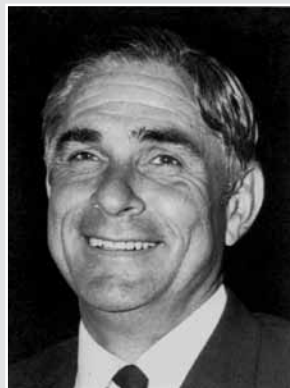
During the last years of his life Nathanson gave direction to the important cassava research project and undertook further research on soybeans after studying cassava and soybean production in Columbia and

Brazil. Nathanson acquired a reputation for his friendliness, his efforts to include non-professorial colleagues in the academic administration of the University so that senior lecturers could eventually become departmental heads, and his practical abilities when doing field work with his students. The latter capacity was further demonstrated in the construction of boats, for he was a keen yachtsman and an office-bearer in the campus Sailing Club, the Henley-Midmar Yacht Club and the Natal Yachting Association.¹⁵

In August 1950 G.V. (George) Quicke joined the Department of Agricultural Chemistry and Biochemistry as lecturer under Professor Orchard, having recently been awarded a doctorate by the University of Wisconsin. At the time Biochemistry served as an ancillary to other agricultural courses but from 1953, under his direction, it became a major and produced its first graduate in 1954. In January 1956, after the Faculty of Science had withdrawn its opposition, Biochemistry became an independent department and in 1959 Quicke was appointed to the newly-created chair which he occupied until his retirement in 1984.

By then his Department had turned out 240 graduates, as well as 36 Honours and 48 Masters and Ph D recipients. Quicke served on numerous University committees, as well as two terms as Dean (1962–64 and 1973–75). In that capacity he was instrumental in successfully requesting the Department of Agricultural Technical Services to contribute half the cost of an electron microscope which formed the nucleus of what became a very effective Electron Microscope Centre on the Pietermaritzburg campus.

Under the administration of the Department of Agricultural Technical Services (Natal Region), Biochemistry was required to provide analytical services and was subject to its research policy, which was sometimes inimical to academic interests. It was, however, placed in charge of the purchase and maintenance of the necessary specialist equipment, which was advantageous in view of the limited availability of funds.



Karl Nathanson

Karl Nathanson, who joined the staff in 1949, served as Dean of the Faculty (1971–73) during a particularly difficult period when, inter alia, it was undergoing major changes to its curricula and regulations. He also embarked on study tours in Europe, the USA, Australia and New Zealand to investigate teaching methods and the administration of higher education, with particular reference to agricultural studies.



G.V. (George) Quicke

G.V. (George) Quicke, who joined the Department of Agricultural Chemistry and Biochemistry in August 1950, played a significant role in the establishment of the South African Biochemical Society, served as its President (1979–81) and was made an honorary life member. He was accorded similar recognition by the Nutrition Society of Southern Africa in whose development he was involved, and was the Universities' Representative for Agricultural Sciences on the Prime Minister's Scientific Advisory Council (1973–76).

Quicke and his departmental colleagues were able to develop a particular research interest in problems relating to protein digestion and in the nutritive value of the vegetable proteins in legumes. In this connection he installed automated equipment to undertake the analysis of the exact proportions of about 20 amino-acids in a complex protein. By the mid-1970s they were heavily involved in assisting the Department of Agricultural Technical Services in improving the nutritive value of local white and yellow maize, the region's major grain crop, by analyzing the grain for protein and amino-acids. Much of this work was done in collaboration with Dr H.O.G. (Hans) Gevers, maize breeder in the Department.¹⁶

During the 1950s and early 60s the Faculty's foundation staff was bolstered by several additional appointments. In 1952 Peter Allan, a graduate of the Faculty (1951), began his long career in Horticulture, retiring as Professor and Head in 1991. In May 1960 Nigel ('Wolly') Wolstenholme became the Department's third academic staff member when he was appointed as lecturer.

At 24 years of age S.A. ('Sampie') Hulme was one of, if not the youngest, professors in the country when he was appointed head of Agronomy after acquiring an M Sc *cum laude* at Stellenbosch with a particular interest in chemical weed control, in which capacity he served as an adviser to the Union Government. He subsequently also served as Faculty Dean (1967) before becoming Director of the Natal

Region of the Department of Agricultural Technical Services.

A genial character, much-liked by his students though apparently politically very conservative, he is said to have achieved immortality in one of his first lectures by innocently posing the challenging question: 'What are Agronomy?'

Another future Dean was P.de V. (Pete) Booysen (1975–77) who in 1952 completed a B Sc (Agric) on the campus, registered for a Master's degree the following year and in 1954 filled a lecturing vacancy in Pasture Management and Soil Conservation.

His rise to prominence in the University, culminating in the Principalship, began soon afterwards when he was elected lecturers' representative on the Faculty Board for 1958–59. In 1961 the Department also acquired an agrometeorologist in J. M. (Jimmy) de Jager and in the following year Agrometeorology was established as a separate discipline. In 1965 de Jager was promoted to senior lecturer. The origins of the discipline in Pietermaritzburg dated back to 1954 when a course in Climatology was first offered.

Significant arrivals in Microbiology and Plant Pathology were P.S. (Peter) Knox-Davies (in 1952), M.J. (Mike) Howell and M.M. (Mike) Martin (both in 1956), the latter a subsequent Professor and Departmental Head. J.J. (Johan) Joubert (1963) came with a D Sc (Ghent) as the Faculty's first fully-qualified microbiologist and was joined three years later by Mike Loos as senior lecturer in Soil Microbiology. Loos later became Professor of Microbiology at Stellenbosch. Before his resignation in 1974 to return to his *Alma Mater*, the University of Pretoria, Joubert published several papers on phytopathogenic bacteria in conjunction with his first M Sc student, F.M. 'Mike' Wallis, who later became a member of staff.

Dieter Reusch was one of the original batch of B Sc (Agric) students and subsequently became a lecturer in Genetics, serving in that capacity for more than two years before pursuing postgraduate studies in Wales. He was regarded by many students as one of the best lecturers in the Faculty and was succeeded by Gilly Geldenhuys. He later returned to a post at Cedara and subsequently re-joined the Department in 1966 to team up with Professor Willem Weyers and a new lecturer, Ben Cilliers, who had been appointed a few years earlier.

W.J. (Werner) Stielau joined the Department of Animal and Poultry Science in 1956 and was promoted to senior lecturer in 1965, while Agricultural Economics gained L.J. Fourie (in 1957) who then became Professor at the University of Zululand. In 1961 he was succeeded by W. E. (Eckard) Kassier, who was the first student in that Department to complete an M Sc Agric (1959, on the economics of wattle farming) and went on to acquire a D Agrar at Stuttgart-Hohenheim. He initiated a farm management scheme and, after being promoted to senior lecturer, in 1965 assumed the chair at Stellenbosch.

The previous year Jan Groenewald and John Graham joined the department as senior lecturer and lecturer respectively. Groenewald had recently returned from Purdue University with a special interest in work study and supervised Graham's Masters thesis on working routines in milking parlours and sheds in the Pietermaritzburg vicinity. It was recognised by the Agricultural Economics Society of South Africa as the best M Sc (Agric) dissertation in 1966.

Groenewald subsequently accepted the chair in Agricultural Economics at the University of Pretoria and Graham emigrated to Canada after a short spell in the Department. Biochemistry was bolstered, in turn, by the services of Dr W.A. (Binkie) Lourens (1955–59), Dr J.L. de Wit (1960–69) and

Dr H.J.H. (Hector) de Muelenaere (1963–66). The last was the Department's first B Sc Agric, M Sc Agric and Ph D graduate who played an important role in teaching Nutritional Biochemistry, which he continued to do in a part-time capacity after joining Messrs Hind Bros of Durban.¹⁷

In the early years of the Faculty's existence there was also a modest increase in its administrative personnel from one clerk serving the Dean's office to four – a chief clerk (R.L.Colenbrander), a clerk (W.Darrell), a typist (Ms. M.P.J. Neethling) and a messenger (N.G.Walden). Initially members of the academic staff were expected to serve as minute clerks on all Faculty committees. By 1957 there were technical/professional officers supporting thirteen teaching/research fields, though adequately trained technicians proved to be in short supply.¹⁸

A home for the Faculty

The increase in staff, and students, necessitated the provision of adequate accommodation which, for various reasons, was not readily available. On 26 November 1945 E.G. Malherbe had announced that the new Faculty of Agriculture was to be developed on the old 'outspan' land, on a site near the Epworth Girls' High School.

It was made possible by a Pietermaritzburg City Council grant of 18.2ha east of Golf Road. This was in addition to its original 17.8ha grant approximately two kilometres away in Scottsville, previously known as 'The Ridge'. There the Faculties of Arts and Science had been established and, for a short time, crowded lecture venues were also provided for first year Agriculture students.¹⁹

The congestion was eased after consultations with Mr Roxburgh, the district representative of the Public Works Department, which confirmed that the administration block and nurses'quarters of the wartime Oribi Military Hospital to the south of Pietermaritzburg were standing unoccupied and derelict.

Shopping and postal facilities were available there and although part of the camp had already been allocated for male student accommodation and sub-economic housing there was sufficient space to provide every member of the Faculty staff with an office while reserving the larger rooms as lecture venues and laboratories.

There was one main lecture room of unlined brick, with teaching aids comprising a chalkboard and overhead projector. The kitchen was converted into a Chemistry laboratory and the military x-ray room into a Genetics laboratory. Redundant work benches in the old Botany and Zoology labs on the Scottsville campus were dismantled by Saunders and his first four professors for use in them.

Corrugated iron roofing made for extremely hot summer classes, sometimes interrupted by the deafening noise of hail storms! The provision of a tearoom enabled staff to meet for 15 minutes twice a day in accordance with civil service regulations and to share cake on birthdays and other special occasions.

The Faculty Library, under the care of Miss Rossington, began with no more than 20 books and some hard wooden benches which were mercifully soon replaced with more comfortable chairs and tables at which to work. In 1950 the Natal Agricultural Union made a generous donation of £4,000 which was spent during the following three or four years in systematically acquiring from publishers and second-hand book dealers the back numbers of leading scientific journals in a variety of appropriate fields.

The allocation of offices to academic staff was more speedily concluded, with due deference to seniority and departmental consolidation, the only telephone being in the Dean's office. In an encouraging demonstration of solidarity preferred choices were reconciled under Saunders' astute guidance and there were ready volunteers to complete the necessary plaster, paint and carpentry jobs.

It was an easy five-minute stroll along covered walkways between the office and lecturing block to the ten bungalows and adjacent ablutions which had served as the nurses' quarters and were now allocated to staff families. These each comprised six small rooms with malthoid-covered concrete floors but their spartan appearance was improved with minor alterations and vigorous gardening efforts around them, led by 'Sakkie' Smuts, Professor (1953) of Agronomy.²⁰

This remained the Faculty's home until the eventual completion of the new agricultural science block in 1954. The plan for this was announced in February 1946 and accepted by the Natal University College Senate and Council in September. The building estimates were eventually approved in May 1947 but tenders were only called for in December 1949! The projected completion date was then extended several times, in part because of the rising cost of administering a two-campus University (Durban and Pietermaritzburg), with several courses being duplicated in both centres.

For a time it was seriously mooted that the University should focus its resources, including the Government funds allocated for the new Agriculture Building, on developing its Durban campus, leaving only the Faculty of Agriculture in Pietermaritzburg to occupy the existing Arts and Science buildings in Scottsville instead of the proposed new structure.

Jimmy Orchard made a brilliantly persuasive speech in Senate in favour of retaining the Pietermaritzburg campus in its existing format, at a time when the tide was flowing strongly in favour of the consolidation of resources in Durban. Legend has it that Malherbe, who agreed with him, was moved to tears but he did point out that, while the establishment of a Faculty of Agriculture was

currently the biggest area of expansion in the University, it would probably not have been feasible without the private donations raised by its Development Fund in Durban. These helped to pay for the additional laboratory facilities in Pietermaritzburg which were needed to cater for the influx of agricultural students as part of the initial agreement with Government.²¹

The financial crisis was eventually overcome and the long-awaited new Building was duly completed, seemingly providing adequate accommodation for the foreseeable future. At the time it was the largest building of its kind in South Africa, with each of its two floors and the basement providing 0.30ha in floor space. It was designed for an annual intake of 40 students from the general science first year to the second-year B Sc Agriculture Programme.

However, in 1957 the headquarters of the Extension Services, Department of Agricultural Technical Services for the Natal Region (to which the Faculty was still administratively responsible) moved into the Building. As it was, by 1952/53 restrictions on student numbers, based on academic merit and with preference given to the University's own second-year students, were already being imposed. A third storey was added to the building in 1962 but within five years the increased second-year intake of 60 students was causing a serious space shortage.²²

Ukulinga experimental farm

The spatial needs of the Faculty went far beyond the provision of offices, lecture venues and laboratories. Arrangements had to be made for 'practical work' in field subjects like Agronomy, Animal Husbandry, Horticulture, Pasture Management, Plant Breeding and Poultry Husbandry. Open ground between buildings at the Oribi site was converted into a plant nursery and demonstration plots but conditions there were artificial and not really suitable for conducting experiments. One notable exception was Pasture Management's success in experimenting with varieties of grass and legume seeds which Jack Withey of McDonald Brothers obtained from all over the world. One of the clovers planted then, 'Kenland Red', was recommended to farmers for more extensive trials and became probably the most widely grown Red Clover in the province.

In the early years the Cedara College of Agriculture was used quite extensively for practical work, with the old government garage Warford troop carrier (the 'Garry') that transported students between Oribi and the Scottsville campus also being deployed to transport students out there once a week on Fridays and on occasional excursions to outlying farms. The Faculty's need for an experimental farm of its own soon became evident, not only to train students but also for its own research purposes.

In June 1948 it was announced that the Department of Agriculture had agreed to finance such a property, the earlier notions of using Cedara

and/or Baynesfield having been firmly shelved. The new Nationalist Party Government which came to power in May 1948 was keen to promote white agricultural training and research, though its attitude towards academic freedom and university autonomy was soon to create daunting challenges for all universities. The proposed farm had to meet two prerequisites:- sufficient proximity to the University so that students could reach it by bicycle if not on foot, thereby saving time and money, and land suitable for crops and plant breeding with typical local veld for experimentation. Various properties were considered before the decision was taken to purchase an approximately 202ha farm called Roblyn, originally part of Shortt's Retreat, situated about 4.8 kms from the Faculty, on the slopes near Pietermaritzburg aerodrome and near the Scottish Cables factory. Hamish Scott strongly influenced the decision after recognising the potential of the Plateau section for veld and pasture research.

The price of £32,000 included some implements, a tower silo and shed for milk production, a few pigsties and a house in a bad state of disrepair. It was not realised at the time that part of the farm had been laid out as a township and some of the building sites had already been sold. Absentee owners had therefore to be traced, plots expropriated and interleading roads claimed by right of prescription. Within two years a developer offered £56,000 for the property but by then it was already an integral part of the Faculty.²³

Soon after its purchase Saunders asked his staff to suggest a suitable name for the farm that indicated the purpose for which it was to be used. 'Hamish' Scott credited an elderly cook, employed by his wife's friend and remembered only as 'Andrina', with the proposal Ukulinga, meaning in Zulu 'to test them' or 'to endeavour'.

A committee of departmental heads, chaired by the Dean, was appointed to allocate appropriate portions of the farm to different departments and several staff members assisted in preparing the property for the practical instruction of their students. While pacing out the various allocations Piet Kotze, then senior lecturer in Animal Husbandry, landed waist-deep in a half-full dipping tank after slipping down its sloped outlet, only to be advised by amused colleagues that he should have devised 'another way of measuring its depth'.

His moveable wooden pig shelters served Ukulinga for many years and, as a result of these and other energetic staff efforts, by the beginning of 1949 it was no longer necessary to consider using the more distant Cedara for field 'pracs'.

Ukulinga included a large plateau of approximately 28ha in its northern central section, thereafter always referred to as 'the Plateau'. It was covered by southern tall grass veld, with boulder-strewn slopes on two sides that were covered with thornveld and weeds and a 3ha scrub wattle plantation on its southern slope leading down to another 65ha stony area of thornveld.

Much of the property had never been ploughed because the soil was either shallow or stony and only a quarter of it, roughly 50 ha, could really be considered 'arable land'. An intensive weeding programme was necessary and many of the thorn trees that were treated with petroleum compound mysteriously became 'green and flourishing' before they were eventually eradicated!

Horticulture was allocated roughly 9ha of land 'with fairly (in fact very) heavy black soils' on what was designated as 'Land1', which stretched from the northern boundary of the property to a dry stream bed and had a borehole. The soils in that section were later classified as Rensburg and Bonheim series (under the first binomial soil classification system) and, although arable, are only marginal for fruit and nut tree crops and very erodible when the natural grass cover is removed.

Another 4ha of 'Land1', between Horticulture and the entrance road, was divided into camps and planted to *kikuyu* for the benefit of the intended dairy herd. Approximately 2.5ha beyond the entrance road was set aside for Poultry Husbandry and much of the initial allocation for farm buildings was spent on this section, where the erection of accommodation for poultry began almost immediately. Genetics was allocated about 8.5ha for plant breeding, adjacent to the Poultry section on 'Land 2' and including the best soils on the farm but on a fairly steep contoured slope. On Saunders' insistence priority was given to the equidistant terracing and fencing of this section before it was put to use, with a small triangular area at the bottom set aside for Agronomy. The latter Department was also allocated 'Land 4', comprising 10ha in the eastern corner of the property. 'Land 3', below the farm centre where various buildings were subsequently erected, was also contoured and used as a pasture nursery and for farm crops.

After suffering severe storm damage 'Land 5', adjacent to 'Land 3' and at the front of 'the Plateau', was also contoured. A small section near the top was allocated to Pasture Management for a nursery and experimentation on cultivated pastures while the rest was intended for the production of fodder crops for the dairy herd. There were three areas of natural veld on the farm.

Pasture Management was allocated the whole of 'the Plateau' for experimental work and veld hay production for the dairy herd, while the second area of veld, on the slopes around 'the Plateau', was divided into five small camps for the rotational grazing of the herd. The third area, comprising 65ha of stony thornveld in the southern corner of the farm, was allocated for beef stock grazing and later divided into four paddocks.²⁴

Apart from apportioning the land Saunders' committee faced the difficult task of prioritizing developments on each farm section, with buildings for poultry and plant breeding being immediately provided, followed by living-quarters for single staff. The only house on the property was allocated to

the ‘Farm Foreman’, a Mr Van Rooyen, who had worked under ‘Hamish’ Scott at the Thabamlope Research Station. He was succeeded in this post (subsequently ‘Farm Manager’ and graded as a senior technician) by a Mr Kilian and then by W.Lambrechts, who had worked for Scott at the Estcourt Research Station. He retired in 1976 and was succeeded by J.Swanepoel. An avenue of yellowwood trees were planted on either side of the road leading up to ‘the Plateau’ but adequate accommodation, complete with electricity, for the farm labourers was not provided for several years although it featured regularly on the estimates.

In August 1949 a new Farm Committee was appointed under the chairmanship of ‘Sas’ le Roux to formulate the annual estimates of expenditure, reconcile the demands of various departments on the limited resources of equipment, labour and transport and liaise with the ‘Farm Foreman’.

The Faculty acquired two vehicles to transport staff to and from Ukulinga, a Chevrolet sedan and a Jeep. Staff made bookings to travel together early in the morning or afternoon, the designated driver being the colleague who had to get to the most remote part of the Farm and who dropped all the others off at their sections and collected them on his return. On official trips to town staff members were issued with coupons for the Oribi/Scottsville bus which ran to and from the City Hall every 15 minutes.²⁵

Ukulinga did have significant drawbacks in terms of sufficient water only for domestic and stock needs but not for irrigation, limited size and generally poor soils. It was by no means typical of high potential farmland in the KwaZulu-Natal region but it did have the redeeming feature of being relatively close to the Faculty of Agriculture’s campus. Many university farms abroad were known to be self-financing but in its case there was insufficient land left for commercial farming after the priorities of training students and mounting research projects had been met. While some sections such as dairy, horticulture and poultry were eventually able to contribute significantly to the University’s coffers, overall the farm was unable to pay its way, even with the subsequent addition of some adjoining land.

Approximately 6ha and 16ha respectively was acquired and incorporated on each side of the road leading to the entrance gate, including the old Van der Plank homestead which was in disrepair and demolished. These properties were incorporated into the Horticulture and Agronomy sections of Ukulinga. On its western boundary Lamonts Vale, a 94.2ha property that included 20ha of arable land was acquired and, from 1959, developed as the beef section. This was still insufficient to make Ukulinga financially viable but its purchase was soon more than justified in terms of its purpose – the training of students and the promotion of research.²⁶

Research

From its inception the Faculty of Agriculture regarded the training of students as its primary function but it was soon obvious that the success of every department and the academic reputation of its staff depended heavily upon research output. At the 1954 Regional Conference the then Dean, 'Clem' Abbott, reviewed the progress made in its infant years and observed that 'Henceforward the Faculty will be judged largely by the quality and volume of its research activities.'

Indeed, one of the early arguments in support of its establishment had been the need for research focused on the eastern regions of the sub-continent or, more specifically, the eastern coastal strip and its hinterland, extending to the highlands near the Drakensberg escarpment. The Faculty lost little time in meeting that expectation and, through its research, made numerous contacts with the farming community and put the resources of science at its disposal.

For example, 'Sas' le Roux and his successors in Horticultural Science contributed hugely to the more effective production of avocados, papaws, pecan nuts, low chill peaches, kiwi fruit and macadamia nuts. Many successful Farmers' Days were held in the Horticultural Section at Ukulinga. The Poultry section, like others, initially relied heavily on the facilities at Cedara but subsequently conducted a great deal of work on deficiency diseases in poultry at Ukulinga.

Much of the field work associated with local agricultural challenges was carried out at other experimental stations in the Region and on private farms, especially after the limitations of Ukulinga for many facets of agricultural research were realized. The University's own property was also used by Plant Breeding for its hybrid maize breeding programme, initiated by Rabie Saunders, and for the testing of all such maize bred in South Africa before its release to the farming community.

Other research projects included the control of noxious weeds and the citrus snout-beetle, the nitrogen content of milk, the occurrence of flanelly-curds in cheese manufacture, the production of soya beans, the effect of fertilizers on the nutrition content of crops and, in the case of Agricultural Engineering, tractor efficiency and hydrology.²⁷

As occupant of the world's first chair of Pasture Management and Soil Conservation 'Hamish' Scott initiated research of great practical value on veld management, the grazing of cultivated pastures and the study of forages. In 1950 one of his students, M.G. Rodel, presented the first report on what proved to be an ongoing departmental study of the effects of veld burning at various seasons and intervals without grazing. Indeed, the Burning and Mowing trial and the Veld Fertilisation trial, both initiated in 1950 by Scott and having been actively maintained to date, are the oldest of their sort in the world and internationally renowned, liaising closely with similar trials

being conducted elsewhere. Another of Scott's erstwhile graduates, Professor Winston Trollope, is currently regarded as one of the world's leading experts in fire ecology in the field of rangeland management.

The Department of Animal Husbandry requested £2,200 for the purchase of cattle as there were none at Ukulinga when it was bought. A small Jersey herd was transferred from Cedara, inferior Jerseys and Frieslands were acquired from Elsenburg and experimental Afrikander and Bonsmara tollies and heifers from Mara. On his return in 1955 from Cambridge as a lecturer in Animal Husbandry Dr G. L. (George) Hunter, one of the Faculty's first intakes (1947) and graduates (March 1951), began to experiment with improving the Jersey herd by borrowing good bulls from his contacts among breeders in the Western Cape.

Initially there were no sheep at Ukulinga either but Hunter also contributed to the development of the farm's sheep stock by applying the expertise he had acquired on egg transplantation while completing a PhD under the eminent animal physiologist John Hammond.

As the importation of sheep was prohibited at that time he arranged for fertilised Welsh Mountain sheep ova to be transplanted into rabbits which were then flown from England to South Africa so that he and 'Bollie' Bishop could transfer the ova into Ukulinga Dorper ewes. The subsequent offspring, named Romulus and Remus, not surprisingly differed somewhat in appearance from their mothers. The farm labourers who worked with them were convinced that their erect pointed ears were attributable to the rabbits in which they had emigrated. This remarkable achievement was subsequently immortalized in an ornamental clock which adorns the foyer of the Faculty Building and was created by Professor John de Villiers (Dean 1985–87 and 1991–94) as part of the Masters (Fine Art) degree which he undertook in his retirement. After 12 years in the Department Hunter left for a research post in Stellenbosch and in 1972 took up sheep breeding. In that capacity he was involved in the development of computer programmes designed to facilitate the selection of breeding stock.

Following his retirement the Sheep Breeding and Management System was taken over by Stock Owners' Co-op. Meanwhile, the Department of Animal Husbandry subsequently went on to produce Africa's first test-tube calf, while testes and ovaries from culled Hluhluwe-Mfolozi Park buffalo resulted in the freezing of healthy embryos with significant implications for the breeding of endangered wildlife species.²⁸

The two-man Department of Agricultural Economics, comprising Ian Behrmann and P.E. de Waal, was also actively engaged in research. They assisted in the national Division of Economics and Markets 1947–8 survey of the cost of fresh milk production in Natal, led by Professor F.R. Tomlinson of Pretoria, and in O.E. Burger's farm record-keeping scheme in East Griqualand. De Waal continued his earlier involvement in the Division's Agro-Economic

Survey but the Department's first major project was a study of sugar cane farms along Natal's north and south coast for the South African Cane Growers' Association. In all, three such surveys were completed for the 1949–50 and two subsequent seasons.²⁹

Research institutes

The Faculty of Agriculture's subsequent association with the Sugar Milling Research Institute, established in 1949 in Durban, and with the Wattle Research Institute, established in 1947 in Pietermaritzburg, further strengthened its practical and research ties with the region's farming community.

Negotiations between the sugar industry and the CSIR for the creation of a sugar research facility were initiated in 1946 and culminated in January 1949 with the appointment of K. Douwes Dekker as the Institute's first Director.

Close links with the University of Natal were formed by appointing him as Professor (and therefore a member of Senate), with the Registrar as the Institute's Honorary Secretary and the University Accountant its Treasurer. In 1953 the Institute's Building, with room for up to thirty staff members, was opened on 0.81ha of leased land on the Durban (Howard College) campus.

The Faculty of Agriculture established much closer ties with the Wattle Research Institute, not least due to its geographical proximity in Pietermaritzburg on University property adjacent to the site designated for its own use. The Wattle Growers' Union and the Department of Education financed an edifice with 372 square metres of floor space for laboratories, offices, storage, a library and dark room. A separate insectary, glass-house and nursery were added and, in 1950, the Wattle Growers' bought the 271ha farm Bloemendal, 13 kilometres out of town, for use as a field experiment station. The Wattle Growers' and the Department of Forestry provided the Institute's running costs on a *pro rata* basis, with the latter's initial ceiling of R10,000 rising to R35,000 in response to expansion and increasing expenses.

The Committee of Control, responsible to the University Council, comprised three Wattle Growers' representatives, two from the University and one from the Department of Forestry, the latter eventually rising to three with the increase in annual grant to maintain its proportionate value. The Director of the Institute, like his Sugar Institute counterpart in Durban, was appointed Professor and member of the University Senate.

Herbert Shaw, appointed in 1947, arrived with a doctorate from the University of Manchester and thirteen years' experience at the East Malling Research Station, the famous horticultural foundation in Kent where he had established and developed the Plant Protective Chemistry Section for the research of insecticides and fungicides. This stood him in good stead during the twenty years of his Directorship in Pietermaritzburg, where his primary

concern was to maintain the best possible facilities for the advanced research needed by the wattle industry.

During his tenure marked progress was made in the selection and promotion of improved strains of wattle, particularly with regard to effective resistance to gummosis, which diminishes the quality and yield of both bark and timber. The production of wattle bark at the Institute's own experiment station rose more than 40 % from six to eight and a half tons per 0.40ha prior to Shaw's retirement in 1967.

His efforts were greatly assisted by a capable staff. Two Section heads were appointed to the Wattle Research Institute in 1948. Dr W.S. Martin, in charge of Chemistry (Soils and Fertilizers) until his retirement in 1963, was a graduate of London University who had spent some time studying at Rothamsted Experimental Station and more than 20 years in the colonial agricultural service in Uganda. Dr A.A. Moffett, head of the Genetics and Plant Breeding Section, was a product of Birmingham University and the John Innes Horticultural Institute who had worked at Trelawny, the well-known tobacco research station in what was then Southern Rhodesia.

In 1949 Dr L.L.J. Ossowski became head of the new Entomology Section. A graduate of the University of Poznan, he brought extensive experience in forestry and forest protection but after his death in 1960 entomological studies remained dormant at the Institute until late 1965.³⁰

The University's relationship with its research institutes and between its research and teaching functions was further strengthened when its Senate Executive Committee decided that Institute staff members could offer to work as part-time lecturers with the approval of their Director and of the relevant teaching department. The staff of the Sugar Milling Research Institute nevertheless continued to focus upon their primary function of improving the extraction and processing of sugar. Similarly, the Wattle Research Institute remained dedicated to developing the output and quality of tannin-bark and wood by means of better silvicultural practices, the breeding of more commercially viable strains, the control of diseases and pests, and the effective use of fertilizers.³¹

Student intake and graduate output

In keeping with its initial *rationale*, much of the research conducted in the Faculty of Agriculture by postgraduate students was also dedicated to overcoming the particular farming challenges of the immediate region. The availability of such students obviously depended heavily upon the successful production of suitable graduates, though in due course researchers were also attracted from elsewhere.

The 1947 intake of 53 first-year students, 28 of whom embarked upon the second-year Programme the following year, yielded a crop of 18 who

in 1950 completed the B Sc Agriculture degree in the minimum four years. On Saturday 31 March 1951 nine of these were capped; Deryk Brown was followed by Carl Bruns, George Hunter, Dieter Jobst, Peter Knox-Davies (distinction in Horticulture), Donald McAlister, Johannes Dieter Reusch (*cum laude*), Malcolm Rodel and Siegwatt Rohrs. They were a talented, well-taught group who went on to enjoy distinguished careers in their chosen fields.

Brown subsequently completed an M Sc (Agriculture) based on the study of Nguni cattle in Swaziland. He lectured at Cedara, followed by four years in the Faculty's Animal Science Department before returning to Cedara, moving on to Egerton Agricultural College in Kenya for four years and then to the Motopos Research Station, Bulawayo.

On returning to Natal he bought 100 acres of farmland but was appointed to a post in the University College of Fort Hare and retired from there 24 years later. He was awarded a D Sc (Agriculture) by the University of the Orange Free State.

Carl Bruns subsequently acquired a medical degree and practiced on the Natal north coast. George Hunter, as previously mentioned, completed a Ph D at the University of Cambridge and soon distinguished himself in the field of sheep breeding. Dieter Jobst pursued a career with the Dairy Board in Britain, Dieter Reusch became a popular lecturer and well-known geneticist/plant breeder in the Faculty and Malcolm Rodel was involved in the early stages of Hamish Scott's soon to be famous veld-burning trials.

On the same day the other nine students graduated *in absentia*: Roy Alcock, Michael Cooper (distinction in Horticulture), Alan Dicks (distinctions in Pasture Management and Soil Conservation), Kenneth Hanssen, Ian Horne, Rupert Lello, Cuan McCarthy (a Springbok cricketer), Edward Seward and Anthony Stubbs.

In 1950, the first year in which there were students in all four years of study, a total of 117 registrations were recorded, a figure which had more than doubled by 1960 and increased erratically to 370 in 1966. Despite proposals in the mid-1950s to restrict the intake of second-year students due to limited classroom accommodation, first year numbers rose from the original 53 of 1947 to 112 in 1960 before declining to 105 in 1966.

There was some concern that the University's fee structure was significantly higher than those of other institutions, its four-year B Sc (Agric) degree costing £269 compared to £244 at Stellenbosch, £240 at Pretoria and £236 at the University of the Orange Free State. An advertising campaign through the press to promote the Faculty was considered too expensive but notices outlining its admission requirements were displayed at all the other South African universities. In addition, exhibitions were mounted at the University of Natal's bi-annual Open Day and on the occasion of its 1960 Golden Jubilee Celebrations.

The decline in student intake was really due to a variety of factors, including an increase in the aggregate score required to matriculate and the introduction of a new national military training scheme.

The number of B Sc (Agric) graduates rose from the initial 18 in 1951 to 43 in 1961, dropped to 35 in 1966 (due to the declining intake in the early 1960s) but had increased to 53 by 1967. The Faculty graduated its first two Masters students in 1952, producing six in 1959 and again in 1960, rising to 14 in 1966. In 1959 the first two doctoral students graduated (Peter Allan and Hector de Meulenaire), both of them having received their undergraduate training in Pietermaritzburg. In all there were 632 graduates between 1951 and 1966, including 74 Masters and 11 Ph Ds. While bearing in mind that some departments were established earlier than others, Pasture Science led the way with 134 graduates (19 of them M Scs), followed by Animal Science with 129 (including six Masters graduates), Crop Science with 82 (10 of them M Scs and one Ph D), and Soil Science with 58 (including 13 Masters and four Ph Ds, the most Doctorates in the Faculty during that period.) In 1966 there were 69 Masters and 23 Doctoral candidates registered in the Faculty.³²

By the mid-1960s it was reckoned that 29% of the Faculty's student intake had been drawn from Natal, nearly 25% from the Transvaal, just over 20% from present-day Zimbabwe, 14% from the Cape Province, 7.5% from Zambia and other African countries, and slightly more than 4% from the Orange Free State. The training of such a large proportion of students from outside South Africa (more than 27%) was a contentious issue, especially as more than a quarter of the B Sc (Agric) graduates subsequently found employment north of the Limpopo, often under contract to pay back bursaries.

Nearly a third of primary degree graduates went into government service in the Republic, some of them seconded back to the Faculty by the Department of Agricultural Technical Services for further study. Another 14% found employment in private enterprise, 11% went farming in South Africa and another 4% did so elsewhere, 7% returned for postgraduate studies and 3% settled for domestic bliss as housewives. By 1967 about 8% of the Faculty's graduates (either seconded or attracted back to it for further study) were on its teaching staff or that of a College of Agriculture elsewhere in the country.

All departments consciously pursued a policy of encouraging promising graduates to study overseas for two or three years in an effort to avoid 'inbreeding' but there remained a shortage of post-graduate bursaries both to promote this objective and to attract primary-degree graduates back to the Faculty for further study. An undergraduate bursary for students majoring in Biometry became available in 1964, in memory of Dr E-R. (Roy) Muller, a lecturer in that discipline who died the previous year. A brilliant biometrician, trained by Rayner and a prospective successor to him, he was tragically killed, with his wife, in a train level-crossing accident near Amersfoort.³³

Faculty regulations and curricula

The successful output of graduates depended upon carefully structured regulations and curricula. All students intending to complete a B Sc (Agric) degree had to follow a broad-based common curriculum during the first two years of study before specialising in their selected options during the last two years. They were required to meet the entrance requirement of a matriculation or its equivalent with a pass in Mathematics, followed by a year of University study in the Faculty of Science taking first-year courses in Chemistry, Physics, Botany and Zoology.

Students who had already opted to specialise in Biometry were expected to take Mathematics I instead of Physics I, while Botany, Zoology, Economics I and a choice of first-year Chemistry, Mathematics or Geology was prescribed for those who intended to pursue Agricultural Economics. All students were required to attend at least two-thirds of all class meetings and pass at least three year-long courses to advance to the second year of study, when the Faculty of Agriculture assumed academic and financial responsibility for them.

There were further detailed requirements for advancement from the second through to the fourth year of study but as the various courses on offer were developed and expanded the demands made upon students became excessive.

The 1954 revision of the curriculum addressed this problem, enabling students to complete their second year with a manageable nine courses. A further refinement grouped courses in such a way that one of them, the so-called 'optional ninth', could be excluded, or dropped during the second year, by students who had already chosen their 'major' subjects. They were nevertheless encouraged to secure the 'optional ninth' credit in order to retain 'maximum freedom' in their choice of specialised 'majors' at the beginning of third year. Second-year students who had not yet selected a definite 'major' subject were required to take the first year courses in Biochemistry, Genetics and Microbiology for the same reason.³⁴

There were 13 'major' subjects offered in the Faculty of Agriculture, all but one clustered into three groups: Animal Husbandry, Biochemistry, Dairy Industry and Poultry Husbandry; Agricultural Chemistry, Agronomy, Biochemistry, Pasture Management and Soil Conservation; Biochemistry, Entomology, Genetics, Horticulture and Plant Pathology. Students could also opt for a five-year degree in Agricultural Engineering, of which the first three had to be spent in the Faculty of Engineering on the Durban (Howard College) campus and the last two in Pietermaritzburg.

The 'Education Option' which had envisaged the training of B Sc graduates to teach agricultural courses in rural high schools and which had featured in the pre-1949 campaign to get the Faculty established in Natal, was summarily dropped to conform with other universities. Prior to writing their

final examinations all B Sc (Agric) candidates, whatever their speciality, had to undertake at least two months of practical work on an approved farm, in a conservation area, a dairy factory, a laboratory, or at an experimental station. This requirement could be met outside South Africa, subject to the co-operation of an agricultural officer in the country concerned to ascertain the suitability of the circumstances in which the student was to work.³⁵

Following the 1954 revision, the curriculum remained largely unchanged until 1965, though there were some adjustments in the intervening years such as the inclusion of a section on Sheep and Wool in the fourth-year Animal Husbandry option. In 1958 it was confirmed that all students, except those taking the Biometry option, should complete at least seven courses by the end of the second year of study, in which year all 'Agrics' were obliged to take the Biometry A course although it would not be completed until midway through the third year. This compulsory course, subsequently encapsulated in the largely unloved 600 pages of 'Rayner's Book of Revelations' (1969), proved to be the bane of many a non-Biometry student's life.

'Cytologist', a columnist in the student newspaper *NUX*, had already observed in 1950 that lecturers and students attending Biometry classes 'all have the same cold, compassionless look of stone statues who are being forcibly fed with the distasteful morsel. ... It might even be argued that pyjamas are the correct dress for Biometry lectures. ...' A few weeks later he added 'We approach the end of the statistical tunnel, we are told, but most of us are too dazed to know even in what direction the tunnel runs. ...'

In 1964 the names of several options were changed:- Agronomy to Crop Science, Animal Husbandry to Animal Science, Horticulture to Horticultural Science, Pasture Management and Soil Conservation to Pasture Science and Poultry Husbandry to Poultry Science. The intention was to emphasise the science-based nature of these core 'production oriented' disciplines. In 1965 the Department of Pasture Science and Agrometeorology was formed, following the appointment in 1961 of Jimmy de Jager as an agrometeorologist and the recognition of Agrometeorology as a separate discipline the following year. It had developed gradually in the Faculty, some elements having been taught as early as 1949 in the third year Climate and Erosion course offered by Pasture Management and Soil Conservation.

In 1951 Margie Edmonds, a junior lecturer, had given an introductory course in Meteorology and Climatology, while in 1957 the first-year Agronomy syllabus had included material on rainfall and crop production. By the mid-1960s the possible establishment of a Faculty of Veterinary Medical Science at the University of Natal was also under serious discussion but it was an expensive proposition which failed to elicit any encouragement whatsoever from Government.³⁶

Rolf Hagen (B Sc Agric 1964–66) remembers being the last student to be credited with a year towards his degree for the two-year Diploma completed at Cedara. It was the beginning of a career which led to him becoming general manager of National Plant Food (Gromor) in 1972 and major shareholder. The new curricula introduced in 1965 prescribed Mathematics I and Chemistry I as well as two additional courses for the first year no matter what ‘major’ option students might have in mind. In addition, a further course in Chemistry was added to the second year for most options.

These changes emanated from recommendations made by Pete Booysen and Malcolm Sumner, both of whom had recently completed doctorates abroad and firmly believed that agricultural training should have a strong science base. The second-year Chemistry course was highly unpopular and too much for most agricultural students. First-year registrations dropped alarmingly as the word got around and the Chemistry II experiment was soon shelved.

The Mathematics course was also unpopular but a more appropriate ‘Maths for Biologists’ course was eventually developed. This increase in the number of ‘basic science’ courses in the early stages of the curricula meant that the material previously covered over three years of study was now concentrated into the last two years in the new curricula for Crop Science, Animal Science, Horticultural Science, Pasture Science and Poultry Science respectively. The decline in registrations was, to some extent, counteracted by the introduction of a new option, Agricultural Production.

This was intended for the benefit of more practically-minded students envisaging careers as extension officers in the employ of the Department of Agricultural Technical Services. Times had changed, for just four years previously the Faculty had rejected the notion of ‘separate undergraduate training for extension officers’ – on the grounds that the current curriculum provided ‘a basic training in agricultural science and was suitable for all students, whether they were to become research workers, teachers, extension officers or farmers.’³⁷

There was growing concern about the quality of university entrants and the unacceptably high first-year failure rate. While ‘Agrics’ coped adequately with first-year Botany and Zoology this was not always the case with Chemistry and Physics. For many years they were predominantly practically-orientated students, who were dismayed by their first year of pure science training and, in some cases, considered it unnecessary. While many subsequently became good scientists and technologists, there was some truth in the rhyme recited by their ‘Science’ counterparts that:-

*‘The Agrics at Natal University perform a role
On which no man can frown
They quietly enter into class
And keep the average down!’*

The Faculty Curriculum Committee favoured raising entrance standards, extending the first year of study by five weeks without increasing course content, and possibly introducing a foundation year, as already contemplated elsewhere in the University, provided the courses pursued by prospective agriculture students were science-orientated and not of the proposed ‘general’ nature.

The Committee also recommended that serious consideration should be given to the introduction of a ‘semester’ system of courses as this ‘would allow students of differing ability to complete the degree requirements within varying periods of study in accordance with their academic ability.’ This proposal was also introduced by Booysen and Sumner on the strength of their overseas experience. It was a portent of things soon to come.³⁸

Student life and accommodation

Apart from the high first-year failure rate, by the end of 1966 there was also concern about student indiscipline on campus and ‘Agrics’ were held responsible for much of it. The Board of the Faculty indicated its willingness to co-operate with the University Administration in addressing this problem but expressed doubt that, beyond the first year of study, its students were significantly to blame.

The *NUX* columnist ‘Cytologist’ had commented as early as 1950 that ‘these faculty “types” are no rowdier than a good few others from other sections. ...’ By their own admission, a group of ‘Agrics’ were certainly responsible for a nocturnal raid on the laundry at Women’s Residence where underwear left to soak overnight was turned purple by the addition of Condi’s Crystals. Unfortunately, by morning the oxidizing effect of the chemical had reduced the nylon items to a few pieces of elastic band! At lunch time the Warden of Oribi Mens’ Residence, Dr Lindsay Young, induced the culprits to identify themselves by threatening all the residents with a hefty fine to compensate the pantie-less victims. When not a single claim for damages arrived from the Women’s Residence the men of Oribi passed the hat around and presented the Lady President with the proceeds for a ‘slap up meal’ for all her girls. It was a very masculine notion of appropriate compensation but doubtless much appreciated.

Since the earliest days of the Faculty ‘that contentious subject, the role of the Agricultural student in University life’ had been a topic for debate among other members of the student body. Many pointed to the low level of ‘Agric’ participation in the various on-campus societies, though this was not true of the sports clubs, rugby in particular, in which their beefy presence was much in evidence. The ditty composed by the very first group (1948) of first-year agricultural students, ‘The Farmers’ Song’, was soon adopted as a general university refrain to represent the Pietermaritzburg campus:-

*'Oh we are the farmers, the farmers, the farmers,
The boys from Natal Varsity,
Doc Saunders is groot baas, is groot baas, is groot baas,
'n Gawe ou kêrel is he.*

Chorus

*Sing hi jig-a-jig, catch a little pig,
Plough up the land,
A fine band of farmers are we!*

*On Fridays we go to Cedara, Cedara,
The farmers go out on the spree;
With dung on our boots, on our hands, on our faces,
We drink great mugs full of tea.*

Chorus ...

*For rooigras or steekgras or dongas or Rugby
Prof. Scott is the man you must see.
He natters and jabbers "Erosion! Erosion!"
It sounds like baloney to me.*

Chorus ...' etc.

'The Farmers' Song' found itself in competition at the annual inter-campus sports tournaments with 'We are the Engineers from Varsity...', which was sung by the mostly non-engineering Durban students. They acknowledged the conspicuous participation of agricultural students on such occasions with a rather less respectful 'Hi jig-a-jig, funny little pig, play in the slush, the Hams of Natal Varsity! ... Cedara, Cedara, Cedara mompara, etc.'

However considerable their contribution to inter-varsity competitions against the Howard College campus might have been, the 'Agrics' never managed to win their annual rugby match against the Faculty staff. For several years these were graced with a running commentary by 'Ba Ba' ('x-bar') Rayner in his best Kiwi accent and, though the outcome was always the same, it doubtless made for good staff-student relations.

On one occasion a hefty student fullback, Ph D candidate Jan Marais, had his seemingly insoluble back problem cured when he was flattened by the enormous staff-member and provincial player Jimmy de Jager, who was *en route* to the try-line with a trail of would-be tacklers in his wake. In the same memorable match another staff member, Mike Wallis, was certified concussed by the elbow of his own scrumhalf, Ben Cilliers, winger Neil Tainton was voted the most valuable player because he was the only one who, in the absence of floodlights at Woodburn Stadium in those days, could see the ball in the dark, student centre Jack Burney (later a staff member) had his late try disallowed because he had hidden the ball under his jersey, and at the end of the game

Pete Booyesen (future provincial winger, Faculty Dean and University Principal) declared the ball to have been hijacked! In the early years staff-student cricket and golf matches were also part of the tradition.

In 1957 'Klopjag', who described himself as 'a well-known Agricultural student', produced a satirical article for *NUX* in which he imagined a conversation between two Arts students:- 'Take your typical Agric', said Montmorency, knocking his pipe on the heel of his sandal, 'Dirty, backward, noisy, stupid – materialistic – that's the word. He doesn't understand the difference between the contrapuntal juxtaposition of elementary aesthetics and the principles of Marxist dialectic. How can you expect him to use the vote?' (a swipe at the 1956 removal of 'Coloureds' from South Africa's common voters'roll).

'Agrics' were indeed generally (with some exceptions) boisterous, not given much to pondering the major political issues of the day, opposed to the ruling Nationalist Government but accepting of the prevailing paternalistic attitudes with regard to race relations. Another satirist subsequently 'painted an idyllic picture of the world before the invention of the individual when everyone (presumably including Adam and Eve) was an Agric. ...'

The 1960 intake of new students was advised by *NUX* that if they wanted to 'catch an Agric...they can be encountered in large herds at the Union, at Rugby matches, in the Oribi Swimming Bath, in the Inpub...but it must be kept in mind that they are nocturnal beasts i.e. they attend lectures during the day. ...'³⁹

'Agrics' did tend to stick together and the busy schedule of lectures, practicals and after-hours preparation involved in the B Sc (Agric) curricula may indeed help to explain their perceived limited participation in a variety of campus activities, as was also the case with engineering students in Durban (Howard College.) In neither case could the distinct identity of such students that emerged in both centres be attributed to the provision of separate residential accommodation.

In Pietermaritzburg male agricultural students, along with the others, were initially housed at Oribi Military Camp, where there was space for between 200 and 300 students in all. The 'farmers' were certainly much in evidence, for in 1951 as many as 150 of the 210 male students resident at Oribi were 'Agrics'. Most of them were from outside Pietermaritzburg and so required on-campus accommodation, after Oribi at William O'Brien Hall, where their presence was similarly strongly felt. A high proportion of the early intakes were World War II ex-servicemen, hardened by wartime experience and more influential in setting the tone in residence than those straight out of school, who found themselves subjected to various 'initiation' rites.

'Liberation' war veterans from Kenya, Rhodesia and eventually South Africa itself, maintained this tradition of wartime experience well into the 1980s, though they were by no means confined to the Faculty of Agriculture. In the early years all students shared the ritual of formal Residence dinners (for

which suits and academic gowns were worn) on Wednesday nights, with 'Grace' said in Latin and the white-suited waiters directed by their head who was distinguished by a large red sash.

They all looked forward to Sunday lunches, to which female friends could be invited at 1/6d (15 cents) a head. On those days the dessert was always ice-cream, with cream scones and jam for tea in the junior common room. Alcohol was forbidden in Residence but in the senior common room (for fourth year students and invitees), with its carpeted floor, leather chairs and fridge, sherry could be consumed at a ticky (three cents) a glass, duly recorded in the 'Honour Book', and was at the 'birthday boy's' expense on those special occasions.

By the 1960s some 'Agrics', in common with other students, were opting for 'digs' accommodation off-campus. Rolf Hagen remembers sharing 'digs' with 'Wobbles' Scott and making extensive use of a bicycle, with his wife-to-be Margie, a teacher at Wykham, often perched on the crossbar. Another early tradition was for 'Agrics' to mix with others on Saturday evenings at the Students' Union where, for a small 'cover charge' and appropriately attired (jacket and tie in winter) they enjoyed soft drinks and danced to music provided by student musicians. These included Physics postgraduate Mike Leask, who as a Rhodes scholar was subsequently voted the best University jazz pianist in Europe.

'Agrics' participated in the annual 'Charity Rag', with its drinking excesses at float-building, magazine-selling and concluding 'tug of war' in front of the City Hall before staggering onto the free municipal bus-ride back to the campus. They were also involved in the annual 'Rag Relay' between Pietermaritzburg and Durban against the students from that centre, with each team member running a five kilometre leg and, in some cases, two. Friendships were doubtless formed with other students in Residence and at these other campus events. This was most likely the case with the B Sc candidates with whom they shared much of the first-year curriculum and with other 'sprogs' with whom they endured the initiation rites to which 'seniors' subjected new students.

All first-year students were dependent on the twice-daily 'Garry' transport to and from lectures and 'practicals' on the main campus in Scottsville, or joined the growing throng of cyclists who were to be seen on Oribi Road. Only very senior students were allowed to operate motor vehicles and a fortunate few had motorcycles with which to venture further afield, visiting trainee teachers at 'TC' (Teachers' Training College) near the railway station, or go 'Greysing' – an 'Agric' term for visiting trainee nurses at Greys Hospital near the centre of town.

Most students used the municipal bus service to shop in town or to go to the cinema in the evening, the last trip back to Oribi leaving at 10.15pm. After first-year, while non-agricultural students attended classes in the relatively

palatial facilities on the Scottsville campus, the 'Agrics' were taught in the spartan conditions at Oribi and, from 1954, in the Faculty's new Building out on the open veld at Epworth.

Its relative remoteness from the main campus (about 1.2 kms), coupled with the academic self-sufficiency of the post-first year Agriculture curricula, may have contributed further in distancing the hard-core 'fine band of farmers' from the rest of the student population and in promoting a distinct collegial spirit. In 1960, when an 'Agricultural Students' Council' was constituted, its purpose was specifically to run the student tearoom and other facilities, as and when provided, and to liaise, not with other student bodies, but with the 'authorities' within the Faculty of Agriculture.⁴⁰

The 1963 Memorandum of Agreement

The same geographical and academic circumstances probably contributed to a similar remoteness on the part of the Faculty of Agriculture's staff. Yet they were by no means entirely divorced from the other faculties, Science in particular. Joint service on Senex, Senate and other institutional bodies, coupled with personal friendships and overlapping research interests must have promoted some interaction.

But, for the most part, the Faculty, like that of Medicine (opened in 1951) for reasons not explored here, was considered to be 'different' from the rest of the University. The politically conservative reputation of 'Agric' students was attributed to the rural background of many of them and/or to the initially large number of Kenyans and 'Rhodesians' (later rising to more than 40%) among them. In the opinion of other academics, the primary reason for this sense of 'difference' as far as the Faculty's staff was concerned was its dual nature i.e. the fact that the Faculty was under the academic control of the University but still subject to the conservative administrative authority of the Department of Agricultural Technical Services.

This was reflected in the initial joint appointment of Saunders as both Dean of the Faculty and Director of the Natal Agricultural Research Institute, with responsibility to the Department. It was this anomalous situation, to which all agricultural faculties were subjected, that obliged staff to accept an uneasy combination of university and civil service conditions of employment. Some early appointees were academic lightweights, temperamentally more inclined towards the civil service anyway. Others, some in key positions, were clearly outstanding teachers and researchers, who produced a similarly capable second generation of academics, several of whom succeeded to their positions.

Nevertheless, it took time, and scientific achievement, to overcome the Faculty's initially inferior image and the 'poor relations' perception that attached to the 'applied sciences' in relation to the 'pure sciences'. It was

unfortunate considering the enthusiastic campaign which had led to the Faculty's establishment in Pietermaritzburg.

Initially appointees were expected to work a strict five and a half day week, including Saturdays from 8am to noon, with 15 minute tea breaks, morning and afternoon. They were entitled to four weeks a year civil service leave and performed regional duties for the Department of Agricultural Technical Services during the University vacations.

The Natal Agricultural Research Institute's Staff Association catered for their 'social' needs, including an annual Christmas Party in the lounge of the Men's Residence. They were required to subscribe 0.2% of their salaries for this service, which also provided farewell presentations, the value of which was based on years of service.

Not least, unlike any other university staff members, they were expected to be capable of teaching in both English and Afrikaans. This duality was to some extent modified in 1963 when, after protracted negotiations, the original 1948 Agreement between the Minister of Agriculture and the University of Natal was substantially amended.⁴¹

An initial step had been taken following the departure in 1956 of Saunders, after which the office of Director of the Natal Region and Dean of the Faculty were separated, the former no longer being even an ordinary member of that body, which henceforth elected its own Deans.

Since the early 1950s Faculty members had discussed the ideal of full integration into the University. In 1955 they made a formal declaration to that effect, with the important proviso that, unlike other faculties, the annual state grant for Agriculture should not be based on a formula 'tied to student numbers.' In so doing they touched upon an issue which was to prove critical in delaying the achievement of their objective. The following year the Faculty Board proposed that, at very least, 'a Division of Academic Services' should be established within the Department of Agricultural Technical Services, as suggested by the recent Holloway Commission. The Board continued to press for a revision of the 1948 Agreement in order to resolve 'anomalies in respect of academic matters which had become apparent from time to time.' These included salaries, sabbaticals and promotions.⁴²

In terms of the 1963 Memorandum of Agreement the campus still had a voice in the appointment of the Director of the Natal Region, the choice being ultimately decided by the Minister of Agricultural Technical Services 'on the recommendation of the Public Service Commission and after consultation with the University.'

Following a Cabinet decision, Faculty staff were henceforth to be referred to as the 'Faculty Group' of the Public Service. They remained under the dual authority of the University and the Department but were now to be appointed and promoted by the latter 'on the recommendation' of the former and no

longer by agreement between the two.⁴³ In terms of the conditions of service set out in *Annexure A* of the 1963 Agreement the academic staff of the Faculty were expected to devote themselves ‘primarily to academic duties’, but as full-time public servants they were also required to undertake research for the Regional branch of the Department when their academic duties permitted and after consultation with the Dean.

Their research projects were to be co-ordinated by the Regional Director and subject to Departmental approval. The latter accepted responsibility for the payment of their salaries and public servants’ allowances while the Public Service Commission undertook to recommend for them any salary scale adjustments approved by the Department of Education, Arts and Science for the University’s other lecturing staff.

This resolved a particularly difficult bone of contention and, in addition, the Public Service Commission was henceforth to consider applications for sabbatical leave on their individual merits on the recommendation of both the University and the Department. Lecturers and senior lecturers in the Faculty were still expected to pass the prescribed Public Service language test (in English and Afrikaans) prior to being considered for promotion but there was no interchangeability for them to be promoted to other posts within the Department up to the grade of Senior Professional Officer.

The ‘Faculty’ or ‘Lecturer’ Group was to be regarded as a ‘closed’ Group whose salary and seniority levels did not entitle them to any preferential treatment with regard to promotions outside the Group to other Departmental posts.

The Department of Agricultural Technical Services also agreed to transport staff and students engaged in University work between the Faculty Building and ‘any experimental plot or research station attached to the Natal Region.’ While it undertook to maintain such sites, the University was to retain all student fees and, as before, to provide appropriate courses, teaching and administrative staff, lecture venues, laboratories, equipment and hostels.

In the event of a full-time lecturing post falling vacant, the University could now request the Department to assign one of its officers to provide temporary assistance at the Department’s expense, or it could find such assistance elsewhere subject to prior Treasury approval.⁴⁴ In some respects conditions of service for the Faculty’s academic staff had certainly been improved, though these were still far from satisfactory.

Response to the Mönnig Report

The creation of a special ‘Faculty Group’ within the structure of the Department of Agricultural Technical Services alleviated some of the difficulties arising out of the dual nature of the Faculty of Agriculture but was still regarded as only a partial solution to its anomalous situation. In 1964 Professor H.O.

Mönnig, chairman of the Scientific Advisory Council, submitted a 'Report on a Study of Scientific Organisation' to the Prime Minister, Dr. H.F. Verwoerd. The University of Natal and its Faculty of Agriculture 'whole-heartedly' supported Mönnig's recommendation that all Faculties of Agriculture and Veterinary Science should be placed under the complete control of their respective universities, entirely independent of the national Department of Agricultural Technical Services, and that the necessary financial arrangements should be made to facilitate this change.⁴⁵

In its 1965 Memorandum on the Mönnig Report, requested by the Principal for incorporation in his own comments to the Scientific Advisory Council, the Faculty of Agriculture highlighted several of the difficulties under which it continued to labour and that could not, in its view, be resolved 'within the framework of the Public Service.'

These included 'cumbersome' delays of up to three months in staff appointments due to the need for approval from the Public Service Commission, the application of civil service language tests, not applicable in other faculties, for promotion to senior lecturer and professorial status, the requirement of 'merit assessment' to give staff members 'shadow status' in the Department of Agricultural Technical Services, and the inability to reconcile all civil service conditions of service with those of the University.

Surviving issues of contention were dates of retirement, the irksome need to obtain Departmental permission and sacrifice leave in order to attend knowledge-improvement classes, the need for similar approval prior to the publication of research in any journal of choice, the difficulty experienced in appointing and retaining technicians because of delays and rigid salary scales, and the requirement that copies of all correspondence with persons overseas had to be submitted to the Departmental secretariat.

Production-oriented academics (agronomists, animal scientists, entomologists, horticulturists, pasture scientists, plant pathologists and soil scientists) had the additional burden of answering queries from the general public that were directed to the Department of Agricultural Technical Services, and had to endure having their replies vetted by departmental officials.

Ongoing financial frustrations included the delays involved in channeling tenders for equipment through the State Tender Board, difficulties in raising funds for research equipment, the need for which had not initially been foreseen and the absence of which led to curtailed or lower quality work, and the harsh restrictions placed on staff members seeking financial support for research from private enterprise.

Difficulties in securing building alterations and new facilities were similarly intolerable. The greater flexibility allowed in recent years in the selection of postgraduate research projects had been welcomed, though the time-consuming correspondence between Professors and the Regional Director in finalising projects remained a source of irritation.

So too was the choice and treatment of postgraduate students on the part of the Department, which continued to regard the Faculty as a training ground for its recruits. In most cases Departmental officers sent for postgraduate training could only complete a Masters degree because the period of their secondment was limited to two years. This tended to restrict the development of research programmes and the number of doctoral students, especially as there were virtually no funds available for students who did not want to work for the Department.

Employees sent for postgraduate training were sometimes unsuitable on the basis of their undergraduate records, yet it was difficult to refuse them in view of the current policy of basing Departmental promotions on the acquisition of specific postgraduate degrees. The Faculty was grateful for the 'excellent' ongoing co-operation that it enjoyed with the Natal Region's various experimental stations, acknowledging that the University farm, Ukulinga, purchased in 1948, was insufficient to meet its needs in that regard. It also valued the close co-operation between certain regional research officers and its own departments, with some officers actually housed in the Faculty Building. The well-known maize breeder Hans Gevers was a prominent example. There was obvious mutual benefit in these associations with regard to the purchase and sharing of expensive equipment, in which regard the Department had hitherto been 'reasonably generous'. The financing of equipment, and of attendance at overseas conferences, were anticipated sources of concern in the event of the Faculty being entirely separated from the Department as it was expected that the University would have difficulty matching it in these respects.⁴⁶

Yet, as the then Dean, Piet Vorster, pointed out at a special Board meeting when Dr S.J. du Plessis of the Department visited Pietermaritzburg on 10 August 1965, the Faculty had now 'developed to full maturity' in terms of student numbers, staff complement, research output and administrative complexity. The latter placed departmental heads under 'intense pressure' in trying 'to retain some academic character in their work' while 'having to comply with requirements designed for the general Public Service.'

Vorster also highlighted the awkward relationship which had developed between the Faculty and the rest of the University arising out of the dual nature of the former. It was this, he contended, which obliged Faculty members of the University Senate to abstain when some important issues relating, for example, to staff appointments and finance were discussed because of their public service status. Although Vorster did not mention it, this probably also helped to explain their political conservatism which co-existed so uneasily with the generally more liberal ethos that characterised other parts of the campus.

Members of other faculties, he asserted, were astonished that colleagues in the Faculty of Agriculture did not have 'the privileges and freedom commonly

associated with University staff', the restriction on foreign correspondence being an embarrassing case in point. The expectation that the Dean and his departmental heads should constantly refer to the Secretary for Agricultural Technical Services and/or the Regional Director made it impossible to take quick decisions and to participate fully in the life of the University.

Moreover, the new generation of staff members who had joined the Faculty without any prior experience as public servants found 'the more obscurely-motivated and less applicable procedures of Government Service... particularly frustrating and confusing....'

Vorster gave the assurance that the Faculty's support for the recommendation contained in the Mönnig Report was not an expression of 'disloyalty to the Department' but was born out of a 'genuine concern over the functioning of the Faculty, and our desire to make the teaching and research of our Faculty as effective as possible.'⁴⁷ The complete administrative transfer of the Faculty of Agriculture from the Department to the University was still more than a decade away.

ENDNOTES

- 1 UKZNA MP BIO P3/2/1 containing *The Natal Witness*, 8 August 1946 and 17 April 1947; UKZNA UN Senex Minutes, 28 April 1949; UKZNA UN Senate Minutes, 24 June and 26 September 1949.
- 2 UKZNA BIO S186/1/1, Saunders, Dr A.R.; UKZNA UN FABM 12 May 1972 Appendix A; Pete Zacharias, 'Message from the Deputy Vice Chancellor and Head of College' and 'Plant Breeding', both in *Celebrating 60 Years of Agriculture* (Pietermaritzburg, Faculty of Agriculture 60-year Commemorative Brochure, 2008), p 2 and 43; Dicks, 'Reflections on Sixty Years of Agriculture', p 6.
- 3 UKZNA NUC Senex Minutes, 9 December 1947, p1, 12 April 1948, p 3, 3 December 1948, pp 2–3; UKZNA NUC Senate Minutes, 22 November 1948, p1; UKZNA MP BIO P 3/2/1 containing *The Natal Mercury*, 13 October 1947; UKZNA UN FABM, 13 December 1952, pp 2–3, 30 July 1954, p12, 16 October 1954, p 7 and 15 June 1957, p 2.
- 4 UKZNA BIO S 50/1/1, Scott, Prof J.D.; UKZNA NUC Senate Minutes, 25 March 1948, p 1; UKZNA UN Senex Minutes, 25 June 1957, p 3; UKZNA UN FABM, 15 June 1957, p 2; UKZNA Laurence, G. B, 'The Department of Animal Science and Poultry Science – First Five Years: 1948–53 Reminiscences', (Typescript), pp 5,11; Dicks, 'Reflections on Sixty Years of Agriculture', p 6.
- 5 UKZNA BIO S 32/1/1, Orchard, Prof E.R.; UKZNA NUC Senate Minutes, 25 March 1948, p1 and 27 November 1953, p 9; UKZN UN Senex Minutes, 25 March 1958, p 4; UKZN UN FABM, 10 August 1957, p 2; UKZNA UN Senate Minutes 16 August 1972 p 4/127; Brookes, *University of Natal*, pp 95–6, 183; Dicks, 'Reflections on Sixty Years of Agriculture', p 7.

- 6 UKZNA BIO 24/1/1, Le Roux, Prof J. C.: UKZNA Laurence, ‘Animal and Poultry Science’, p 5; Brookes, *University of Natal*, pp 95–6, 183; Peter Allan, Personal Information, 8 June 2009; Nigel Wolstenholme, Personal Information, 11 November 2009.
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- 8 UKZNA BIO S 1/1/1 Abbott, Prof. C.W.; UKZNA UN Senate Minutes, 27 November 1953, p 9; UKZNA UN Senex Minutes 28 October 1968 p 7, 25 March 1975 p 13/254; Peter Allan, Personal Information, 18 January 2009.
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EXPANSION, RATIONALISATION AND THE END OF DUALITY: 1966–1976

During the late 1960s and early 1970s the Faculty lost several of its foundation staff members to retirement. These included Josias ('Sas') le Roux (Horticultural Science) in 1969, Piet Kotze (Animal and Poultry Science) in 1970, Martinus Oosthuizen (Entomology) in 1971, 'Jimmy' Orchard (Agricultural Chemistry and Biochemistry) in 1972, 'Hamish' Scott (Pasture Management and Soil Conservation) in 1973, 'Clem' Abbott (Dairy Science) in 1975 and Susarah Truter (Plant Pathology) in 1976. In addition, in 1974 Piet Vorster (Agricultural Engineering) resigned to join the Water Research Commission.

As the old order gradually gave way to new the filling of existing posts and establishment of additional ones was still restrained by the requirements of the Department of Agricultural Technical Services, the ongoing uncertainty surrounding the future administration of the Faculty by that Department and/or the University, and the attendant financial implications of any future change in the *status quo*.¹

New staff appointments

In some Departments the personal links with the Faculty's foundations lasted much longer, either through long-serving staff members or the appointment of former students.

Agricultural Economics continued to enjoy the services of Ian Behrmann, who rose from his initial lectureship (1948) to become Professor and Head in 1960. In 1967 W.L. (Lieb) Nieuwoudt succeeded Jan Groenewald as senior lecturer after returning with an M.Econ. degree from the University of North Carolina. He proved to be a skilled statistician and econometrician, completing his Ph D in 1970 on the demand for resources and the supply of output in South African agriculture. His thesis was commended by one of the external examiners, the well-known econometrician T.D. Wallace at North Carolina, and was awarded the Founders' Medal and Prize of the Economic Society of South Africa, the same recognition which Behrmann had achieved in 1960. Several journal articles emanated from this work and Nieuwoudt subsequently became a Fellow of the University.

In 1972 M.A. (Mike) Tarr, top student in the bright twelve-strong 1969 Agricultural Economics class, succeeded John Graham as lecturer and went on to submit a Masters thesis on an input-output analysis of the South African economy with particular emphasis on labour resources in the agricultural sector.²

In 1973 Agricultural Engineering gained the services of Peter Green, one of its own graduates, and found a more than capable replacement for its foundation Professor, Piet Vorster, with the promotion in 1976 of Potgieter ('Pottie') Meiring who had already been lecturing in the Department for twenty years. Born and schooled at Kirkwood in the Eastern Cape, he was a graduate of the University of Pretoria. Following his appointment as lecturer at the College of Agriculture in Potchefstroom (1954) and then in Pietermaritzburg (1956), he was promoted to senior lecturer in 1961 and acquired his M Sc Eng *cum laude* there in 1968.

Meiring was a founder council member of the South African Institute of Agricultural Engineers and, from 1974, an alternate member of the Professional Advisory Committee on Agricultural Engineering. Prior to his retirement in 1991 he made a significant contribution in the fields of Agricultural Engineering and Hydrology, helping to consolidate the Department's international reputation as a teaching and research centre. By the mid-1970s he was already a recognised specialist in the efficient use of tractor power.

The Department Agricultural Technical Services sponsored him to present a paper to the American Society of Engineers on his own Department's development of a slip meter designed to improve the utilisation of tractor power during field operations. He was subsequently sponsored by various tractor organisations to attend a workshop on tractor testing in the USA, and visited a number of tractor research institutes there as well as in Europe and Britain.

During the course of his career he published numerous research papers and was also well known in local rugby circles as chairman of the Maritzburg Referees' Society and a council member of the Maritzburg Rugby Sub-Union and the Natal Rugby Union. Meiring retired to Plettenberg Bay, where he died.³

Following the formation in 1965 of the Department of Pasture Science and Agrometeorology, Jimmy de Jager took three years off to complete his Ph.D in Wales and P. de V. (Pete) Booysen, lecturer in Pasture Science, filled in for him.

In 1974 the Department of Soil Science and Agrometeorology was formed under the headship of Professor Malcolm E. Sumner. After taking up a post-doctoral fellowship awarded by the International Agricultural Centre at Wageningen University in Holland, he returned to the campus in Pietermaritzburg in 1962 as senior lecturer in Soil Science. In 1968 he spent a year as visiting professor at the University of Missouri and in 1971 the Fertiliser Society of South Africa awarded him its Silver Medal for his contributions to research in Soil Science.

By then he had conducted a number of projects on aluminium toxicity, a widespread problem in the midlands and coastal belt of Natal and other high

rainfall areas, which retards root development and can seriously reduce yields. It was found that the problem could be overcome by careful liming of the soil to convert the active aluminium into insoluble aluminium hydroxide.

One of Sumner's students, Dr N.G. Reeve, who became a soil scientist at Cedara, developed methods of assessing the amount of lime required based on the level of active aluminium in different soils rather than on pH. Advisory services were established in this connection at Cedara and at the Sugar Experiment Station at Mount Edgecombe, the methods used being subsequently adopted all over the world.

In what proved to be a busy year, in 1971 Sumner also studied salinity ('brak') problems which had developed after only ten years on the Zaragoza irrigation project in Spain, he attended a Soil Water Physics and Technology conference at Rehovot and examined irrigation, salinity and drainage on large agricultural projects in Israel.

He was particularly interested in a project near Eilat on the Gulf of Aqaba where deep sandy soils were being irrigated with sea water by means of a constant drip technique which controlled the salinity level to facilitate the successful production of salt resistant crops such as cotton, beet and date palms.

Sumner and Booysen were the first two Associate Professors to be appointed in the Faculty but Sumner subsequently left Pietermaritzburg to become Professor of Agronomy at the University of Georgia where, in 1991, he was named a Regents' Professor in recognition of his 'distinguished scholarship and innovative research'. By then his work had attracted more than \$1.4million in grants and he had travelled extensively as an international consultant on soil fertility and crop nutrition, having lectured on 78 American and other campuses and received numerous awards.



Malcolm E. Sumner

Malcolm E. Sumner was the first Professor of the new Department of Soil Science and Agrometeorology in 1974. Born in Pinetown and educated at St. Henry's College in Durban, he was a graduate of the Faculty (1954). In 1957 he was awarded his Masters degree cum laude for a thesis on the physical and chemical properties of the Tall Grass veld soils of Natal in relation to their erodibility. A post-graduate scholarship from the Edinburgh Union of South African Students took him to Oxford where in 1961 he gained a D Phil for his work on the influence of precipitated iron oxides on the surface properties of clays and soils.

He was the first to demonstrate the beneficial effects of adding gypsum (calcium sulphate) to encourage plant root growth in acid clay sub-soils. This improved crop yields of, for example, maize, lucerne and soybeans, with important implications for farmers in drought-prone regions of the USA and other countries where acid soils are prevalent. Still active in his retirement, Sumner has authored and co-authored more than 250 refereed journal articles and contributed chapters to over 30 books. He is editor-in-chief of the massive and definitive reference work *Handbook of Soil Science* (CRC Press, 2000), with eight co-editors and 146 contributors from all over the world.

In terms of international reputation and contribution to science, he ranks as one of the Faculty's most distinguished alumni and was awarded the University's Doctor of Science (*Honoris causa*), to add to his many other distinctions. In contradiction of 'Ag Fac's' traditionally conservative image, while in South Africa he was an active behind-the-scenes champion of human rights.⁴

Animal and Poultry Science lost George Hunter (1955–66), J.B.J. (John) Human (1961–66) and Dr J.P.H. (Kowie) Wessels (PhD Rutgers), senior lecturer and then Associate Professor, who left in the mid-1970s to head the Fishing Industry Research Institute in Cape Town. A prolific researcher who chose to publish almost exclusively in South African journals although much of his work would have been accepted internationally, his enthusiasm ensured that the poultry facilities at Ukulinga were utilized to capacity.

The Department gained Dr N.C. (Neville) Owen from 1966 until his departure for Onderstepoort in 1969, as well as S.W. (Schalk) Kock in 1967, J.B.J. (Jannes) van Ryssen in 1968, and J.P. (James) Kitching, A.W. (Arthur) Lishman and R.M. (Rob) Gous in 1970.

In that year W. J. (Werner) Stielau was appointed Professor and Head of Department, a position he retained until his retirement in 1990. Born in Pietermaritzburg and a matriculant at Dundee High School, he completed a two-year diploma at Cedara College and was Senior Dux in 1951 as well as recipient of the *Farmers' Weekly* Gold Medal. He spent a year farming near Dundee before completing a B Sc (Agric) in 1955.

He joined the Department as a lecturer in 1956, completing his Master's degree *cum laude* in 1960 on a study of the digestibility of roughages by sheep. He then undertook advanced research at the Davis campus of the University of California, during which he was awarded the A.K. Humphries Memorial Scholarship followed by a Ph D in Nutrition at the end of 1963. Several publications emanated from this research and in 1966 Stielau was promoted to senior lecturer.

In 1968 he returned to Davis as Visiting Professor and undertook research on the nutritive value of rice and barley straws. As head from 1970 he focused the Department's teaching on Physiology and Endocrinology, establishing its

reputation in this important area of animal production. His success was measured in the reputation of the Department's graduates and in the quality of its research publications. Stielau served as Faculty Dean for three terms (1977–79, 1981–82 and 1987–90) and by the time of his retirement he had published 36 articles, eleven of them in foreign refereed journals. He died in 2000 on his smallholding at Ashburton.

J.J. du Preez served the Department for two brief periods (1967–69 and 1971–74) but Lishman and Gous remained for the rest of what proved to be very distinguished careers.

Arthur Lishman matriculated at Grey College, Bloemfontein before acquiring his B Sc (Agric) *cum laude* in 1959 at the University of Natal. He was subsequently stationed at Cedara from whence the Department of Agricultural Technical Services seconded him back to the University in 1964 to complete a Masters degree on reproduction in female sheep which was born out of a fourth-year project supervised by George Hunter. He continued his work on reproductive systems following his appointment as lecturer in the Department and in 1972 gained his doctorate.

Two years later he was awarded the Silver Medal of the South African Society of Animal Production for his outstanding research on reproductive processes, in particular his efforts to explain low lambing and calving rates in sheep and cattle in relation to nutrition. He furthered his interest in this field during sabbaticals spent at West Virginia University and headed the local team which eventually produced Africa's first test-tube calf. He also directed a fourth-year project which achieved the continent's first embryo transfer in sheep, was awarded the gold medal of the South African Society of Animal Production (1988) and a D Sc degree.

Rob Gous matriculated at Benoni High School and graduated at the University of Natal with a B Sc (Agric) in 1967, an M Sc (Agric) in 1972 and a Ph D in 1976.



Rob Gous

Rob Gous joined the Department of Animal Science and Poultry Science in 1970 after completing his B Sc (Agric) in 1967, followed by an M Sc (Agric) (1972) and Ph D (1976). His prolonged interest in poultry science led to his establishment of the world-renowned poultry research unit at Ukulinga and to his becoming the first university agriculturist to be awarded a coveted "A"-rating by the national Foundation for Research Development (now the National Research Foundation). He succeeded Werner Stielau as Head of department after becoming a full professor in 1989.

A major in Poultry Science led to his initial focus on the nutritional physiology of broiler breeders but his doctorate was followed by the award of a British Council Bursary which enabled him to spend six weeks in Britain, four of them at the University of Reading.

The experience, in his own words, 'changed my life', triggering an interest in quantitative nutrition which led him to simulation modelling. It was the beginning of an exceptional research record that led to a rare 'A' rating by the FRD (one of the very few in the University and the first to be awarded to anybody in agriculture) and extended beyond his 'retirement' in 2007.⁵

Biochemistry continued to enjoy the independent departmental status gained in 1956. Its Head, George Quicke (1959–84) served his two terms as Faculty Dean (1962–65 and 1973–75) and Hector de Muelenaere continued to travel from his job in Durban to teach part-time, being awarded the title of honorary senior lecturer (1967–71). Leon Visser (B Sc Agric Pretoria), who joined the Department in 1964, took extended leave to complete a doctorate at Harvard Medical School in protein structure and function. On his return to a senior lectureship in 1969 he proved highly effective teaching in this field and supervising staff members at the Natal Institute of Immunology for postgraduate degrees in the Department. He left in 1974 to join the National Chemical Laboratory of the CSIR and subsequently the University of Pretoria's Department of Biochemistry. Dr Ivor Dreosti was another doctoral graduate of the Department who served as senior lecturer from 1969 to 1977, before moving to Australia where he continued his research on the trace elements copper and zinc. He became an international leader in this field and in 1986 was awarded a D Sc by the University of Natal.

Dr D.N. (Dennis) Lock was one of the Department's outstanding students and served as lecturer before emigrating to the USA.

Among the technical staff who made a valuable contribution to both teaching and research in the Department were Anita (Ann) Kinsey (1963–73 and 1979–91), Marion Abbott (1963–74) who subsequently furthered her career at Cedara, Sally Pienaar (1963–71), Marie Stephenson B Sc Wits (1965–85), Melodie Webber B Sc Natal (1965), and senior technicians Alan Taylor (1971–77), John Geyser (1974–97) and Ron Berry M Sc Natal (1987–97).

Much of the Department's research continued to be at the behest of the Department of Agricultural Technical Services (Natal Region), which meant that it was focused on maize, the region's major grain crop, and veld grass, its biggest natural resource. Meanwhile, Biometry continued to flourish under the leadership of Arthur Rayner, who Senex entrusted as from January 1974 to assume responsibility for a newly-named Department of Statistics and Biometry. His colleague Isabell Gravett spent some time in the Department before emigrating, while Pierre du Toit moved to Pretoria.⁶

Crop Science (named Agronomy until 1964) was headed by Professor S.A. 'Sampie' Hulme between 1958 and 1968. He served as Dean (1967) before being promoted to another post in national agriculture and was succeeded to the chair by Karl Nathanson (1968–82). Dr W.L. Graven, from the University of Fort Hare, made a big impression as senior lecturer but did not remain long. For many years Jan Kritzinger served as lecturer, in which capacity he struggled with the English language, and subsequently as senior technician, in the Department.⁷

In April 1971 the Department of Entomology promoted Dr T. (Ted) Bosman to the chair in place of Martinus Oosthuizen. He spent several sabbaticals at research centres in Britain and published papers on the diagnostic use of insect 'blood' proteins, chemically defined diets for plant-feeding insects and biochemical approaches to insect classification. He became well-known for his work on the pheromones of insects, in particular on the minute quantities of attractant pheromones secreted by female moths. His purpose was to determine the chemical composition of these pheromones in order to synthesise such substances to counteract harmful insect species without causing damage to other living organisms.

Bosman also conducted electronic experiments to detect and record nerve impulses from the antenna of male moths as a means of determining their reaction to the scent of the sex attractant at the high dilution levels occurring in the open air. To assist his techniques in this delicate system of measurement he was awarded a CSIR travel grant to study neurophysiological methods at the Max-Planck Institute for Comparative Physiology in Munich.



T. (Ted) Bosman

T. (Ted) Bosman was appointed to the chair of the Department of Entomology in April 1971. A graduate of the University of Pretoria in 1949, Bosman had worked for the Colonial Service in Swaziland as officer-in-charge of the tsetse fly control campaign before joining the Department in 1951 as lecturer. Three years later the Department of Agricultural Technical Services awarded him a bursary for postgraduate study at the Imperial College of Science and Technology in London, where he acquired a Ph D within two years for his work on the nutrition of plant-feeding insects. Promoted to senior lecturer in 1958, Bosman established himself as an expert on the control of insect pests.



P. de V. (Pete) Booysen

P. de V. (Pete) Booysen, who was later to become principal of the University, was appointed Professor and Head of Grassland Science in 1973. Born in Graaff-Reinet he matriculated at Kingswood College, Grahamstown, and completed his B Sc (Agric) (1952) and M Sc cum laude (1954) in Pietermaritzburg. He served the Department as lecturer (1954–58), senior lecturer (1959–70) and associate professor (1970–73). He spent three years' study leave as a research assistant in Agronomy at the University of California (Davis) where he was awarded a Ph D in Plant Physiology.

He subsequently also focused on the ecological and behavioural aspects of reducing tick populations in game reserves where conventional dipping methods were impractical. Indeed, throughout his career Bosman sought to reduce the destructive capability of insects by disrupting their population-growth with biological methods that, as far as possible, avoided the use of conventional insecticides.

He began teaching integrated pest management at a time when South Africa's entomological establishment was still wedded to the almost exclusive use of such toxic chemicals. Although his Department was transferred to the Faculty of Science in 1977, he and his colleagues maintained close teaching and research links with Agriculture where he served as Dean between 1979 and 1981.

A Fellow of the Royal Entomological Society and sometime President of the Entomological Society of Southern Africa, by the time of his retirement at the end of 1986 Bosman and his postgraduate students had contributed to the solution of virtually every major agricultural pest problem in the KwaZulu-Natal region, in particular those affecting citrus, forestry and sugarcane. Well-known for his keen sense of humour, Bosman retired to the KwaZulu-Natal south coast where he died.

Dr Dave Fletcher, an ex-Rhodesian and graduate of the Department, was an excellent lecturer who attracted students. He worked on citrus snout beetle in the Muden Valley before becoming an expert on honeybees. This served him in good stead when his

emigration to the USA coincided with the advance of the 'killer' Africanized bee through Central America northwards.⁸

Genetics continued to be administered by Willem Weyers, assisted by Ben Cilliers and one of the Faculty's first graduates, Dieter Reusch, who was well-known for his hard work and good lecturing. In Grassland Science (still called Pasture Science and, until 1964, Pasture Management and Soil Conservation)

P. de V. (Pete) Booysen was appointed Professor and Head in 1973, in succession to 'Hamish' Scott.

His promotion to the chair of Pasture Science was followed by a stint as Dean (1975–77) before being appointed Vice-Principal of the University's Durban campuses and subsequently Principal from July 1984 to the end of 1990.

Prior to joining the Executive, Booysen completed 57 publications, including one book, three book chapters and six popular journal articles. A strong and engaging personality, he was warden of William O'Brien Residence (1967–72) and served terms as President of the Agricultural Scientific Association of Natal, President of the Grassland Society of Southern Africa, as a Trustee of the Animal Production Society of South Africa and a member of the CSIR's National Committee for Environmental Science.

As a student he captained the University Rugby XV and played provincial rugby for Natal, subsequently serving as Coach, Vice-President, and President of the University Rugby Club in Pietermaritzburg, President of the Maritzburg Sports Union and of the Natal Rugby Union as well as Natal representative on the South African Rugby Board. A complex of playing fields on the Pietermaritzburg campus bears his name in recognition of his services to sport in KwaZulu-Natal and in the University in particular. Booysen died of cancer in January 2004.⁹

The Department of Home Economics and Dietetics, the name chosen by Senex as early as 1963, was established in 1971 (in 1976 renamed Dietetics and Home Economics) in response to representations from several interested individuals and, in particular, the Federation of Womens' Institutes of Natal and East Griqualand. George Quicke, Head of Biochemistry, assumed the task of convincing the University of the need for dieticians and home economists to be trained in the region, and in English, as all current courses were offered on Afrikaans-medium campuses.

Although debated later, at the time the Faculty of Agriculture rather than Medicine provided an appropriate home for the new department because it was empathetic towards its community-orientated objectives and familiar with its academic requirements through Biochemistry, which underlies so much of nutrition. Moreover, the Department of Agricultural Technical Services, which still had its Natal headquarters in the Rabie Saunders Building, employed home economists and dieticians in its extension division.

In 1972 Eva Ricketts assumed the Chair and Headship of Home Economics and Dietetics. Hers was an unfortunate surname, perhaps, considering the nature of the discipline which she professed but her career, and contribution to the Faculty of Agriculture, was impressive. Born in Buckinghamshire, England and educated at High Wycombe High School, she completed a B Sc in Household and Social Science at Queen Elizabeth College, University of



Eva Ricketts

Eva Ricketts was appointed Professor and Head of Home Economics and Dietetics in 1972. On arrival in Pietermaritzburg her immediate task was to develop a four-year B Sc degree course in Home Economics and a three-year B Sc degree in Dietetics.

London with the aid of a state grant, as well as a postgraduate diploma in education.

She subsequently taught general science and advanced biology at school level, followed by an appointment as lecturer in applied science at F.L. Calder College in Liverpool. After World War II she worked in a voluntary capacity for the Moral Rearmament movement and visited Kenya, the then 'Rhodesia' and South Africa.

Twenty years of distinguished work in East Africa commenced when, in 1952, Ricketts was appointed education officer in the British Overseas Civil Service. She initially taught at the High School for Girls in Nairobi before transferring in 1957 to the Royal Technical College of East Africa (which in 1961 became a University College) as head of the Department of Home Economics.

In 1961 she was awarded a Carnegie grant to investigate Home Economics courses in the USA and Canada and organised a three-year training course for Home Economics teachers which qualified successful candidates for the

University of Manchester's teacher's certificate. From 1968 she offered a three-year degree in Home Economics, with the first graduates being capped in 1971.

In 1970 she spent six months' study leave at Harvard and visited teaching institutions in Australia, New Zealand and India. While in Kenya Ricketts served as an elected member of the National Council of Women, was a founder member of the East African Academy of Science and chair of the Home Economics Association as well as a founder member of the Association of University Women of Kenya.

In 1973 the Department was strengthened by the addition of J. Maryann Green who began her long and distinguished career as lecturer. She was a product of St. Cyprian's School, Cape Town and a Stellenbosch graduate in Home Economics, with work experience as a home economics officer in the Department of Agricultural Technical Services stationed in Dundee and Pietermaritzburg.

The first three Home Economics and five Dietetics candidates on campus were admitted in 1973 to what were the first English-medium courses of their kind in South Africa, which had been long in the making.¹⁰

In 1970 the Chair and Headship of Horticulture was assumed by Peter Allan, in succession to Josias le Roux. He also taught courses on orchard management, vegetative propagation, floriculture, deciduous fruits and vegetable production, and spent sabbaticals researching in Australia, Britain, Hawaii, mainland USA and Israel.

He became a Fellow of the South African Society of Crop Production, Honorary Life President of the South African Horticultural Society and Honorary member of the South African Macadamia Growers' Association.

Allan served for seven years on the editorial advisory board of the international journal *Scientia Horticulturae* and on the editorial committee of the *Journal of the Southern African Society for Horticultural Science*. Following his retirement in 1991, he was appointed Professor Emeritus and Honorary Research Associate and continues to be an active researcher.

By 2008 he had delivered nearly twenty papers at international conferences worldwide and had published 80 articles in refereed journals and 160 elsewhere. His research interests, for which he gained international recognition, have included vegetative propagation, (including the vegetatively propagated papaw cultivar 'Honey Gold'), cultivar evaluation, climatic modification and eco-physiological studies on macadamia, papaw and low-chill deciduous fruits.

In 1969 Nigel Wolstenholme was promoted to senior lecturer and Dr G. (Gerry) Dimalla joined the Department from the USA as lecturer. He specialized in vegetable crops and had an excellent background in plant physiology but left after a few years.¹¹

The Department of Plant Pathology and Microbiology (in 1976 renamed Microbiology and Plant Pathology) gradually increased from one (Susarah Truter) in 1948 to five in 1966 (including Johan Joubert and Mike Martin), two of whom were microbiologists. In that year it



Peter Allan

Peter Allan took over the Chair and Headship of Horticulture in 1970. Born in Pietermaritzburg, he matriculated at Maritzburg College, and completed his B Sc (Agric) in the Faculty with distinction in Horticulture in 1951. In 1958 he became one of its first two doctoral graduates. As an undergraduate in 1950 he planted some of the first fruit and nut trees in the orchard at Ukulinga, where he was to spend many hours of his working life. He served as a lecturer in Horticulture from 1952, and senior lecturer (1960–69) before succeeding to the chair (1970–90) and headship of the Department (1970–88). During this time he supervised twelve successful Masters candidates and four Ph Ds.



F.H.J. (Frits) Rijkenberg

F.H.J. (Frits) Rijkenberg, started as a plant pathologist/mycologist for Plant Pathology in 1967. He was born in Wormerveer, Netherlands, and matriculated at Northlands Boys' High in Durban before completing a B Sc (Agric) and subsequently a Ph D (1974) in the Faculty. After a long lecturing career and various promotions, Frits Rijkenberg was promoted to Senior Professor (post level 7) in 1992 and was elected a University Fellow in 1994 before assuming the Deanship (1994–1998).

recruited Dr M.A. (Mike) Loos, who had just completed a doctorate on soil microbiology at Cornell University, as senior lecturer, the discipline having been first offered in the Faculty in the previous year.

The Chair of Plant Pathology was established in 1957 and ten years later one of the Department's own graduates, F.H.J. (Frits) Rijkenberg, was recruited as a plant pathologist/mycologist. In 1975 he was promoted to senior lecturer in Plant Pathology and in 1978 was to become associate professor, rising in 1988 to Professor and Head of Department.¹²

Following the departure in 1974 of Johan Joubert for Pretoria (he later became a Professor at Tygerberg Hospital) and then of Loos for Stellenbosch, Dr J.M. (John) Erskine and M. (Mike) Wallis were appointed. Erskine did not stay long but, following the completion of his doctorate in 1975 Wallis was promoted to senior lecturer. In 1996 he was to become Professor of Microbiology. The Chair had been established in 1966 when the two Microbiology posts were upgraded to a Professorship but it was never substantively filled, and was effectively disestablished due to financial stringency in the mid-1970s when the University assumed full control of the Faculty of Agriculture.¹³

Space constraints and improved facilities

By the mid-1960s the necessity of having to share its Building with the Department of Agricultural Technical Services, coupled with the increased second-year intake of 60 students, led to a careful investigation of the Faculty's needs with regard to teaching facilities and laboratory accommodation.

A sub-committee chaired by Arthur Rayner found further reasons for the prevailing space constraints. These were the extensive curriculum changes which had been implemented, the increasing demand for laboratory facilities resulting from larger postgraduate enrolments, and even more laboratory teaching arising out of the introduction of the Agricultural Production option.

It recommended that Biochemistry needed a large teaching laboratory and new lecture room as a matter of urgency and that this could be provided either in the proposed new Chemistry Building on campus or by the addition of annex wings to the Faculty's own Building. It also reported that the facilities available for teaching Animal Physiology were 'totally inadequate' and that proposed additions to the existing animal house should include units for the use of Animal Science and Genetics, as well as breeding and rearing rooms for Entomology. In addition, the Faculty as a whole needed new lecture rooms, not least a comfortable 70- to 80-seater main lecture theatre which could also be used for conferences.

There was no short-term solution to these difficulties, other than some alterations and a more equitable re-organisation of existing space. Proposals to accommodate the required offices of Agricultural Technical Services elsewhere were ongoing and the suggestion was made that a new Headquarters Building might be erected on campus below the Wattle Research Institute. The proposal to construct a new Biological Sciences Building on the Faculty of Agriculture campus also offered the prospect of some relief. In the meantime, the 'Ag Fac' Building remained congested and Biochemistry students had to use the Soil Science laboratories to their mutual inconvenience.¹⁴

Agrometeorology, situated on the top floor, was another discipline which had to cope with unsatisfactory laboratory conditions. During a student 'practical' Jimmy de Jager tested some hydraulic lysimeters (large water-filled bags that indicate the imposed weight by means of a reading which shows the height of liquid in a glass tube.) In order to increase the level he used students as weights but, as one of the last added his bulk, the bag burst and a cascade of water flowed downstairs!

The addition in 1972 of Home Economics and Dietetics to the Faculty's suite of offerings added further pressure on the available accommodation with the proposal of a separate building for that Department failing to materialise. Instead it was housed partly in what had been a private dwelling between Milner Road and King Edward Avenue on the town-facing fringe of the campus and partly, by kind favour of other departments, in shared laboratories in the 'Ag Fac' Building.¹⁵

In 1970 air-conditioning was promised for that Building's third floor, whose occupants suffered most in the summer heat. The Faculty also began to experiment with the use of computerised class tests and examinations, as well as the computerisation of student records and examination results. From 1971 departments were permitted, subject to Board approval, to prescribe a course in 'Introductory Computing' for their students. Faculty budgets became tighter in the mid-1970s, in line with the University's general financial situation, with the income from Ukulinga Farm having to be deducted from overall costs before Agriculture's 1973 state subsidy could be finalised.¹⁶

Ukulinga continued to be a valuable resource as far as the Faculty's research output was concerned, though it did involve additional expense as full financial responsibility for the farm was gradually taken over from the Government. This included rental for a nearby railway siding (No. 2218) at Mkondeni and the construction of urgently needed housing for the farm work-force. The labour shortage there prompted the decision to plant, for a time, less labour-intensive soybeans instead of maize.¹⁷

The construction of a Phytotron behind the 'Ag Fac' Building proved to be another valuable facility for some plant-based research projects, though its availability was long delayed. Construction began in 1967 under four contracts: glasshouse and building construction, air-conditioning, electrical wiring and the installation of evaporator coolers. It was anticipated that research in the Phytotron would commence early in 1968 but it was six years before its satisfactory completion enabled it to be removed as an item on the Faculty Board Agendas!

Glasshouse construction did not take long but by mid-1970 it was reported that it was still not in working order because equipment had been installed 'according to specifications which appeared not to be suitable for this area.' By March 1972 the controlled growth rooms were still non-functional but by May the Head Office of the Public Works Department in Pretoria had resolved the *impasse* between its local representative and the contractor by relieving the latter of the responsibility of making the original design functional and undertaking to arrange a modified version of it as well as its completion. By August it was recognised that the 'original specifications for air-conditioning', which the contractors had complied with, had also been 'inadequate'.

In 1973, after negotiations with the University Registrar, the Department of Agricultural Technical Services indicated that it was no longer able to assist with the completion of the Phytotron.

The Faculty's own Phytotron Committee acquired the necessary specifications to modify the growth chambers, for which provision was made in the 1974 estimates. The original contractor was expected to supply 16 new air-conditioners for the glasshouse. The University met the expense of re-roofing the facility and sent Malcolm Sumner, chairman of the Committee, and Roger Montgomery, the senior technician, to the Universities of Stellenbosch and the Witwatersrand to examine the functioning of similar equipment there. It was agreed that the Faculty would retain, at its own expense, the existing workshop facilities and equipment necessary for the maintenance of the refrigeration and other plant at the Phytotron. By the mid-1970s it was, at last, fully functional and already undergoing renovations.¹⁸

Research

Ukulinga and the Phytotron were not essential to the research output of all departments in the Faculty. In Agricultural Economics this was true of Ian Behrmann's economic surveys of various farming sectors in the Natal region and Lieb Nieuwoudt's ongoing econometric analyses. In 1974 Agricultural Engineering initiated its hydrological research programme under Jack Burney's direction. Agrometeorology was another discipline strongly focused on research. Following its establishment as a Department in 1974 under Malcolm Sumner's headship, an agrometeorological observatory was constructed adjacent to the 'Ag Fac' Building to facilitate undergraduate teaching and advanced research projects. During the 1970s the Department also became prominent through Jimmy de Jager's crop growth modelling, in particular his PUTU (*isiZulu* for 'maize porridge') model.¹⁹

Animal and Poultry Science emerged as one of the Faculty's largest department's, not only in terms of graduate output but also research activity. This was not surprising in view of the relatively high rainfall and availability of natural pastures which made the Natal-East Griqualand region well-suited to livestock production. In 1974 it was estimated that, although comprising only 10% of South Africa's total surface area, it carried nearly 20% of its livestock population. The quality of the Department's staff was also a major factor contributing towards its teaching and research success. The early interest in sheep reproduction was revived by Arthur Lishman while Jannes van Ryssen continued investigations into the physiology of ruminant nutrition. 'JP' (James) Kitching developed the earlier studies on verminosis in sheep and Schalk Kock embarked upon research into the effect of various nutritional regimes upon animal carcass composition.

An investigation started in 1960 into the effects of early nutrition on subsequent milk production by Jersey cows was continued. So too (until 1970) was George Hunter's Jersey breeding project conducted at Ukulinga to improve the farm's herd using loaned Schoongezicht bulls from Stellenbosch. As one major programme at Ukulinga wound down another was just gathering momentum as Rob Gous began to develop what became a world-renowned poultry research unit. A greater emphasis on physiology also produced a noticeable increase in collaborative postgraduate research projects with specialists in the more basic sciences, as well as with pasture scientists in the field of animal/plant interactions.²⁰

Biochemistry continued to focus much of its research effort on forages, particularly veld grasses, the region's most readily-available natural resource, and on maize, its major grain crop. The Department rendered valuable assistance to Agricultural Technical Services in improving the nutritive value of local white and yellow maize by analyzing its protein quality and amino-acids.

Biometry continued its crucial service to the Faculty's researchers and postgraduate students by providing guidance with regard to experimental design, statistical inferences and the accurate interpretation of research results.

In Crop Science Karl Nathanson conducted research into seed legumes and supervised postgraduate projects on a variety of other crops.

In Entomology Martinus Oosthuizen continued to investigate the life-cycle of the tumba fly before he was succeeded to the Chair in 1971 by Ted Bosman, who further developed his expertise on the control of insect pests with a particular interest in the attractant pheromones secreted by female moths.²¹

In Genetics molecular research, focusing on genetic manipulation, was initiated and important studies were conducted at Ukulinga on maize and soya beans.

Grassland Science also made extensive use of Ukulinga for the grassland research projects initiated in 1950 by 'Hamish' Scott. The Veld Burning and Mowing Trial (BMT) was intended to assess the yield and quality of hay produced by mowing moist tall grassveld at varying times during summer and removing the remainder by mowing or burning in winter. The Veld Fertilisation Trial (VFT) was designed to study ways of increasing the veld yield by means of fertilization with a variety of elements.

While the new (1971) Department of Home Economics and Dietetics was still largely pre-occupied with curriculum development, in Horticultural Science 'Sas' le Roux's early research on subtropical fruits was expanded after 1969 by Peter Allan's special interest in vegetative propagation and eco-physiological studies on papaw, macadamia nuts, kiwifruit and low chill deciduous fruits. At this time Nigel Wolstenholme's research concentrated on ecophysiology of subtropical fruits and pecan nuts.²²

In the Department of Plant Pathology and Microbiology initial research in Microbiology concentrated on Johan Joubert's interest in phytopathogenic bacteria and parasitic green algae. He and his first M.Sc student, F.M. (Mike) Wallis published several papers arising out of it.

In Plant Breeding Rabie Saunders' development in the late 1940s/ early 50s of maize hybrids was continued. The climate in the KwaZulu-Natal midlands promotes many plant diseases and other challenges to exercise the minds of specialists in Plant Pathology. Mike Martin focussed on the purification and electron microscopy of tomato spotted wilt virus and hypersensitive virus resistance in plants, while Frits Rijkenberg pursued his specialised interest in the early infection process of, and host responses to, the parasitic rust fungi.

The Department of Soil Science continued to focus on Jimmy Orchard's Tugela Basin Soil Survey, providing the basis for South Africa's soil classification system, and on the maize fertilization and soil acidity research programmes

which also gained international recognition.²³ From all these Departments more was soon to follow.

Student intake and graduate output

At the other end of the Faculty's operations, but no less important, was the intake of first-year students. This rose from 70 in 1973 to an encouraging 101 in 1974, by which stage a steeply increasing 177 students from other Faculties were attending Agriculture courses. By April 1976 the ongoing increase in enrolment was being attributed to the possible influence of school careers counsellors. An Open Day for them at the Faculty was recommended as well as an update of the Faculty Brochure in order to maintain the momentum.

During the first half of the 1970s the thirteen departments which comprised the Faculty increased their output of B Sc graduates to an average of 42 per year (210 in all) compared with an average of just under 37 per year (772 in all) in the period 1950 to 1970 – a total of 982 graduates between 1950 and 1975 at nearly 38 per year. During this same period the Faculty produced 166 M Sc graduates (averaging just over six a year) and 52 Ph Ds (averaging two a year.) Animal and Poultry Science contributed 207 of the B Sc graduates, Pasture Science 131 and Crop Science 121.

At the postgraduate level Biochemistry produced 30 Masters and 10 Ph D graduates (not all of them strictly 'Ag Fac' students), Soil Science and Agrometeorology 27 M Scs and 11 Ph Ds, Pasture Science 25 Masters and six Ph Ds, Crop Science 22 and seven, Agricultural Economics 19 and three, Animal and Poultry Science 13 and three, and Microbiology and Plant Pathology 12 and four, and Horticultural Science six and three.

Some departments produced remarkably high numbers of postgraduates in the 1950–1975 period considering their modest output of first degree graduates (Biochemistry 81 B Sc's, Soil Science and Agrometeorology 65 and Agricultural Economics 93) but these figures may have been boosted by attracting graduates from other institutions. In 1976 the Faculty had another 173 B Sc Agric Major students enrolled, 55 aspiring M Sc Agric candidates and 24 Ph Ds. Biochemistry, Entomology, Microbiology and Plant Pathology also began offering courses and graduating students in the Faculty of Science.²⁴

There was, as ever, concern to promote postgraduate studies in order both to meet the needs of South Africa's agricultural sector and to maintain the Faculty's own research output. The Department of Agricultural Technical Services's decision to second graduates back to the University for higher-degree work was lauded on both counts. However, by the mid-1960s it was already feared that, as vacant professional posts in the Department were filled, the policy of secondment would wind down with obvious consequences for the national economy and for research output.

It was suggested that, to assist the Faculty in competing with other scientific disciplines to attract the best students, the Department should follow the CSIR's example by providing two-year bursaries for prospective M Sc (Agric) candidates, subject only to satisfactory progress reports and leaving recipients free to find employment wherever they chose.

In 1970 the Department still had 43 candidates registered in the Faculty while the proposed new Masters degree in Agricultural Production was expected to augment enrolments further. While it was noted that certain other scholarships available to postgraduate Agriculture students were surprisingly not being taken up an approach was made to the NUDF to raise more funds for that purpose.

In 1972 the Director, Natal Region of Agricultural Technical Services, gave the assurance that, despite prevailing financial restrictions, applications for regional funds to undertake postgraduate research would be treated on their merits.²⁵

Faculty regulations and curricula

There was far less concern about the intake of undergraduates, given that there was a moderate increase in numbers, but the first-year failure rate, especially in Mathematics, continued to demand attention. It was reported that, in the Faculty of Agriculture, an average of only 38% of first-year students from South African schools passed Mathematics I in the years 1967 to 1970, compared with 74% in the Science Faculty and 61% in all faculties combined.

The Mathematics Department reckoned that first-year Agriculture students generally had poor matriculation symbols in Mathematics and that students with a 'C' symbol had a two-thirds chance of passing Mathematics I, a one-third chance with a 'D' symbol and virtually no chance at all with an 'E'. The Mathematics I syllabus had remained unchanged since 1967 and the Department devised a special Mathematics I course for 'Agrics', of equivalent standard but with greater emphasis on practical aspects of the discipline like problem-solving and less on theory.²⁶

As far as attempting to address failure rates in general was concerned the Faculty Board agreed with recommendations made by the Inter-Faculty Co-ordination and Liaison Committee that all departments should, as far as possible, assist students by providing seminars and tutorials in their courses, that course syllabi should be supplied and written work appraised and returned during each term, that class marks should be included in all final assessments, that course workloads should be 'reasonable', that first-year students should ideally be advised about appropriate university study methods, that (if possible) additional study space should be provided in the Library, and that evidence of additional reading should be rewarded in examinations.²⁷

During further debate about student workloads the Faculty Board acknowledged that it was not possible to measure the 'intellectual effort' demanded by each course to ensure that they were 'roughly equivalent', or to estimate anything more than the amount of time that 'average' students might spend on a given assignment in a particular discipline. It did, however, express satisfaction that the time demanded of students for formal instruction was close to 20 hours per week in all courses offered in the Faculty, not counting additional work or study time.

The estimation of what came to be known as 'Notional Study Hours' still lay in the future. The Board was also proud of the fact that, by 1976, the 'credit rating' system which had been developed in the Faculty accurately reflected the number of lectures given in each course, thereby ensuring that all its curricula were equivalent in terms of instruction time. In addition, the Faculty's subsidiary rules provided staff with guidelines as to an appropriate ratio of instruction time ('credit rating') to time spent on assignments and a Curriculum Committee had been established to review student workloads in all courses per semester and per year on a regular basis.²⁸

Semesterisation, like the 'credit rating' system, was another innovation introduced into the University of Natal by Agriculture and eventually adopted by the other Faculties. It was first discussed in 1968, approved in principle by the Board of the Faculty of Agriculture in February 1969 and re-affirmed in October of that year by 13 votes to nil (with Arthur Rayner abstaining). In 1970 semesterisation was approved by the University Senate and Senex after time-tabling and 'credit-rating' issues had been resolved with the Faculty of Science.

The new system was fully implemented in the Faculty of Agriculture in 1973 and eventually adopted, after some resistance, throughout the University. It had the effect of providing students with greater flexibility in the choice of ancillary courses with which to complete their degrees and in progressing at their own pace towards that goal.²⁹

Other changes introduced into the Faculty included a non-mandatory system of teacher and course evaluation, the results of which were confidential to each lecturer and her/his departmental head. Following the upgrading of examination pass and class division levels in conjunction with the introduction of semesterisation, the award of certificates of merit was raised from 75% to 78/79%. The Faculty Board affirmed that class marks should be incorporated into all final course results but that there should be no minimum score required with regard to the former in awarding students their 'Duly Performed Certificates.' Minimum class attendance requirements were left to the discretion of individual departments.³⁰

There were several proposed, and some implemented, changes to the Faculty's curricula, with special attention given to the first-year in view of high

failure rates. A proposal to introduce an elective 'Introduction to Agriculture' course was deferred in view of the impending Faculty 'rationalisation' but there was unanimous agreement that a Biology I course should be introduced for 'Agrics' in preference to either Botany or Zoology. The issue of Mathematics I as a compulsory first-year requirement remained in contention. Susarah Truter successfully proposed that students opting for the Plant Pathology/Microbiology major should be permitted to take Botany I or Zoology I instead. In this way those students seeking to avoid the compulsory Maths course would not be lost to Agriculture by opting for a degree route through the Faculty of Science which did not demand a pass in Mathematics I.³¹

Other changes included the five-year degree in Agricultural Engineering being replaced in 1968 with a four-year programme to conform with other engineering degrees. In 1972 this degree was transferred to the Faculty of Engineering in Durban to comply with the Professional Engineers' Act, though the Department remained based in Pietermaritzburg to maintain its close association with other agricultural disciplines.

In 1969 Ministerial approval was granted for the establishment of the Department of Home Economics and Dietetics. After the arrival of Professor Eva Ricketts in 1972 and the lengthy preparation of curricula, it accepted its first students the following year. In 1976 the Department's name was changed to Dietetics and Home Economics.

In Horticultural Science, following the introduction in 1965 of compulsory Mathematics I in the first year, dual majors of Horticultural Science and Botany or Chemistry were permitted. The Horticulture courses were based heavily on ecology, management and physiology, with Floriculture being introduced as an additional branch of the discipline and subsequently developed to include Greenhouse Management.

In 1975 'Introduction to Agriculture' (Agri 110, initially a year-long course) was added to the Department's offerings. It was the then Dean, Pete Booysen's brainchild, had a strong ecological (ecosystems) bias, and in the early years was taught by Neil Tainton (Pasture Science) and Nigel Wolstenholme (Horticultural Science).³²

Of broader concern to the Faculty as a whole was the proposal to introduce a new three-year Bachelor of Agriculture degree, which was management rather than science-based and similar to those offered elsewhere. Initial doubt that there really was sufficient national need for it, as opposed to the ongoing demand for 'agricultural scientists', soon gave way to admiration for the success of such alternatives at the Universities of the Orange Free State and Stellenbosch.

In February 1975 the Faculty Board unanimously resolved that such a degree programme be introduced in 1976 and that a possible three-year B Sc degree, in place of the existing four-year course, should be investigated. The

Natal Agricultural Union lent its support to the latter proposal but by mid-1975 the Faculty had focused its attention on formulating a new three-year Bachelor of Agricultural Management degree for recommendation by Senate Executive, with a strong emphasis on Economics, Accountancy and Special Mathematics in its first year.

At a special Board meeting in January 1976 it was announced that the Department of National Education had not approved the introduction of such a course but would send the proposal to its University Advisory Council for further consideration. This faced the Faculty with finding some way of accommodating those students who had already registered for the three-year degree. The decision was taken to offer them a four-year major in a revised Agricultural Economics curriculum based on the advertised first-year Programme for the intended Agricultural Management degree. It was also recommended to Senate that henceforth no candidates for admission to the Faculty's four-year degrees should be admitted without a pass of at least 40% in matriculation higher grade Mathematics (or 50% in the standard grade) and a pass of at least 33% in a higher grade natural science subject (or 40% in the standard grade).

While the Faculty awaited further news from Pretoria about its proposed three-year B Agric Mgt degree it began to explore the possibility of an Honours degree to follow it.³³

Student representation and concessions

The Agricultural Students' Council established in 1960 had a voice in several of the important Faculty decisions that were taken during the early 1970s, following the 1970 agreement (after strong opposition) that they should have representation at Faculty meetings.

It was only in 1974 that the Faculty Board agreed, by a narrow five votes to four, that students should have two representatives at Board meetings but it voted against any such representation on Senate, Senex, Council, the Estimates Committee or the Finance and General Purposes Committee. Representation on Board was eventually approved by Senex in April 1975, subject to the exclusion of students, as in other faculties, from whatever agenda items the Dean deemed to be 'restricted business'.³⁴

The course fee structure was an issue in which students understandably had a strong interest, as did members of staff out of concern that high fees might induce prospective applicants to enrol at other universities. In the mid-1960s the Faculty responded to a proposed undergraduate fee increase by suggesting that its students should pay lower fees than those in the Faculty of Science in view of the funding contributed to the University by the Department of Agricultural Technical Services for the practical instruction of agricultural students.

There was also ongoing concern about the limited number of bursaries available to 'Agrics', though the Mooi River Farmers' Association was perplexed as to why its 1968 offer of a R400 a year postgraduate bursary to undertake research into 'unanswered farming problems in the Natal Midlands' was not readily taken up. Karl Nathanson explained that 'certain otherwise suitable students' were unable to do so in terms of their secondment to the Faculty by the Department of Agricultural Technical Services. Moreover, as the bursary was administered by the Farmers' Association it was not advertised in the University Calendar and therefore escaped the notice of many students. There was also the option of a National Scholarship for outstanding graduates, but the decision lay with members of staff to award them appropriately high marks as 'small differences' were often used to distinguish between deserving candidates.³⁵

In 1970 'Clem' Abbott proposed the creation of an emergency fund, drawn from voluntary staff contributions, to provide senior students with immediate aid in the event of sudden financial crises, other than the payment of fees, during the course of the academic year. It was agreed that the 'Dean's Fund', as it became known, should be administered at his discretion, financed in part from the credit balance left in a recent Agricultural Education Conference Fund, and that loans from it should be repayable without interest after recipients had graduated.³⁶

In another concession to students Senate resolved that any President of the Students' Representative Council could apply to the Dean of her/his Faculty to defer her/his examinations from November to February at the beginning or end of her/his term of office, or could remain at the University for another academic year, without paying fees, in order to complete her/his degree.

Of more general benefit was the decision of Senex to allow examination officers to move examinees to alternative desks if inconvenienced by the cigarette smoke of other candidates. A blanket ban on all smoking in University buildings still lay far in the future.³⁷

The introduction in 1974 of student identity cards to control access to the Faculty's Building and other facilities was a necessary security measure, predating their campus-wide introduction.

Less popular were efforts to establish a dress code. Susarah Truter continued to berate students, male and female, for what she regarded as inappropriate attire on campus but in February 1971 'Prof. Susie' informed the Faculty Board that she would no longer take responsibility for trying to control the dress of female students as other departmental heads were unwilling to impose similar standards on their staff. Later that year the Agricultural Students' Council suggested that the staff should 'use reasonable, acceptable contemporary standards as a basis for judging the dress of students (including females).'³⁸

Various forms of student indiscipline continued, from time to time, to be a source of concern but, by the early 1970s, the Faculty of Agriculture faced far more momentous issues. These related to its future freedom of academic action and, as events were to prove, its very survival.³⁹

Submission to the Brink Committee

In 1968 a committee of the national Department of Planning, chaired by the Vice-President of the Council for Scientific and Industrial Research (CSIR) Van der Merwe Brink, was appointed to report on the academic, financial and developmental aspects of the country's 'whites-only' universities and of the University of South Africa, as well as any other related issues that it considered to be important.

The Faculty of Agriculture made a substantial contribution to Senex towards the compilation of a submission to the Brink Committee on behalf of the University of Natal. It took the opportunity to stress, yet again, the disadvantages under which it and other faculties of agriculture laboured as a consequence of the dual authority to which they were subjected.

Not least, the academic freedom of lecturing staff was still severely curtailed by virtue of the fact that, as civil servants, they could not engage in public debate on any matters of government policy. Moreover, among many other irritants, all the papers which they prepared for publication or for scientific conferences continued to be subject to prior Departmental approval and remuneration for published articles or for services as examiners to outside bodies required the authorisation of the Public Service Commission.

It was argued further that 'the vast and cumbersome administrative machinery of the entire Department of Agricultural Technical Services, the Public Service Commission and the State Tender Board' resulted in 'the application of inappropriate civil service criteria to university problems and a rigid approach to situations calling for flexibility of outlook.' This not only inhibited the activities of academic staff but also hampered the selection and appointment of technicians at rates of pay that would attract high-calibre applicants.

The then complement of only 23 technicians and technical assistants to support a lecturing staff of 47 was deemed insufficient to sustain the Faculty's research projects, as they were primarily involved in preparing practical classes and in other aspects of teaching. An additional team of 12 technicians were employed exclusively to undertake Departmental regional duties within various Faculty departments. Other restraints on research output included heavy lecture loads in some parts of the Faculty caused by the Department's rigid staffing formula, extraneous administrative duties, and delays in the purchase of equipment because any item in excess of R100 required approval from Pretoria.

The Faculty expressed the firm opinion that no solution to its problems would 'be found within the present administrative framework' but that 'freedom of the Faculties of Agriculture from Departmental control should not and need not prevent close co-operation between the Department of Agricultural Technical Services and the four Faculties.' Such collaboration was evident in the organisation of a conference of national significance, 'The University and Agriculture', which celebrated what was then regarded as the 21st Anniversary of the Faculty of Agriculture in Pietermaritzburg (1947–1968).

Chaired by George Quicke, the conference committee included representatives from both the Faculty and the Department. They focused the proceedings on 'two fundamental issues': 'What vital problems will face the agricultural industry during the coming decades? 'How must scientists be trained *now* to meet these challenges?' These themes were particularly appropriate for a Faculty which seemed to be on the brink of a new era in its existence.⁴⁰

Contemplating the implications of independence

The Brink Committee duly echoed the 1964 Mönning Report in recommending the complete incorporation of the faculties of agriculture by their respective universities, though it did not really explore the financial aspects of that proposal. Faced with what was becoming the distinct possibility of being removed from the authority of the Department Agricultural Technical Services, the Faculty looked more closely at its implications.

It was assumed that, in the event, the Department of Public Works would donate the main Building and associated research facilities to the University, and that the withdrawal of the Department Agricultural Technical Services's staff would satisfy most of the Faculty's accommodation requirements for some time to come. Hopefully, this would not weaken the Faculty's campaign for the construction of an additional building to provide for its expansion, nor would it terminate research collaboration between lecturing staff and regional research officers.⁴¹

It was also assumed that the University would take full financial responsibility from the Public Works Department for all maintenance services and future development of the Faculty's grounds, buildings and other facilities, and that Government would make 'special provision' for the University to carry this additional financial burden. It was anticipated that the hand-over would include Ukulinga Farm and its staff, as well as all existing apparatus and research equipment, on the understanding that these would continue to be available to regional research officers.

It was hoped that the considerable maintenance costs involved would be borne in mind 'when a suitable subsidy for the Faculty of Agriculture is considered.' The University would obviously have to provide staff and students with transport to commute to and from Ukulinga, Cedara and other research

stations in place of the government garage vehicles previously provided, and heavy-duty transport at Ukulinga would also have to be replaced.

There was special concern that, in the event of a change-over, the University would at least maintain the minimum establishment of a professor, senior lecturer and lecturer in each of the Faculty's 13 departments and that existing specialised sub-departments would not be disturbed. It was also assumed that the Faculty would, at very least, become 'no worse off' with regard to technical assistance and that its unskilled and farm staff complement would be retained.

It was suggested that the all-important government subsidy for a University-controlled Faculty of Agriculture could be similar to those currently applied to faculties of Engineering, though the basic unit rate would have to allow for the large number of departments, the multiplicity of course options, the service courses provided for other faculties, the high costs attached to postgraduate students, the maintenance of Ukulinga, the substantial transport costs incurred in running the Faculty and its reliance on substantial technical assistance.

It was anxiously proposed that the 'principle of a subsidy rate different from that applicable to other Faculties in the University need cause no anguish as it already exists with regard to Engineering and Medicine.' Board members were also worried about adequate provision for 'more staff, both academic and technical, as well as funds' to promote future agricultural research.

It was recognised that additional money would have to be provided to administer the Faculty and that the Department of Education, Arts and Science would have to make 'liberal financial provision' for the maintenance and development of the Faculty Library. Similarly, allowance would have to be made for the continuation of the existing computing facilities and services, and for the maintenance and development of the recently established Phytotron and glasshouse complex at the back of the Agriculture Building.⁴²

Rationalisation

While the University of Pretoria absorbed its Faculty of Agriculture in 1974 and the Universities of Stellenbosch and the Orange Free State followed suit in 1975, Natal held back until the crucial matter of an appropriate financial subsidy formula 'with allowance made for growth' was satisfactorily clarified. This was at the insistence of the University's then Principal, Professor Francis Stock, who was adamant that the 'take-over' of the Faculty would not place an extra financial burden on what was an already cash-strapped University.

From an 'Ag Fac' perspective, it was a particularly anxious period, for Stock seemed to be using the issue as a means of securing additional funding from Government and to be willing to sacrifice the Faculty to achieve his objective. It was fortunate, perhaps, that it had a strong Dean in Pete Booysen to protect

its interests at that time. In the meantime the Brink Committee's further recommendation that the faculties of agriculture should undergo a process of 'rationalisation' had also to be addressed.

The intention was for them to achieve staff:student ratios closer in line with those in other faculties and also to restrict the tendency in some of them towards a proliferation of small departments. The Faculty of Agriculture in Pietermaritzburg did not favour the latter objective, arguing that 'a Faculty must not be seen as a number of individual departments, but as a whole to which all departments contribute at a high level.'⁴³

In its 'Memorandum on Rationalisation' the Faculty of Agriculture pointed out that the true nature of its staff:student ratio was obscured by the fact that its first-year students were not trained by its own staff, at least not until 1975 when the 'Introduction to Agriculture' course slightly changed the situation. It was argued that comparisons with the numbers of second to fourth-year students in other faculties reflected a much smaller difference in staff:student ratios i.e. 3.5 in Agriculture over the period 1960 to 1972 compared with 4.9 in Science. Moreover, the average number of masters and doctoral graduates over the same period was 9 and 16 a year compared with 3.5 and 5 in Science, while staff numbers averaged 44 and 103 in the two faculties.

The staff:student ratio was therefore not as 'unsatisfactory' as it might appear, 'if allowance is made for the level at which the students are trained.' The 'Memorandum' also contended that the Faculty had resisted the tendency towards proliferation of small departments, with specialisations like Poultry Science, Agricultural Meteorology and Microbiology remaining as sub-departments whose members were closely involved with the work of the Department of Animal Science, the Plant Production Sciences and Plant Pathology respectively.

An offer of R10,000 a year for five years to establish a Department of 'Sheep and Wool Husbandry' had been resisted as not being in the Faculty's long-term interests. The new option 'Agricultural Production' had been introduced at undergraduate and postgraduate level through cost-saving inter-departmental co-operation instead of establishing an entirely new department to train extension personnel and other management-orientated students not interested in a research career. Overlapping courses in the Plant Production Sciences had been replaced by a single common course under the rubric 'Agricultural Botany' and the duplication of expensive laboratory equipment had been avoided by using it on an inter-departmental basis.⁴⁴

In defence of its continued effectiveness, if not its survival, the Faculty reverted to some of the arguments that had supported its establishment. The need for 'at least one English medium Faculty of Agriculture' (which, increasingly, it had become) was justified on the grounds that two-thirds of

its students were drawn from outside Natal-Zululand, indicating that it served English-speakers throughout the country and further afield.

Moreover, it was 'ideally situated on the eastern seaboard of South Africa to serve an ecological area which does not fall under the purview of any other faculty of agriculture and extends beyond the national boundaries.' It was a region which was characterised by a diversity of farming activities, animal and crop species, diseases and pests. It was also stressed that the 'general development' of courses in the Faculty had been towards a 'greater emphasis on underlying scientific principles', to the extent that the number of 'science' as distinct from 'agriculture' students registered for these basic courses had increased appreciably from 12 in 1964 to 127 in 1972.

It was argued further that the incorporation of the Faculty into the University would facilitate the subsequent transfer of certain departments from Agriculture to other faculties, but such changes should be based on purely academic considerations and not on some financial formula. While the Brink Committee proposed 'six basic chairs' for the Faculty of Agriculture in Pietermaritzburg, the staff contended that this should be considered a 'lower limit' and merely 'a guide rather than an unequivocal number of recognised departments to which the Faculty must be reduced.'

No department could perform effectively in research and teaching with less than three staff members and no sub-department with less than two. The Faculty currently had barely more than 'a minimal staff complement' in terms of these criteria and the number of approved posts.⁴⁵

The subsequent implementation of a rationalisation programme effected significant changes to the Faculty of Agriculture immediately before and after its complete integration into the University of Natal. These included, in January 1975, the disestablishment of the Department of Dairy Science (started in 1951), which became a sacrificial lamb because its student numbers were low and it had lost influential staff members in Dr M. (Mike) Stiles, to Canada and Miss Helen Hinch, who returned to Britain. In addition, Biochemistry and Entomology were transferred to the Faculty of Science and Agricultural Engineering to the Faculty of Engineering.

There were significant staff reductions, both academic and non-academic. Staff members and departmental heads had to be re-appointed as fully-fledged University appointees as from 1 January 1976, which led to protests in the case of those who had already served for 'considerable periods prior to that date.' Senex resolved the problem by assuring them that 'the effective dates of their appointments would be the commencement of their service in the university.'⁴⁶

The Faculty's integration into the University coincided with a phase of relatively low student numbers and declining staff personnel from 85 to 64. Following the transfer of some departments out of the Faculty there was a

further overall reduction of staff to 47, barely 55% of its strength before the process of rationalisation and take-over began. This obviously posed a threat to its teaching and research capacity, paving the way for several subsequent departmental demands for improved staff dispensations.⁴⁷

In addition to the rationalisation of departments and reduction of personnel in an effort to improve the Faculty's staff:student ratio, there were other issues that had to be resolved, including the University's take-over of the Faculty Library, buildings, laboratory equipment and Ukulinga Farm. The Brink Commission recommended that the latter should remain under the control of the Department of Agricultural Technical Services as the University did not have the knowledge or experience to manage such an undertaking.

Faculty members responded that their Planning Committee had been responsible for the farm's initial layout and that the Department of Agricultural Engineering had been involved both in the initial building operations there and in the subsequent maintenance of equipment. The Faculty favoured taking over Ukulinga, subject to the provision of adequate funding, a change to Brink's proposals which was eventually approved by Cabinet.⁴⁸

Financing the Faculty

It was the issue of finance, more specifically Brink's vague recommendation that the Faculty should be funded under University control by 'a subsidy formula', that caused the most protracted uncertainty. Consequently, although the University assumed administrative control of the Faculty on 1 April 1973, it was only in November 1975 that agreement was reached and it accepted full responsibility.⁴⁹ The Brink Committee did suggest that the Faculty could be transferred to the University without any increase in cost to the state, excluding the running of Ukulinga but there was dismay when the van Wyk de Vries Commission, appointed to investigate the broader issue of University funding, eventually delivered its long-delayed findings.

A University delegation to Justice van Wyk de Vries was given the initial assurance that while the Commission favoured a separate budget for Ukulinga it did not propose a special formula to finance the Faculty but rather that the University be provided with sufficient funds to bear the cost of its incorporation.

The Report's subsequent treatment of the faculties of agriculture was considered 'perfunctory' by the Faculty itself and 'summary' by the Principal, Professor F.E. Stock, in a Minute compiled on behalf of the University Council. He made it clear that the University of Natal was not willing to take over a Faculty which had been rationalised to the point of non-viability, nor would it accept a financial dispensation which might impact unfavourably upon the rest of the institution.

The Faculty had budgeted for R1.2 million in expenditure but the state had allocated it only half that amount. The University faced an anticipated deficit of R377,000, excluding the Faculty of Agriculture, which it expected to meet through donations and by not filling vacant posts but there were no reserve funds to meet the shortfall in Agriculture.

It was estimated that this could be halved through further reductions in staff and running expenses but it still required the ongoing process of rationalisation, further cost-saving measures and negotiations involving the Faculty, the University and the Department of National Education before a financial arrangement, more or less acceptable to all parties, could eventually be tailored.⁵⁰

The end of duality

While the University would have preferred a five-year transitional period, it was obliged by government decision to assume official responsibility for the Faculty of Agriculture on 1 January 1976.

By April the take-over was complete and the staff had been fully integrated into the University system. The main Faculty Building was renamed after the founding Dean who helped to design it, to coincide with the take-over. The Faculty, through its Board, had recommended that in future it should be known as the 'Saunders Building' but, in approving the proposal, Senex suggested the inclusion of one of his forenames so 'The Rabie Saunders Building' it became.

Student records had already been transferred to the Administration Building on the main campus.⁵¹ During the course of 1976, as part of the ongoing process of rationalisation, several options concerning the academic relocation of certain departments and the relationship between the Faculties of Science and Agriculture were considered.

By the end of the year the debate had been resolved and it had been decided that the two Faculties were to remain as separate entities. The merger of Science and Agriculture into a single Faculty, one of the options considered in 1976, only took place nearly two and a half decades later, in January 1999, under very different circumstances.⁵²

ENDNOTES

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EVALUATION, MATURITY AND FINANCIAL CRISIS: 1976 – 1988

Full integration into the University of Natal initially left the Faculty of Agriculture weaker than it had been before the process began. It was unfortunate that this coincided with a phase of relatively low student registrations for, by 1978, the first-year intake had again risen to 213, which was the highest on record.

Prior to the take-over it was agreed that the Faculty would review its own structure and develop a future strategy along the lines of the 'triennial plans' drawn up by other faculties. Following the Senex and Senate resolutions in October/November 1976 that this task should now be undertaken, the Faculty Board decided that its existing 'Finance, Salaries and Staffing Committee' should be entrusted with the job under the new name of 'Planning and Establishment Committee'.

As if in anticipation of a much closer relationship between the two faculties, the Board also acknowledged that the Joint Planning Committee of Agriculture and Science 'may well need to become involved in certain aspects of the planning process'. Departments, including Ukulinga's Farm Management Committee, were required to make submissions upon which the Faculty's 'Triennial Plan' could be based.¹

Planning for the future

In examining the Faculty's current structure and function, the Planning Committee evaluated the degrees which it offered and the curriculum specialisations ('majors') within these degrees. It recommended retaining the now firmly established four-year B Sc Agric degree designed to produce 'Agriculturalists or Agricultural Specialists', which was 'similar in concept and objective' to the B Sc plus Honours degrees in Science. It also favoured retaining the current structure of the M Sc Agric degree, the three-year B Agric Mgt degree and the relatively new Department of Dietetics and Home Economics.

The Committee argued that while it was possible to design a much touted three-year B Sc degree in Agricultural Science, the time for it was not opportune. It further recommended that departments offering majors in both Agriculture and Science should do so with distinctive rather than the same curricula, with the former retaining 'a strong agricultural content'. It also concluded that there was no need for 'a radical departure from the traditional structure and philosophy' which the Faculty had developed since its inception.

With regard to areas of curriculum specialisation, the Planning Committee identified six departments, as currently constituted, which, it believed, should continue to function 'in their own right' i.e. Agricultural Economics, Animal Science, Dietetics and Home Economics, Genetics, Microbiology and Plant Pathology, Soil Science and Agrometeorology. In addition, it recognised that the latter three had close ties with the Science Faculty while Agricultural Economics had developed collaboration with Commerce through the advent of the B Agric Mgt degree. It favoured its continuation as well as the inter-departmental major in Agricultural Production but did not find sufficient support in the Faculty for a proposed new 'major' in Agricultural Chemistry.

Excluding Dietetics and Home Economics, the Committee considered the feasibility of amalgamating the remaining three departments that were affiliated exclusively to the Faculty on the grounds that they were all 'Plant Sciences' i.e. Crop Science, Horticultural Science and Pasture Science. It reviewed submissions that all three were really subdivisions of a single discipline 'Plant Production Science', being based on a Botany foundation and aimed at food production from plant sources but it rejected the option of obliging them to form a single combined department and a unified major under that rubric.

It reasoned that although there were obvious financial advantages in terms of economy and strength these three relatively small departments had their own objectives and strong sense of identity which militated against forced amalgamation. Instead, it recommended the formation of a 'School of Plant Production Science' within which all three would retain separate identities but would collaborate to offer a combined Plant Production Science 'major' in the B Sc Agric degree.

This, it envisaged, would break into four options in the fourth year i.e. Crop Science, Horticultural Science, Pasture Science, and Plant Production (General). It was envisaged that such a 'School' should have its own chairman and constitution and would hopefully co-ordinate administration and research within the 'Plant Sciences'.

In addition to the six departments and ten 'majors' comprising the Faculty in 1978, as well as the proposed new Plant Production Science 'major', with its four fourth year options, the Committee recommended the continuation of the three other 'majors' offered in the Faculty i.e. Biochemistry, Biometry and Entomology, with the Department of Agricultural Engineering continuing to train its students within the Faculty in their final year of study.

The Faculty Board established an important precedent when it accepted the concept of a 'School' and eventually resolved that it be named the 'School of Plant Sciences' with the four areas of specialisation involved i.e. Crop Science, Horticultural Science, Pasture Science and Plant Production all designated as 'majors'.²

The effective future functioning of the Faculty depended upon achieving a full complement of permanent teaching staff, given an anticipated ongoing increase in student enrolments. The overall reduction of the Faculty's staff from 85 to 47 during its take-over and rationalisation by the University included a drop in the number of technicians and technical assistants at its disposal from 35 to 13, with further serious implications for its productivity.

The Planning Committee identified an urgent need for additional technical staff in Microbiology/Plant Pathology, the 'School of Plant Sciences' (as it was re-designated) and in Animal Science, where the lone technician was fully occupied in the administration of Ukulinga Farm. As far as the latter Department was concerned, it was also considered essential to fill the existing vacancy for a veterinarian in order to meet a serious deficiency which was to be found in no other agricultural faculty in South Africa and compromised teaching, research and the care of livestock in that area of expertise.

The Planning Committee also recommended that the headships of Dietetics/Home Economics and Pasture Science be filled as soon as possible (following the departures from the Faculty of Professors Eva Ricketts and Pete Booysen respectively) and that posts currently filled with contract appointments should be occupied by permanent appointees in order to enhance the stability and functionality of the Faculty.³

Departmental heads were subsequently invited to motivate for the creation of what they considered to be priority posts. On this basis the Faculty Board had to determine its five top priorities for possible inclusion in a final list of ten, covering both the Durban and Pietermaritzburg campuses of the University, which was to be implemented in the event of sufficient funds becoming available.

This procedure reflected the institution's ongoing financial difficulties and reduced the Faculty to requesting two new lectureships (in Pasture Science and Agricultural Economics), two farm technicians and four labourers/cleaners. The enlargement of the staff establishment proved to be a slow process but the preparation of the 'Triennial Plan' did prompt departmental heads to review their operations and try to improve them.

In 1981, following a suggestion by George Quicke, the Faculty elected Nigel Wolstenholme (Horticulture) as its first Assistant Dean for a three-year term to assist the Dean with the heavy load of student-related issues. Wolstenholme was relieved by Ben Cilliers (Genetics) after a year as his own first-year and postgraduate supervision responsibilities increased. A further innovation was the emergence in 1985 of a group of 'motivated Senior Lecturers', subsequently known as the Lecturers' Standing Committee and led by Drs P.R. (Peter) Barrowman (Animal Science) and M.J. ('Mike') Savage (Agrometeorology), who expressed concern about the apparent lack of medium and long-term planning in the Faculty. It prompted a questionnaire survey of staff, the

findings of which suggested, among other things, a rationalisation of course offerings to reduce teaching loads without lowering student contact hours, as well as the centralisation of some facilities.

There was also a growing realisation within the Faculty of the need for more extensive publicity of its activities and importance. However, much depended upon academic staff to provide appropriate material for the Faculty Brochure and 'Open Day', as well as for the new 'Bridging-the-Gap' presentation to first-year students, the Faculty Annual Report, the University's Public Relations Office, a Faculty audio-visual programme, information for the media and, in 1988, the mounting of what proved to be a medallion-winning stand at the Royal Agricultural Show in Pietermaritzburg which developed into a permanent University display at that annual event.⁴

Departmental developments

In Agricultural Economics W.L. (Lieb) Nieuwoudt established the Agricultural Policy Research Unit (APRU) during the course of 1980, with the HSRC's financial support. This had an enormous effect on the Department's research output by funding between 12 and 15 full-time postgraduate students a year. In 1982 Nieuwoudt was promoted to Professor and, following Ian Behrmann's retirement in 1983 after 35 years of service to the University, he became Head of Department. Behrmann was the last of the Faculty's original staff complement and his loss followed that of M.A. (Mike) Tarr in 1981 to enter parliamentary politics.

The Department gained the services of G.F. (Gerald) Ortmann as lecturer in October 1979 and, as the University's financial situation eased, added two more lecturers to its staff complement in M. (Mike) Lyne in 1982 and M.A.G. (Mark) Darroch in 1984. Ortmann had previously spent nearly five years working in the Division of Production Economics of the Department of Agriculture at Cedara and as a regional economist in the Western Cape. In 1988 he was promoted to Associate Professor and in 1995 to Professor. He is still serving as Head of Discipline (as it is now termed).

Lyne had previously worked as head economist in the KwaZulu Department of Agriculture and Forestry, which gave him a strong interest in rural development issues. A graduate of the Department (B Sc Agric, 1979, M Sc Agric, 1982 and Ph D, 1990), he won several awards for his work. These included, in the tradition of Behrmann and Nieuwoudt, the Founders' Medal of the Economic Society of South Africa for his doctoral thesis. He was promoted to Professor in 1998 and subsequently emigrated to New Zealand.

Darroch was the first student to be awarded the Dux Medal as the top student in the Faculty after graduating with a B Sc Agric (*summa cum laude*). He followed this with an M Sc Agric (*cum laude*) and in 1992 was promoted to senior lecturer.⁵

In 1983 a Review of the Department, prompted by Behrmann's impending retirement, noted its excellent contribution to both teaching and research in the Faculty. It acknowledged that its three-man complement taught in two degree Programmes, B Sc Agric, currently involving 56 students, and B Agric Mgt, currently involving 154 students (including Honours level), as well as providing service courses to 'majors' in other departments, but recommended the elimination of apparent overlaps in the material offered for the two degrees.

The Review also highlighted the Department's Agricultural Policy Research Unit, though it echoed Ian Behrmann's parting warning about the danger of focusing research on too narrow a field (Agricultural Policy) in deference to available funds.⁶

In terms of the transfer of Agricultural Engineering for administrative purposes from Agriculture to Engineering, the Department's teaching staff became members of both Faculties. The new Head, 'Pottie' Meiring (1976) was joined in 1977 by Peter Lyne and in 1982 by Alan Hansen to develop what became an internationally recognised tractor and fuels research centre.

Meiring was to be remembered for his strict departmental control, forbidding yet genial personality, high intellectual standards and (like Susarah Truter) intolerance of sloppy student attire.

In 1974 Jack Burney, who subsequently emigrated to the USA, had initiated hydrological research which, from 1976, was continued by Roland Schulze. He was a graduate of the University right through to doctoral level (B Sc 1st class, 1963, B Sc Hons 1st class, 1964, M Sc *cum laude*, 1968 and Ph D, 1975) who rose through the ranks from junior lecturer (1969) to Professor (1987) and Senior Professor (1993).

In 1981 Schulze launched a Hydrology degree Programme while also authoring numerous publications as well as research/consulting reports, supervising several postgraduates and developing what became an internationally recognised and externally funded applied hydrological research group. It formally became known as the Agricultural Catchments Research Unit (ACRU) and Schulze became leader of the Water Initiative, one of seven key strategic research projects at the new University of KwaZulu-Natal.⁷

The formation, in 1974, of the Department of Soil Science and Agrometeorology under Malcolm Sumner's leadership was followed by the establishment of a well-equipped agrometeorological observatory adjacent to the Rabie Saunders Building for both teaching and advanced research purposes. Agrometeorology was an option in the Physics Honours programme and also immediately attracted several B Sc Agric postgraduate students. While offering undergraduate and Honours courses the discipline also had a strong research focus.

Jimmy de Jager's crop growth modelling project *PUTU* (*isiZulu* for 'maize porridge') helped to establish Agrometeorology in the Faculty and continued to attract attention for more than twenty years. The Faculty's 1978 'Triennial Plan' recognised that the growing world-wide interest in environmental studies would necessitate strengthening the sub-department of Agrometeorology. Following the popular de Jager's departure to head that discipline at the University of the Orange Free State and the arrival in 1977 of 'Mike' Savage as an agrometeorologist the focus shifted to soil-plant-atmosphere energy and water relations.

In 1978 Sue Walker was the first to graduate with a B Sc Agric 'majoring' in Agrometeorology, followed in 1981 by an M Sc Agric *cum laude*. In the same year Agrometeorology led the way in becoming the first discipline in the University to use a desktop computer. Mike Savage and a laboratory technician, Ahmed Bawa (who subsequently became Deputy Vice-Chancellor: Research) successfully connected their computer to an external data storage device for the accumulation of information from an automatic weather station data logger.

In the early 1980s Agrometeorology was also the first to use another novelty, a laser-jet printer. Prior to that the computer, so vital to the development of the discipline, was no less than 3 metres by 2 metres and 1.5 metres high with only 11 kb memory, and occupied a whole laboratory. His contribution to the Department was such that in 1982 Savage was promoted to senior lecturer, in 1984 to Associate Professor and in 1988 to *Ad Hominem* Professor. In September of that year he began a three-year stint as Assistant Dean.⁸

A Review of the Department of Soil Science and Agrometeorology conducted in May 1977 acknowledged that the sub-department of Agrometeorology 'fulfilled a vital need in the overall agricultural context' but that while its continued growth was 'highly desirable' it should continue to function as 'an integrated single Department' with Soil Science. It was also recognised that the Faculty would be 'incomplete' without Soil Science and that although undergraduate numbers had recently declined this was a world-wide trend. It was to some extent compensated for by an increase in Science students registering for courses, and by the recent curriculum change which made it possible to combine Soil Science and Geology in a B Sc degree.

Soil Science was commended for its traditionally strong research programme, dating back to its 1948 origins in the Department of Agricultural Chemistry/Biochemistry, and for the number of its graduates who had risen to top academic and administrative positions in South Africa and abroad. Collaborative research projects with local authorities, the South African Sugar Association, the National Institute for Water Research, later known as the Water Research Commission (WRC) and other organisations had brought further credit to the Department and the University.⁹

From July 1977 until the end of June 1978 Professor J (Johan) le Roux served as Acting Departmental Head. In July 1978 Professor J.M. (John) de Villiers arrived to assume the chair and headship. In 1956 he worked as a professional officer for the Soil Research Institute, Pretoria carrying out soil surveys for irrigation schemes at Mariantal, the Gamtoos Valley, Sibasa, Upington and Kakamas.

In 1957 he was appointed lecturer in Soil Science under Jimmy Orchard and was sent to the International Training Centre for Aerial Survey in Delft, the Netherlands, where he was awarded the diploma in air-photo interpretation, preparatory to his work on the Tugela Basin soil survey in Natal-Zululand. In 1965/66, with the aid of an Agricultural Technical Services study grant, he spent 18 months doing post-doctoral research on the chemistry and mineralogy of clays, which was a particular area of interest.

In 1968 he returned to the Soil Research Institute, rising to deputy director in 1971 before moving in 1973 to become Professor and Head of the Department of Agriculture at the then University of Rhodesia. Following his return to Pietermaritzburg in 1978 de Villiers presided over the 1988 amalgamation of Soil Science/Agrometeorology with Crop Science and was given a five-year appointment as non-permanent head of the newly designated Department of Agronomic and Environmental Sciences. He briefly represented South Africa at a NASA planning session for satellite photography where he interacted with Neil Armstrong and Werner von Braun.

Remembered for his gentle, modest personality and cheerful, hardworking leadership, de Villiers demonstrated another dimension to his talents when, after retiring in 1994, he completed a B A and postgraduate diploma, both in fine art. His work was subsequently exhibited in several Cape galleries. He also made a



J.M. (John) de Villiers

J.M. (John) de Villiers took over the chair and headship of Soil Science in July 1978. Born in 1934 in Graaff-Reinet, he attended Union High School there, and completed a B Sc Agric in 1955 at Pietermaritzburg with a Maize Industry Control Board bursary, followed by a Ph D in 1963. He served two terms as Dean of the Faculty from 1984 to 1987 and 1991 to 1994. Internationally recognised for his work on the classification of soils in South Africa, he focused on the environmental impact of mining, appropriate rehabilitation measures and the uses to which land could be put subsequent to mining. This aspect of his work was invaluable to the mining houses.

very practical yet artistic contribution to his old Faculty on the occasion of its 50th birthday in the form of a large mosaic clock, one of his fine arts projects, which was placed in the foyer of the Rabie Saunders Building. It was prompted by de Villiers' own irritation at the unpunctuality of some students.

The mosaic design was inspired by George Hunter's groundbreaking achievement in the 1960s when he circumvented regulations prohibiting the importation of sheep by transplanting two sheep ova into rabbits which were then flown from Britain and the ova successfully implanted into local surrogate ewes. The rabbit and sheep embryos depicted in the mosaic effectively commemorate one of the more ingenious scientific achievements of the Faculty. De Villiers died in April 2007.¹⁰

Other staff members who contributed in various ways to the reputation of Soil Science in this era were Dr Martin Fey (Soil Chemistry, Fertility and Pedology), promoted to Associate Professor in December 1987; Dr Alf Cass (Soil Physics) who left in 1984; Dr John Hutson, who left in 1986; Dr M.A. ('Mike') Johnston (Soil Physics) who joined the Department in 1987; Dr J.C. ('Jeff') Hughes, promoted to senior lecturer in 1988 and Dr C. (Chris) MacVicar who worked with John de Villiers in developing the national inventory of soils information in the form of land type maps.

Research fellow Dr Roger Beaufls, in conjunction with Malcolm Sumner, developed and applied the Diagnosis Recommendation Integrated System (DRIS) to achieve improved crop nutrition, while other staff members and their postgraduate students strengthened the departmental tradition of international collaborations and publication in distinguished journals. Several followed Sumner (including Cass and Hutson) in securing positions at foreign universities.¹¹

The Department of Animal Science and Poultry Science had to employ local veterinarians on a part-time basis to teach courses in Animal Diseases and Artificial Insemination until the arrival of Peter Barrowman, but with his resignation in July 1987 the senior lectureship reserved for a veterinarian again fell vacant. By then Werner Stielau was embarking upon his third term as Dean (1977–79, 1981–82 and 1987–90) and the Department was due for a Review. The rest of its remaining five-man complement were by then all senior staff members with doctorates. Rob Gous and Arthur Lishman were Associate Professors by personal promotion, Schalk Kock a senior lecturer and Jannes van Ryssen a senior lecturer by personal promotion.

The Department currently taught 12 undergraduate Animal and Poultry Science courses, including an Animal Science 'major' in the B Sc degree as well as various service courses for 'non-majors' and the B Agric Mgt degree. A long-standing intention to revive the 'major' in Poultry Science had not been realised due to insufficient staff. The main thrust of its courses was in the field of ruminant animals, with an introductory course in Poultry Science and an advanced module on non-ruminant nutrition.

At postgraduate level roughly half of the Department's students were specialising in monogastric animals, primarily poultry. Undergraduate student numbers had declined from 213 in 1983 to 140 in 1987 while postgraduate degrees conferred had risen from one to five.

The Department's most active areas of research were reproductive endocrinology (Lishman), mineral metabolism (Van Ryssen) and poultry and pig nutrition (Gous), producing 29 scientific papers in all during the period 1985 to 1987.

Staff members nevertheless felt that their full research potential was not being achieved, due to inadequate financing (except in poultry), individualistic efforts, limited technical assistance and poor facilities at Ukulinga. The exception was the Farm's large poultry section, whose work attracted funding because it was relevant to the problems of the industry and had an international reputation.

The other areas of departmental research were perceived as long-term and theoretical by the animal production industry. Staff members felt that there was insufficient effort to promote the Department's image in the farming sector, with the result that Cedara was overshadowing it with regard to research on sheep, beef and dairy.

The independent assessor on the Review Committee recommended that the Department should indeed 'move closer to the real world of commercial animal production both in its teaching and its research' by re-orientating itself to a more 'applied' focus 'with tangible commercial application' that would attract more financial assistance.

The Committee as a whole endorsed a 'more production-orientated approach', using the poultry section as a model, and contended that this would probably meet most of the deficiencies which the staff had identified. These included the need for more skills training, computer applications, more integrated areas of teaching such as growth, greater industry involvement and further interaction with the plant sciences.

It was hoped that Ukulinga's production capacity for beef and/or sheep might be developed to provide a strong focus for ruminant research, in the same way as poultry nutrition had done, while pig nutrition was now being researched at Baynesfield Estate. The Committee acknowledged that the Department consistently attracted a large proportion of B Sc Agric enrolments to its 'major', and that most students undertaking the Agricultural Production major also chose a strong Animal Science bias in their curricula. It recommended that the staff vacancy left by Barrowman should not necessarily be filled by a veterinarian, provided existing teaching commitments such as animal physiology were met.

The opportunity could now be taken to bolster animal production research in the area of monogastric animals by appointing a physiologist with a research interest in pigs or poultry. It also recommended collaboration with

the Department of Grassland Science to intensify beef/sheep production at Ukulinga in the interests of their joint teaching and research capacity.¹²

In their comments on the Review Committee's Report, Lishman and Van Ryssen both pointed out that the national pig industry was relatively small, with less than one million pigs and pork consumption fixed at 3 kg a head per year for more than thirty years, making the prospect of further research funding and graduate employment decidedly slim. Lishman also drew attention to his extensive, but apparently overlooked, involvement with the beef and sheep industries in terms of surveys undertaken by postgraduates, co-operative research with livestock consultants, studies on cattle bruising in transit and on bull and ram libidos, and invitations to lecture at farmers' days, congresses and on short courses at Cedara. Van Ryssen stressed the role which Barrowman had played in teaching and collaborative research, suggesting that if another veterinarian was not to be appointed the post should be filled by a specialist in animal breeding and dairy cattle, bearing in mind that the Department needed to improve in these areas and that Natal was one of the country's most important milk producing regions.¹³

Werner Stielau relinquished the Departmental Headship at the end of 1988 to concentrate on his third term as Dean (1987–1990), at the end of which he retired and subsequently died in 2000. Rob Gous was appointed to succeed him, having been promoted to Associate Professor in 1978 and serving as Acting Head (December 1986 to June 1987). Arthur Lishman also served a term as Acting Head (November 1979 to June 1981) and as Assistant Dean (July 1985 to June 1987).¹⁴

In 1984 Biochemistry lost George Quicke to retirement but in 1980 gained M. ('Mike') Dutton (Dip Tech PhD Salford) who, having been promoted to Associate Professor in 1988, succeeded to the chair in 1989. Quicke was awarded the title of Professor Emeritus and in 1994 the third-year laboratory was named in his honour as recognition for his long service to the Department. Dutton established a mycotoxin research group, based on his earlier experience, as well as a mycotoxin analysis laboratory which analysed feed samples from all over South Africa. He left the Department in 1992 to become Professor and Head of the Department of Physiology in the University's Durban Medical School.

Other appointments to the Department included Dr R.F.H. (Bob) Dekker (1976–79), Dr J. (John) Duncan (1978–83), a Ph D graduate of the Department who left to become Head of Biochemistry at Rhodes University, Dr A. (Andre) van den Hoven (1978–83), Dr C. (Clive) Dennison and Miss T.H.T. (Theresa) Coetzer (both future departmental heads) in 1980 and 1986 respectively, as well as Mr R. Berry, also in 1986 and Dr Edith Elliott in 1988.¹⁵

Biometry also lost a longstanding leader when, in 1982, Arthur Rayner retired after 33 years of service. The Faculty Board accorded him a standing

ovation for his many contributions including his term as Dean, his renowned Biometry textbook (first published in 1969), his work on various committees and especially on issues relating to rules, but also for his personal qualities, the high academic standards he maintained and his dedication to the Faculty's best interests.

Two book prizes were subsequently awarded annually in Rayner's honour, one for the best 'non-major' student in Biometry 110 and the other for the best 'major' student in Biometry or Statistics. G.P.Y. (Peter) Clarke was joined in the Department by Harvey Dicks as lecturer in 1983, promoted to senior lecturer in 1987.¹⁶

The Department of Biometry was actually disestablished in 1976 and Rayner was appointed Head of a new Department of Statistics and Biometry. This followed a Council decision as far back as December 1973 in recognition that the Statistics taught in the Department of Mathematics should be merged with Biometry to form a single Department in the Faculty of Science. It had been impossible until such time as the Faculty of Agriculture was fully incorporated into and financed by the University of Natal.

In December 1975 Rayner strongly advocated the academic desirability of such a merger. He explained that 'Biometry is Statistics applied to the biological sciences', which in South Africa currently tended to have 'agricultural applications' though in future was likely also to have a 'medical connotation' (as in the U.S.A.) as well as industrial applications. In view of the new combined Department's significant teaching responsibilities for both 'major' and service courses in both faculties, he nevertheless opposed the proposal that it remain in the Faculty of Agriculture, favouring instead dual affiliation with both it and the Faculty of Science. While he also advocated the transfer of Biometry staff to the main campus in order to share the same roof with their Statistics colleagues, he envisaged maintaining at least one office in the Rabie Saunders Building to avoid physically severing Biometry's 26-year association with Agriculture.

According to advice provided by Professor A. (Tony) Mathews of the Law Faculty, the University Statutes did provide for dual affiliation though not its practical implementation. Rayner proposed that the merged Department's general administration, headship, courses and other academic posts should fall under the purview of the Science Faculty, except for those courses which were peculiarly part of the B Sc Agric curriculum and those already named Biometry posts occupied by Dr R.M. (Rob) Pringle and Mr D.O. (Derek) Chalton. He also suggested that Departmental finances should be appropriately split between the two faculties and administered by their Deans.¹⁷

In 1976 Rayner's proposal was supported by the Faculty of Science while Agriculture, which had initially favoured retaining the Department, advocated that the possibility of dual affiliation should be investigated. In May 1977,

while Senate wavered over the matter, doubtless concerned about setting precedents, it subsequently supported dual affiliation 'for a trial period', along the lines which Rayner had proposed.

In 1982 the entire Department of Statistics and Biometry moved its operations to the main campus, dropping the idea that one or two biometricians stay in the Rabie Saunders Building in favour of remaining together but retaining an office there for consultation purposes. In accepting this development the Faculty Board nevertheless expressed concern that there should not be any 'reduction in the level of Biometry teaching in the years to come'¹⁸

Indeed, since its inception Biometry had formed an integral part of the Faculty's curricula (except in Agricultural Production and Agricultural Management below Masters level), with all students being required to take at least one of the Biometry courses offered whatever their particular field of specialisation. In addition, the biometricians had always provided staff researchers and postgraduate students with an invaluable consultancy service with regard to appropriate experiment design, statistical inferences and the interpretation of results. The extent of this assistance was often such that in September 1980 Derek Chalton, lecturer in Biometry, formally proposed that members of the Department should be appointed as additional supervisors of postgraduate students to resolve problems 'at the outset' instead of in 'the final stages' of thesis production.

Rayner continued to favour informal consultations, as in the past, fearing the extra burden of formal co-supervisions on his small Department. The Faculty Board acknowledged the 'valuable assistance' which he and his colleagues rendered and by 1984 it was lending its support to the creation of an additional non-teaching post so that the Department could effectively maintain its statistical consultation service to staff and students. There was a prolonged struggle until 1986 when the Department was eventually allowed to make a year-long contract appointment for that purpose. This at least enabled it to maintain 'a minimum presence' of one staff member in the Rabie Saunders Building but the need for 'a Biometrician specifically for Agriculture' nevertheless remained an unforgotten objective.¹⁹

Crop Science also had its tribulations to contend with during the early 1980s. In July 1981 its Head, Karl Nathanson, was appointed Dean for a two-year term but was obliged to retire a year later due to ill health. He died shortly afterwards from a brain tumour, a tragic loss to the Department and to the Faculty. Professor J.D. (John) Lea was appointed acting and subsequently permanent Head of Department, a post which he held until his retirement in December 1986.

Faced with the sudden loss of Nathanson, a Review of the Department concluded that the Faculty would not be complete without it, the science of field crop production being 'a vital and indispensable part of Agriculture'. It

reported that, since its inception in 1948 as the Department of Agronomy, it had enjoyed a high level of 'stability and consistency' under only four heads ('Rabie' Saunders, 'Sakkie' Smuts, 'Sampie' Hulme and Karl Nathanson). It also acknowledged that the Department's three-man academic staff carried a 'considerable' teaching load, comprising not only its own 'major' components but a variety of 'service' courses and three main areas in the new Agricultural Production 'major'.

All this accounted for nearly 20% of undergraduates registered in the Faculty. The effectiveness of its teaching could be measured by the success of its students in the agricultural community, with many of them achieving postgraduate qualifications and occupying influential posts in the Department of Agriculture and Fisheries. The Review also found that the Department had been successful in its research function, focusing primarily on the production of soybeans, cassava and kidney beans. It had a good record with regard to collaborative projects, such as the National Soybean trials, the Anglo-American cassava project and sugar cane research, while also recently becoming involved in KwaZulu subsistence agriculture.

The Review Committee saw no need for the Department to change its emphasis or direction and concluded that it could continue to stand on its own, while interacting with other plant production departments to their mutual advantage. It saw no need or advantage, as yet, in merging the Department into the 'School of Plant Sciences' which was already favoured in some quarters.²⁰

By 1986, after John Lea had indicated his intention to retire at the end of the year, that perception had changed. A further Review Committee also acknowledged the vital importance of the crop production industry and the extent to which it derived its research and professional manpower from the discipline of Crop Science. It reiterated the Department's ongoing heavy teaching load but expressed concern that its output of graduates was two or three times lower than market demand. It attributed this to 'staff problems' which preceded Lea's assumption of the chair, the attraction of students towards the 'more generalist' Agricultural Production 'major' introduced in 1967, and the Department's own emphasis on 'research' rather than 'production' in its 'major' courses.

The Committee pointed out that a high proportion of its resources was being directed towards subsistence agriculture, as much as R140 500 in 1985, all from external sources. This reflected Lea's successful establishment of the Subsistence Agriculture Study Group, which helped to uplift communities in the Vulindlela district outside Pietermaritzburg. A common dry bean crop improvement programme, under the supervision of Dr Rob Melis, produced several rust resistant cultivars which revolutionised the crop output of small-scale, under-resourced farmers. The first of its kind in the KwaZulu-Natal

region, this programme was developed from 1981 to 1990 and sponsored by the De Beers Chairman's Fund.

The Review Committee nevertheless argued that while the needs of subsistence agriculture placed an additional responsibility on South African Crop Science departments, commercial agriculture should, for the present, be 'the first priority'. It found that the Department's research output had been somewhat dispersed with a slight leaning 'towards the inter-face with agrometeorology and soil fertility', particularly in respect of a recent interest in genotypic tolerance to stress. The Committee noted that, apart from its limited staff resources, the problem faced by Crop Science lay in the nature of the subject, being 'a confluence of plant physiology, breeding, plant nutrition, agrometeorology and soil-plant-water relations, irrigation science, weed science and crop technology-applied individually and integratively to a wide diversity of crops and cropping systems'.

It concluded that, as currently structured, the Department was below the 'critical mass' needed to develop it as 'a nationally respected force and a centre of excellence'. It recommended that, judging by 'successful precedents' overseas, a 'closer association' with Agrometeorology and Soil Science, as 'disciplines with maximum common ground', would best provide the required 'critical mass', 'synergism' and 'efficiencies of scale'.²¹

The future of these disciplines was debated at length at an Extraordinary Meeting of the Faculty Board in October 1986. Lea attributed the decline in Crop Science 'majors' students in part to the 1967 introduction of the Agricultural Production option, but contended that the Department could continue to survive independently as it still attracted substantial external funding despite its low graduate output. In addition, it contributed significantly to both subsistence and commercial agriculture and maintained successful informal links with several other departments.

After considering the options Board unanimously agreed to recommend to Senex the formation of a 'loose liaison' in the form of a 'School' within which Crop Science and Agrometeorology/Soil Science would retain their individual identities. This was duly approved in October 1986 and eventually, in 1988, after further negotiations, a new 'Department' rather than 'School' of Agronomic and Environmental Sciences was established under the headship, initially, of John de Villiers. In May 1988 the as yet to be filled Chair in Crop Science was named the 'South African Sugar Association Chair of Crop Science' in recognition of the mutual importance of the Department and the industry to each other.²²

In 1979 the Department of Home Economics and Dietetics moved to the basement of the Rabie Saunders Building and was still there thirty years later. It experienced several staff changes during the 1970s and 80s. The Department already claimed South Africa's highest enrolment figures in Dietetics and

when, in 1977, Eva Ricketts resigned, she had the satisfaction of knowing that its first black dieticians were scheduled to graduate. In May of that year Miss E. (Elma) Nel was appointed Acting Head and in 1982 succeeded as permanent Head and Professor, a position she held until 1996. Nel had been among the first intake of students into the Department in 1973 and its first Masters student. She became the first chairperson of the Professional Board for Dietetics in South Africa and remained so for more than a decade.

Mrs. J.M. (Maryann) Green resigned as lecturer in April 1982, but returned with a doctorate and was reappointed in August 1987.²³ Further additions to the Department, for varying contract periods to assist with the heavy lecturing and tutoring load, included Ms I.B. (Beryl) Zondagh, Ms M.M. (Daleen) Pottas, Ms A.D. (Ansie) Potgieter, Mrs J. (Jill) Rubelli, Ms A.G. (Anne) Haselau, Ms M. (Marie) Paterson, Ms N.E. (Nicky) Linsdell, Ms J. (Jane) Mannion, Ms A.E. (Lettie) Grobler, Ms S.B. (Sue) Hodgkiss and Ms B. (Barbie) Bremner. The official records offer no information about their contributions, though it is evident that in the 1980s Sheryl Hendriks began what proved to be a long and distinguished career in the Faculty.²⁴

In 1977 Professor Rickett's impending departure subjected the Department to a Review Committee which found that the four-person academic staff, spread over two 'majors', carried a heavy teaching load, alleviated to some extent by a temporary appointment (1976–77) which, it argued, should become permanent. This, it believed, would provide sufficient coverage for the Department's five specialist areas – Nutrition, Dietetics, Foods and Food Technology, Clothing and Textiles, and Home Management.

Student numbers had risen steadily if unspectacularly from an initial 13 first-year registrations in 1973 to 32 in 1977, and third-years from 5 in 1974 to 11 in 1977, the overall student increase being from 17 to 58 in this period. Most of these registrations were in Dietetics and there was concern at the limited interest in the B Sc Home Economics.

The Review Committee nevertheless urged that this qualification should continue to be offered as it was still the only English-medium degree of its kind in the country and there was a growing interest in it among black communities. What was needed was a change in approach, to make it more relevant to society at large, and close interaction with the discipline of Sociology which, it was anticipated, would soon be offered on the Pietermaritzburg campus.²⁵

Despite the heavy teaching load, in 1978 the number of lectures in both Dietetics and Home Economics was increased in order to cover all the necessary specialist subject matter. In addition, in 1977 Senex approved a Postgraduate Diploma in Hospital Dietetics, the launching of which was delayed by building alterations. This required shifting the practical training from Pelonomi Hospital in the Orange Free State to the Transvaal. It was not until 1988 that the Natal Hospital Services agreed to provide such facilities in the province, prior to

which three-year B Sc Dietetics graduates had to complete the Diploma requirements elsewhere before registering as professional dietitians.

In the early 1980s curriculum changes in the B Sc Dietetics degree were considered necessary in order to maintain parity with developments in similar degrees elsewhere in South Africa. It was also essential to meet the rising expectations of the South African Medical and Dental Council as well as the requirements of principal employers, who favoured more vigorous training in basic science, physiology and statistics.

In October 1981 an Advisory Committee which investigated the state of the Department reaffirmed that Dietetics/Nutrition was its dominant arm, that the current national demand for Dietitians far outstripped the supply, that there was still a demand, though difficult to quantify, for Home Economists, and that the Department was in dire need of an additional (sixth) post as well as a part-time lecturer in physiology in order to meet its teaching obligations satisfactorily.

Staffing remained an ongoing problem but the timely curriculum changes in Dietetics did ensure that the minimum standards for training prescribed by the South African Medical and Dental Council were adequately met.²⁶

The Department of Entomology lost its Head, Ted Bosman, to retirement at the end of 1986 but, although transferred to the Science Faculty back in 1977, it retained its close links, however tenuous, with Agriculture under its new Head, M.J. (Michael) Samways, who succeeded to the Chair in 1987.²⁷ Genetics also lost its long-serving Head when Willem Weyers retired at the end of 1988. In the late 1970s the Department was offering three options in its 'major', but was planning to phase these out and offer training in only two fields i.e. Animal Breeding and Plant Breeding.

A 1988 Departmental Review nevertheless found that the small three-person academic team of Weyers, Ben Cilliers and Dieter Reusch carried a heavy teaching load in the form of 'majors' offered in both Agriculture and Science as well as service courses in other 'majors'. It reported that the Department's own 'major' graduates were much in demand by prospective employers, but student registrations in the more advanced courses had tended to be low and postgraduate enrolments limited.

This contributed to the Department's emphasis on teaching rather than research, though the Review Committee appeared to overlook the prevailing interest in molecular work with its focus on genetic manipulation, the new courses on crop modification using laboratory techniques and the research on soya beans and maize undertaken at Ukulinga.

In 1979 Hans Gevers, a Natal graduate (B Sc Agric 1955 and Ph D 1976) and maize breeder of international repute employed in the Department of Agricultural Technical Services Summer Grain Sub-Centre based in the Faculty, released the high lysine maize cultivar HL1, followed in 1982 by HL2.

These offered enormous potential in meeting South Africa's future protein needs, both in the human food and animal feed industries. Subsequent experimentation produced opaque-2 hybrids with high lysine content which provided crops as big as the best normal commercial cultivars.

Following his retirement from the Department of Agriculture, Gevers was appointed Honorary Professor in the Department of Genetics in recognition of his considerable ongoing contribution to the training of plant breeders in the Faculty through his research supervision, specialist teaching and supply of unique genetic material for student projects. He also continued to produce opaque-2 maize hybrids for his private breeding company Quality Seed (cc), based at Ukulinga, where for decades he had led the maize breeding programme in conjunction with his work at Cedara. Gevers' research had a significant impact on the value of maize as a staple in Africa, contributing also to the development of resistance to maize leaf blight and to the release and exchange of maize breeding material to more than 20 countries over a period of 30 years.

The 1988 Review Committee considered the previously suggested options of merging Genetics with Microbiology and Biochemistry, or with Crop Science. It recognised that the former scenario would potentially promote the field of biotechnology (molecular and cell biology) in the Faculty while the latter would promote the output of plant breeders, for which there was an increasing demand.

But it concluded that retaining a separate Department of Genetics was really the only viable course, given that the discipline occupied 'a pivotal position amongst the biological sciences' and that the Department performed an essential role in training geneticists as well as contributing to that of students in other disciplines. It declared that 'no agriculturalist, whether in the animal or in the plant field, can be considered to be properly trained and equipped without an adequate exposure to the science of Genetics'.

In the interests of more effective inter-disciplinary collaboration the Committee recommended, as a matter of urgency, that the Professorships in Genetics, Crop Science, Biochemistry and Microbiology should be filled without delay. While Genetics struggled to have its Chair unfrozen in the prevailing climate of financial stringency, Ben Cilliers was appointed acting Head, having previously served an extended term as Assistant Dean (1982–85). Intelligent and personable, he subsequently moved to the Institute for Tropical and Subtropical Crops in Nelspruit.²⁸

In 1977, following Pete Booysen's departure to higher office, Professor N.M. (Neil) Tainton was appointed acting Head of Grassland Science (Pasture Science as it was called until 1982) and subsequently Professor and permanent Head in 1978.



N.M. (Neil) Tainton

N.M. (Neil) Tainton became Professor and permanent Head of Pasture Science in 1978. A graduate of the Faculty (B Sc Agric cum laude and M Sc Agric cum laude) with a Ph D from the University of Wales (Aberystwyth), he had lectured in the Department since 1959, rising to senior lecturer ten years later and to Associate Professor in 1975. Prior to his retirement in 1994 when he became Professor Emeritus, Tainton served as Dean of the Faculty (1982–84), supervised 37 Masters and 18 doctoral candidates and published well over a hundred scientific papers as well as authoring/co-authoring 24 book chapters and editing/co-editing five books.

In 1985 he won the Witwatersrand Agricultural Society's Agricultural Leadership award. The following year he presented the NUDF with a motivation for an endowed Chair to promote urgently needed research into the degradation of South African vegetation. Highly rated by the NRF and a Fellow of the University, in 1998 he was awarded honorary life membership of the Grassland Society of Southern Africa.²⁹

New additions to the Department included, in 1976, D.I. (David) Bransby, who acquired his doctorate in 1983, J. (John) Klug in 1979, M.T. (Mike) Mentis in 1981 and P.J.K. (Peter) Zacharias, who joined the staff in January 1985 after first appearing at Faculty Board in May 1980 as a student representative. He subsequently served as a Faculty representative on the University Lecturers' Committee. In 1987 Dr. D.R. (Dave) Morrey also joined the Department but resigned at the end of 1988. In contrast, Zacharias or 'Pete Zac' as he became known, was embarking on a long and varied career in the University's service.³⁰

The Department of Horticultural Science became subject to review when, in 1987, the long-serving Peter Allan indicated his intention to step down from the Headship. By then all three of his departmental colleagues had gained personal promotion, B.N. (Nigel) Wolstenholme and I.E. (Irwin) Smith to Associate Professor and P.J. (Pete) Hofman, who joined the Department in 1982, to senior lecturer. J. (Jonathan) Cutting was a further addition to the staff complement.³¹

Three curriculum options were being offered in the Horticultural Science 'major' in the form of a Standard option, a double 'major' with Botany and a Management option. All of these contained Horticultural Science 'major' courses but varied in terms of the courses which students elected to

take in other departments. During the first 25 years of its existence the Department had produced an annual average of two or three 'major' students but there had been a dramatic increase since the mid-1970s, rising to 12 graduates a year since 1980 and, as subsequent events were to prove, peaking to between 10 and 20 from 1985 to 1995.

In 1975 the introductory agro-ecology course (Agri 110) was launched. The brainchild of Pete Booysen, it was initially run by Nigel Wolstenholme and Neil Tainton, before the former assumed full responsibility for it. When the course was subsequently semesterised, Wolstenholme taught the first semester and co-ordinated the second, which involved staff from the four 'production agriculture' disciplines (Animal Science, Crop Science, Horticultural Science and Pasture Science), and later also Agricultural Economics. The course was taught to all B Sc Agric students, which led to an increasing interest in Horticultural Science and helped to make it the most popular B Sc Agric 'major' during the 1980s and 1990s.

In 1987, at the time of its Review, the Department had no less than 50 'major' students in second, third and fourth year, and as many in the final year as its fellow departments at the Universities of Stellenbosch, Pretoria and the Orange Free State combined. Its graduates were much in demand and well equipped to adapt to the requirements of all employers. The avocado and citrus industries were major avenues of employment and, for a time, almost all the horticulturists employed in the then 'Rhodesia' were University of Natal graduates. A similar situation prevailed in Swaziland.

The Department's staff nevertheless favoured a rationalisation of course offerings within the Faculty and in collaboration with the Department of Botany. They saw considerable scope for future expansion in the rising



P.J.K. (Peter) Zacharias

After completing his B Sc Agric degree in 1982, P.J.K. (Peter) Zacharias joined the staff of Pasture Science in a post graduate position to assist with teaching. Zacharias, or 'Pete Zac', as he became known, was awarded a doctorate by the University of Fort Hare after several years of research into post-burn management of sour grasslands in the Eastern Cape. While retaining an active interest in teaching and in grassland research through his students, he subsequently became Assistant Dean (1994) and Deputy Dean (1996) of the Faculty of Agriculture. He later became Deputy Dean (1999) and Dean (2002) of the merged Faculty of Science and Agriculture.

demand for ornamental and landscape horticulture, in the development of the Plant Breeding 'major', and in a reviving interest in silviculture through the Agricultural Production 'major' and the Agricultural Management degree.

By 1987 the Department had produced 25 Masters and seven Doctoral graduates and had enjoyed a significant increase in postgraduate enrolments with 14 current Masters and one Ph D. registration. All four staff members were active researchers and well-known in the horticultural industry: Allan's reputation was based on advances in the production of papaws, sub-tropical nut species, stone fruits and kiwi fruit among others; Wolstenholme's on his work on avocado, other subtropical fruits and pecan nuts; Smith for expertise relating to vegetables, protected cultivation and aspects of the nursery industry; and Hofman for his knowledge of plant physiology and plant growth substances.

Collectively the Department had produced more than 230 publications, including 84 papers between 1980 and 1985. As a 'production-orientated' Department deriving much of its research funding from the industry, many of its research findings appeared in non-refereed 'industry publications' that were readily accessible to producers rather than in the state subsidy-earning journals that were so highly rated by the FRD in its evaluations of researchers.

In the light of its ongoing achievements as an independent Department, Horticultural Science had reason to be pleased that it had escaped the proposed amalgamation in the early 1970s of the three plant sciences (Crop Science and Grassland Science being the other two). The move in the 1980s of Entomology to the John Bews (Life Sciences) Building gave the Department more office and laboratory space in its third-floor wing of the Rabie Saunders Building, though it did need more technical assistance.

While the Phytotron and Ukulinga farm were invaluable both for practical instruction and research, the increase in student numbers was putting pressure on limited greenhouse space, and the Farm's poor soil and water resources were limiting research options, particularly with regard to tropical and sub-tropical fruit crops. Baynesfield Estate, initially regarded as one of the pillars upon which a Faculty of Agriculture might be built, now seemed to offer the prospect of 'a good general purpose station' for various types of research, particularly vegetables, though this would involve costly infrastructural development and the appointment of supervisory staff.

The Review Committee recognised, as did the horticulturists themselves, that the Department's 'singleness of purpose' had contributed to its success but that it had become 'somewhat exclusive in its activities'. This, it was suggested, could be overcome by means of collaboration with other Departments in the Agricultural Production 'major', in plant breeding research, in the teaching of physiology, in the revival of silviculture and in the

development of landscape horticulture within a broader context of environmental studies.

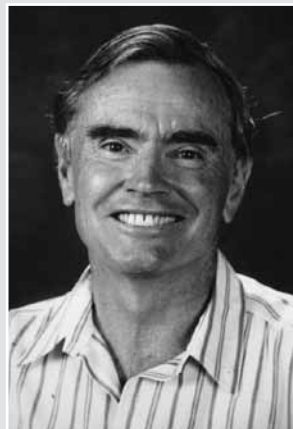
In 1988 Nigel Wolstenholme, who had already served as acting Head during one of Peter Allan's sabbaticals (1982–83), was promoted to *Ad-Hominem* Professor and then to Head of Department after Allan had opted to stand down.³²

A graduate and postgraduate student of the Department, Wolstenholme joined its staff in 1960 and by 1999, when he became a Fellow of the University of Natal, he had authored and co-authored more than 150 papers which were applied and cited throughout South Africa, especially in KwaZulu-Natal where his major research was undertaken. While broadly interested in ecology and physiology, much of his research was focused on maximising the improvement and production of sub-tropical fruits and nuts.

His work on avocado, in particular, was and still is internationally recognised, resulting in his co-editorship of an international scientific text book on the subject. He also contributed a chapter to a grower-orientated book commissioned by the South African Avocado Growers' Association summarising local knowledge on this crop. Other awards bestowed on Wolstenholme over the years included the Golden Avocado award of the South African Avocado Growers' Association, the Fellowship of the South African Society of Crop Production and Life Membership of the South African Pecan Producers' Association and of the South African Society for Horticultural Sciences.

He retired from the University in December 1998 but has retained his association with the Department as a Professor *Emeritus* and, for a year (1999), as Senior Research Associate.

Wolstenholme's colleagues, Irwin Smith and Pete Hofman, were both lost to the



Nigel Wolstenholme

Nigel Wolstenholme joined the staff in 1960. By the time he retired in 1998, after a university career spanning 38 years, he had authored or co-authored more than 150 papers, many of which dealt with his research on growing sub-tropical fruit and nuts, particularly avocado for which he was internationally recognised. In addition to his research and service to the University in various administrative capacities, including Assistant Dean, 'Wally' or 'Wolly' as he is affectionately known, was respected as one of the most effective lecturers in the Faculty, with an exceptional ability to impart his considerable knowledge and enthusiasm to any audience, whether students, scientists, or non-scientists.

Department in the late 1980s. Smith, a Zimbabwean and graduate of the Faculty (B Sc Agric, M Sc Agric and Ph D), worked his way through the ranks from lecturer, specialising in vegetable crops, to Associate Professor and, with the aid of a large group of postgraduate students, developed a national reputation in the science of soilless growing media.

He was particularly interested in the nutrition and growth of tomatoes, greenhouse cucumbers, ornamental plants and forestry seedlings, mostly under protected cultivation in large plastic or fibreglass 'tunnels'. One of his many associates in commercial agriculture at this time was alumnus Rolf Hagen (B Sc Agric 1966), then chairman of the Natal Tunnel Growers' Association, who was similarly interested in developing growing media from composted pine bark.

Smith attracted significant funding to the Department but, following the tragic death of his wife in a motor accident, he emigrated to Canada, where he had spent a sabbatical, with his three sons. Pete Hofman came to the Department from Tasmania. His expertise in plant physiology proved very helpful to building up a plant physiology laboratory before, after eight years, he returned to Australia where he settled in Queensland.³³

In 1976 M.M (Mike) Martin was appointed acting Head of the newly renamed Department of Microbiology and Plant Pathology (for some time student numbers in the former discipline had been much larger than in the latter).

In the following year he was awarded his doctorate and appointed Professor and Head of Department, being 'Mr', 'Dr', 'Professor' and 'Head' all on the same day!

In 1978 Frits Rijkenberg (Plant Pathology) was promoted to Associate Professor and a year later J.V. (John) da Graca (Plant Pathology) joined the Department as lecturer, replacing Mick Lloyd who moved to the University of Durban-Westville. Andrew (Ringo) Harding-Goodman and Lyn MacMaster (later Brown) were both lecturers in Microbiology during the late 1970s and early 1980s respectively. In 1983 Dr A.A.W. (Albin) Baecker (Microbiology) arrived, after Mike Loos had resigned to assume the Chair of Microbiology in Stellenbosch.³⁴ By then the five-person staff complement (two of them in Microbiology) were requesting a revival of the Chair of Microbiology, which had been never been filled and then sacrificed at the time of the University's take-over of the Faculty in the mid-1970s because of financial stringency.

A Review of the Department recommended that the Chair be reinstated on the grounds that the staffing situation in Microbiology was decidedly inferior to that at other South African universities, which were likely to dwarf it in terms of research funding, and that student numbers justified such an additional post.

With regard to the related issue as to whether or not the two disciplines should be administratively separated the Review Committee acknowledged that Microbiology had been a junior partner in the Department and that its teaching had probably suffered in consequence. Further, that while there was still a common interest in basic mycology, bacteriophage typing and phyto-bacteriology, the primary interest of the two disciplines had diverged significantly. Microbiology had shifted its earlier efforts from phytopathogenic bacteria, microbial decomposition of herbicides in the soil, and parasitic green algae to largely industrial applications, having much closer links with Biochemistry and Genetics, while Plant Pathology was concentrating on epidemiology, host parasite interactions and mechanisms of controlling host resistance.

It was argued that while the latter discipline needed to retain its links with Agriculture, the former should strengthen its association with the Faculty of Science or, even better, both should become part of a new 'Faculty of Life Science' comprising departments drawn from both Agriculture and Science. While retaining a single Department seemed to have little to commend it, with the possible exception of shared expensive equipment such as large numbers of student microscopes and the possibly negative effects of creating two separate departments, it was nevertheless resolved not to proceed with separation until such time as a new Professor of Microbiology, if appointed, could participate in such a process.³⁵

While Dr Baecker subsequently resigned in 1986 to take up a post at the University of the Witwatersrand, in the same year Mike Wallis was promoted to Associate Professor (Microbiology), having been promoted to senior lecturer a decade earlier after completing his doctorate. Dr C.L. Davis joined the Department in that year and, following her marriage, resigned in 1988, when Mr M.N.D. (Mark) Laing (a future Head of Plant Pathology) arrived. In 1987, in view of Mike Martin's intended retirement, the Department was subjected to a further Review which came to largely similar conclusions. It was recommended that Martin's post be filled by another plant pathologist so as not to 'debilitate' this successful sub-department with its more than 20 research students, its active research co-operation with the Department of Agriculture's research stations, the Wheat Board and other grower organisations, and with the farming community in general.

Collectively, since 1949, the Department had produced nine Doctoral, 28 Masters and 47 Honours graduates but particular recognition was given to Plant Pathology's wide-ranging work on the fungal rust diseases of gladiolus, wheat and maize, hypersensitive resistance to tobacco mosaic virus, the use of especially double-stranded RNA methodology for virus detection and identification, the investigation of Natal's major cabbage diseases, leaf blight diseases, viruses of potatoes and tomatoes, seedling rots of sorghum, sugar

cane ratoon stunt, cassava African mosaic, guava wilt, pasture diseases, maize stalk rot and the effects of stubble and herbicides on disease levels and disease in endemic plant populations.

It was noted with satisfaction that the FRD had granted da Graca partial financial support and Rijkenberg comprehensive support, though this placed additional pressure on the Department's laboratory space in its second-floor wing of the Rabie Saunders Building. A grant from the Anglo-American Chairman's Fund had enabled Rijkenberg to appoint a Farmer Liaison Officer, Ms T.N.T. (Thelma) Trench, to assist subsistence farmers in crop protection, while postgraduates in Plant Pathology were running a successful Advisory Clinic for farmers, which created a demand for further space.

All Departmental members agreed that Microbiology's needs were much greater, with its teaching and research capacity at a low ebb despite the commendable efforts of the two incumbents in that discipline. Since 1976 the research focus had primarily been on the microbial production of useful substances from agricultural/industrial wastes and since 1984 an interdisciplinary research programme with the Departments of Biochemistry and Genetics had led to proposals from Mike Dutton (Biochemistry) and Mike Wallis (Microbiology) for the introduction of a formal qualification in Biotechnology – a field which was already well-advanced in other South African universities.

In view of the critical importance of Microbiology as a scientific field and the need to catch up with national and international trends, the Review Committee urged, 'as an absolute minimum', the reinstatement of the Chair of Microbiology, followed by an additional post at lecturer level, with the senior appointee preferably having an active interest in molecular biology. It saw no need for the immediate separation of the two disciplines but recommended that the Headship alternate between the two Chairs.³⁶ The Faculty Board resolved to leave the issue of separation to the two heads of discipline to decide and before the year had ended appointed Frits Rijkenberg (Plant Pathology) as Head from January 1988. Mike Wallis, senior lecturer since the mid-1970s, assumed the Headship when Rijkenberg became Dean (1994–98), and was promoted to the Chair of Microbiology in 1996.³⁷

Space constraints

The Faculty's ongoing shortage of sufficient accommodation was not related to any significant increase in its staff complement but rather to a need for more lecture room and laboratory space to cope with rising student registrations. In 1977 it experienced a 55% increase in its first year enrolments and a 30% overall increase in undergraduate numbers. Inadequate laboratory facilities for Honours students was especially critical, as was the availability of transport for field work.

The proposed new Biology Building on the 'Ag Fac' campus offered the prospect of some relief in providing more teaching space. Future planning continued to be vague in the absence of information as to when the building would be completed, which departments might benefit from Botany's and Zoology's move to it and whether or not it would provide any accommodation for other departments currently in the Rabie Saunders Building.

While Rayner urged that estimated class numbers for 1979 should be presented to the University's Planning Committee and another lecture theatre demanded, a campus-wide investigation of lecture room facilities revealed that several, mostly small, venues were not used at all, particularly in the Commerce block.

The 1978 intake of second-year students was far in excess of the original design capacity of the Rabie Saunders Building and the use of Commerce lecture rooms offered only temporary relief as that Faculty was also becoming short of lecture venues. Despite re-designing certain laboratories to accommodate larger classes and duplicating some practicals it was still necessary to schedule classes off 'Ag Fac' premises.

The transfer of some departments to the new Biology Building offered the prospect of further relief but until that structure was completed it was unclear which departments housed in the Rabie Saunders Building, if any, might be affected.³⁸

While the Faculty Board formally expressed its misgivings about the extent to which the construction of the New Biological Sciences Building, as it was now called, could provide it with any additional space, by mid-1979 assurances were given that the new Life Sciences Library to be housed within it would be adequate for at least ten years and would free up space in the Rabie Saunders Building by accommodating the entire Agriculture Library. In addition, three lecture theatres (one of 180 and two of 60-seat capacity) would become available as well as two seminar rooms.

There was also talk of the Department of Statistics and Biometry transferring to the Science Building on the main campus, in which case its large laboratory-cum-lecture room would become available for alternative use. The Faculty nevertheless proceeded with refurbishing some of its existing facilities for more effective use and contemplated converting its existing Library into a large-class lecture venue.

A selection system to restrict student intake was suggested but it was agreed that this could be avoided by means of much closer interdepartmental co-operation to ensure maximum use of all available facilities and, where possible, by re-designing them to avoid overcrowding. It was decided to entrust the equitable distribution of available space to a Committee which was representative of all the departments in the Faculty.³⁹

Progress in this regard was disappointingly slow, as was the completion of the New Biological Sciences Building, with all the attendant inconvenience of noise and dust. The development of a new Botany garden was observed with interest but relations were strained by the manner in which the two gum trees in front of the Rabie Saunders Building, which were considered to have grown up with the Faculty, were trimmed down to soil level when the terrace was graded.

It became necessary to negotiate with Botany and Zoology over the allocation of unused space in the 'Common Users Block' of what was now named the John Bews (Life Sciences) Building, but the Dean (then Neil Tainton) on behalf of the Faculty opted to direct what limited funds were available towards the refurbishment of the Rabie Saunders Building. The move of the Department of Entomology to the new building was seen as effectively giving the Faculty a share in the unused space there.

The new E.R. Orchard Laboratory in the basement of the Rabie Saunders Building was officially named in October 1988, after the departure of Statistics and Biometry (1982) and of Entomology facilitated a re-allocation of departmental space.⁴⁰

Faculty facilities

Faculty staff were astonished at the relative simplicity of University procedures, compared with the cumbersome regulations of the civil service, when it came to submitting orders and applying for new equipment after 1976. Nevertheless, funds were in short supply and by the late 1970s the Rabie Saunders Building, more than twenty years old, was in need of various repairs. These included re-roofing, re-painting, new flooring and fascia boards, guttering clogged by birds' nests, more effective signage and general cleaning.⁴¹

The requirement, in 1978, that postgraduate students who used the staff tearoom should contribute to the tea fund did not resolve the problem of overcrowding. An extended tea-break with separate sessions for teaching and non-teaching staff was proposed as well as the suggestion that postgraduates should use the students' tearoom. It was hoped that provision would be made for a cafeteria in the new John Bews Building to ease the situation and in 1988, with a kiosk planned for the basement, postgraduates were formally excluded from the staff room to prevent it from being a 'student gathering ground'. This was to the detriment of staff-student relations and to general collegiality because it led to the establishment of several 'private' tearooms where staff could interact with their senior students.⁴²

As the staff and student population on the 'Ag Fac' campus increased additional parking facilities for cycles and motor vehicles became necessary. In 1980 some 60 concrete cycle stands (presumably, though not necessarily, for student, not staff use) were placed at each end of the Rabie Saunders

Building. Pete Zacharias, who was then a student representative, reported that the wheel spaces were too wide and a year later these were replaced by better designed all-metal stands.

The provision and control of motor vehicle parking remained a problem, with students finding it more convenient to park on the lawns in front of the 'Ag Fac' Building instead of in the Carbis Road Parking Area. By September 1983 there were 122 staff members vying for 90 parking bays so it was decided to reserve the upper terraces at the front, back and east of the Building for full-time staff, with reserve bays at the front for visitors. Student parking was assigned to the lower terraces to the east and to an area beyond the Phytotron. Effective control was still difficult in spite of the issue of parking stickers, with students continuing to use designated staff areas when their own became insufficient or very muddy during the rainy season.⁴³

Transport, particularly for field trips, also continued to be an issue with which the Dean's Transport Committee had to wrestle. In July 1977 it was proposed that the Faculty's 'Ranger' and truck should be traded in for two 10-seater minibusses but, as transport costs and demand increased, it was suggested that outside contracts might prove more economical.

By 1982 the Combi used to shuttle students between the Faculty and Ukulinga had fallen into such disrepair that it was not considered worth fixing. However, the shuttle service was not renewed as there were not a sufficient number of official staff trips per week to justify it. The question remained as to whether student transport needs were best met by continuing to hire municipal busses or by the Faculty buying its own.

In his inimitable way, 'Pottie' Meiring resolved the issue as far as Agricultural Engineering students were concerned by announcing that University-provided transport would leave the Faculty Building at 1.45 pm and return at 5.15pm, although the 'practicals' would probably end at 4 pm. Students who wished to return earlier were permitted to use their own transport – with the result that a University vehicle was never needed! The use of the Faculty's pool of bakkies was another ongoing bone of contention, with some staff members being guilty of monopolising them for long periods and/or neglecting them.⁴⁴

Efforts were made to ensure that the Faculty had access to appropriate workshop and storeroom facilities as well as improved library resources under a new librarian, Paula Krynauw. There was strong support for the new Library in the John Bews Building to be named 'Life Sciences' while the space previously occupied by the old Agriculture Library was reserved as a study area for postgraduate students.⁴⁵ Improved multicopy and photographic services were provided, including a short course on the preparation of a slide-lecture programme, though the dark rooms were rendered unuseable by building alterations. An attempt was made to have a telex line installed in the new Life Sciences Library to avoid journeys to the Main Library for this purpose.

In the 1980s the Faculty's Computer Committee pushed for the provision of word processors but the University had not, as yet, formulated a policy in that regard. Steps were taken to improve the assistance provided for the typing of academic work and, within the financial constraints, audio-visual equipment in all teaching venues was periodically upgraded, including blackboards, projectors and acoustics.⁴⁶ Security and safety became increasingly important issues during the 1970s and 80s, with staff members being asked to check that laboratory windows had been locked in the late afternoon, after thefts from offices were reported. The presentation of staff/student identity cards became standard procedure for entering or exiting the Building and plans were put in place for emergency evacuations.⁴⁷

Research

Ukulinga Farm, traditionally such an integral part of the Faculty's research and teaching endeavour, also faced security problems in the form of stock theft and malicious damage to animals and crops. Its administration ran smoothly under the direction of Mr J. (Johan) Swanepoel, who assumed office in August 1976 and was subsequently assisted by two additional officers in charge of Livestock and Plant Production respectively. It was proposed to tap into an Umgeni Water Board pipeline from Midmar Dam to Ashburton in an effort to overcome the farm's limited water resources and to run sections of the property on a commercial basis.

Swanepoel developed an outstanding public relations programme, including arranged visits for farmers and school pupils. In the six months from March to August 1980 Ukulinga attracted more than R23 000 in donations, including a feed-pelleting machine. In 1981, when Swanepoel resigned, the Faculty Board supported its Dean, Werner Stielau, in urging the University Administration to recognise Ukulinga as 'an essential, but outdoor laboratory not materially different from any other University research facility', to cease regarding the farm as a source of revenue because of the damaging effects this was having on staff morale, to encourage Faculty members to become involved in farm operations by making them feel rewarded for their efforts, and to actively promote contact with the agricultural sector and the public in general.

The Board also expressed the need to convince the University of the publicity benefits to be gained by regarding 'Ag Fac' as its 'show window', as was the case at the University of the Orange Free State, and that staff members should participate in this endeavour, even though they were discouraged by the manner in which Ukulinga revenues were 'drained into general University accounts'.⁴⁸

In 1982, under a new farm manager, an effort was made to improve the Farm's commercial enterprises. Before long it was suggested that it might be sold in favour of purchasing a larger property, or parts of it leased out while

the Faculty in turn leased parts of the Baynesfield Estate that were more suitable for its teaching and research purposes. While these options were explored plans were prepared, dependent upon the availability of funds, to construct new offices and accommodation on the farm as well as security fencing, lighting and improved irrigation and sludge disposal systems.

The year 1986 was significant, firstly, for the fact that a large number of University Council members accepted an invitation to visit Ukulinga to better understand its operations and, secondly, because title to the property was at last transferred from the State to the University. In general, however, the facilities and accommodation there remained poor with the dairy, in particular, falling far short of modern standards even though a large proportion of available resources had, over the years, been invested in it.

By 1987 no staff member had any research interest in dairy animals. It was therefore proposed that the dairy should either be reduced to a small demonstration unit for teaching purposes or phased out altogether while a larger investment was made in the beef herd and/or sheep flock to enhance the Farm's currently limited research and teaching potential. A notable exception was the poultry section, which had attracted substantial external funding, while pig research had also recently been initiated at Baynesfield.

By 1988 the future of Ukulinga was again being seriously reviewed in the light of the University's latest financial crisis. The option of selling the property was dropped when it was realised that it would revert to state-ownership if no longer used for teaching and research. It was nevertheless decided to sell the dairy herd and invest the proceeds in buildings and new Animal Science projects.⁴⁹

Phytotron users suffered a setback in 1977 when the senior technician, Mr Roger Montgomery, had a heart attack and this million-rand research facility had to operate for some time without proper technical maintenance while a suitable replacement, Mr M.E. ('Meg') Gough, was found. By 1979, with increasing demands being made upon it, the Phytotron was unable to accommodate Plant Science research projects being conducted in the basement of the Rabie Saunders Building and there was an urgent need for more glasshouses, as well as greenhouses with cooling systems, and some plastic tunnels.

In 1982, with the planned transfer of the Botany Department to the new John Bews Building, the Faculty of Science Board requested that Botany be granted formal representation on the Phytotron Committee. The response was that the facility should be essentially for agriculturally-orientated research with other users sympathetically treated as before, and that all user departments should be represented on a User Committee to advise the two-person Phytotron Committee.

The point was made that 'sharing' was only possible if it operated both ways and, in this connection, note was taken of the proposed greenhouses and potting sheds to be built for Botany in the new Life Sciences complex. An overall policy was clearly needed in order to ensure an equitable sharing of all teaching and research facilities on the Agriculture/Life Sciences campus and to plan for future expansion.⁵⁰

In late 1982 it was reported that the Phytotron was 'functioning smoothly', though certain security issues and 'out-of-hours access' remained unresolved while there was also an ongoing need for new and expanded facilities. Two years later the Phytotron Committee became a three-person 'Faculty of Agriculture Phytotron Committee' (two academics and the technician) while the User Committee became the 'Phytotron Advisory Committee' and continued to represent all user departments.

In 1986 the then Convenor of the Phytotron Committee, Professor P.L. (Peter) Greenfield, reported to the Board that the facility was largely committed to a 'holding operation within the constraints of the budget'. The University authorities had approved the acquisition of a Conviron E-15 growth cabinet and there was a possibility that one fibreglass tunnel might be acquired in 1987/8. But, for the most part, it had been a case of maintaining ageing equipment and Gough, the senior technician, was congratulated for keeping the facility operational.

In anticipation of his retirement at the end of 1987, it was proposed that his successor be appointed on conditions of service which would permit him to conduct maintenance and minor building operations within the Phytotron enclosure himself, instead of having to wait for it to be completed by the University's Estates Division.

Further improvements during 1987 were the installation, in collaboration with Horticultural Science, of a steam line pasteurisation box and potting bench which made it possible to undertake steam pasteurization. The critical shortage of growing facilities, which was seriously inhibiting the expansion of postgraduate research programmes, was to some extent alleviated through the acquisition of greenhouses and tunnels by private donation. This was achieved primarily by the Department of Horticultural Science and later Crop Science, which retained full control of them. Nevertheless, there was still a substantial shortfall in space requirements and no funds had been received from the University for this purpose in several years.

In 1988 the Phytotron Committee reported that three of the four control units had failed during the year and that while all four growth rooms needed to be upgraded with improved lighting and temperature/humidity control, the necessary parts were unavailable. It had become impossible to cope with all user department requests, in addition to which the security of the Phytotron

enclosure continued to be of concern due to gaping holes in the perimeter fencing.⁵¹

An important new research facility planned for the Rabie Saunders Building in the late 1980s was an Isotope Laboratory, following concern about the manner in which such material was being handled and the inadequate training of staff in this regard. In mid-1986 the need for it was considered sufficiently urgent for funding to be approved quite readily but two years later the laboratory had still not been constructed.⁵²

By the mid-1970s it had been decided to form a Faculty Research Committee. Its envisaged functions were to identify areas of important research requiring co-operative effort by various disciplines, to identify those fields for which outside funding was most likely to be forthcoming, and to investigate such sources as well as keep staff informed about the submission deadlines of various organisations.

It was also decided to establish 'study groups' to assist in isolating specific research problems in various areas and design possible programmes to achieve their solution. The initial 'study groups' proposed were in the fields 'control of agricultural pests', 'energy conservation in agriculture', 'fire ecology', 'food science and technology', 'land use planning', 'plant and animal breeding', 'protein sources for animal breeding', 'the utilisation of agricultural wastes', and 'water utilisation and control'.

All these 'groups' were retained, except for the first on the grounds that its field would be adequately covered by other 'groups', but two more were proposed: 'soybean production' and 'the survival of legumes introduced into the veld in Natal'. It was decided that each 'group' would be responsible for motivating the funding of its projects.⁵³

By 1979 these 'groups' were progressing satisfactorily, with some having formed 'sub-groups' to direct specific projects. This remained the case into the 1980s, except for 'fire ecology' whose task was almost complete and which proposed to change its name to 'grassland biome working group' in order to have wider terms of reference and be more appropriate to the 'Grassland Biome Project' that the CSIR was considering for funding. In addition, the 'utilisation of agricultural wastes group' proposed to disband for lack of interest. A lively 'subsistence agriculture group' had been created and the KwaZulu Development Corporation had agreed to second a field officer to assist with initial baseline surveys in specific areas.

The Reports of the Faculty Research Committee only reflected interdisciplinary projects but nevertheless provided useful information for publicity and other purposes. It was also acknowledged that the Committee's continuation or otherwise would have little effect on the 'ongoing pattern' of research activity within the Faculty. In September 1987, when it had its first formal meeting in more than two years, the Committee questioned the need

for its own continuation. The Faculty Board recommended that it concentrate on fundraising, but it was also suggested that a research liaison post be created for this purpose.

In September 1988, while the latter proposal was not yet abandoned, the Research Committee was disbanded and the onus of project fundraising placed on departmental heads.⁵⁴

For financial and other reasons it remained important to maintain contact with various outside bodies. These included the Natal Agricultural Union, the 'Co-ordinated Extension Action' Committee which sought to provide farmers with the best available technical information and, from 1984, the new Institute of Natural Resources in view of its involvement in agricultural fields. The Natal Parks Board, from time to time, provided a list of possible research topics within its areas of interest and, not least, the Department of Agriculture and Fisheries (formerly Agricultural Technical Services) sometimes allowed its property to be used for research purposes.

In 1977 it was announced that all the universities would be represented on its Advisory Committee for the allocation of Departmental funds and that in future it would contract research work out to universities. In addition, the Department undertook to finance visits by foreign researchers of between three and twelve months duration, and offered the Faculty the use of its facilities, particularly those at Cedara, in the preparation of lectures and practicals.

This reiteration of the longstanding goodwill between the Department and the Faculty offered some compensation for the fact that, in 1978, there was only R114 500 in available funding to meet the R400 000 requested by 125 applicants countrywide. Better news in 1981 was that the HSRC had agreed to create a research unit on Agriculture policy, under the headship of the Faculty's own 'Lieb' Nieuwoudt, and that this would provide more opportunities for postgraduate research.

In general, there was still insufficient funding for the purchase of equipment, or for attendance at overseas research conferences. In 1983 there was only R309 200 available to meet research funding requests totaling R955 664. Faculty members were nevertheless advised to compete 'more vigorously' for funds, for although they had hitherto been relatively successful in their applications other universities were submitting many more applications and enjoying 'a larger slice of the pie'.⁵⁵

By 1985 the Faculty had improved its share of the available funds to the extent of being second only to the University of Pretoria in terms of applications and amounts received, though Pretoria's share did include a large allocation to Veterinary Science. Disturbingly, only two of Natal's ten applications for new projects were successful, reflecting poor motivation and a need to review the manner in which such applications were internally assessed before

being forwarded for consideration.⁵⁶ There was still dissatisfaction about the limited funding from the FRD/CSIR for overseas conference attendance, more particularly for applied agricultural scientists as distinct from pure plant scientists.

The increasing administrative load involved in research programmes was also discouraging, especially as departments gained no direct financial advantage from publications in recognised journals because the state subsidies earned all disappeared into the University's general coffers. In 1987 the Dean, Werner Stielau, undertook to promote the proposal that departments should be allocated a share of the funds so generated by their own staff members. In May 1988 the Faculty Board's attention was drawn to the decision taken at another university to reward staff members for subsidy-earning publications and to Natal's own Faculty of Medicine's request that 25% of subsidy earnings should be paid to the relevant departments.

By the end of the year the University Research Committee had agreed in principle to the need for research incentives and had appointed a sub-committee to consider the forms which these took at other universities. This offered some hope for the future, as well as consolation for the fact that henceforth the Department of Agriculture and Fisheries intended only to support 'contract' and not 'ad hoc' research projects, leaving the latter self-initiated category to be funded solely by the FRD. This change of policy eventually only came into effect in 2002.⁵⁷

Student intake

The arrangements pertaining to the secondment of officials from the Department of Agriculture and Fisheries for postgraduate study in the Faculty was another sensitive issue. The Deans of other Faculties of Agriculture were approached with a view to the submission of a joint memorandum to the Department and in 1979 a meeting of all the Deans of Agriculture was held with departmental officials in Pretoria to consider the training of agricultural scientists.

From this it emerged that a Masters degree might henceforth become a requirement for employment in the Department, and that the latter intended to negotiate with the South African Defence Force with regard to the secondment of trainees who were under national service conscription.

By early 1984 it had been clarified that the Department required an appropriate Honours degree or four years of post-matriculation study for entry-grade appointments to its various research posts. Some of these, such as researcher in the Pasture, Agronomy or Animal Husbandry fields, would henceforth require a four-year B Sc Agric degree plus Honours. Agriculture Extension Officers would require an initial four-year qualification, plus a Master's degree for a first promotion, or two recognised Honours degrees

(one in Agrarian Science) and three years' experience. The latter qualification options were also to apply to appointment to the posts of Agriculture Resource Officer and Agriculture Specialist Extension Officer.⁵⁸

These requirements were important to the Faculty, both in terms of potential postgraduate registrations and possible curriculum changes. The introduction of a B Sc Agric Honours degree was discussed with Dr. Peter Hildyard, Director of the Department of Agriculture (Natal) (and a postgraduate of Pasture Science). The admission criteria for that as well as for Master's degrees and the upgrading of Master's theses to doctoral level were also carefully considered. In addition, the Faculty's guidelines for postgraduates were revised and distributed.⁵⁹

The role of supervisors was thoroughly re-assessed, with the conclusion that it was not incumbent upon them to 'wet-nurse postgraduate students', one of the purposes of postgraduate degrees being to 'bridge the gap between the sheltered life of an undergraduate student and the almost inevitable trauma experienced by newly appointed researchers'.

The regulations pertaining to the submission of theses were also reviewed and a series of quarterly colloquia was instituted to give postgraduate students an opportunity to report on their research. Increasingly, however, this tended to be dominated by staff members. By 1988 the need for it was being questioned in the face of difficulty in finding new speakers, as most potential participants had already given research presentations in their respective departments.⁶⁰

By 1988 it was reported that in some departments there was an overload of higher degree candidates per staff member and Faculty Board members agreed that six full-time candidates should be the limit, with part-timers counting as half. In 1977 there was a 55% increase in first-year registrations, due in some measure to the introduction of the three-year B Agric Mgt degree. It may also have had something to do with a Faculty 'Open Day' organised for teacher-counsellors the previous year, and a 30% increase in undergraduates overall. The latter increase remained fairly constant into the early 1980s (525 in 1979, 587 in 1980, 597 in 1981 and 604 in 1982), with a declining intake from Zimbabwe and an increase from the then Transvaal province.

Between 1982 and 1986 there was a decrease in first-year registrations (from 604 to 537) except in Dietetics, with the Zimbabwean intake declining from 40.6% of the total in 1980 to 19.3% in 1986 as a reflection of the deteriorating economic circumstances in that country. By contrast, recruitments in KwaZulu-Natal rose in that period from 29% to 42.2% of the total intake.⁶¹

The declining trend in first-year registrations was reversed in 1987 (up to 562) but the Zimbabwean intake declined further to 13.3% while KZN numbers rose to 50.3% of the total. Of particular significance for the future of the Faculty, and of the University as a whole, was the Nationalist Government's

relaxation in 1986 of its restrictions on the enrolment of black school-leavers for agricultural and several other professional degrees at previously 'whites-only' universities.

In 1987 the Faculty enrolled 23 (10%) first-year, 7 senior undergraduate and 3 postgraduate 'non-white' students. This concession was tempered by a zero-growth policy announced by the Minister of Education and Culture, amidst a financial crisis involving subsidy cuts to universities. In 1988 the Faculty's first-year intake rose by 4% (double the permissible growth rate), which meant that the 1989 intake would not be allowed to increase even though it was felt that such restrictions should not apply in view of the country's need of agriculturalists.⁶²

In these circumstances admission requirements and exclusion rules came under close scrutiny. An assessment of the new matriculation syllabus, introduced in the mid-1970s, led to the conclusion that an overall 'C' symbol or higher indicated likely success at university level and that a 'D' symbol in at least four core subjects (Afrikaans or English Higher, German or Latin, Mathematics, Physical Science, History and Bookkeeping) should be set as the entrance requirement. Recognition of certain courses passed at Cedara and other Agricultural Colleges was re-affirmed. The differing Mathematics entrance requirements for Commerce and Agriculture caused initial difficulty for students who wanted to transfer from the former to the latter faculty, to register for the B Agric Mgt. degree.

In May 1980 the Faculty of Agriculture's Board accepted the Senex ruling that from 1982 the lowest matriculation Mathematics symbol for admission to any faculty would be a 'C' on standard grade, but that faculties could require a higher grade if desired. In 1984 Agriculture settled on the suggested 'C' (60%) or an 'E' (40%) on higher grade, as well as a minimum 'D' (50%) on standard grade or 'E' (40%) on higher grade in a natural science. The Faculty also adopted a minimum 20-point matriculation total for first-year admission. This was raised for 1985 to 28 points.⁶³

A proposed new 'qualification structure' for all South African universities caused concern in the Faculty for being 'muddled, incomplete and obscure' Biometry, for example, was listed among medically orientated subjects but not among agriculturally-related fields. Food Science, Nutrition and Dietetics did not appear at all, Agronomy was misplaced with Agricultural Economics while Horticultural Science and Grassland Science were ignored. The long-awaited opportunity to register black students in the Faculty was welcomed but created further complications with regard to admission criteria. This was due to the need to make allowance for the disadvantaged educational and socio-economic circumstances from which many of them originated. It gave rise to a University-wide realisation that more detailed information and

analysis concerning student records and backgrounds was essential in order to effect better selection criteria.⁶⁴

Student issues

Among other issues pertaining to the admission of black students was their accommodation in what was still officially designated as a 'white' residential area and the need for more information as to their specific requirements at the level of tertiary education. An English language and communication course for 'disadvantaged' or 'underprepared' students, introduced in 1985 by the Faculty of Arts on a two-year trial basis for students in Commerce and Science as well as Arts and Social Science, was sympathetically considered by the Board of the Faculty of Agriculture but could not be accommodated in the first-year curriculum.

In April 1987, when Professor R.H. Philpott, Director of the University's new Student Support Programmes, attended a Board Meeting he provoked a lengthy discussion by asking what the Faculty could do to identify and help at-risk first-year students, what it could do to identify and assist black students who had insufficient matriculation points to enter university but might have great potential, and what it would like the University to do in terms of staffing, curriculum changes and affirmative action to make itself more representative of South African society as a whole.

There was strong support for a 'Bridging Year Programme' and/or for a two-stream curriculum of five instead of four years, and four instead of three years in the case of a three-year degree, with extra language, numeracy and study skills courses included. Other suggestions were for a four-week Faculty 'Summer School', independent of matriculation results, and a Faculty-mounted preliminary certificate year in which students would live in farm dormitories, gaining general agricultural experience and tuition in English and Mathematics. In its subsequent 'position statement' on the subject, the Board expressed strong support for a 'Bridging Year' for selected candidates as 'the preferred means of clearing the educational backlog which defines the disadvantaged student'.

On the subject of affirmative action it was adamant that, 'until defensible alternative means are found for assessing inherent ability and potential to succeed at University', it was not possible to 'arbitrarily suspend, in the case of disadvantaged students, the accepted admission criteria based on performance at school-leaving examinations'. It urged the University 'to pursue the search for predictors of ability' and subsequently suggested a 'preliminary year' or 'entrance examination' as a means of doing so.⁶⁵

Early in 1988, when the Vice Chancellor, P. de V. Booysen, addressed the University Forum, he calculated that, if the University was allowed to develop unhindered, and if 9.1 per thousand of the population went to

university, by 2010 the University of Natal would have 42 000 students of whom 35 000 would be African. This prospect raised two major concerns i.e. 'underprepared students' and 'an underprepared university'. Philpott, in his capacity as Director of Student Support Programmes, was sent to the USA, UK and Holland to raise student bursaries and funding for academic support programmes. His subsequent Report raised issues to which all Faculty Boards were requested to respond.

Agriculture agreed that there was a need to ascertain what benefits 'black' students anticipated in attending a previously 'white' university and that there was a need for more consultation with black community-based organizations. However, it opposed the idea of official contact with the still exiled ANC to plan for the future.

The Faculty Board recognised the need for assistance schemes to prepare under-qualified students and that there might be advantages in offering them special courses. It favoured the concept of a 'Community College' to prepare such students for university study, provided it was independently staffed and funded with strong academic input from the University.

The Board expressed support for any changes that were academically progressive and conceded that the degree structure could be modified to assist students in financing their studies, such as enabling them to work and study in alternate years. It nevertheless insisted that the University's 'normal' activities should not be sacrificed to meet the needs of student financial aid and that 'first world standards' should not be compromised when contemplating changes within the University structure.

By the end of 1988 the Faculty of Science was seriously considering the introduction of a 'Foundation Year' programme for underprepared students and appointing a Co-ordinator and three tutors to teach it. This also had obvious implications for the future intake of first-year Agriculture students which would soon require close attention.⁶⁶

All students were able to benefit from the introduction of library instruction for first-year students while efforts were made to assist them in other ways, such as securing vacation employment, securing (in the case of white students) deferment of national service, and limiting the cost of prescribed text books and of producing seminar papers.⁶⁷ Course fees were another recurring source of concern, as was equitable access to bursaries and scholarships.

It was, for example, noted that a first-class pass in Agriculture was above 80% whereas these were over 90% in some Science Faculty subjects, to the disadvantage of the former when competing for awards. The trend towards double 'majors' being a requirement for Public Service Bursaries also threatened to disadvantage single 'major' B Sc Agric students, as did the relative paucity of CSIR bursaries for fourth-year Agriculture students compared with Science Honours students. Unless they were to be treated in

the same way, the only solution seemed to be a three-year B Sc Agric degree followed by a fourth Honours year.

In cases where the supervisor did not have an FRD rating the University was required to provide a motivation indicating the number of doctoral students that she/he had supervised and which included a *curriculum vitae* and publication list. FRD ratings were clearly becoming essential, both for purposes of supervision and for research funding.⁶⁸ Last but not least, the selection and remuneration of graduate assistants and student demonstrators was another recurring issue as departments tried to secure adequate funding in the interests of both students and themselves.⁶⁹

Faculty regulations and curricula

The Faculty's course credit-rating system, introduced in 1976, helped to expose the fact that its students often carried a substantially heavier load of lectures and practicals than students in other faculties. By the mid-1980s the Academic Planning Office was developing a uniform system of credit-ratings throughout the University. While semesterisation, another of the Faculty's innovations, continued to give students flexibility in the choice of ancillary courses, it was soon realised that its full benefits could not be enjoyed in a University which otherwise remained non-semesterised.

By the mid-1980s that had changed, with Senex now only opposed to the semesterisation of Honours degrees as these were 'purposefully constructed' one-year programmes. In support of semesterisation the Faculty also strongly favoured the division of the teaching year into two equal halves. Karl Nathanson and Arthur Rayner were involved in developing an appropriate academic calendar and Senex duly amended the 1979 sessional dates to accommodate this principle.⁷⁰

The non-mandatory system of course and teacher evaluation was further refined, a 1981 survey establishing that 40 of the Faculty's staff members had no objections to appraisals, 10 had reservations and only four were not in favour. It was decided that the processing of resultant information concerning lecturers should be entrusted to academic staff while that pertaining to courses should be left to the Agricultural Students' Council.

The dissemination of findings was to be the responsibility of the lecturers concerned, most of whom, it was anticipated, would be only too willing to resolve problems raised by their students. The whole process had been a student initiative, led by Urs Krueter (now a tenured staff member at Texas A&M) and Pete Zacharias, which predated the University's evaluation policy by almost a decade. A revised, University-wide system of course codes, drawn up in accordance with a new seven-character formula for computer coding, was initially criticised by the Faculty Board for failing to reflect the disciplinary nature of courses and was duly amended.⁷¹

The award of certificates of merit was also revisited, with Senex ruling that not more than one might be awarded in a class of up to 50 students, two for up to 300 and three in a class of more than 300. There was concern that, in the sparing award of such distinctions, as well as 'firsts', *cum laude* and *summa cum laude* degrees, the Faculty's students should not be disadvantaged in competing for HSRC and FRD postgraduate bursaries.

In 1984 the Faculty Board itself resolved that, in each case, 'the course mark shall be a weighted average of the University examination mark and the class mark within the range of 2:1 to 4:1 at the discretion of the Head of Department'. There was, however, increasing doubt as to the extent to which class work could be genuinely accepted as a student's own. Individual departments continued to set their own minimum class attendance requirements, to a maximum of two-thirds of all class meetings, and were expected to post their D.P. requirements on the Faculty Notice Board for general information.

It was noticed that attendance at Friday afternoon classes was generally poor and that some students were by then under the influence of alcohol. These were doubtless devotees of the Friday lunchtime tradition which involved imbibing somewhere other than at the fountain of knowledge.⁷²

While the Faculty abandoned and then reconsidered its 'major' course groupings, among the more significant of its curriculum changes was the introduction in the late 1970s of a long-awaited three-year B Agricultural Management degree, followed by its application to introduce Honours, Masters and Ph D degrees in Agricultural Management.⁷³ Among the initial problems to which the new degree gave rise were students who wished to switch from it to the four-year B Sc Agric programme and the implications for B Agric Mgt students of curriculum changes in the B Comm degree. One such change was the raising of Commerce's Mathematics entrance requirement from a standard grade 'D' to a 'C'. Another was the requirement of Business Administration I and II and Marketing I and II to proceed to Honours, which virtually excluded B Agric Mgt students from that option. The national Department of Agricultural Technical Services requested that the B Agric Mgt. be extended to four years but this was rejected as it had not been intended as 'a professional degree'.⁷⁴

A curriculum debate which was of great interest to the whole Faculty revolved around the issue of whether or not to introduce a B Sc Agric Honours degree. In May 1977 the Faculty's Establishment and Planning Committee reaffirmed that 'there should be no departure from our present attitude that the B Sc Agric four-year degree is equated in concept and objective to the B Sc plus B Sc Hons degrees in the Faculty of Science, and that the present structure of our Masters degree is also to be retained'.

It also confirmed that 'the B Sc Agric degree is seen as a four-year integrated curriculum, planned with the objective of training an Agriculturalist or an

Agricultural Specialist'. It considered the new three-year B Agric Mgt degree to be a success and deserving of continuation, being elsewhere described as intended for farm managers or owner-occupiers.

In July 1977 the Faculty's Curriculum Committee affirmed that there was no need to introduce a three-year B Sc Agric degree, especially as there was division on the subject. Biochemistry, Biometry and Entomology all considered a four-year curriculum essential for their disciplines. The debate affirmed that the B Sc Agric was essentially a science-based degree designed to teach students about scientific method, including the conduct and interpretation of experiments and the ability to reason critically and independently. It was supplemented by practical laboratory and/or farm visits, tutorial discussions and (later) classes in computer literacy.

The four-year Programme also allowed for the development of a measure of specialisation, coupled with a strong departmental ethos. The B Agric Mgt degree, by contrast, was a production rather than a science-based qualification, and was management orientated, with a strong economics foundation. Appropriately, therefore, it was administered by the Department of Agricultural Economics. For a time, the latter, shorter option boosted the Faculty's student intake but it was later to lose its popularity. Its graduates lacked the scientific rigour and specialist knowledge of their B Sc Agric counterparts as well as the practical farm experience of Cedara's diplomates, and the demand for them proved to be limited.⁷⁵

Attitudes within the Faculty were changing by 1980, with Deans of other Faculties of Agriculture being asked about the structure of their Honours degrees and how they compared with such degrees in other faculties in their universities. There was also concern that an Honours degree might soon become a requirement for promotion in the Department of Agriculture and Fisheries. By October 1983 the Board 'agreed in principle on the desirability of an Honours degree in Agriculture' but called for further investigation into the matter. By then applicants for the new B Agric Mgt (Honours) degree were being screened but it was not until August 1984 that the Faculty Board requested Senex to ask the Department of National Education for permission to offer a B Sc Agric (Honours) degree which would follow upon the existing four-year degree. There were further delays with the University's own Academic Planning and Policy Committee and Rules Committee, with the result that Honours level courses could not be offered until 1987.⁷⁶

Another proposal which only gradually came to fruition was the introduction of Agricultural Biotechnology. A comprehensive document prepared in 1986 by Wilhelm Weyers, 'Mike' Dutton and 'Mike' Wallis convinced the Faculty Board of the 'wide ramifications of Biotechnology in agriculture and its potential as a research approach in many Departments'. Board gave its full support, in principle, to the proposal and subsequently favoured the introduction of

Biotechnology as a 'major' in the four-year degree. Senex required consensus between Agriculture and Science on this proposal and was concerned about the potential expense involved in its implementation. A ten-man Inter-Faculty Committee, assisted by external assessors, was appointed to investigate the matter but progress was slow. In 1988 the Committee was still examining the financial implications and the possibility of external funding.⁷⁷

By 1977 the Faculty was seriously considering the introduction of a three-year curriculum in Agricultural Production. There was lengthy discussion about content options and admission criteria, bearing in mind that the course was intended for 'any student interested in rural development'. This proved to be a highly popular 'major', run by Graeme Hefer and John Klug, under the wing of Pasture/Grassland Science, its students developing numerous land-use plans for farms in KwaZulu-Natal. An annual book prize for the best student in Agricultural Production was awarded from 1982, thanks to a donation by Emeritus Professor 'Hamish' Scott.⁷⁸

In 1981 Biology I was introduced for first-year students in place of Botany I or Zoology I but by 1987 there was discussion about the high failure rate and the relevance of the course content. Among other changes was a revision of the B Sc Dietetics curriculum in order to maintain uniformity with developments at other South African universities, most notably Stellenbosch, where a new B Nutrition degree had been introduced in the Faculty of Medicine. In addition, a Postgraduate Diploma in Hospital Dietetics was planned for 1989.⁷⁹

The proposed introduction of a course in Forestry Management, in collaboration with the Wattle Research Institute and as an option in Agricultural Production, was delayed by financial and staffing considerations. An Ecology option in the Grassland Science 'major' was developed for introduction in 1986. In the early 1980s Genetics offered a new course in Human Genetics which required no additional staff or teaching facilities, while the Microbiology and Plant Pathology curricula were modified in the light of scientific advances in those fields and the need to strengthen their agricultural content.

The Faculty Board approved a new M Sc Agric degree in Plant Protection and in 1986 recommended to Senex that Plant Breeding be offered as a separate 'major', with no additional staffing implications, in response to the prevailing dearth of younger plant breeders and the proposed transfer of state plant breeding units to two as yet unnamed universities.⁸⁰

A proposal to introduce a Wildlife Management course was delayed by staffing implications and uncertainty concerning employment opportunities for graduates. A subsequent proposal by Professor John Hanks, Head of the newly established Institute of Natural Resources, to launch a Masters course in 'Development Planning' raised concern in the Faculty with regard to course duplications, the maintenance of postgraduate standards and staffing.⁸¹ The course did not materialise but the availability of personnel and facilities were

also serious considerations in extending a new introductory computer course, dealing mainly with Fortran Programming, to agriculture students. They were eventually accommodated in the first semester and science students in the second of each year.⁸²

Staff issues

Curriculum development, and rising student numbers, prompted demands for more academic and administrative staff despite a shortage of funds, the freezing of posts and a virtual moratorium on the creation of new posts as government subsidies were cut during the 1980s.⁸³ It was felt that the University lagged somewhat with regard to 'staff development' and there was some dissatisfaction about Senex's adoption of the principle of differentiated salaries for specified professional groups. The Faculty Board expressed the opinion that 'the uncompetitive state of University salaries' was largely to blame for the current 'dilemma' and was the consequence of 'a long period of erosion' in which the 'established universities' had been obliged to 'play second fiddle' to the development of 'new universities' and the expansion of technikons.

There was also disquiet that certain administrative posts within the University had overtaken the academic salary scales and that this would eventually lead to a decline in the quality of teaching staff. This concern extended to technical staff as fear was expressed that university technicians would be lost to industry if they were not in 1978/9 granted an immediate salary increase.⁸⁴

Faculty members were also annoyed by the requirement that, in terms of the Natural Scientists' Act (No 55 of 1982), they were expected to register as scientists and would be liable both for registration fees and for penalties in the event of misconduct. Enforced compliance with the Act was seen in some quarters as a serious infringement on academic freedom.

There were also periodic objections to other perceived infringements of the University's autonomy, including its choice of students, police interventions on campus, the impact of the 1980s national 'state of emergency' on academic life, and the detention of staff members and students. Not least, there was strong University-wide protest against the Minister of Education's attempt to link state subsidy payments to conditions which constituted serious interference in the institution's management. These, it was argued, sought to make it a 'criminal law enforcement agency' as far as on-campus activities were concerned.⁸⁵

Financial crisis

Concern about the regimentation of scientists and even the traditional crusade for academic freedom palled during the 1980s in the face of the University's mounting financial crisis. This was reflected in 1980 by tighter control over the ordering of items and certification of invoices.

By the beginning of 1985 departments faced a provisional 50% cut in their operating expenses and were increasingly dissatisfied with being obliged to pay what were regarded as inflated labour charges levied by the University's Estates Department for minor repairs and alterations. By 1986 budget cuts effectively eliminated any of the proposed refurbishments of the Rabie Saunders Building. This also made it difficult to contemplate an effective response to the growing demand of the Department of Agriculture and Fisheries' for graduates who had double rather than single 'major' degrees. By 1988 the situation had deteriorated to the extent that the University's Budget had to be reduced by R13 million, R7.6 million of it from its academic operations.

This made it virtually impossible to create new posts, to replace departees with highly qualified (and therefore more expensive) staff, or to increase student intake. The new subsidy-earning incentive scheme whereby the University, and possibly individual staff members, could be rewarded for publications in SAPSE-approved journals, was treated with initial circumspection as possibly distracting staff from their teaching commitments.⁸⁶

The financial situation demanded a review of Faculty planning and, not for the first time in the case of Agriculture, another phase of rationalisation began, including greater collaboration with the Faculty of Science. There had always been a close liaison between the two with regard to the annual first-year intake of students who spent a year in the Science Faculty before joining Agriculture. This was strengthened in the mid-1970s when certain departments were transferred from Agriculture to Science and granted dual affiliation. There were also, from time to time, informal interdepartmental supervisions of postgraduate research projects, such as those provided by Microbiology to Botany and Zoology students, and there was common useage of such facilities as the Science and Electronics Workshops.

Symbolic of what was to follow, in December 1987 it was proposed to link the graduation ceremonies of Agriculture and Science in view of their 'overlapping of functions in teaching and research'. By April 1988 it was being suggested that, as part of unavoidable rationalisation, faculties would have to be grouped 'eg Agriculture, Engineering and Science'. By August a 'possible amalgamation' of Agriculture and Science was being discussed, 'perhaps under the direction of a permanent Dean'.

The Faculty Board was also concerned, in the prevailing circumstances, at the proliferation of agricultural faculties in South Africa, with the University

of Zululand planning to accept its first intake of B Sc Agric students in 1988. By that stage the Faculty Planning Committees of Agriculture and Science in Pietermaritzburg were drawing closer together.

Before the end of the year it was agreed that 'there were advantages in the faculties working together' but that the Faculty of Agriculture 'should move very cautiously when considering a possible merger'. Amalgamation was still more than a decade away but, while joint-Faculty planning continued in an effort to achieve the necessary financial cuts through natural attrition, the compass had been firmly set for the future.⁸⁷

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RE-APPRAISAL AND FORWARD PLANNING: 1988–1998

In the late 1980s the University of Natal and its Faculty of Agriculture, in common with the other South African universities, was obliged to subject itself to a prolonged phase of careful forward planning and rationalisation. This was necessitated, in large part, by financial stringency but also by the realisation that major changes in the political and socio-economic landscape were underway as the ruling Nationalist Government and exiled African National Congress moved towards formal negotiations.

At a national level the Department of Education had instructed the Committee of University Principals to embark upon a process of inter-university rationalisation, with particular reference to all academic departments with a student: staff ratio of 10:1 or less. Initially all university departments of Land Surveying and Library Science, Geology and Music were to be reviewed, with the obvious intention of reducing their number, if merited.

At a regional level there were ongoing discussions involving the 'Eastern Seaboard Universities' i.e. Durban-Westville, Natal and Zululand. Consideration was being given to the possibility of sharing expensive capital equipment and to the need for part-time courses as well as assistance to educationally-disadvantaged students.

By 1994 a similar networking process was being developed among Faculties of Agriculture on the eastern seaboard, including those at Fort Hare, Swaziland and Zululand, while approaches were also being made to the University of Eduardo Mondlane.

Within the University of Natal itself various inter- and intra-centre planning proposals were considered at an Executive meeting on 26 August 1989, in conjunction with a newly drafted 'Mission Statement'. Academic and non-academic liaison committees were involved in the planning process, as well as the five standing sub-committees of the University Planning Committee and various 'action groups' appointed by the Executive.

In October 1992 the University Council approved the establishment of separate Executive Committees for the Durban and Pietermaritzburg centres to perform the functions previously carried out by Senate Executive (Senex), i.e. the implementation of policies formulated by Senate and the regulation of academic matters. This coincided with the disbandment of Senex and the elimination of all the costly inter-centre travel involved in its meetings while more responsibility was devolved to each campus. In 1997 the Campus Executive Committees gave way to Academic Affairs Boards which, towards the end of 1998, were succeeded by the return of a Joint Senate Executive (Senex).¹

Faculty planning and publicity

All faculties within the University were required to contribute to the final version of the new 'Mission Statement', which declared:

'The University of Natal strives to serve all sections of its community through excellence in scholarship, teaching, learning, research and development.'

In the prevailing climate of re-appraisal and self-analysis it was not surprising that, while doing so, they were also expected to review their current Faculty Plans and, wherever appropriate, to improve their proposals for achieving the necessary economies and generating new income. In an effort to introduce a 'fresh' approach, the Faculty of Agriculture's Board invited the Lecturers' Standing Planning Committee to make proposals. Among other administrative changes the Faculty Office was re-organised, and a request was made for a full-time secretary to assist the Dean.

Since 1981, when Nigel Wolstenholme had been appointed the first of a succession of Assistant-Deans, the burden of student-related business had been eased. By December 1996 the Dean's workload had nevertheless increased dramatically, especially with regard to the development of an 'outreach programme' and Pete Zacharias was appointed to the new post of Deputy Dean. The Faculty as a whole was disappointed at being given a 'B' rating, based on a student head-count and 'Full Time Equivalent' (FTE) numbers, by the University Planning Committee. It was argued that 'the complexity of the Faculty and Ukulinga research farm' had not been taken into account but this assessment was subsequently accepted, without enthusiasm, as 'reasonable'.

The Faculty Plan compiled in 1989 reported that the staff complement was still numerically smaller than it had been in 1975, prior to its complete incorporation into the University. This, it was felt, did not make adequate provision for the diversity of expertise required to maintain it effectively, with the result that any further staff reductions would be unfair and unrealistic. On the contrary, the shortage of scientifically-trained professional manpower in the agricultural sector provided grounds for enlarging the Faculty rather than seeking ways to trim it.²

The Faculty's forward-planning was considered sufficiently important to justify the organisation of a 'Think Tank' which was held on 9 March 1991 in the Umgeni Restaurant at Midmar Resort. At an Extra-Ordinary Meeting of the Faculty held five days later a summary report on that event was discussed, the resolutions taken there were refined and confirmed, and appropriate action arising therefrom considered.

It was reported that 30 Faculty members had attended the 'Think Tank', where Nigel Wolstenholme had argued that agricultural education needed

more effective marketing to counter its currently poor image. Lieb Nieuwoudt forecast likely future land use in South Africa, with 'large-scale high tech' farming continuing to play a prominent role but more medium and small-scale farmers becoming evident. The Dean, John de Villiers, presented figures which indicated an overall decline in the number of agriculture students at Natal and other universities in recent years and recommended recruitment beyond South Africa's borders. Eric Senior (recently appointed Professor in Microbiology), suggested the development of new inter-departmental courses, like Food Biotechnology, while Mike Dutton pointed to the University's negative reaction to Biochemistry's ability to attract more students because of the space implications. There was support for pro-active involvement in the new School of Rural Community Development (established in 1991) which, it was suggested, could become the 'extension arm' of the Faculty.

Frits Rijkenberg pleaded for the maintenance of stringent entry requirements, the need for more effective marketing and a change of Faculty image and name. Andy Cairns (appointed to the Chair of Crop Science in 1990), on the other hand, argued in favour of more relaxed entry requirements, particularly as few black students were able to meet the standard currently required and the previously 'blacks only' colleges made no such demand. He also favoured introducing degrees such as a B Agrar Dev and a B Agric Ed which would not require mathematical proficiency and suggested a model for evaluating school leavers that could feed them into a diploma scheme from which suitable candidates could advance into degree Programmes.

Irwin Smith outlined the pros and cons of offering short courses which, in his view, were ideal for attracting farmers, extension officers and associations. Martin Fey contended that students should be regarded as 'clients' who, if treated well, would generate favourable publicity for the Faculty. It was agreed that the University's Public Relations Office was 'unsatisfactory' and that the Faculty should employ its own public relations officer. She/he should be funded initially from donations by each department but with the expectation that the post would become self-supporting. In addition, a 'faculty development' fund was mooted, as well as 'a professional market survey' which would include the issue of a possible change of Faculty name.

At the formal Faculty meeting which followed the Midmar 'Think Tank' on 14 March 1991 it re-affirmed its commitment to the production of 'specialised professional manpower for commercial agriculture and allied activities' through 'appropriate high-technology degree and course offerings' that conformed to 'the highest international standards'. At the same time, in the spirit of the University's 'Mission Statement', which for many was their first exposure to strategic planning, the Faculty undertook to assist in 'the development and economic upliftment' of under-endowed rural communities. It was recognised that, in order to be effective in this process, the Faculty

needed to adopt a trans-disciplinary approach in its teaching, extension work and research. The new School of Rural Community Development was identified as 'an appropriate conduit for such participation' and the Faculty committed itself to 'pro-active involvement' in the School's development and 'those of its programmes that are relevant to Faculty objectives.'

In response to the world-wide trend of declining student enrolment in tertiary agricultural institutions over the previous decade, it was resolved to 'actively project a more exciting image of agriculture as a career path' and to make agricultural education 'more easily accessible to the Black African sector'. Immediate attention was to be given to developing curricula that would facilitate access to agricultural education for disadvantaged students, with an emphasis on 'broad-based programmes in agricultural production, extension and development studies'. Both new and established courses were to be integrated into 'a multi-tiered educational model' which would include more 'relaxed' entrance requirements, academic support, and differentiated progression rates, as well as formal degree and non-formal certificate qualifications with transferability within Programmes based on performance. Consultative mechanisms involving industry, community and other leaders were to be created to ensure the relevance of such development plans.

In an effort to extend the Faculty's influence and 'develop the market' for its Programmes it was resolved to establish a development fund with the assistance, among others, of prominent *alumni* in the agricultural industry, and to create 'a promotional arm' to publicise its activities. It was affirmed that the Faculty's 'history, geography and medium of instruction' gave it 'a special role to play in the development of agriculture in the African continent' and that it should now consider expanding its 'sphere of influence' beyond its 'traditional constituences' in southern Africa, Zimbabwe and Mauritius.

As a means of giving effect to these resolutions the issues of Faculty participation in the School of Rural Community Development and the development of an integrated educational model were referred to an enlarged Faculty Planning Committee. In addition, Irwin Smith and Martin Fey were tasked to compile a job description for a possible Faculty public relations officer, on the understanding that this would initially probably be a part-time post and that it should become financially self-supporting.³

While departments were subsequently asked to indicate how much they were willing to contribute towards financing this post it was later suggested that Faculty members donate a small percentage of their research project funds to this cause. A suitable incumbent was found but subsequently declined the position before M. J. (Michelle) van Schoor was appointed from 1 February 1992 as 'Faculty Research and Development Officer'.

This effectively changed the Faculty's existing Publicity Committee into a steering committee to establish policy and advise the new appointee. By the

beginning of April she was able to report that she had already assumed many of the time-consuming duties previously undertaken by academic staff. These included Orientation Day, the Royal Show Stand, press releases, some school liaison, outside contacts, and the organisation of short courses. While her major concern was fund-raising, additional functions included the production of brochures aimed at the corporate sector and at schools, as well as contacts with *alumni* and outreach to foreign, particularly African countries.

The initial funding for her post was provided by departmental and, in some cases, individual donations from within the Faculty amounting to R52 100. As convenor of the Publicity Committee Martin Fey reported that ‘Ms van Schoor has hit the ground running and we can expect to see increasing evidence of her very impressive efforts bearing fruit as the year progresses’.⁴

In the months that followed, Dr V. (Vusi) Dhladla (appointed to promote educational development in the Faculty) and Michelle van Schoor, assisted by members of the academic staff, embarked upon an intensive recruitment campaign in local schools. Initially they concentrated on those with the best matriculation results and tried to include all ethnic groups.

Their schedule included visits to schools and by schools, a Schools’ Invitation Day, a proposed School Principals’ Visit, the dissemination of updated posters and leaflets and of information through the media, as well as extensive contact with scholars who visited the Royal Show Stand. Unfortunately, school visits were impeded by the political tension which preceded the 1994 general election. It was intended to extend them to other provinces but van Schoor resigned her post and left in September 1993.

In his review of what had been achieved during her tenure Martin Fey emphasised not only the school liaison initiatives but also the publicity work and organisation of numerous short courses, which generated the income that helped to finance her other activities. These courses included such topics as Farm Valuation, Modeling Biological Systems, Greenhouse Technology and Fodder Production Planning, which, in 1993, collectively accounted for nearly 75% of her time. Fey was able to report to Board that, in its Publicity Committee’s view, the Faculty had ‘gained enormously’ from the experience of ‘intensified PR work’.

A decision was now needed as to whether a full-time or part-time replacement was required in order to maintain the momentum that had been gained, or whether to revert to the pre-1992 ‘low-key programme’ which had relied on committee members to carry out ‘essential minimum functions’. It was calculated that there would be sufficient funds to continue van Schoor’s initiatives for a few more months without making a further appeal for funds.

Meanwhile, Mauritian *alumni* donated R4 000 towards a projected ‘outdoor visitor reception and function facility’ on the terrace in front of the Rabie Saunders Building, for which matching funds were being sought.

The money was never spent and is still accumulating interest. The Mauritian connection was nevertheless strengthened further through an invited visit by six members of the academic staff who were to be shown the agricultural activities of former students there and provide them with specialist advice. The Publicity Committee soldiered on, with part-time assistance from Binky Grey as Publicity Officer, while further funding was sought. The post was eventually assumed by Sally Upfold, who vigorously resumed and extended the activities previously conducted by Michelle van Schoor.⁵

In April 1991, with a view to streamlining administrative procedures and reducing the number of meetings, the Faculty agreed, by 12 votes to 7 with 4 abstentions, that Board and Faculty meetings should be conflated. The Board was much more circumspect, pointing out that 'more clarity' was needed on this issue and questioning whether the Faculty at large 'fully understood the implications of conflation.'

After considering these more closely, including the obligation of regular attendance and the possible disruption of afternoon teaching commitments, the Faculty decided that conflation was not desirable unless at least 50% of its non-Board members favoured it. The matter was left in abeyance when a ballot reflected 19 Faculty members against and 16 in favour, but it remained a matter of contention. In July 1993 Faculty members were invited to discuss it at a meeting of the Board, where Rob Gous argued that conflation would result in larger meetings that would be 'inefficient' and result in 'compliance but not commitment' to the decisions taken.

As alternatives he suggested changing the format of Faculty meetings, introducing a system of 'participative leadership' and using e-mail to circulate information throughout the Faculty. It was eventually decided to extend an 'open invitation' to Faculty members through the Senior Lecturers' Standing Committee to attend Board meetings if they wished to do so.⁶

The issue continued to simmer until August 1995, when it was pointed out at a Faculty meeting that the University Executive considered the Faculty of Agriculture 'extremely conservative' as all other faculties, in both centres, had already conflated. Attention was also drawn to the fact that the Board was the means whereby the Dean kept staff informed of Faculty and University-wide issues, and that many competent academics were being deprived of information and of the opportunity to participate in Board decisions, with a consequent sense of alienation in some cases.

'Top-down decision making' had clearly become questionable and the Faculty duly voted in favour of conflation by 14 votes to 2 with no abstentions. The Board eventually ratified this decision in October 1995. All Faculty members were given until the end of December 1995 to decide whether or not to become Board members and all future academic appointees were

henceforth automatically to acquire membership, which was to lapse in the event of failure to attend three consecutive meetings without apology.⁷

Another significant development with regard to planning the future structure of the Faculty was the further exploration of a three-year degree Programme and the formation of Schools of cognate disciplines.

In August 1989 Frits Rijkenberg reported to the Board that the campus Vice-Principal was 'very interested' in the formation of such Schools, by which means a three-year degree structure could perhaps most effectively be incorporated. It was evident that the onus was now on the various clusters of disciplines to develop proposals along these lines.

Two weeks later Ben Cilliers reported to a Faculty meeting on behalf of a sub-committee investigating the feasibility of a three-year degree structure. It had concluded that a basis for this could be provided by possibly offering as many as five new degrees in five Schools straddling the Faculties of Agriculture and Science i.e. B Sc degrees in Plant Sciences, Cell Biology, Earth Sciences, Animal Biology and Environmental Sciences. It was envisaged that these degrees would not be administered by either Faculty but by a Board of Control which would be represented on Senate.

The new three-year degrees would have to be 'aggressively' advertised and would be offered in addition to the existing four-year B Sc Agric but would not lead to Honours Programmes. These, it was suggested, would still only be accessed 'in traditional departments within the faculties'. Academic departments were invited to submit curriculum proposals for the envisaged new degrees.

Late in September 1989 Rijkenberg reported that, in ongoing discussions with the Faculty of Science, a January 1989 policy document from the Department of National Education had, somewhat belatedly, become available which decreed that 'career-orientated Bachelor degrees should consist of a programme of four years of study.' He argued that the proposed three-year degrees were not necessarily 'career orientated' but that their practicality should be investigated. He also proposed that the concept of Schools should be further investigated because adhering to a four-year degree structure did not necessarily preclude their formation.

Professor M. (Mike) Perrin, representing the Faculty of Science, pointed out that the latter was now fully semesterised, which facilitated the development of unique trans-faculty combinations of courses. These might include Geology and Hydrology, Geology and Soil Science, and Animal Science and Zoology. He pointed out that, while there was a need to develop a School of Cellular and Molecular Biology and a School of Earth Sciences, the development of 'unique course combinations' could be effected within the existing structure and without creating Schools or developing new degrees. Perrin made it clear that Science favoured close collaboration with Agriculture but rejected new

‘broad-based, “packaged” degrees’ and required its students to have a ‘major’ at undergraduate level before proceeding to an Honours degree.

Following Perrin’s input, the Faculty Board agreed that the concept both of Schools and ‘unique course combinations’ could be achieved within existing structures, that the possibility of Schools of Animal and Plant Sciences should both be further investigated and that departments ‘with similar training’ should collaborate to develop ‘unique combinations’ and possibly form a committee similar to that providing academic leadership to Agricultural Production. It was also agreed that the three-year degree structure should not be pursued further, pending developments in national educational policy. When, in November 1997, Ministerial approval was eventually granted for the introduction of a three-year B Agric degree the Board expressed concern about the quality of the students admitted and the appropriateness of courses offered in the new Programme.⁸

The Faculty of Agriculture’s Senior Lecturers’ Standing Planning Committee was more generally concerned about the Faculty’s whole ‘agricultural and scientific base’ as a result of closer collaboration with Science and feared that the formation of Schools might lead to further ‘erosion.’ Frits Rijkenberg gave the assurance that the proposed new Schools of Plant Sciences and Rural Community Development would facilitate greater inter-departmental and inter-faculty co-operation. It was anticipated that the Faculty ‘would be expected to be a major player’ with regard to the latter School and it was proposed that its own ‘Working Group on Rural Development’ should liaise with Professor Charles Breen, who had been appointed to review the proposed structure and function of the School.

The Faculty was subsequently given representation in Breen’s ‘Working Group’ and participated in the appointment from January 1992 of S.S. (Stan) Sangweni as the School’s first Director. He was a graduate of Pius XII University College in Lesotho (1960) and of St. Francis Xavier University in Canada (1962) who also held M Sc degrees from Cornell University in the USA (1964) and the International Institute for Aerial Survey and Earth Sciences in the Netherlands (1973). Prior to arriving in Pietermaritzburg, Sangweni worked as a high school teacher in Natal (1956–58) and as Director of Extra-Mural Services on the Swaziland campus of the University of Botswana, Lesotho and Swaziland (1964–74). Thereafter, he assumed posts for the United Nations as a Rural Sociologist in Zambia (1974–80) and a Senior Programme Officer in Nairobi (1982–91), as well as for the Economic Commission for Africa as Acting Director in Zambia (1980–82) and Social Affairs Officer in Ethiopia (1982).

On arrival, Stan Sangweni was invited to attend both Board and Faculty of Agriculture meetings and a ‘Task Group’ was established to explore collaboration with the new School. Approval was also given for the development of curricula for a proposed degree in Rural Agricultural Management. The

need for this option was demonstrated by 258 applicants for admission to the 1992 academic year who did not meet the prevailing admission criteria, especially in respect of Mathematics.

It was recognised that, as new degrees could not be implemented in the short term given the need for governmental approval, an existing qualification, such as the B Ag Man, would have to be adapted as an interim measure, with the probable relaxation of its entry requirements. In addition, informal training Programmes were envisaged, with functional literacy and community leadership as entrance criteria, as well as the possible development of Ukulinga Farm as a training centre.⁹

A lengthy process of curriculum development followed, during which it was realised that, in terms of the prevailing regulations, a three-year diploma would probably be more acceptable to the Department of National Education than a degree Programme of the same length. Also, the current academic limitations of the 'target constituency', primarily in the black school system, made this the more practical option. Nevertheless, it was envisaged that it would form part of a broader tertiary structure that would allow for sideways mobility between diploma and degree studies both within the University of Natal and between it and other institutions.

It was confidently assumed that South Africa's new post-1994 elected government would prioritise land tenure reform and rural development, for which there was a critical lack of expertise 'from extension agents upwards'. At an extra-ordinary meeting in March 1993 the Faculty Board accepted the proposed diploma curriculum, with minor amendments. It was designed to impart 'management skills and a holistic understanding of the nature of rural development', going 'far beyond the purely technical aspects of agriculture into the social and economic dimensions of change.'¹⁰

Senex promptly approved this initiative and, while further refinements were made to the curriculum, especially with regard to appropriate mathematics and language components, the University allocated a senior lectureship to the School, with the prospect of another post to be funded from a Kellogg Foundation Grant. As student applications began to pour in, Stan Sangweni announced that the Kagiso Trust would fund scholarships to the value of R2 million, in the form of a 60% grant and 40% loan, as well as providing funds for computers, equipment and short-term staff. In addition, the Ford Foundation had committed R100 000 to the School and South African Breweries undertook to finance another senior lectureship. The School was also in the process of introducing a Certificate in Rural Community Development, to be funded by a R350 000 Liberty Life grant, and it was anticipated that this and the envisaged Diploma Programme would be launched in 1994.

When, in December 1993, news broke that the Department of National Education had not approved the Diploma, which meant that it would not earn

any state subsidy, it was nevertheless decided to proceed with the Programme as the fees garnered would cover its cost, especially after the initial three or four years.¹¹

By March 1994 the new Diploma course was 'running smoothly', with a cohort of 40 'enthusiastic' students, some of whom already wanted to upgrade to a degree. Andy Cairns chaired the Co-ordinating Committee dealing with Diploma-related issues, Dr Peter Ewang had been appointed senior lecturer in the School and Shelley Barnsley counsellor to its students. Any surviving financial concerns were eased by First National Bank's commitment of R1.2 million to cover the School's running costs for the next three years. Frits Rijkenberg was appointed Acting Director following the departure of Stan Sangweni at the end of May 1994 to take up a post with the Public Service Commission.

The Kagiso Trust continued to fund the School but the University still sought other donors. Dr M. (Malefane) Maema was eventually appointed to assume the Directorship from July 1995. He was a B Sc graduate of the National University of Lesotho who had completed a Masters degree in Applied Biology at Cambridge and a Ph D in Community Health and Ecology at London University. Following his return to Lesotho he had served for seven years as Head of the Environmental Division of the Lesotho Highlands Development Authority. On arrival in Pietermaritzburg he embarked upon a strategy to co-ordinate the School's Diploma and Certificate courses, and declared himself in favour of 'more diversity', such as a postgraduate programme and the promotion of short courses and distance learning.¹²

In December 1995 Ministerial approval for the Diploma was at last obtained and the Faculty immediately began to investigate how this qualification might be articulated with a three-year degree Programme. It was suggested that diplomates might be required to complete another year, based largely on extension work, to qualify for a three-year degree and that a 60% credit-weighted average in their third year might be a prerequisite for such a conversion.

It was envisaged that two degree courses in each semester would form part of this fourth year, as well as a seminar in the first and a project in the final semester. There was, however, no immediate funding or extension expertise, with which to implement these proposals.

When, in November 1997, Ministerial approval was given for the introduction of a three-year B Agric degree, Andy Cairns was appointed co-ordinator between the Faculty and the School, as well as chairman of a review of both the Diploma and B Agric degree to investigate the quality of the students and the appropriateness of the course components being offered. Meanwhile, further funding was sought for the School's Certificate Programme, which

received no subsidy but had attracted R700 000 in donations for its evaluation and development.¹³

During the 1990s the Faculty of Agriculture acquired another affiliate in the School of Environment and Development, in 1996 named the Centre for Environment and Development (CEAD). Its objective was ‘to make a significant contribution to addressing the integration of environmental and developmental issues in Southern Africa’ through teaching, training and research. CEAD ran a Coursework Masters Programme which attracted an initial 30 students a year in 1996 and 1997. In the latter year Board also approved the admittance of research Masters students.

This was seen as a means of meeting the demand for trans-disciplinary research training in the field of environment and development and complementing related research options in various departments within the Faculty. CEAD’S new ‘Tools and Skills’ course, designed to equip students to undertake trans-disciplinary research, was also approved and it was anticipated that the Centre would accept ‘exceptional students’ at doctoral level as well.¹⁴

Another significant vehicle for community outreach and development which emerged during the 1980s, though not designated as a School, was the Farmer Support Group (FSG). Thelma Trench, who became the Farmer Liaison Officer, played a major role in its formation. Its draft Constitution, presented to Board in 1991, indicated that its primary objective was ‘to facilitate the provision of high quality and appropriate agricultural information to those who have limited or no access to other sources of help’.

It later became the extension arm of the Centre for Rural Development Systems (CERDES), of which Frits Rijkenberg was the first Director, and eventually became linked with CEAD through a process of academic restructuring. The FSG was independent of any Faculty, though its Management Committee included the Dean of Agriculture *ex officio* while the Faculty’s departments were also entitled to a representative. Concern about the lack of information on developments within the FSG led to the realisation that a much closer liaison was needed between it and the Faculty of Agriculture.¹⁵ There were also significant changes in the Faculty’s various departments.

Departmental developments

In Agricultural Economics staff expertise developed in several directions, not only in agricultural policy but also in small-scale and commercial agriculture and in agribusiness. In 1998 agribusiness options were initiated as ‘co-majors’ with Animal Science, Crop Science, Food Processing, Horticultural Science and Wildlife Management Science. Lieb Nieuwoudt continued to run his Agricultural Policy Research Unit (APRU) as an HSRC research unit, the first to be established in the humanities at the University of Natal and one

of the first five such units in South Africa. Several of its students won the Agricultural Economic Association of Southern Africa's 'best Masters thesis' prize. Nieuwoudt, who had already won several earlier awards, received HSRC bursaries in 1992 (R25 000) and 1998 (R55 000) which enabled him to undertake research at the University of North Carolina and Colorado State University respectively.

He retired as Head of Department in 1991 and thereafter was appointed on a contract basis until 2001, having published more than 120 papers in refereed journals.¹⁶ Gerald Ortmann, who had also won distinguished awards, including the 'BP Research Scholarship in Agriculture' (1990) and, with Mike Lyne the Agricultural Economics Association's prize for best published journal paper (1992), served as Acting Head during Nieuwoudt's absences. Following promotion to Professor (1995), Ortmann eventually succeeded him as Head of Department.¹⁷

Following the retirement in 1991 of 'Pottie' Meiring, P W L (Peter) Lyne became Professor and Head of Agricultural Engineering in January 1993, after being awarded a doctorate and resigning his senior lectureship in 1991. Lyne took early retirement in 2003 to join the South African Sugar Research Institute (SASRI) after establishing a close association with that body and opening negotiations with it to fund a senior research fellowship. In addition, he initiated a research project to achieve more effective transport systems in the sugar and timber industries. Meanwhile, Roland Schulze's applied hydrological research group continued to gather momentum and international recognition.¹⁸

In Agronomic and Environmental Sciences (so designated after the 1988 amalgamation of Crop Science, Soil Science and Agrometeorology) Mike Savage continued to garner more achievements and responsibilities. He served as Acting Head during John de Villiers' sabbatical leave in 1989 while also serving as Assistant Dean. He received a 1990 FOYSA award for 'outstanding young South Africans' and had his senior lectureship in Agrometeorology upgraded to a Professorship. In 1991 he became Convenor of the Faculty's Research Committee, in 1994 was promoted to post-level 7 (Senior Professor), and in 1995 was awarded a University Fellowship for his research successes. In 1994 he became head of the Department of Agronomy, so-named four years earlier.

In 1990 Agrometeorology was discontinued as a 'major', due to the low level of student interest, which was attributed to its requirement of a background in both Physics and Mathematics. Its vital importance to the Faculty was, nevertheless, recognised both for the plant and the animal production sciences. Moreover, its one-man output of research publications placed it amongst the most prolific, not counting its unquantifiable assistance to researchers in other departments. Savage's post was consequently retained

and broadened to involve servicing undergraduates and undertaking research in Agrometeorology, as well as co-supervising postgraduate Programmes in the Plant Sciences.

M.A. (Mike) Johnston, who had joined the Department in 1987, was a Pietermaritzburg Soil Science graduate (B Sc Agric, 1968, M Sc Agric, 1978 and Ph D, 1994) with work experience at the Mount Edgecombe Sugar Experiment Station and at the Cedara Agricultural Research Institute. He lectured in soil physics until his death in 2002 and was internationally recognized for his expertise in soil salinity/sodicity, particularly in relation to their effects on soil structural condition. He consulted extensively on this and was a pioneer in the use of electromagnetic induction techniques as a means of soil testing in saline soils.

In 1996 Professor R J (Dick) Haynes assumed the Chair of Soil Science and H.C. (Chris) Bester arrived as lecturer. Two years later Savage initiated the introduction of a Coursework Masters in Environmental Instrumentation and certificate courses in Agricultural and Environmental Instrumentation which were designed to assist researchers in the work place in catching up with the changes which had taken place in measurement and control technologies. Significantly, this initiative had no additional staffing implications but drew on 'existing strength' in the University with regard to micrometeorology, the soil-plant-atmosphere continuum and water relations, soil physics, irrigation, horticultural science instrumentation, crop physiology instrumentation, computer-based modelling and statistical and graphical techniques.

The emphasis was on the application of 'specialised equipment' with which to 'monitor soil, plant and atmospheric processes in the field' so that 'feedback control mechanisms' could be developed with the objective of manipulating the environment 'to best advantage'. In 1999, as a result of increasing interest in environmental issues, the School of Applied Environmental Sciences was formed, also under Savage's Headship.¹⁹

Rob Gous succeeded Werner Stielau as Head of the Department of Animal Science and Poultry Science, having been promoted to full Professor in 1989. Arthur Lishman also achieved that status in 1993 and served as Acting Head in 1995, in which year Gous was on sabbatical and was also appointed to Professor post-level 7 (Senior Professor).

Following its 1987 departmental review, Animal Science and Poultry Science underwent substantial syllabus changes, involving a set of new courses which in only a few cases were similar to their predecessors and required rule changes in other departments. These were implemented in 1990 and were followed by proposals for the rationalisation and simplification of curriculum structures in both the animal and plant sciences. The Department continued to be productive in terms of research output, one of the highlights being its pioneering efforts in reproductive physiology. In 1995 Arthur Lishman's team,

including Dallas Shaw and Chloë Bowles, produced Africa's first test-tube calf and induced twinning. Lishman described the birth of the calf as 'a turning point in animal breeding in this country', bringing to the African continent 'an important technology that is taking off in other parts of the world'.

'With live animals we can harvest unfertilised eggs to produce embryos from the best cow in the herd. We can also perform microsurgery to split the embryos for the production of identical offspring.'

'The advent of these embryo technologies not only sheds a new light on the future of cattle breeding, but also on that of wildlife breeding ... these methods can be used to increase populations of endangered wildlife species, and to maintain genetic diversity in dwindling populations.'

Applying the same techniques, a project was also launched in collaboration with the department of Agriculture and Stock Owners' Co-op to produce dairy cows with the hardiness of the indigenous Nguni and the high milk yield of the Jersey for the benefit of small-scale rural farmers in KwaZulu-Natal.

Rob Gous also made significant advances, which were to lead to his rare FRD 'A' rating. He regarded his research career up to 1996 as comprising three stages: prior to 1976, when he completed a Ph D; 1976 to 1986, 'a useful learning phase, which resulted in a greater understanding of the techniques and philosophy of research, and which paved the way for the third phase'; post 1986, 'in which a significant change in the direction of research took place, namely, into simulation modeling', what he considered to be 'the ideal vehicle for developing theories that can be tested.'

In his own estimation he regarded his major contributions at this time to have been 'in the measurement of responses in growing birds and in laying hens to amino acids; in helping to discover, contrary to conventional wisdom, that the response in growth to a limiting amino acid is dependent also on the amount of protein present in the feed; and in improving our understanding of the theory of food intake, growth and reproductive performance of a given type of bird on a given feed and kept in a given environment.' His work was, and continues to be, of immense value to the poultry industry, in which several of his postgraduates assumed senior positions.²⁰

By 1990 Biochemistry had been identified as 'a growth area' with its '300M' course oversubscribed by as many as 20 students, which exceeded the Department's laboratory capacity and equipment resources. It was also necessary to limit the 1991 Honours class to a maximum of 14 candidates, which raised the possibility that in future the number of B.Sc Agric candidates majoring in Biochemistry might have to be restricted.

In 1990 the new Professor and Head of Department, Mike Dutton (appointed in 1989) reported an increasing interest on campus in Molecular Biology/Biotechnology and that a meeting involving the Campus Vice-

Principal (Professor Colin Webb), the Deans of Agriculture and Science and departmental representatives had identified the need for two new posts 'to cover areas of expertise that were lacking'.

The Boards of the Faculties of Agriculture and Science had for some time both strongly supported the development of Molecular Biology/Biotechnology in Pietermaritzburg, though it was realised that 'outside funding' would have to be found for it and that much of that was currently being directed towards subsistence agriculture. Later that year the Departments of Biochemistry and Botany collaborated to introduce a new 'half major' i.e. 'Molecular Biology 310: DNA Biochemistry and Technology', which was available to Agriculture students.

By 1991 the Biochemistry 200 course was also oversubscribed due to a lack of space and the fact that it was offered as a service course. The Department proposed a minimum pass of 60% in order to proceed to Biochemistry 300 but, in the interests of Agriculture students who wanted to 'major' in Biochemistry, the Board proposed two examination papers at the 200 level, one for those who merely wished to pass the course and another for those who intended to advance to the 300 level. By 1992, in the interests of both teaching and research, much closer liaison among Biochemistry, Microbiology and Genetics was being strongly promoted.

A year later, arising partly out of their collaboration, the Dean announced that a suite of rooms in the basement had been set aside for a Molecular Biology Centre and that the University had made 'a substantial financial commitment' towards the promotion of the discipline. There was some concern about a possible over-production of molecular biologists in South Africa but it was concluded that the new Centre would also serve as a valuable tool for other disciplines.

In the area of research, Mike Dutton continued to develop his mycotoxin research group and analysis laboratory prior to his departure in 1992 for the Medical School in Durban. The following year he was succeeded to the Chair by John Lonsdale-Eccles who came from the International Laboratory for Research on Animal Diseases in Nairobi. He promoted a research interest in the proteases of African trypanosomes but in 1995 he left for a post in the United States where his wife wanted to further her career in medicine. Dr R. (Romilla) Maharaj (1991–96) played an important role in the Department with her knowledge of molecular Biology before moving on to a post at the Medical Research Council. Clive Dennison, who had joined the Department in 1980 after working as Chief Professional Officer for the Department of Agricultural Technical Services, became the fourth incumbent of the Chair. A graduate of the University (B Sc, 1967, M Sc, 1969 followed by a PhD, 1973), he was promoted to Professor of Biochemistry in 1994.



A. (Albert) Modi

A. (Albert) Modi joined the newly-merged Department of Agronomic and Environmental Sciences in 1990. His initial university studies were at the University of Fort Hare followed by a doctorate in the United States. His special focus was on seed physiology and promoting the knowledge and use of traditional food plants as both a local source of food as well as commercially-viable crops.

During the course of his career he published 51 scientific articles in international journals and supervised 20 M Sc and 10 Ph D students. His research attracted funding from the FRD/NRF, the South African Cancer Association and the NRF South Africa-Germany Science Liaison. Dennison was a founder member and sometime council member of the International Proteolysis Society and led a protease research group which became internationally recognised. Among other contributions to the discipline, he is remembered for three-phase partitioning (TPP) as well as his widely-used reference work *A Guide to Protein Isolation*. Dennison retired at the end of 2005 and became Professor Emeritus.²¹

Following its move in 1982 to the main Pietermaritzburg campus, the Department of Biometry continued to keep an office in the Rabie Saunders Building in order to maintain its traditional and invaluable consultancy service to staff researchers and postgraduate students in the Faculty of Agriculture. G.P.Y (Peter) Clarke occupied the Chair in succession to Arthur Rayner, ably supported by Harvey Dicks as senior lecturer.²²

In 1989, following its merger with Soil Science and Agrometeorology into the new Department of Agronomic and Environmental

Sciences, the discipline of Crop Science, in common with its new partners, underwent curriculum changes while still offering an individual 'major'. In the same year Board formally proposed to Senex that the Department be renamed the Department of Agronomy.

In 1990 A.L.P. ('Andy') Cairns, a weed scientist, was appointed to the recently named 'South African Sugar Association Chair of Crop Science'. He subsequently became Deputy Head of Agronomy for two years (1990–92) while John de Villiers served as Dean and later took early retirement to return to the Western Cape. Further additions to the Department were Dr J.A. (Joseph) Adjetej, originally from Ghana, as senior lecturer, with expertise in groundnut production, and A. (Albert) Modi, a graduate of Fort Hare University, as lecturer. After three years of unpaid leave he obtained a Ph D in the USA and became well-known for his research on seed physiology, and on indigenous plant knowledge and cultivation for the 'organic' market.²³

In 1989 the Department of Dietetics and Home Economics introduced a new course in Home Nutrition for Nurses following the availability of a co-ordinator and funds for an option which had originally been requested by the Department of Nursing. Ministerial approval for the change of name for the postgraduate Diploma in Hospital Dietetics and postgraduate Diploma in Dietetics was not granted until 1992, while the admission criteria for the Diploma and Honours Programmes in Dietetics were revised.

There was concern about the inadequate science backgrounds of Home Economics graduates applying for admission to Honours and Masters degrees in Home Economics. The Board recommended the implementation of a Programme of courses with minimum 60% pass rates to raise applicants to an acceptable level.

There was also concern about the ongoing decline in the number of Home Economics undergraduates, with only 18 registered in all three years in 1990, six of them for first year. By 1993 the Department had produced only 82 B.Sc. Home Economics graduates (5 'other than white'), compared with 202 in Dietetics (33 'other than white'). The future of this 'major' seemed to depend upon the structure of the new School of Rural Community Development and the contribution which Home Economics might be able to make to it. In 1990, in view of dwindling student numbers, it was decided to phase out the B.Sc. Home Economics, with no new first-year admissions in 1991. It was also incorrectly reported in the University publication *NU Digest* that Dietetics was to be transferred to the Medical School in Durban, though some might have considered that an appropriate move.

In 1991 the Department sought to revitalise Home Economics by offering 'majors' from 1993 in Community Resource Development and Community Resource Management in the Social Science degree. Board agreed to this but was concerned that these Programmes were to be offered in another Faculty, and remained convinced that the future of Home Economics lay in the School of Rural Community Development. When the Social Science Board approved the introduction of courses (18 by 1994) in what was eventually called 'Community Resource Production' the Agriculture Board had to point out that student intake would be restricted by the availability of staff and laboratory facilities.²⁴

The Board did balk when, in 1993 it was proposed to introduce an Honours degree in Community Resources, expressing doubt about the Department's capacity to take on this additional teaching load. It relented on learning that it was to be offered on a part-time basis, with no additional staffing or cost implications. There was a further round of syllabus updates in Dietetics but by 1994 a major rationalisation of the whole Programme had again become necessary, in view of the requirement that all professional degrees should henceforth be of four years duration and should comprise a specified ratio of basic and contextual subject matter.

The Dietetics Programme in Pietermaritzburg was then the only one in South Africa which still did not conform. This could best be overcome by incorporating the existing postgraduate diploma as the fourth year of the current three-year B Sc Dietetics. Fortunately, it was envisaged that this would have only slight financial implications, limited to funding part-time lecturers for two subjects, though the consolidation of the Department's 'numerous' part-time posts was now considered essential. With inspection by two members of the Professional Board for Dietetics scheduled in 1994 for registration purposes, it had become essential that the Faculty and University again planned for the future and made any decisions that might be necessary about the relocation or phasing out of certain departments or disciplines.²⁵

A prompt review of the Department of Dietetics and Home Economics led the Board to conclude that it should continue to function, being both 'economically and professionally viable'. With regard to the former it attracted 25% of the Faculty's student intake and returned 53% of its income to what was termed 'institutional support costs.' With regard to the latter it was acknowledged that the Department had the potential to become 'an even more potent force for social upliftment', being located in 'one of the most socially depressed and densely populated regions in the country'.

This gave it the vital task of producing qualified dietitians and community nutritionists but also home economists, including school teachers in a subject which had been neglected outside the Afrikaans-speaking sector of the population. It was accepted that the 'dual foci' of the Department created certain challenges, despite the high level of 'complementarity' with regard to teaching and research. The need to reserve the Chair for a registered dietitian in order to ensure professional accreditation by the South African Medical and Dental Council did create an 'entrenched disincentive' which was prejudiced against ensuring adequate leadership and development in Home Economics. Board concluded that the creation of a Chair in the latter discipline should be seriously considered, that accreditation of the specified Community Resource courses in which it was involved should be sought and that the seven-person (excluding part-timers) Department should consider changing its name in view of the fact that 'Home Economics' had become an outmoded term.

Board recommended that the Department as a whole should rationalise its heavy undergraduate Programmes, community outreach and other activities to create more time for postgraduate teaching and research, which were 'in a state of serious neglect'. By the end of 1993 the Department's 21 years of existence had produced 22 Honours graduates (10 in Dietetics, 12 in Home Economics), one Masters graduate, no doctorates and 54 completed Diplomas (19 of them 'other than white'). Its annual average subsidised research publications for the period 1986–92 amounted to 0.21 in a Faculty total of 33.01, though most of its publications were actually unsubsidised

conference papers, textbooks and manuals, pamphlets and popular articles. Board recommended that rumours concerning the relocation of Dietetics to the Medical School in Durban should be settled, with the Department itself deciding what was in its own best interests.

It also urged that the University should assist in lobbying the provincial hospital authorities to increase the number of dietetics internships available to candidates who were trying to complete the postgraduate Diploma. There were currently 16 such internships in the Province and approximately 30 B Sc Dietetics graduates a year, all of whom potentially might want to complete the Diploma in order to register with the South African Medical and Dental Council. Board urged that, in the absence of a substantially increased internship capacity, the Department should resist pressures to integrate the Diploma and current B Sc Programmes to launch a new four-year degree. Fortunately, at the end of 1995 Head of Department Elma Nel was able to report that, by changing the content of the internship Programme, it had been possible to increase admissions to 36 in 1996.²⁶

In September the Department applied to change its name to Dietetics and Community Resources. The last student to graduate in Home Economics had done so the previous year and the first batch to register for the Department's new option in Social Science were due to complete their degrees in that year. The proposed new name more accurately reflected the Department's two curricula i.e. Dietetics (Normal Nutrition, Therapeutic Nutrition and Food Service Management) and Community Resource Management, Production and Development. At the end of 1995 Elma Nel retired and A.E. ('Lettie') Grobler served as Acting Head prior to the arrival in March 1996 of E.M.M. (Eleni) Maunder, who occupied the Chair until her retirement in 2008.²⁷

Some significant developments took place during her term of office. These included the 1998 introduction of an integrated Programme in Nutrition which involved adapting existing course content in Dietetics, Social Science and Community Resources to lead to a B Sc in Human Nutrition, a postgraduate Diploma in Community Nutrition and Honours and Masters degrees in Human Nutrition.

While the Dietetics Programme continued to produce graduates who were competent in clinical nutrition, community nutrition and food service management, the Nutrition Programme was intended to focus on nutrition in relation to diseases and public health, with a scientific basis and an awareness of the broader socio-economic, political and psychological issues that impact on nutrition in the workplace and community.

The course content was planned with input from the Department of Health's Integrated Nutrition Programme, the Nutrition Society of South Africa and the Association for Dietetics in Southern Africa, as well as on the basis of surveys

both of potential students and of prospective employers to establish levels of interest and employment prospects.²⁸

After the Department of Genetics succeeded in having its Chair unfrozen a Professor Moritz was appointed but left after no more than a month. Mike Wallis stepped in to serve as Acting Head before Wilhelm Weyers came back from retirement to fill the gap. A year later Hans Gevers was appointed Honorary Professor on the strength of his reputation in maize breeding and his ongoing contribution to the training of plant breeders and production of unique genetic material for student projects.

In 1993 the Department suffered another setback when Dr Kinghorn declined to accept a vacancy. The blow was softened by the welcome news that, for the first time, the University had committed funds to the development of Molecular Biology on campus and that Dr J.W. (John) Hastings had accepted the vacant post with effect from January 1994.²⁹

In June of that year Neil Tainton retired as Professor and Head of Grassland Science, as it became known from 1982. He completed his term as Dean (1982–84), served as President (1975 and 1986) and in various other capacities for the Grassland Society of Southern Africa, was promoted to Senior Professor (post-level 7) in 1989, was elected a Fellow of the University in 1990 and was voted 'Agriculturist of the Year' in 1992 by the Agricultural Writers' Association of Natal in recognition of his contribution to pasture management. In 1993 he was appointed to the National Council for the Environment and he served on the International Rangeland Society's Continuing Committee between 1992 and 1995, in which year he was presented with the 'Director's Award' by the Agricultural Research Council's Range and Forage Institute for his 'outstanding contribution to the advancement of grassland research and the development of grassland science'. In the course of his career Tainton supervised 37 masters and 18 doctoral candidates, authored /co-authored more than 120 scientific publications and 24 chapters in books and edited/ co-edited five books. He was appointed Professor Emeritus following his retirement and served as Cricket Pitch Consultant to the United Cricket Board of South Africa.³⁰

Tainton's impending retirement prompted a review of the Department of Grassland Science which concluded that it enjoyed 'recognised leadership status' nationally in its field and was 'highly regarded' internationally. It urged that Grassland Science should continue to be offered as a 'major' in the B Sc Agric and in the B Sc degree, having been offered in the latter since 1991. Further, that the Chair should be filled again and that an additional post should be created so that the Department could continue teaching in the fields of both range (veld) and cultivated pastures and meet the needs of both 'developed and developing' agriculture.

The Review Committee recommended more 'synergistic interaction' with Animal and Poultry Science, Botany, Zoology and Entomology in order to

establish the campus as ‘the centre of excellence in pure and applied ecology’ in the subcontinent. However, it also concluded that the Department should cease to administer the ‘generalist’ Agricultural Production option, that the Faculty should relocate it to ‘interface’ more effectively with other departments involved in land-use and agricultural development, and that it should be subjected to critical re-evaluation. Board accepted these recommendations but stressed its commitment to retaining a ‘generalist option’ in its B Sc Agric degree and its ‘resolve to promote the evolution of this major as a holistic integrative option which addresses agriculture from a “systems” perspective.’³¹

In 1995 T. (Tim) O’Connor succeeded Tainton to the Chair of Grassland Science. A graduate of the University of the Witwatersrand (B Sc 1976, B Sc Honours 1978, Ph D 1991) and of the University of Zimbabwe (M Sc 1982), he had worked as a research assistant on Marion Island (1976/77), a safari guide (1979/80), an ecological officer (1982/83), a CSIR/FRD- funded research officer at Wits (1983–89), a freelance consultant while completing his doctorate (1990/91) and as a specialist scientist at the Dohne Agricultural Development Institute, Department of Agriculture, in Stutterheim (1991–94).

The year after his appointment in Pietermaritzburg he successfully motivated yet another name change of the Department to the Department of Range and Forage Resources. He argued that the existing name no longer reflected the Department’s teaching and research profile because it implied that its focus was solely on the ‘Grassland Biome’ or on grasses in other biomes. More accurately, it was concerned with the interaction between plants and herbivores which included forms of vegetation other than grasses. The terms ‘range’ and ‘rangeland’ were more all-embracing and were now internationally applied. The term ‘science’ was also restrictive because the Department was also involved in the application of a number of disciplines in an integrated manner, not just with one ‘science’. The name Range and Forage Resources was technically correct, internationally identifiable, and accurately reflected the Department’s interest in both science and its application in teaching and research.³²

Meanwhile Pete Zacharias maintained his steady rise to prominence, being awarded an M Sc Agric in 1991, followed by a doctorate from the University of Fort Hare, was promoted to senior lecturer in 1992 and Associate Professor (Principal Lecturer) in 1998, served as Acting Head of Grassland Science during Neil Tainton’s absence on sabbatical in 1993, as Lecturers’ Representative on Board in the same year, as Assistant Dean of the Faculty from 1994 and then as Deputy Dean from 1996. It was a thorough grounding for what was to follow.³³

In 1991 Nigel Wolstenholme, Head of the Department of Horticultural Science since 1988, began a three-year stint as Assistant Dean (1991–94) and was subsequently promoted in 1997 to Senior Professor (post level 7) and

awarded a University Fellowship before his retirement in 1998, after which he became Professor Emeritus and Senior Research Associate.

During his tenure Horticultural Science successfully sought to maintain its status as the most popular 'major' in the B Sc Agric Programme, despite a steadily declining pool of students in the traditional core disciplines (including Animal Science, Crop Science and Range (Grassland) Science.) From 1994 the 'AGRI 110' course, which had contributed so much to that popularity, was semesterised in response to student demand. With the Faculty of Science having become fully semesterised the need for a year-long course had become questionable while it was realised that the creation of two distinct modules would be more attractive to non-agriculture students. In the first semester, as before, the focus was to be on ecology, introducing students to current environmental issues and their impact on natural and agricultural ecosystems. The second semester module continued to concentrate on production-orientated agricultural ecosystems, introducing students to disciplines which, except for Soil Science, were not encountered in their first two years of study.

The Department also continued to maintain its high research profile, largely through its strong postgraduate school and reputation in the horticultural industries. It achieved this by means of research symposia, meetings of commodity associations which funded research, and participation in both national and international academic conferences. The quality of research output was improved and greater physiological input into all teaching Programmes was facilitated by the development, from the mid-1980s, of a well-equipped physiology laboratory and the expertise to run it.³⁴

For eight years Dr P.J. (Peter) Hofman (from Australia) was responsible for this laboratory but in 1989 the Department lost his services. It gained Dr J. F. (Jeff) Finnie (a tissue culture specialist) as lecturer in 1990, though he returned to Botany the following year. Dr J.G.M. (Jonathan) Cutting, the Department's first Ph D graduate specifically from this dedicated laboratory, was appointed senior lecturer three months later but resigned in 1993 and subsequently emigrated to New Zealand.

In 1992 Deirdre Holcroft was awarded a trophy for the best paper presented at the Southern African Society of Horticultural Sciences' Congress in January that year. She was also appointed the Faculty's Sexual Harassment Advisor but shortly after joining the staff she was seconded to the University of California (Davis) to obtain her doctorate. Her newly acquired expertise in post-harvest fruit physiology was soon lost to the University of Stellenbosch and Dr Derek Askew, who replaced Irwin Smith as a vegetable specialist, also only stayed for a few years.

Renate Oberholster was appointed from the University of Pretoria to take charge of ornamental horticulture while Dr A.K. (Keith) Cowan, a well-trained plant physiologist/biochemist from Rhodes University, assumed responsibility

for the physiology laboratory. He developed a very successful postgraduate research programme, served as Acting Head in Nigel Wolstenholme's absence on sabbatical in 1995, and was promoted to Associate Professor (Reader) in January 1997 and Professor in December 1998 before leaving the Department shortly afterwards. In January 1998 Dr I. (Isa) Bertling was appointed lecturer for her expertise in deciduous fruits, vegetable crops and general physiology.³⁵

There were also some important staff developments in the Department of Microbiology and Plant Pathology. M.D. (Mark) Laing followed his 1988 appointment as lecturer with a promotion from January 1996 to senior lecturer, a doctorate in 1997 and a promotion to Associate Professor (Reader) from January 1999. J.V. (John) da Graca was promoted to Associate Professor in January 1991, Professor in January 1999 and subsequently moved to Texas.³⁶

Eric Senior was appointed to the Chair of Microbiology in July 1990 and was promoted to Senior Professor (post level 7) in March 1994. He was a graduate of the University of Liverpool (1974) and completed his doctorate at the University of Kent (1978). After holding postdoctoral fellowships at the University of Groningen (Netherlands) and the University of Essex, he assumed a lectureship in Applied Microbiology at the University of Strathclyde in Glasgow where he became Head of Waste Technology. He brought this particular interest with him to Pietermaritzburg and, by September 1991, a subvention had been raised from the private sector to establish a Chair in that field. It was decided that this would subsume the existing Chair of Microbiology for as long as the Chair lasted.

Two rooms were set aside in the Rabie Saunders Building for Waste Technology Research and the donor funds were dedicated to the establishment of two contract posts, which were occupied by C.A. (Chris) du Plessis (senior lecturer from January 1992) and Dr G.N. (George) Tivchev (senior lecturer from March 1992). In that year Senior established the International Centre for Waste Technology (Africa).³⁷

Mike Wallis filled in as Acting Head of the Department of Genetics during 1991/92. He became Head of Department and in 1996 succeeded to the Chair of Microbiology in succession to Eric Senior who by December 1995 was spending 80% of his time on the Durban campus, and subsequently moved there full-time to become Director of the University's Education and Innovation Foundation. Wallis moved into Industrial and Environmental Microbiology and eventually retired in 2005.³⁸

Time-tabling and lecture-room allocations

The departure in the 1980s of the Department of Statistics and Biometry to the Science building on the main campus and the removal of the Department of Entomology and of the Agriculture Library to the new John Bews (Life Sciences) Building significantly eased the space constraints which had been

experienced for some time in the Rabie Saunders Building. Looking to the future, the Faculty Board nevertheless queried the validity of the departmental space entitlement figures which the University's Physical Planning Department produced in 1990 as a basis for possible re-allocations. By 1992 there was also concern about the Faculty's ability to compete satisfactorily with the Science and Commerce Faculties in the allocation of lecture times and venues within the new '6 lecture block system'. Those Faculties were enjoying preference because of their larger student numbers but it was felt that Agriculture's own Timetable and Lecture Room Committee should include more senior staff members to provide more 'clout' when competing for a better deal, especially for those courses which had not been allocated a particular room.

It was recognised that the current timetable structure and the increasing number of 'timetable guaranteed curricula' of course combinations which the Faculty offered provided little scope for expansion or for any timetable adjustments. This was further stressed in April 1993 by Chris Scogings, chairman of the University Timetable Committee, after the Faculty's own Timetable Committee ceased to exist due to a reluctance on the part of staff members to serve on it. Scogings stressed that Agriculture's timetable had become 'significantly more complicated' than that of any other faculty in Pietermaritzburg and that its 'timetable crisis' would have arisen much sooner but for the dedicated and often frustrating work over five years of Mark Darroch (Agricultural Economics). Scogings insisted that, if the University Timetable Committee was to assist in planning the Faculty's timetable the latter should appoint a representative to the Committee and should remove all references to 'timetable guaranteed curricula' from its rules and information handouts. He further insisted that the Faculty should reduce the number of 'majors' it offered by including various 'options' as 'electives', using the 'broader system of electives' as initiated by Grassland Science to allow students and the timetable more flexibility. In imitation of that system, in any particular 'major' it should limit the number of courses required in any semester to a maximum of four 'major' or compulsory courses and three 'electives'.³⁹

The Faculty Board agreed that its own Faculty Planning and Resource Allocation Committee should develop policy guidelines for streamlining all curriculum structures, after which the Senior Lecturers' Standing Committee should be requested to suggest 'more manageable' degree curricula. Surprisingly, the situation with regard to timetabling and lecture room allocations had still not been satisfactorily resolved when, three years later, Pete Zacharias (then senior lecturer in Grassland Science) and Neil Ferguson (lecturer in Animal Science) proposed the appointment of a 'Task Team' to redesign the Faculty's timetable 'from scratch' in consultation with Dr Piet Uys, chairman of the University Timetable Committee in succession to Chris Scogings. They pointed out that the Faculty's current curricula were the

consequence of ‘nearly two decades of *ad hoc* tinkering’ and had been further complicated by the ongoing absence of a Faculty Timetable Committee and of any representative on the University Timetable Committee (as proposed in 1993 by Scogings).

The 1996 reduction of student credit loads by 1.5 courses a year had not eased the timetable congestion or lecture room availability. What Zacharias and Ferguson wanted was a completely new timetable to be implemented in the second semester of that year as well as a revived committee to manage timetabling, lecture room allocation and the preparation of ‘guaranteed curricula’ plans. The Faculty Board ‘gratefully accepted’ the Zacharias/Ferguson proposal but it seems to have been lost almost immediately in the debate surrounding the University’s proposal to introduce a ‘trimester system’ of timetabling and a more flexible ‘modular degree system’.⁴⁰ This was followed by the introduction of student ‘notional study hours’ as an additional means of course credit ratings and then by the nationally-imposed need to design and register all Programmes in the format stipulated by the new South African Qualifications Authority (SAQA). Finalisation of all these issues was overshadowed by the University’s restructuring of its faculties during the late 1990s.⁴¹

Refurbishments

By the late 1980s the repair and refurbishment of the Rabie Saunders Building, its equipment and surroundings had become an ongoing necessity. There was concern about an apparent decline in on-campus cleaning and repair services, and about the impact which shoddy physical appearances might have on potential donors. By early 1990 the University was employing a horticulturist to work on ‘priority items’ such as the grounds around the Denison Residence, the Sports Union and main campus entrance, but the ‘Rabie Saunders’ vicinity was a ‘B’ priority and had to await attention. The repair of the lecture room furniture, which the University’s Planning Consultant (Peter Howe) described as ‘Dickensian’, also proved to be irritatingly slow, compounded by a drastic reduction in the University Estates Department’s staff.⁴²

Campus cleaning services were, in part, put out to contract but by late 1991 there was mounting disquiet among staff about the unfavourable appearance of the Rabie Saunders Building and, in particular, the irrigation system on the front lawns which had attracted ‘highly unflattering comments’ and was a ‘huge discredit’ to the Faculty. There was little prospect of any improvement in the immediate future, though the Physical Planning Department did give verbal assurances that Agriculture would enjoy ‘concerted attention’ the following year. By April 1992 major renovations were indeed taking place, with a committee, comprising one representative from each floor, monitoring progress. In addition, Bruce Stead, the campus horticulturist, had produced

‘a very impressive plan’ to improve the aesthetic effect of the surrounding grounds.

By mid-year a ‘vast improvement’ was already obvious, especially in the lecture rooms. The Planning Department donated outside furniture for the staff tearoom, ‘Suncrush’ provided umbrellas and ‘Dunrobin Nurseries’ contributed plants. ‘Fedics Food Services’ (the designated on-campus caterers) donated R60 000 to upgrade the Food Services Management Laboratory while the lower floor of the Library (by then transferred to the John Bews Building) was fitted out for the use of Agricultural Production after undergoing major structural alterations.⁴³

By March 1993 the refurbishments of the Rabie Saunders Building were almost complete but the surrounding landscaping was a much longer-term process dependent upon phased funding allocations. Under the auspices of the University’s Gardens and Grounds Committee, several setbacks were encountered, including the choice of inappropriate plants, before the desired improvements were effected. It was decided to erect two flagpoles at the front of the Building, one for the national flag and the other for the University’s own ensign. The need for forward planning and ongoing improvements remained, increasingly with regard to security in the form of perimeter security gates and fencing.⁴⁴

Improved facilities

Security and safety was improved in various other ways. Departmental heads were reminded that they were responsible for locking offices and laboratories at the end of each day. In March 1991 Eric Senior presented a very detailed document on necessary day-to-day safety procedures within the Faculty, particularly with regard to student practicals. A Faculty Safety Committee, with members drawn from each department, was formed to develop, among other things, a fire-fighting programme and code of safety practice.

In 1993 Senior also drew attention to the implications of the new Occupational Safety Act and departmental heads were urged to familiarise themselves with it. Elma Nel reported on a meeting with fourth-year students and their parents that highlighted the limitations of the University’s insurance coverage pertaining to student practicals and project work in peri-urban and rural areas, which some students now balked at entering in view of recent incidents of violent unrest. Student protest demonstrations in the mid-1990s prompted a further assessment of security measures in the Rabie Saunders Building, including the upgrading of the old alarm system. In 1997 a new card security system limited after-hours access and internal lighting was improved as a matter of urgency. Card access for vehicles was also introduced at the

entrance gates to the Faculty campus and lighting was installed to illuminate the various parking areas.⁴⁵

As this suggests, parking facilities continued to be an issue, not only in terms of security but also with regard to the provision of sufficient bays for students and reserved space for staff. Additional space was created, the student parking area to the east of 'Rabie Saunders' was eventually tarred and staff bays were numbered and marked with 'reserved' signs.⁴⁶ Transport needs for student practicals in the field were also not fully resolved. 'KwaZulu Transport' busses were no longer available and the availability of Combis from the Estates Division was unpredictable. The student body accepted Board's proposal that they should pool their own transport and be reimbursed costs but the matter dragged on for some time before the Faculty Budget Committee recommended that students be paid 'half of the normal rates' for such useage.

In 1995 the Department of Agronomy had an externally-funded Combi hijacked with three staff members in it. Nobody suffered any physical injuries but subsequent departmental field trips were cancelled and the incident raised issues relating to insurance coverage which emphasised the University's opposition to departmental ownership of vehicles.⁴⁷

The non-availability of adequate, nearby café facilities for both staff and students was another recurring cause of dissatisfaction. Negotiations with 'Fedics' culminated in its departure from the premises and the awarding of a provisional contract to 'Jam Caterers', a student-run company. In 1993, in response to student requests for a clock in the foyer of Rabie Saunders Building, Dieter Reusch was commissioned to carve a wooden clock face for this purpose.

It was followed five years later by John de Villiers' large mosaic clock which he presented to the Faculty on the occasion of its 50th Anniversary. Sadly, it has not worked for some years.⁴⁸ Attention continued to be given to ensuring that the Faculty enjoyed an efficient and affordable service from the Mechanical Instrument Workshop and from the Stationery Store of the University Buying Office. The need for the Faculty to maintain its own photographic and darkroom facilities fell away in the 1990s and, except for a camera which was still used occasionally, the equipment was sold and the proceeds deposited in the Faculty's Reserve Fund.⁴⁹ There was, however, strong demand for the provision of a fax machine which, when installed with its own direct line, was heavily used. By April 1991 a machine had been installed on each of the four floors of the Rabie Saunders Building to cope with the traffic. There were also demands for improved audio-visual equipment in the John Bews Lecture Theatre, which in 1995 was fitted with a radio microphone while a new data and video projector became available in the general loan pool.⁵⁰

As the Faculty became better and more elaborately equipped there was increasing anxiety that, in the event of the existing electricity supply becoming overloaded, there was no reserve source of power on which to rely. There was a prohibition on the installation of more air conditioners in offices but the supply improved after the upgrading of the distribution boards. By 1998 a new Energy Management Proposal involved connecting all air conditioners in the Rabie Saunders Building onto an entirely separate power feed.⁵¹ The availability of a reliable electricity supply was obviously even more important to the Faculty in other respects, not least as it developed a computer network and made increasing use of the Internet.

The University's Computer Services Division favoured linking all departments in the Faculty onto a single Local Area Network (LAN) and in 1991 Clive Reid of that Division recommended the installation of the Ethernet Backbone to link up with other faculties on the main campus. He argued that this would give all personal computers in the Faculty access to every programme on the LAN (eliminating the need for hard drives and the purchase of new programmes) as well as to the world-wide electronic mail system. In September 1991 the Faculty supported the installation of a LAN system to coincide with the refurbishment of the Rabie Saunders Building from the beginning of 1992. This was on the strength of a comprehensive survey conducted by Mike Savage and Mark Laing, the first of its kind on the campus, found that 100% of the Faculty's secretarial staff, more than 90% of its academics and nearly 75% of its technicians were already computer literate, with a PC (running the DOS operating system) on the desk of virtually every academic and secretary. It also found that the University had financed only one third of these PCs, with the result that their purchase and that of computer software had been haphazard and varied.

The survey highlighted the advantages of a network which would provide staff with direct access to library, student and financial information as well as electronic mail transfer. It supported the installation of a LAN to achieve connectivity within the Faculty Building as a vital 'first step' towards campus and world-wide connectivity thereafter.⁵²

Unfortunately the R250 000 initially budgeted by the Computer Services Division for the Faculty was cut to R50 000 but the LAN remained its top priority in preference to an optical fibre connection. By 1993 it was confirmed that R3 000 per department had been allocated for LAN connections on application to the Finance Division. In September Mike Savage, the Faculty's representative on the Campus Computer Advisory Committee, reported that funds might also be available for computer-aided instruction and a Committee was formed under his convenorship to pursue the Faculty's interest in that regard.

By the mid 1990s the Faculty was offering its own computer literacy course and, with course work-linked computer usage increasing, the staff began to

need improved computer equipment as well as a bigger or second LAN. By 1997 the Agriculture student LAN usage was seriously oversubscribed due to excessive use of the Internet. Rob Gous proposed that an Internet Café be made available to students on campus, providing access only after 5.00 pm, so that the LAN could cope with other student usage during normal working hours. The Computer User Access Committee was entrusted to investigate the matter further.⁵³

The computerisation of campus library facilities was of vital significance to both students and staff. In 1993 a CD ROM work station became available in the Life Sciences Library with a 'Juke-box' holding up to six disks. Despite the estimated additional cost of R40 000 a year Board decided that it was 'absolutely essential' to link this facility to the LAN so that all staff members could access it via their desktop computers. By 1995 the whole Faculty had already become dependent upon the CD ROM system for its rapid search and abstracting services, to the extent that there was concern for its proper maintenance and control. It was also felt that all second-year students should be required to take an Information Retrieval Skills Course in order to use the computer facilities effectively and as part of their 'life-long learning'.

By the end of the year the number of faults occurring on the LAN and the heavy student usage was a cause for alarm, coupled with vandalism of LAN equipment. Tim O'Connor pointed out that the Agriculture LAN was one of the few on campus which was open all night and that there was a need to control access to it by users from other faculties in order to overcome the numerous complaints of Agriculture's own senior and postgraduate students.⁵⁴

The computerisation of library services in the 1990s took place against a backdrop of an increasing financial shortfall. The 1992 Budget for the Pietermaritzburg Campus Library was cut by 16% on books and 27% on journals, with Agriculture being requested to cut R57 000 worth of journal subscriptions. Part of this was met by reducing the Faculty's book vote to R78 000. In August 1993 when Christopher Merrett, the Acting University Librarian, addressed the Faculty on Library funding, it emerged that between 1983 and 1992 the Rand had devalued five-fold in purchasing power while the annual Library grant grew only three-fold. Annual periodical subscriptions had increased, on average, from R84 to R650 and book prices from R30 to R128. It emerged that the only possible way to stem the ongoing decline in journal and book acquisitions was to rationalise the journal subscriptions of the Durban and Pietermaritzburg campuses and ensure an efficient inter-library loans system.⁵⁵

In February 1994 Merrett advised the Faculty that the two library systems had initiated a process of 'co-operative acquisition'. This, as part of 'a long process', would focus first on journal subscriptions that cost more than R2 000 in 1992 other than indexes, abstracts and purchases from outside

funds. In this way it was hoped to halve the R170 000 which each library had spent on these titles in that year. As the Faculty reluctantly adjusted to the necessity for such a procedure it nevertheless associated itself with the request of the Department of Agronomy and with that of the joint Agriculture/Science Research Committee in calling for the participation of academic staff in the 'rationalisation' process and for an investigation into other possible avenues of financial saving. In particular, these included a staff audit to establish the extent of library staff increase in relation to that of the student and academic staff complement.⁵⁶

A sub-committee of the University's Library Advisory Committee established that, had a more equitable formula been applied to apportion the book and periodical budget among faculties, Agriculture would have been little affected, receiving 17.9% of the total instead of an actual 18% in 1994. The application of this formula for 1995 therefore held no fears, though there was concern that the cost-cutting burden should be shared equally between the two centres and that certain 'key journals' should not be shared. In 1996 an effort was made to further improve library links between the two instead of spending more on electronic equipment.

Despite these and other cost-saving measures by May 1997 there was still a R185 000 shortfall to meet the University's journal subscriptions and a total of R325 000 worth of duplicated titles in its various libraries. Agriculture made further suggestions concerning the rationalisation of its own holdings and another R70 000 cut was effected on the journal budget through collaboration between Durban and Pietermaritzburg, with a similar exercise planned with Cedara.⁵⁷

Even so, the University community at large faced further cuts to its Library expenditure in 1998 when it emerged that, despite the rationalisation process, during 1997 expenditure on journals had increased by 20% due to substantial price increases and further rand devaluation. Moreover, the ratio of expenditure between books and periodicals had reached a stage (31:69) which, in Christopher Merrett's opinion, constituted a danger to 'the balanced growth' of the Library's collection and the interests of its users.

He also dispelled the illusion that electronic access provided the solution to the financial crisis, pointing out that the subscriptions involved were 'frequently tied to hard copy rates' and their networking 'subject to punitive surcharges.' Due to unfavourable exchange rates the Faculty's 1998 acquisition of books was 'minimal' and it, together with Science, faced the gloomy prospect of further savings on its journal subscriptions in order to facilitate more book purchases.⁵⁸

Research

Computer networking and library development were obviously of vital significance to the Faculty of Agriculture's teaching and research activities. So too was the effective functioning of Ukulinga Farm. In September 1989, following extensive discussions with the Finance Department, the Farm Management Committee proposed that henceforth sections of Ukulinga should be financed and controlled by relevant departments within the Faculty, with the farm staff being recognised as a service department functioning like the University's Estates Division.

While the Senior Lecturers' Standing Planning Committee proposed finding an external donor to fund the development of a 'suitable site' at Baynesfield to take over activities at Ukulinga, in 1992 a Review Committee was eventually appointed to consider the proposed departmentalisation of the University's farm. It found that Ukulinga's potential as a training centre was far from being realised and that a variety of useful short courses could be organised there for extension officers, 'emerging commercial farmers' and 'first-world commercial farmers'.

A one-year diploma course in Poultry Management which was intended to start in 1994 would require permanent accommodation there but other housing would depend upon the type of courses offered. There was ample expertise in the Faculty to develop such training, while further income might be derived from hiring out Ukulinga's facilities and through contract research involving, for example, plant breeding companies. The Review concluded that it was essential to counteract Ukulinga's prevailing negative image, based on its high running costs, by advertising its many current and past achievements in terms of training, postgraduate numbers, research and publication output and contract work undertaken.⁵⁹

In view of the farm manager Mr Peter Nimmo's expected retirement at the end of 1992, the Management Committee conducted its own review of Ukulinga, with particular reference to security and the need for more effective access control. Mr 'Joe' Meyer assumed the post of farm manager in September 1993 and John Klug was subsequently co-opted on to the Management Committee for his expertise in farm planning. Management structure continued to be a topic for discussion into the mid-1990s and in 1996, within ten years of a proposed increase of the beef herd and/or sheep flock, it was decided to sell them except for a few cattle to be kept for research in Animal Science.

In March 1997 Lieb Nieuwoudt expressed concern that, with the proposed allocation of costs to departments still not having taken place, the financial management of Ukulinga was inappropriate, with three members of the Committee having 'vested interests' in it. He proposed that the Management

Committee be replaced by a Board of Control but this proposal was overshadowed by the Pietermaritzburg Academic Affairs Board's request that a 'Task Group' rationalise the use of Ukulinga, Cedara, Baynesfield and also Nansindlela for student practicals. In addition, the Dean, Frits Rijkenberg, proposed an approach to the Premier of KwaZulu-Natal in connection with the unco-ordinated manner in which Agriculture was being taught in the province and that the two issues might become linked.⁶⁰

While these and other restructuring proposals were being considered news broke that the Anglo-American Chairman's Fund had awarded the Faculty R150 000 a year for three years towards the development of a 'small-farmer project' at Ukulinga. The University Principal, Professor Brenda Gourley, was to submit Faculty's proposal for an additional R1 million to the Kellogg Foundation which reportedly intended to donate \$120 million in southern Africa over the next four years. At last, in July 1998, after prolonged re-planning deliberations and considerable speculation, it was resolved that Ukulinga would be run partly by a 'Micro-Policy Group' (MPG) comprising user and some non-user Heads of Department, which would meet every six months to provide policy direction and a forum for the discussion of user problems. It would also have an 'Executive Management Group', representing the Livestock, Plant and Extension Groups, to make any decisions that required prompt action and report every six months to the MPG, which in turn would report to the Faculty Board.

The new scheme did envisage one new post in the form of a Head of Extension or Agricultural Extension Co-ordinator but no such appointment was made. Meanwhile, security continued to be a problem on the Farm. Following an attempt to steal 16 head of cattle it was decided to invest in 10 ostriches, at a cost of R21 000, to occupy a corridor along the western boundary as a cheaper deterrent than an electric fence costing R80 000.⁶¹

A more important development than the installation of the ostrich patrol which affected Ukulinga in the late 1990s was the amalgamation of the Bisley Valley Conservancy and approximately 100ha of the southern part of the Farm, an initiative launched by the then Dean, Frits Rijkenberg. The 250ha Conservancy, owned by the Pietermaritzburg Municipality and conserved by the Parks and Recreation Department, currently contained three giraffe, seven zebra and 20 impala while the southern areas of Ukulinga could only be used for occasional grazing because of their shallow soils and were uniquely suitable for the six oribi and several reedbuck which already roamed there.

There were, therefore, 'excellent wildlife reasons' for incorporating them into the Conservancy and selling off Ukulinga's unwanted cattle herd and sheep flock to pay for appropriate fencing and gates before the boundary fence between the Farm and Conservancy was dismantled. A further incentive was provided by the fact that the Faculty's 1996 intake of first year students

for the new Wildlife option was expected to increase to over 50 in 1997, with a consequent need for an ample and convenient wildlife area in which to conduct their practical work. Early in 1997 the City Council approved the amalgamation and in November 1998, after the legal details were concluded, the dividing fence was dismantled. On the 10th of that month a Ukulinga-Bisley Fun Run/Walk was held for all students and members of staff. It became an annual event.⁶²

During the 1990s there were also some important developments at another of the Faculty's major teaching and research facilities, the Phytotron complex. By September 1989 chemical flushing of the condensers and cooling system of the refrigeration system had greatly improved compressor efficiency. In addition, the cooling system had been modified to provide for the independent operation of cooling tower coolant for the growth rooms and temperature-controlled glasshouses. Plant hygiene had been improved by the completion of disposal bays for spent media and phytotron refuse as well as a root washing bay.

This made it possible for the flow of uncontaminated or pasteurized material entering at the south-east of the building to be discharged at the opposite end as spent media after experiments had been completed. Several 'user department' facilities were constructed, with the able assistance of the new senior technician, Mr Ken Hosking, and his assistant, Mr Shabalala. Henceforth, departments were to be responsible for the beautification and maintenance of the immediate surrounds of their facilities, with the Estates Division maintaining lawns and removing refuse. As the University's current financial situation made the acquisition of additional controlled environment equipment impractical, funding requests were focused on upgrading existing equipment, particularly with regard to lighting and temperature control.⁶³

By 1990 the Departments of Zoology and Entomology were moving into space that could be used for future Phytotron development and there was also concern that the gas sterilisation plant was no longer functional. The Faculty was nevertheless extremely grateful to its Phytotron Committee, its chairman Peter Greenfield and senior technician Ken Hosking for successfully bringing the growth rooms back into commission. By September 1990 an amount of R45 000 had facilitated an upgrading of the temperature-controlled growth rooms and four new controllers were being made after a prototype developed by Hosking in collaboration with the University's own Electronics Workshop had proved successful.

The refrigeration and electrical systems were also being overhauled and it was intended that environmental control would be microprocessor-controlled with access through a PC terminal operated by the senior technician. A pump-

house had been erected to accommodate the multi-channel fertigation plant and plans were in hand to upgrade the temperature-controlled glasshouses.⁶⁴

By 1992 funding for further development was urgently needed as plans for extensions were being proposed. As demand for growth facilities continued to exceed supply it was agreed that users would have to be charged R180 a month for chambers and R85 for controlled temperature glasshouses. Following the successful conversion of Glass House No 1 to evaporative cooling it was decided to convert the others to that system. In September 1992 it was also decided to rename the facility the 'Controlled Environment Research Unit'. Refurbishments continued as and when funds became available, with new electronic controllers for the temperature-controlled glasshouses being manufactured by the Electronics Workshop to replace the now obsolete electro-mechanical controllers that were originally installed in them.

Demands on the unit stabilised in the mid-1990s as a consequence of the prevailing economic recession and a decline in external research funding. While renovations continued and replacement of the lighting system in the growth rooms was planned, attention was drawn to the fact that much of the refrigeration equipment was now thirty years old. A significant acquisition in 1994 was a large Conviron PGW36 which the University of the Western Cape was disposing of and which, with financial support from user departments and the University, was established on campus for R15 000 (new price R220 000).⁶⁵

By 1989 construction of the long-planned Isotope Laboratory was at last under way. In 1990 the Chief Technician's post in the *Electron Microscope Unit*, occupied with great distinction by Tony Bruton, was re-designated 'Head' and the Director, for many years Frits Rijkenberg, 'Chairman of the Electron Microscope Committee of Control' to reflect more accurately their function and, perhaps, to acknowledge the importance of this facility to the Faculties of Agriculture and Science.

Indeed, it was widely regarded as one of, if not the best, of its kind in South Africa. The Unit continued to offer a variety of sophisticated equipment, including an S-570 Scanning Electron Microscope, a small T200 which in 1994 was replaced by a more advanced second-hand S-450 and a Kontron Image Analyser with broad application.⁶⁶

In May 1990, after being disbanded two years earlier, the Faculty Research Committee was reconstituted to promote research activity and advise staff on funding applications both within and external to the University. In April 1993 it was superseded by a Joint Agriculture/Science Research Committee which performed these functions as well as promoting inter-faculty collaboration, organising a series of 'Schreiner lectures' which were of mutual interest, planning joint postgraduate research seminars and exploring more effective ways of funding postgraduates.⁶⁷

In 1990/91 a major reduction in FRD funding for postgraduates was largely compensated for by the University. In addition, Board proposed the establishment of an equipment reserve fund for postgraduate research Programmes, though it was noted that most students in the Faculty were supported by their departments through contract research.

There was, however, disquiet that the University was contemplating a charge of as much as 65% on funds received by departments for contract research as this would make contract work non-competitive and result in a loss of goodwill towards the University. The matter was largely resolved after the University Research Committee had issued revised funding guidelines but there was also ongoing anxiety about future levels of FRD funding.⁶⁸

Following the FRD-sponsored 'Louw Report' the country's Deans of Agriculture met Dr Louw early in 1989 to discuss how the FRD could best promote agricultural research. It was resolved that funding would henceforth be provided on 'scientific merit' for 'high powered research'. Shortly thereafter Government approved the establishment of an Agriculture Research Council to administer funding and determine future policy. In addition a SAC (Scientific Advisory Council)/HSRC Conference was held to consider the equitable distribution of funds in terms of the effective implementation of research findings for the benefit of society at large. By mid-1992, when the FRD Vice-Presidents visited the campus, the Agricultural Research Council was planning to release 'a substantial amount' for 'normal support programmes' and 'pilot projects'. Individual evaluation for FRD Research Support Grants became standard practice for all scientists during the 1990s, with special provision made for promising young researchers. Staff members who attracted 'A', 'B' and 'C' level support made a significant contribution to the Faculty's overall income.⁶⁹

The Faculty of Agriculture and its staff also had a strong interest in research funding from within the University for individual and collaborative projects, conference attendance, expensive capital equipment and the 'research incentive scheme' for subsidy-earning publications. This eventually got off the ground in the early 1990s with articles published by staff members in accredited journals initially earning their respective departments R500 each and books R1 500. These payments constituted an unspecified percentage of the publication subsidies awarded annually (but three years in arrears) to the University by the Department of Education and Culture and they were intended to promote further research activity within the deserving departments.

The funds earned were not allocated directly to individual staff members in order to avoid the tax implications but, subsequently, non-taxable personal research accounts were opened on the understanding that the funds were indeed used strictly for research purposes. The appointment in February 1992 of Michelle van Schoor as Faculty Research and Development Officer (though

she later also became involved in student recruitment) was intended, in part, as a means of attracting further external funding to the Faculty's research projects. This initiative was well-timed as internal University finances were limited and its research budget attracted applications from increasing numbers of staff members. In 1996 the Faculty still managed to attract R300 000 from the University Research Fund for its projects, excluding monies earned through the 'research incentive scheme'.⁷⁰

During the late 1990s the University Research Committee moved towards a new funding system which the Deputy Vice-Chancellor (Research), Professor E.M. (Eleanor) Preston-Whyte, and members of the Research Office discussed with Faculty members in October 1997. The Board initially voted in favour of retaining the *status quo* when offered the choice between that and the new proposal to consolidate most applications for University research funds into direct grants to individuals, based on their publication outputs at a new rate of R7 000 per accredited journal article. The system was intended to exempt new staff, as well as established staff who wished to resuscitate an inactive research career, for a maximum of three years and also to exclude the cost of expensive capital equipment and documentary materials. While it was decided, as an experiment, to apply the new funding system to the University's two Schools of Law for a period of two years (1998/99), the Faculty of Agriculture (among others) looked on with interest. Mike Savage pointed out that the 'SAPSE' publication system was 'simply a counting system', with no regard for 'the quality of the research nor the impact factor of the journal'.⁷¹

Student intake and admission requirements

Research funding was not the only issue that demanded attention with regard to the Faculty's continued ability to attract and retain postgraduate students. In competition with other universities and other faculties within the University of Natal, it was necessary to compare fee structures and also prevailing prerequisite, co-requisite and course requirements that might discourage potential Masters candidates.

The upgrading of M Sc Agric registrations to Ph Ds was also carefully considered, with the Board favouring caution lest the latter qualification be devalued. Despite these concerns the Faculty graduated a record number (though unspecified) of postgraduate students in 1991. This was eclipsed in 1994 when 56 Masters and 24 Doctorates were awarded. The admission of candidates from other universities into postgraduate Programmes remained a difficult issue, particularly with regard to institutions about whose academic standards relatively little was known. The debate within the Faculty was triggered by several cases of students whose paper qualifications (upper second in the first degree) met these requirements but proved to be unsuited to higher degree studies.⁷²

In April 1996 a four-person Faculty Committee produced a handbook *Guidelines for Higher Degree Candidates* which, for the benefit of students and staff, outlined the whole postgraduate degree process from admission requirements and registration, through the examination of theses and awarding of degrees to the publication of research findings. It also summarised the responsibilities, contributions and entitlements of students, supervisors and the University in this procedure. In addition another document, *Information for the Guidance of Examiners of Higher Degrees*, was formulated as well as a postgraduate funding contract which ensured that students who failed to complete their theses for whatever reasons would be obliged to pay back their research funds and stipends. The underlying purpose of was to protect supervisors who were often left to face the wrath of external funders when postgraduate research projects were not completed. In all these respects efforts were made to reach consensus with the Faculty of Science as the two drew ever closer together.⁷³

By the late 1990s, prompted by requests from the University Executive, the Faculty was considering yet another document *Possible Model for Restructuring Postgraduate Studies*. Driven by principles of ‘outcomes based education’ it proposed a standardised modular system of postgraduate progression beginning with Honours level and abolishing the distinction between that and the Masters level. The Board’s Higher Degrees Committee accepted the need for a standardisation of its postgraduate offerings and that modularisation was not new to the Faculty but it opposed the loss of its existing Honours research degree to a new coursework alternative. It also argued that ‘outcomes based education’ should not form part of a higher degree programme’ and was concerned that the proposed new model pointed to possible doctoral coursework degrees.⁷⁴

Part of the supposed appeal of the new model was flexibility with regard to entrance and exit levels of study. A similar flexibility was being introduced at undergraduate level, with proposals to make the Diploma and Certificate in Rural Resource Management an alternative access route into the Faculty’s degree Programmes. This too was in accord with the National Qualifications Framework (NQF) designed by SAQA. The intention was to offer this option to students who did not have the requisite matriculation points but who had demonstrated a capacity for academic studies. It was also recognition that matriculation exemption was not a reliable predictor of success in degree studies.

In January 1994 the Committee of University Principals strongly endorsed the Matriculation Board’s 1993 proposal to make the minimum statutory requirements for matriculation exemption more flexible by introducing a category of university admission called ‘Senate’s Discretion’. In anticipation of a change in the relevant Statute non-matriculants who demonstrated

potential for university studies, for example through the Science Foundation Programme, could, from 1994, be admitted provisionally via the customary Dean's Discretion. The Board's instinct, as in most things, was to proceed with caution.

A source of far greater apprehension was the poor quality of Agriculture (and relevant equipment) as currently taught in local provincial schools and its consequent declining popularity among pupils. This was the picture brought back to the Faculty by Dr D.F. (Daniel) Mataruka, a Cornell-trained agronomist appointed to liaise especially with black schools in the province. Even more alarming was the report that Agriculture was to be phased out of the school curriculum entirely. This meant that there would be no further demand for teachers who had specialised in that field, nor would the Faculty be able to recruit any local students with a school background in it. Moreover, unlike the early decades of the Faculty's history, there were far fewer students with any family background in agriculture.⁷⁵

The Faculty's intake of students in 1989 was below its 2% quota increase but it nevertheless registered its dissatisfaction with that constraint, given the needs of the country's agricultural sector. It was suggested that school pupils should more actively be encouraged to take degrees in Agriculture and should provisionally be offered places on the strength of their June and 'Trial Matriculation' results.

The first-year intake had only increased from 183 to 189 between 1986 and 1989, with an overall drop in all years from 537 to 517. Recruitments in KwaZulu-Natal rose from 42.2% of the total to 56.3% while those from the Transvaal and Zimbabwe declined from 22.3% to 19.1% and 19.3% to 16.9% respectively. As selection procedures became more refined in the face of the Faculty quota the Dean was entrusted with determining the number of matriculation points required for admission (28 in 1990), though in terms of the University's 'Mission Statement' some places had to be reserved for applicants from educational authorities for which 'Trial Matriculation' results were not available. Filling but not exceeding the quota proved difficult, with excess students not attracting a state subsidy, though the overall total declined by another 25 in 1990.⁷⁶ Board felt that it should therefore be allowed to increase its 2% increased quota in 1991.

This was granted, provided the increased intake was accommodated within the existing infrastructure. It was pointed out that, during the previous 15 years, the University's student population had increased at an average of 4% a year and that the quota would now be stretched by a likely increase in white male applicants following a recent reduction in the period of compulsory military service.⁷⁷

Despite these expectations in 1992 the Faculty's first-year intake declined to 184 (compared with 189 in 1989) and its overall numbers to 483 (from 517).

There was 'extreme dissatisfaction' among staff that 'good students' were being lost due to the University's ineffective selection process, a sentiment which was forwarded to Senex. The Faculty Board offered some suggestions and in October 1992 it was announced that, in competition with other institutions which already offered inducements to attract promising students, the University would offer 1992 matriculants a full remission of fees for six or more 'A's' at the higher grade, R5 000 to those with five 'A's' and R4 000 to students from disadvantaged educational backgrounds with two 'A's' or more.⁷⁸

Student numbers continued to drop in 1993, with the first-year intake down to 120 and overall numbers to 421. The bulk of students were attracted from Natal (58.8%) and the Transvaal (21.9%) with Zimbabweans fading further (to 5.9%). The decrease in the Faculty's new first-year intake was attributed primarily to its failure to accept an increased number of black students. It was proposed to launch a vigorous public relations campaign aimed at all sectors of the potential market but with a particular focus on Department of Education and Training (DET) black schools and highlighting the Faculty's new option in Rural Development. Vusi Dhladhla planned a recruitment drive in collaboration with the Faculty's Research and Development Officer (Michelle van Schoor) which was presented to Board in April 1993.

It was heavily focused on schools in and around Pietermaritzburg, with the intention of sending appropriate literature to those too distant to visit and a heavy reliance on the mass media to overcome problems of access to some schools caused by the currently volatile political conditions.⁷⁹ Board expressed concern that schools in the Durban area and private schools were not being targeted while Dhladhla highlighted the lack of career guidance at DET schools and the urgent need for closer links with those still offering agricultural science. He pointed to the fact that many of their pupils would not meet the Faculty's entry requirements because of a 'mismatch' of matriculation subjects and, in particular, inadequate Mathematics symbols.

His recruitment activities nevertheless continued apace, with new initiatives including a 'PROTEC' Vocation School Programme, an annual 'Agricultural Science Show-Case' and stronger links with 'Agric High Schools'. Meanwhile the new School of Rural Community Development was busy canvassing students who were not likely to meet the Faculty's entry requirements and would otherwise further their studies at Agricultural Colleges.⁸⁰

In 1994 Agriculture was the only Faculty on the Pietermaritzburg campus which did not experience a decline in its first-year intake and, in addition, gained 39 new Rural Community Development Diploma students. It was also the only Faculty on campus with higher overall figures than the previous year (453 compared with 421) and also had the second highest number of black first-year students on campus. Student intake took another drop before

rising again in 1997 but while the first-year intake increased marginally the following year (114 to 118), including 51 admitted by Dean's Discretion, there was an alarming decline in the number of returning students. There was also dissatisfaction within the Faculty about the cumbersome and, at times, inefficient system of selection and registration which discouraged students and sometimes lost the top matriculants to administratively more efficient institutions.⁸¹

Student issues

Selection and registration were also often frustrating processes for students, with some seniors resorting to late registration in order to avoid the start-of-semester queues. A major benefit for educationally disadvantaged first-years with more potential than their matriculation points might suggest was the launching of the Faculty of Science's Foundation Year Programme (SFYP). By late 1989 it had attracted R3.8 million in external pledges and the following year Dr D. (Diane) Grayson was appointed its first Co-Ordinator. In July 100 matriculants were involved in a teach-test-teach evaluation process from which 20 were selected for the SFYP. It was accepted that those who successfully passed through the Programme could eventually become Agriculture or Science degree students and in 1992 the Faculty was given representation on its Steering Committee.⁸²

The SFYP effectively met the Faculty's earlier support for a 'Bridging Year Programme' but there was still a need for ongoing educational development. In order to liaise with the new Centre for University Educational Development (CUED), all faculties were requested to establish a Faculty Education Development Project Committee. Board also accepted the idea of 'support tutorials' despite reservations about funding but in 1992 was awarded an Independent Development Trust (IDT)-funded three-year contract post for a lecturer. Vusi Dhladhla was appointed with responsibility, *inter alia*, for the stimulation and co-ordination of educational development activities in the Faculty, to assist with course revisions to make agricultural education more relevant to disadvantaged students, and to improve perceptions of agricultural studies in black schools. In the face of a falling student intake and an unduly low proportion of black students coming into the Faculty recruitment became an increasingly important dimension of his portfolio.⁸³

Educational development continued to attract considerable attention, both within the Faculty and the wider University community. In 1993 the Board agreed to subscribe to the new Academic Monitoring database situated at CUED. This was intended to capture all term and examination marks supplied by departments in order to track students' overall performance and identify 'at risk' cases as early as possible. In the same year an Inter-Faculty Committee was established to liaise more closely with the Science Faculty's Education

Development Committee. Staff members were encouraged to take advantage of the mentoring and academic research internship Programmes for which funds had been provided. The former employed senior black students to mentor groups of black undergraduates and interact with staff on their behalf, while the latter, funded by the Ford and Kellogg Foundations, facilitated one-on-one relationships between black students and staff members with the intention of introducing students to the academic process and encouraging them to study further.⁸⁴

Vusi Dhladhla resigned at the end of 1994 and Daniel Mataruka was appointed to complete the last year of his three-year contract, though the Faculty favoured the creation of a full-time permanent post. By the time of his departure in 1996 the University was in the process of ‘mainstreaming’ educational development, making it an integral rather than ‘add-on’ part of all courses in an effort to improve the teaching and learning function and evaluate the relevance of everything being taught. In this connection every department was required to nominate a representative onto the Faculty Education Development Committee which, in turn, reported to the University Education Development Programme Board.⁸⁵

By the mid-1990s Education Development had become a permanent and prominent feature of the Faculty’s academic life. So too had financial aid to needy students, which was in increasing demand by all faculties. Major outside contributors for this purpose were the Kagiso Trust and IDT. In 1994 the former allocated R430 000 specifically for students taking the Diploma in Rural Resource Management. The Faculty was awarded R170 000 from University resources, which was sufficient to support ten students for degree purposes. In 1995 it was satisfied with its allocation in that no applicant had to be refused for lack of funds but by 1996 there was increasing alarm at the amounts the University was investing in ‘under-achievers’ in order to assist them in taking up to two years longer than the minimum to complete a degree, and sometimes not completing at all. In 1996 alone this amounted to R8 million out of a total University investment of R16.5 million in financial aid packages.

During the previous three years the University had drawn R8 million from its reserves and borrowed R6.5 million to avoid the financial exclusion of ‘under achievers’ but the policy was clearly unsustainable. From 1997 students were required to sign a Financial Aid Contract whereby they agreed to accept responsibility for their academic performance as well as any recommendations made by Faculty to improve it. Agriculture was awarded 50 financial aid packages for 1998 and 45 for 1999, which were received without comment and presumably met its requirements.⁸⁶

There was far less satisfaction with existing fee structures, especially with regard to the discrepancies between the B Sc Honours and final (fourth)

year B Sc Agric charges. The University Administration declined to make any changes as the latter was a first degree and a proposal to charge fees on a credit basis was likely to make the B Sc Agric degree much more expensive than the B Sc due to the introduction of a uniform course credit system. There was also concern that the University might be losing students because its postgraduate fees were higher than those of comparable institutions.

The cost of a Ph D was considered 'excessively high', with known cases of prospective candidates who had registered elsewhere for this reason. The Faculty's Higher Degrees Committee also pointed to the lack of funds for foreign postgraduate students and the need for the University to provide for them if it wished to improve its reputation elsewhere in Africa. The financial wellbeing of local students was obviously of more immediate concern, especially when it was noted that, as at July 1997, Agriculture students owed more than R770 000 in unpaid fees.⁸⁷

A related and ongoing issue was the high cost and number of textbooks prescribed in some departments. The University Library could not afford to stock multiple copies of text books and booksellers complained about being supplied with inaccurate information concerning course registrations and being saddled with unwanted copies due to frequent changes of prescribed titles. Board agreed to limit such changes to a minimum of three years, except in cases where course content was significantly altered. In addition, a Text Book Ethics Committee was approved to oversee the prescribing of textbooks and lecture notes authored or co-authored by staff members.⁸⁸

Bursaries and scholarships eased the escalation of fees and book costs for some students. In this regard the Board was particularly anxious that its postgraduate students could compete equitably with those in other faculties and universities. It was also concerned that its fourth-year students should actually compete for scholarships with Honours and not with third-year B Sc students. In response, the University Scholarships Committee accepted, in principle, the establishment of a new scholarship award category i.e. final year students for a four-year degree. Some English-speaking postgraduate applicants from other African countries were eligible for British Council scholarships while local students could apply to other sources, such as the German Academic Exchange Service and from the Cyanamid (Pty) Ltd Fund for studies in Rural Development.⁸⁹ Apart from the University's own awards, undergraduates could also apply for outside funding, such as a Cyanamid Bursary (final-year only), the Omni-Nitrochem Fertiliser Bursary for second and third years students studying Soil Science, Crop Science, Horticulture, Agricultural Production and Agricultural Economics and the aforementioned Roy Muller Bursary, named after a former staff member.⁹⁰

Graduate assistantships and student demonstrator posts continued to provide another source of financial aid to students, though the funding

allocated was seldom sufficient to meet the Faculty's needs and by 1995 was considered 'totally inadequate'. Insufficient recognition seemed to be given to varying departmental circumstances while the reduction of the fee remission for graduate assistants from 80% to 70% unfortunately did come at a time when the Faculty's potential for growth seemed to lie more in postgraduate rather than undergraduate numbers. Efforts were gradually made to improve the funding allocation for both graduate assistants and student demonstrators. In addition, by 1998 there were nearly thirty prizes and medals of varying value available to students in the Faculty of Agriculture.⁹¹

Students continued to be assisted in a variety of other ways. The Student Counselling Centre provided an invaluable service, as ever, and particularly at a time when some students' lives were being dramatically affected by the political unrest which characterised the late 1980s and early 1990s during the prelude to the country's first democratic elections in 1994. In 1991 the Student Counselling Centre added a much-needed anti-Aids Intervention Programme to its portfolio. The Centre also sought closer links with the teaching staff in the realisation that students' personal problems often manifested academically. The Faculty responded sympathetically to this initiative, as it did to the Counselling Centre's Examination Skills presentation. In 1995 the Centre's staff was invited to visit the Faculty and thereafter the Dean continued to encourage staff to make more use of the Centre's services.⁹²

In the best tradition of Professor Susarah Truter, the Faculty continued attempts to enforce some sort of student dress code, though now in the interests of 'health and safety' rather than modesty and sartorial elegance. During the 1990s there was an increasing awareness of the needs of physically disabled students in terms of Braille transcriptions of lecture notes, computer training and familiarisation with the campus layout. Physical access to buildings and other facilities was another issue. In 1996 a lift was installed at the back of the Rabie Saunders Building specifically for the use of disabled persons, and staff were requested to bear their requirements in mind.⁹³

Faculty regulations and curricula

Students' interests were also served by the revision and/or introduction of courses to suit their needs. A revised Physics I specifically for Dietetics students was so successful that Board favoured its inclusion in the first-year B Sc Agric syllabus as well as the revision of all first year courses for Agriculture students, such as that which the Department of Statistics and Biometry had already undertaken. In addition, many Board members contended that the 'Learning, Language and Logic' course offered in the Faculty of Humanities should become a requirement for all students, undergraduate and postgraduate, with literacy problems. In that regard the situation seemed to be deteriorating,

with reports of postgraduates who were struggling to write their theses due to a deficient command of English.

In terms of the Higher Education Act (Act 101 of 1997) each tertiary institution was required to develop its own written language policy. When confronted with the University of Natal's proposed policy document, which identified English as its principal language of instruction and administration, the Faculty Board argued that the suggested 'basic' communications skills in that language as an access requirement were insufficient in view of the 'alarming' levels of illiteracy already encountered on campus. It also contended that English courses designed to assist students in achieving a level of proficiency sufficient for academic success should not, as proposed, be credit-bearing as such requirements 'should have been completed before coming to University'.

With some institutional recollection, perhaps, of the language requirements which had been prominent in the early days of the Faculty, Board did not favour proficiency in other official languages as a basis for staff employment and promotion. It also assumed that the multilingual proficiency which was being touted in the University would not be a compulsory requirement of curriculum development in all faculties, such as its own.⁹⁴

A similar caution characterised several of the Faculty's own curriculum initiatives, though this was not true of its introduction of a similarly essential course in computer literacy. The need for such training had already been highlighted in a University Vice-Chancellor's Report and by the Faculty's own realisation that 75% of its first-year and 70% of its second-year students did not have an appropriate level of computer skills. As a result, many members of staff were not involving computer use in courses which might otherwise have been taught quite differently and more effectively.

Led by Mike Savage and in collaboration with the Computer Services Division, an initial 'pilot study' six hour computer literacy course was offered to all second-year Agriculture students early in the first semester of 1995. It was optional and non-credit bearing, and offered at no more than R50 per head to ensure that it was not financially exclusive.⁹⁵

By contrast the introduction of Molecular Biology/Biotechnology, spearheaded by Mike Dutton and Mike Wallis, was further delayed, partly by its financial implications and the need for two extra posts. The large amounts of external funding being directed towards subsistence agriculture suggested that there would be difficulty attracting the necessary support for this proposal. Eventually, in 1990, the Departments of Biochemistry and Botany combined to offer 'Biology 310 DNA Biochemistry and Technology' through the Faculty of Science. Board agreed that a new course, Molecular Biology 310, should be available to students of Agriculture in 1991.⁹⁶

The earlier proposal to introduce a course in Forestry Management was even further delayed, with neither the Forestry Council nor the major timber companies initially being willing to fund lecturing posts due to the prevailing financial slump. Following a 1992 Forestry Council commission of enquiry into teaching and research in South African Forestry the situation gradually changed. In its submission to the commissioner, Dr G. Thompson, the Faculty pointed out that although formal forestry teaching had hitherto been the preserve of the University of Stellenbosch, during the course of four decades Natal had developed 'a substantial record of contributions to the industry'. These included numerous forestry-related research projects and short courses conducted by its staff, 29 completed theses and 16 still in progress, and at least 30 graduates employed in forestry. It was also pointed out that the epi-centre of the country's plantation forestry industry, stretching from the Transkei and north-eastern Cape to the eastern Transvaal, was at or near Pietermaritzburg, that the major private-sector producers (unlike the state) had established their research and development operations in that vicinity, and that the 'triad' of industry, the University and the affiliated Institute of Commercial Forestry Research (ICFR), on the Faculty's doorstep, was 'unique in this country'. Interestingly, the Faculty's Horticulture Department had for several of its early years been known as the Department of Horticulture and Forestry before Horticultural Science was decided on to emphasise that the B Sc Agric was a science-based degree, built on a science foundation. Also, since its establishment in 1948, the Wattle Research Institute had hosted 'Forestry' research, its Director was an Honorary Professor and a member of the Faculty Board.⁹⁷

Much of this argument was repeated when, in 1996, the Faculty submitted a more ambitious proposal to launch a B Sc Agric degree in Forestry and Community Forestry. Frits Rijkenberg (Dean 1994–98) launched both the initial and the revised push in this direction. There was enthusiasm in the national Department of Water Affairs and Forestry for the inclusion of a Community Forestry component in the Faculty's B Sc Programme but not for the establishment of an independent Department or for an over-supply of specialist community foresters.

Late in 1998 the Faculty was at last able to advertise two lectureships, one in Forestry and the other in Community Forestry, to launch what was intended to be a full Forestry Programme. The initial proposal to accommodate them in the ICFR building was abandoned in favour of integrating them more fully into the teaching staff. After discussions concerning the conversion of departmental tea rooms and superfluous toilets they were eventually housed in the new School of Agricultural Sciences and Agribusiness.⁹⁸

In 1997 Board approved a new major in Agribusiness, by which stage the relatively new major in Wildlife Science was undergoing curriculum revision.

Initially it was envisaged merely as a course in Wildlife Management but in 1995 it was revived as a more ambitious proposal for a School of Wildlife Sciences and a B Sc Agric Wildlife Sciences Programme, with the emphasis on technical and scientific studies rather than on management. This initiative of Neil Ferguson and the Department of Animal Science and Poultry Science, in collaboration with Grassland Science, Zoology and the Natal Parks Board, was subsequently watered down by the Faculty Board from a proposed 'School' to a 'major'. In December 1995 a Management Committee convened by Neil Ferguson was elected and an initial 25 first-year students were attracted when the Programme was launched.⁹⁹

The B Agric Mgt degree, launched in 1975, continued to attract students though in 1990 its Management Committee noted that it had never been awarded *cum laude*. This was because that distinction was based on performance in the 'major' subject, and no 'majors' were specified for the degree due to its interdisciplinary nature. The Committee re-affirmed that characteristic but recommended a system of credit-weighted average marks to ensure that the top students could graduate with the highest honours. In 1997 changes were made to the Agricultural Management Honours degree to make it 'more flexible in line with agribusiness philosophy.' Instead of restricting the range to Agricultural Economics and Agricultural Production the choice of courses was now broadened in the 'important and popular agricultural direction' of Agricultural Management. This, it was anticipated, would attract and facilitate the transfer of students from other institutions to the Faculty.¹⁰⁰

The possibility of a three-year B Sc degree structure came under discussion yet again in the late 1980s, as previously mentioned, particularly in relation to the proposed formation of Schools into which it might best be incorporated. Further consideration of the proposal was suspended in the light of the January 1989 Department of National Education policy document which insisted that career-orientated Bachelor degrees should comprise a four-year Programme of study. This did not necessarily exclude the formation of cross-faculty Schools which Science also favoured and, with the latter now also semesterised, new combinations of courses became possible within the existing departmental structure.¹⁰¹

Postgraduate issues which attracted the Board's attention included the aforementioned need to prescribe courses for students applying to do Honours and Masters degrees in Home Economics with an inadequate science background. There was also a proposal to introduce a coursework Masters degree for the benefit of management-orientated rather than research-orientated students. This was seen as a means of attracting students (and subsidies) who might otherwise be lost to postgraduate studies, as well as strengthening links with the business sector.

An inter-faculty Masters in Environmental Management was launched, involving the Institute of Natural Resources, and in 1993 Trevor Anderson (Biochemistry) proposed a course on Professionalism in Science for postgraduate students in both Science and Agriculture. Born out of that, in May 1996 Board approved a new course in History and Philosophy of Mathematics and Science as compulsory for all Masters students who did not complete it as a fourth-year option. Its purpose was to develop a capacity for critical and lateral thinking as well as a better understanding of modern approaches to science through an appreciation of how scientific knowledge has changed in the course of human history. In 1998 the compulsory aspect was dropped because the course clashed with the fieldwork required in some departments.¹⁰²

Far from being dropped, the Academic Planning Office continued to develop a uniform course credit rating system for the whole University. This was accepted by Senex in early 1989 though some anomalies had still to be resolved, particularly with regard to ensuring an equitable credit rating between Agriculture and Science degrees. The system was further revised during the 1990s in relation to the introduction of a 'quality index' – a weighted average of the 'quality points' achieved by each student in the courses taken. The accurate calculation of credit values of all courses completed by students was also vital for state-subsidy earning purposes, particularly with regard to postgraduates.¹⁰³

By 1998 the University was moving towards the adoption of the SAQA-based system of uniform course credits. It developed for itself a system of 8 and/or 16 credit-point modules, with 128 as the standard number of points earned by a student per year. As a result, credits in Agriculture (as in other faculties) were thereafter based on the concept of the 'notional study hours' required of students in each course, involving not only contact hours with academic staff but also time spent in individual study and revision. The emphasis was clearly on student effort rather than on that of the staff. Soon to follow, in terms of national policy, was the need to design and register all teaching Programmes in accordance with the required SAQA format.¹⁰⁴

The adoption in 1995 of semesterisation by the rest of the University, and by Science in particular, greatly facilitated the application of a uniform and equitable course credit-rating system. By then Agriculture had been operating a semesterised/course credit system for 22 years, with only a few general introductory and final year courses not conforming to this pattern.¹⁰⁵ In the same year the Board initially rejected the University Administration's proposed 'trimester system', involving the introduction of a 'winter semester', on the grounds of staffing implications and the need for more information, particularly with regard to timetabling.

By June 1995 nine faculties had, in principle, approved the proposal, which was intended to utilise the University's resources more fully and, if possible, generate more income. The Faculty of Agriculture's Board still had reservations about what was now being called the 'Winter Semester' in terms of staff remuneration, the impact on research and student excursions, the need to speed up first semester examination results before the mid-year 'Winter Semester' started, the implication that external examiners would have to be dispensed with because of time constraints and the fact that some agricultural courses could not be offered in the winter because they are 'season-bound'.

The loss of the September vacation to the 'trimester system' appeared to be insoluble and in 1997, to accommodate scheduled vacation excursions which were an integral part of some courses, Board agreed, as an interim measure, to suspend lectures for one week for 'affected students' so that they could undertake the required fieldwork. After being the first Faculty to implement semesterisation in the University, Agriculture faced unexpected difficulties arising from its elaboration in a manner that had not been anticipated.¹⁰⁶

Semesterisation, coupled with the Faculty's own complex requirements in terms of guaranteed curricula and the specific order of completion of some course groups, made timetabling an increasingly important issue and, by 1996, called for a complete review. In 1991 there was also a review of the criteria for awarding *cum laude* and *summa cum laude* degrees, with Senex recommending a weighted average of at least 75% in the final year of 'majors' and 68% in all other courses for the former and 75% in all other courses for the latter. In the case of four-year degrees (like the B Sc Agric) a weighted average of 75% was to be calculated from specified subjects in the second, third and fourth year of study. Board continued to favour a minimum of 75% for the award of a Masters degree *cum laude*, based on criteria which did not necessarily include originality.¹⁰⁷

Individual departments continued to determine their own DP (Due Performance) requirements, approved by the Faculty. Board was reluctant to accept the new examination procedure of marking examination scripts by student number rather than by name on the grounds of logistical difficulties, potential error with anonymous scripts and the legal necessity of requiring students to sign their scripts.

Board also disapproved of the increasing number of supplementary examinations being written in the Faculty and favoured tightening up the criteria for granting them, if not disallowing them altogether. It insisted on a minimum overall 48% requirement for a 'Supp' to be granted, with a 40% sub-minimum mark at the final examination. The Faculty was concerned when, in 1992, Senex settled on an overall course mark of 40% as qualification for a 'Supp' but it insisted that a 40% sub-minimum in the final examination be retained, to which Senex agreed.¹⁰⁸

Students in Agriculture continued, as they had since the mid-1970s, to pass their own judgement on staff members and their courses by means of the Faculty's non-mandatory evaluation process. In 1991 Senex adopted and adapted a staff/course evaluation system that had already been successfully implemented at the University of the Witwatersrand and which it offered to the University as a whole on a voluntary basis. In August 1992 Senex went much further when it supported the recommendations of a sub-committee appointed to investigate academic staff/course evaluations in more detail. These emphasised the need to reward excellence in teaching and to formalise staff/course evaluation as an integral and centralised part of staff and curriculum development within existing Education Development Programme structures.

To that end it was recommended that the post of Head: Staff Development should be filled on both campuses at professorial/senior lecturer level and on academic conditions of service by appointees with appropriate qualifications and experience to provide staff with the necessary advice and guidance. In addition, it was recommended that both centres should have a training officer to reinforce the development function. In March 1993 Board agreed to subscribe to an academic data base to monitor the progress of its first year and selected senior students. Thereafter it soon became involved in the University's new course credit system and quality index, the value of which was soon recognised. By 1995 Board stressed that any staff members who did not subject themselves and their courses to formal evaluation would not be able to compile teaching portfolios which had now become essential aspects of applications for promotion.¹⁰⁹

Staff issues

Evaluation and promotion were not the only issues that concerned staff during the 1990s. There was alarm in the early 1990s at what was described as 'internal threats to academic freedom' in the form of 'intimidation of staff and students' which constituted a 'major threat to the fabric of the University.' In addition to this pre-occupation, which was presumably related to the prevailing political unrest, there was also concern about the ongoing loss of skilled personnel due largely to uncompetitive remuneration. Staff also had to make difficult individual decisions when offered the choice of transferring from the Associated Institutions' Pension Fund (AIPF) to the new University Pension Fund. Some of those who moved had subsequent reservations about the way in which the latter was being managed. In 1993 there was similar dissatisfaction with the University's Medical Aid Scheme, although the assurance was given that it was one of the cheapest available and tailored to the staff's needs. The freezing of leave replacement funds and the need to

motivate for relief from that quarter had worrying implications for the future of sabbatical leave and the research output associated with it.¹¹⁰

The appointment in 1993 of a Sexual Harassment Advisor and the formation of a Forum to address gender issues brought the Faculty into line with University-wide trends. From 1994 considerable attention was also given to the University's new Equal Opportunities and Affirmative Action Policy. This was intended, *inter alia*, to change the composition of the University's management structures within five years by including persons other than white males and, similarly, to alter its academic staff profile which in 1994 was 85% white and 73% male. Faculty accepted the need for change, with due attention to the maintenance of academic standards and the cost implications.¹¹¹

Finance

The University's financial situation was, indeed, an ongoing source of concern. The Faculty Board endorsed Frits Rijkenberg's suggestion in 1997 that the University should make more use of its retirees, not only for their expertise but also as a means of generating income through research and reducing the full-time salary bill by employing them as part-time lecturers.¹¹² By then the financial crisis, already evident in the early 1980s, was at least as serious as it had been in 1988. In 1990 the Faculty questioned the University's expenditure on matters 'not directly related to its primary function', such as new centres, units and institutes. These appeared to be growing in number and were often seeded with donations in the expectation that the University would assume the financial burden when this initial funding was exhausted.

In response, Senex resolved that 'any peripheral initiative' should henceforth be under the 'umbrella' of a Faculty Board or University-wide Standing Committee. There was some relief in the form of a 1993 windfall of R24 million in additional government subsidy, though after various other allocations only R1.24 million trickled down for redistribution on the Pietermaritzburg campus. By the end of the year it was announced that the 1994 campus budget was R2.5 million over limit, necessitating a delay in the filling of vacant posts.¹¹³

The situation did not improve significantly, with faculties only permitted to spend an initial 40% of their budgets in 1994 and 1995 and the balance after the amounts had been finalised. Moreover, although more financial functions were devolved to faculties, there was no accompanying allocation of staff. Financial control continued to be tight in 1996 while in 1997 the state subsidy shrank by 7% and it was announced that the University would have to cut 600 posts over the next five years. There was no increase in departmental budgets for 1998 and the Agriculture/Science Joint Planning Committee recommended that an annual allocation should be made to assist departments in funding the research of postgraduate students engaged in laboratory and field work.

Both faculties approved this proposal in support of those departments which actually placed themselves at a financial disadvantage in registering such students.¹¹⁴ It was also a demonstration of inter-faculty solidarity as the two increasingly found common ground and, through force of circumstance, moved closer towards amalgamation.

Planning the future and celebrating the past

In terms of the 'Planning Guidelines' for the period 1994–1998 provided in the 1993 Vice-Chancellor's Report the three primary issues to be considered were the 'Amalgamation of faculties', the 'proposed focus of the Pietermaritzburg campus' and 'certain innovations', such as the formation of 'schools'. Faculty planning was initially slow to gather momentum, with adverse effects on staff morale with regard to uncertainty about the future.

In September 1994 the Faculty held a two-day workshop at Fernhill Hotel near Midmar Dam, facilitated by Professor Robert Klitgaard of the Economics Department, to discuss what strategies were necessary to ensure that it remained 'a centre of expertise and ... an increasingly relevant force in Agricultural education and research.' The occasion helped to generate a more positive outlook, as did the ongoing debate about education development, the possible conflation of Board and Faculty meetings, the appointment of a Deputy Dean (Pete Zacharias) to ease the Dean's workload and the successful marketing of Agriculture through a publicity and schools liaison strategy directed by the new Publicity Officer, Sally Upfold.¹¹⁵

So too did plans to celebrate the Faculty of Agriculture's 50th Anniversary during the period 3–6 July 1998. The intended programme included a sponsored golf day at the Victoria Country Club organised by the Agriculture Students' Council, an Old Boys' rugby match, a visit to research trials at Ukulinga, a beer and wine tasting at the Farm's new conference facility and a formal dinner for former and current staff and students at the Pietermaritzburg Turf Club. At the latter function Ahmed Bawa, Deputy Vice-Chancellor (Academic) and a former laboratory technician in the Faculty, paid tribute to those who had founded and subsequently contributed to its high professional and academic status. So too did the guest speaker, Pete Booysen, former Dean of the Faculty and University Principal.

In an address glowing with warmth he made special mention of 'Doc' Saunders and the other members of the foundation staff, outlining the forces of change over the previous fifty years and appealing to those involved in future planning to draw on earlier experience. He pointed out that the current situation was 'not the first time that constraints of finance have provided the trigger of change', though the 'pressures of social democratisation' and 'urgent need for rural development' had made the need for change 'far greater' than ever before. Booysen reminded his audience that agriculture was an applied

science in which ‘the two aspects, science and application, must always be kept in balance’. So too, he argued, should ‘the needs of general and specialist practitioners’, as well as ‘the social circumstances which concern commercial and traditional agriculture’.

With the imminent merger of Agriculture and Science in mind he appealed for the essential balance between ‘science and application’ to be maintained in order to ensure that the ‘application of agriculture’ was never ‘marginalised’. A hearty rendition of several old favourites, including ‘We are the farmers, the farmers, a fine band of farmers are we’, and the unveiling of John de Villiers’ mosaic clock face, soon to hang in the foyer of the Rabie Saunders Building, symbolised the fact that time had moved on and that this was, indeed, the ‘last hurrah’ of Agriculture as an independent Faculty.¹¹⁶ The process of amalgamation with the Faculty of Science was already far advanced.

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A NEW BEGINNING: 1998 – 2009

At the turn of the century agricultural studies in Pietermaritzburg embarked upon a phase of structural alterations in which they lost their collective identity as a distinct faculty but were presented with many more opportunities for new synergies, both in teaching and research. The re-organisation of the University's administration was accompanied by dramatic changes to its student and staff profile and new expectations in terms of effective teaching and research output.

Merger in 1999 with the Faculty of Science on the Pietermaritzburg campus marked the beginning of this era of transformation, which culminated in an even bigger merger of the Universities of Natal and Durban-Westville as part of a major restructuring of South Africa's tertiary education landscape in 2004.

Amalgamation and restructuring

In 1992 the University Executive formally requested Deans on the Pietermaritzburg campus to consider, in principle, the amalgamation of faculties with a view to reducing their number. The liaison with Science dated back to the Faculty of Agriculture's establishment in the late 1940s, by virtue of the initial year that its undergraduates spent doing basic science courses. For various reasons this relationship gathered momentum from the mid-1970s to the extent that by 1988 amalgamation was recognised as a distinct possibility, driven by financial crisis and the need for rationalisation. In 1989 the two faculties seriously began to discuss the formation of Schools and new course combinations which might straddle the traditional divide and which had previously only been raised as theoretical possibilities. There was also a reciprocal recognition of courses between certain departments, such as Animal Science and Poultry Science in Agriculture and Entomology and Zoology in Science. Collaboration was hugely facilitated by the adoption in 1990 of a common course-credit rating system.

Subsequent joint curriculum and education development exposed anomalies that required resolution. For example, the Faculty of Science recognised the Mathematics Foundation course as credit-bearing while Agriculture did not. The formation in 1993 of a Joint Agriculture/Science Research Committee strengthened administrative co-operation in that important dimension of academic life as well. The acceptance, in 1995, of semesterisation throughout the University, not least by Science, made faculty amalgamation even more feasible.¹

In December of that year Agriculture and Science launched a 'Strategic Initiative' which was intended to promote a 'comprehensive dialogue' between them in 'exploring more effective new faculty structures.' It was hoped that this would produce a 'shared sense of direction', based on 'a common scientific culture'. A 'Workshop' at the Hilton Hotel and an Agriculture/Science Inter-Faculty Committee emerged from this, charged with developing models for close co-operation or a possible merger between the two faculties.² Progress continued to be cautious, with a special combined meeting unable to decide on a suitable name for a combined faculty. Earlier the same day, 19 June 1997, Science agreed to its own disestablishment provided Agriculture followed suit but the latter delayed any final decision pending the report of a hired business consultant, Dr M. ('Mike') Mentis. His input was appropriate, being a well-known ecologist who was familiar with the debate, having worked in the Department of Grassland Science and then at the University of the Witwatersrand before becoming a private consultant.

The majority of 'Ag Fac' staff members accepted the inevitability of a merger, for financial, administrative and, in part, academic reasons, though there were reservations about the loss of Faculty identity and at least one of their number had had unfavourable experience of a similar process overseas. Opposition to the merger was weakened by low student numbers in the core B Sc degree programme, due to white flight to Stellenbosch and Pretoria, the almost complete disappearance of the traditional intake from Zimbabwe and Mauritius and the difficulties encountered by local black students in meeting the Mathematics and basic science admission requirements. In consequence the Faculty had become heavily dependent upon the intake of Dietetics/Nutrition students and the popularity of the Rural Resources Management Diploma to maintain a reasonable staff/student ratio.³

At another special meeting of the Board three months later a motion rejecting merger 'at this time', on the grounds that it was premature, was defeated by 14 votes to 8 with one abstention. Mark Laing, speaking in support of the motion, argued that there had been 'little real discussion' on the matter, with the result that some staff members had had a 'rethink' and questioned the premise that the two faculties indeed had much in common in terms of philosophy and outlook. He contended that, with regard to research, Agriculture was 'applied, outcomes directed' while Science had 'a more basic approach' and that if 'Agriculture' disappeared from the name of the new faculty it would have serious implications as far as attracting students and external funding was concerned.

He warned that the smaller, more homogeneous group of agricultural disciplines would be outvoted by Science on any significant issue that might arise. He also pleaded for a more deliberate process in which each staff member would have time to determine the Programmes, disciplines, Schools

and Faculty in which she/he wished to participate. In opposing the motion Dr A.K. (Keith) Cowan pointed out that merger offered the opportunity to create a more cost-effective, streamlined and flexible structure in place of the current expensive, administratively cumbersome and academically rigid faculty arrangement. He advocated merger, followed by the formation of new Schools and a programme of restructuring.

In reality these processes were already well underway, with interfaculty 'Task Teams' exploring various aspects of the envisaged new faculty. In January 1998 members of both Boards approved the name Faculty of Science and Agriculture by a postal vote of 68 in favour, one against and one abstention. By May 1998 the Dean, Frits Rijkenberg, was able to report that 'considerable accord' had already been achieved with regard to several issues. By July prospective members of a proposed School of Agriculture and Agribusiness were invited to discuss their common future. At a joint special meeting of the Boards of Agriculture and Science late in August 1998 the structure and names of five other Schools in the new faculty were discussed. In November a combined meeting of the two faculties recommended to Senate that their two Boards be conflated and arrangements were made for the development of a new committee structure to support that body.⁴

In December 1998, after much speculation as to whether the new Faculty Office would be situated in the Main Science Building or in the John Bews Building, where most of the new faculty's students were studying either Botany or Zoology, it was announced that it would be accommodated in the Administration Building on the main campus.

The new Faculty of Science and Agriculture in Pietermaritzburg came into existence on 1 January 1999, with Professor R.J. (Ray) Haines (Chemistry) as Dean and Professor P.J.K. (Pete) Zacharias (Grassland Science) as Deputy Dean. It comprised six Schools, three led by Professors from the former Faculty of Agriculture and three from Science – Agriculture and Agribusiness headed by G.F. (Gerald) Ortmann, Applied Environmental Sciences led by M.J. (Mike) Savage, Biological Sciences under E.G.J. (John) Akhurst, Cellular and Molecular Biosciences directed by J.W. (John) Hastings, Chemical and Physical Sciences headed by J.S. (John) Field and Mathematical and Computational Sciences under J. (Johan) Swart. There was an objection in Senate to the term 'Agribusiness', on the grounds that it was 'a pejorative word meaning an agglomeration of farming interests with overriding social consequences'. It was coupled with a proposal that the relevant School should rather be designated Agricultural Sciences and Economics but this was defeated by 48 votes to 12 with 18 abstentions.

The School in question subsequently absorbed the existing School of Rural Community Development which was re-designated the Centre for Rural Development Systems. Similarly, the School of Environment and Development

(SEAD) was incorporated into the School of Applied and Environmental Sciences and renamed the Centre for Environment and Development (CEAD). In 2001 a 'Task Team' was appointed to conduct a post-implementation audit of the restructuring process in order to effect any necessary adjustments to the restructuring of Schools and to the compensation and assistance provided for their Heads.⁵

As a further step in the restructuring process Senate also approved the establishment of two 'Cross-Faculty Colleges' – one for the Sciences and another for the Humanities, Social and Applied Sciences. These were envisaged as formal committees of Senate, providing an intermediate level of administration between that body and the Faculty Boards, with authority to make recommendations to them and to Senate but not to make decisions on their behalf. The Colleges were intended to provide a forum for discussion on matters of common interest, such as access and foundation Programmes, education, staff and inter-faculty Programme development, as well as cross-faculty and large interdisciplinary research projects. These Colleges were chaired by the Deputy Vice-Chancellor (Academic) and their membership included the Deans, School Heads, specialist Centre Directors and student representatives from each of the participating faculties.⁶

There were more changes to the administrative structure following the appointment of a new Principal and the protracted government-induced merger of the University of Natal with the neighbouring University of Durban-Westville. On 1 January 2004, the new University of KwaZulu-Natal was launched.⁷ It is impossible to quantify the extent to which staff members working in agricultural studies were personally distracted or affected by these significant changes, though all sectors of the new institution felt the financial impact of the merger and the influence of administrative restructuring.

The Department of Education allocated R150 million to the University of KwaZulu-Natal for the completion of this process, including the provision of infrastructure needed in Agriculture, Engineering and Science. In addition, the University obtained R250 million via a Development Bank of Southern Africa (DBSA) loan and contributed a further R70 million from its capital budget. This facilitated the formation of the new College of Agriculture, Engineering and Science, comprising a Faculty of Engineering and a Faculty of Science and Agriculture, and on which over R370 million was spent. Twenty disciplines and three specialist Centres, dispersed among various Schools, constituted the widest variety of agricultural studies available at any African university.

The School of Agricultural Sciences and Agribusiness retained its name and included Agricultural Economics, Animal and Poultry Science, Community Resources, Crop Sciences, Dietetics and Human Nutrition, Food Security, Forestry, Horticultural Science and Plant Breeding. The School of Bioresources, Engineering and Environmental Hydrology embraced Agricultural Engineering

and Hydrology. The School of Biological and Conservation Sciences absorbed Grassland and Wildlife Sciences. The School of Environmental Sciences incorporated Agricultural Meteorology, Soil Science and the Centre for Environment, Agriculture and Development. The School of Statistical and Actuarial Sciences took Biometry under its umbrella while the School of Biochemistry, Genetics, Microbiology and Plant Pathology comprised all the disciplines represented in its name.⁸

More administrative refinements followed in terms of a Senate decision in November 2004. Each College was required to establish a College Quality Committee. Its function was to monitor, promote and advise the faculties of the College with regard to the quality of module and Programme design, to oversee annual School self-evaluation and six-yearly external review processes, to offer advice for improvement in the light of their reports, to assess funding applications for innovative learning and teaching activities, to identify training needs in curriculum development, to consider and respond to external policy proposals relating to quality improvement in education, and to submit proposals for new Programmes, qualifications and other developments for Senate approval.⁹

Such submissions had to be forwarded through a College Academic Affairs Board which was responsible for the academic and research functions of the faculties grouped in that College. The Board was empowered to recommend to the University Senate and Council the establishment, discontinuation or change of academic Programmes and curricula, to propose the establishment of new faculty boards and honorary appointees, to advise Senate with regard to proposed new or amended rules within faculties of the College, to register students under special conditions and to consider any matters referred to it by Senate or faculty boards. In effect, it replaced all the functions and authority of Senex which, although provided for in the relevant Statute, became redundant at the new University of KwaZulu-Natal.¹⁰

There was some confusion as to the precise relationship between the Faculty Boards and Senate and whether or not the former were entitled to refer issues directly to the latter without reference to the College Academic Affairs Board, especially where there was disagreement between Faculty and Board. The Faculty of Science and Agriculture supported a proposal to reduce the number and size of committees in the University and pointed to the need for more effective communication, consultation and accountability between the various levels of University administration. It did not favour the formation of a 'new' Senate, substantially reduced in size and shorn of many experienced professorial members, contending that this would 'remove power from the academics in favour of the executive', to the University's detriment.¹¹

Faculties continued, as before, to prepare their own periodic plans for subsequent incorporation into the University Plan, which was shaped in

accordance with the national Department of Education's New Funding Framework. Balancing the University budget continued to be a difficult exercise, for although the University of Natal experienced an overall increase in student numbers in 1999 and 2000 which substantially enhanced its financial resource base, a range of cost increases faced the institution with an initial deficit of R15 million for 2002.

The situation was eased to some extent by the fact that 2001 was a record year in terms of donations received (R55 million by the end of August) and by subsequent grants such as the R10 million presented to the Principal at the President's Cup Golf Tournament at Fancourt.¹²

The merger between the Universities of Natal and Durban-Westville and the subsequent infrastructural programme necessary to consolidate that process incurred enormous additional expenditure but there were encouraging contributions to the new University of KwaZulu-Natal, not only from the national Department of Education but also from Eskom and other sources secured through the UKZN Foundation. By 2008 a five-year Institutional Financial Plan (2008–2012) had been prepared, including a proposed Capital Expenditure Programme, though securing sufficient funding remained a challenge which affected all sectors of the University.¹³

The allocation of funds for Library resources, in particular for journals, continued to be a source of considerable dissatisfaction in the Faculty of Science and Agriculture. The efforts of its own Public Relations and Schools Liaison Committee to attract favourable attention and quality students to the Faculty were remarkably successful despite a limited budget. The University regularly won several awards at the annual Sci Fest in Grahamstown, including that of 'best exhibit' in 2001, 2002, 2003, 2004, and an excellence award in 2007, though competition with better financed institutions subsequently proved difficult. After withdrawing its exhibit from the Royal Agricultural Show in Pietermaritzburg in 2001, the University returned when offered a more permanent and prominent site at the main entrance to the Show Grounds.

The Faculty also participated in several roadshows, including the SASOL Science and Technology Exhibition. It continued to do so when, in 2003, the University assumed responsibility for financing publicity and roadshows, with Vicky Crookes succeeding Sally Upfold as the Faculty's Public Relations Officer. In 2004 the exhibit at the Grahamstown Sci Fest 'Stepping into the Future' again won first place, while nearer to home the University's presence at the 'Royal Show' was not only at its site near the entrance but also at the former 'KZN Wildlife' stand. Although the exhibits at the Show did not regularly win accolades they did attract favourable public attention. Even so, by 2007 it was realised that greater efforts were needed to gain more publicity and more 'quality' students for Science and Agriculture.¹⁴ As far as agricultural studies were concerned there was much that deserved these rewards.

Departmental developments

Agricultural Economics lost M.C. (Mike) Lyne, who in mid-2007 took up a post at Lincoln University in Christchurch, New Zealand. He was appointed an Honorary Professor (July 2007 to June 2010) to facilitate his ongoing co-supervision of postgraduate candidates and collaborative research and training activities with colleagues in Pietermaritzburg. At the time of his departure Lyne was regarded as one of South Africa's top agricultural economists, having authored/co-authored 67 articles, several of which gained 'best contributed paper' awards at annual national Agricultural Economics Association conferences. During the course of 25 years in Pietermaritzburg he had also successfully supervised 20 Masters and 5 Ph D students and had been engaged in numerous consultancies and contract research projects, including some funded by USAID and the Ford Foundation. He was a big loss but the discipline continued to be a growth area, prompted further by governmental recognition of the discipline as a 'scarce skill'. This resulted in an increase in scholarships and student numbers upon which to build for the future. In December 2008 the Department also lost the services of Dr Stuart Ferrer but early the following year gained those of Dr E. Wale and Mr Lloyd Baiyengunhi. Under the leadership of Gerald Ortmann serving the needs of commercial agriculture remained the core focus, with agricultural policy and rural development also prominent research interests.¹⁵

Agricultural Engineering, or more precisely Hydrology, also suffered a loss in 2007 with the retirement of Roland Shulze, who then became Professor Emeritus and Honorary Research Associate. He was succeeded to the Chair in Hydrology by Graham Jewitt. Agricultural Engineering also consolidated its position, with a doubling of its undergraduate numbers between 2004 and 2008 as the consequence of a similar demand for graduates in that field and an increase in the provision of bursaries. Qualified (particularly postgraduate) hydrologists were also in short supply and, in 1999, with the process of restructuring, both fields were embraced in the newly named School of Bioresources, Engineering and Environmental Hydrology. During his tenure as its head since 2002, Jeff Smithers secured a Chair in Hydrology as well as several University-funded academic and technical posts with which to maintain the Hydrology undergraduate Programme. Whereas previously it was entirely dependent upon contract staff, by 2008 there were six contract and seven University-financed academics, as well as five technical and support staff employed on external contracts.

While offering the oldest and largest Hydrology degree Programme in South Africa, the School's applied hydrological research group also maintained a high profile. It comprised no less than 12 academics whose specialised expertise ranged from hydrological modelling to the significance of water resources and agriculture for climate change. Agricultural Engineering was also prominent,

offering the only accredited degree in that field in the country. Its curriculum was substantially revised to include new fields such as food processing and engineering, soil and water conservation engineering and sustainable bioenergy systems. The first and fourth years of the Programme and, from 2008, the third as well, were sited in Pietermaritzburg, with only the second year conducted at Howard College in Durban. The School's postgraduate dimension continued to depend heavily on external research contracts, focusing not only on hydrology and water resources but also on the impacts of climate change, transport supply chains and on power machinery.¹⁶

Agrometeorology also offered undergraduate options while maintaining its national and international reputation for research in agricultural and forest meteorology, agricultural and environmental instrumentation and environmental biophysics. While being heavily involved in research, Mike Savage also headed the new School of Applied Environmental Sciences and its successor the School of Environmental Sciences (1999–2007). Animal and Poultry Science maintained a similar level of excellence in both teaching and research. Gail Bradford, Neil Ferguson and Rob Gous all contributed to the effective adaptation of teaching methods, including experiential learning in small classes to produce much sought-after graduates. Two of these won the prized Nelson Mandela Scholarship while the discipline continued to attract recruits from as far afield as Argentina, the USA, Europe and various parts of Africa. Its drawing power was doubtless due, in part, to its enviable research profile.

Rob Gous continued his work at the internationally renowned poultry and pig research unit which he developed at Ukulinga Research Farm and maintained the momentum following his retirement in 2007, when he became Professor Emeritus and Senior Research Associate. At that stage, after 36 years of service (lecturer in 1970, senior lecturer in 1973, Associate Professor in 1978, Professor in 1989 and Senior Professor in 1997), he had successfully supervised 9 Ph D and 43 M Sc candidates with another 8 of each still in progress. He had also authored/co-authored 112 scientific articles in SAPSE-approved journals with 7 in the press, as well as 79 international and 85 local conference papers. In addition, he had developed 10 software programmes related to his teaching and research.

Between 1987 and 2005 he attracted more than R25 million in research funding, excluding contract research projects of less than R10 000 each. During the course of his career he improved the poultry and pig research facilities at Ukulinga to become one of the best world-wide for nutrition and lighting research. In association with two UK colleagues he developed simulation models to predict the food intake and growth of broilers and growing pigs, transforming these into programmes used world-wide in poultry and pig production.

In April 2005 he organised a symposium on Mechanistic Modelling in Pig and Poultry Production at Ithala Game Reserve, the proceedings of which were subsequently published. Under his direction, and with lecturers Nicky Tyler and Mariana Ciacchiariello also involved, simulation modelling continued to be developed, with internationally innovative models simulating the ovulation cycle of laying hens and the effects on performance of feeds and feeding programmes applied to broiler breeder hens. In 2006 Gous was again awarded an 'A' rating, this time by the National Research Fund (NRF), for a further four years.

There were other staff members who contributed significantly to Animal and Poultry Science's research reputation. Neil Ferguson, a graduate of the former University of Natal (B Sc Agric 1987, M Sc Agric 1989 and PhD 1996) and a staff member since 1989 (lecturer 1989, senior lecturer 1996 and Associate Professor since 1999), supervised research on lion and crocodile and was also widely-recognised for simulation modelling in pigs prior to emigrating to Canada. Arthur Lishman and Greig Stewart maintained the reputation for important research on cattle which Hannes van Ryssen had earlier helped to build. The 'Steers Project' was a focal point of the discipline's experiential approach to learning, with Ignatius Nsahlai (like van Ryssen before him) focusing on ruminant nutrition and Marion Young on equine nutrition and the presentation of African horse sickness. Their participation in the carcass competition during the Royal Show, Pietermaritzburg, has proved invaluable as a learning experience.¹⁷

Following the retirement of Clive Dennison in 2004 Theresa Coetzer assumed the Chair of Biochemistry in 2006 after joining the staff twenty years earlier. The discontinuation in 2008 of the B Sc Agric (Biochemistry) Programme due to a lack of students for several years was a setback but the discipline maintained an impressive research output and reputation. Coetzer continued working on trypanosomal proteases and collaborated with researchers abroad on European Commission 5th and 6th Framework research grants dedicated to the development of an anti-disease vaccine for trypanosomosis. The study of proteins continued to be the primary research strength of the discipline.

In addition to Theresa Coetzer's work on proteases of livestock trypanosomes, Edith Elliott focussed on Matrix Metalloproteases and cancer, Dean Goldring on Malaria kinases and diagnostic targets, and Phillea Vulzea on Infectious Bursal Disease Virus protease. On arrival in 2006 Carola Niessler initiated stem cell research. Staff members attracted both local and international funding and published in prestigious journals such as the *Journal of Biological Chemistry*, *Molecular Microbiology* and, in the case of Dr T.R. (Trevor) Anderson, *Biochemistry and Molecular Biology Education*. Anderson, who had taught for some years at the University of Zululand, initiated the Science Education Research Group (SERG) which attracted international recognition,

including that of Professor John Rogan (ex Pretoria University). In 2005 he was appointed Honorary Professor in the School on the strength of a long association with SERG and his expertise in quantitative education research.¹⁸

SERG made a considerable contribution to science education in the Faculty. So too, in its own way, did Biometry, which continued to provide its statistical consultancy service to researchers at all levels. The discipline lost Peter Clarke (to Australia) and Harvey Dicks (to retirement) but gained new staff members in Peter Njuho and Principal Ndlovu. Clarke was awarded the title of Professor Emeritus, having served the University from 1978 to 2000 and as Head of Biometry from 1983 to 1998, while proving to be a versatile teacher and invaluable statistical consultant. After retirement, Dicks continued to teach and consult from time to time and died in August 2009. He was affectionately remembered by staff and students as ‘a larger than life figure whose humour and huge personality spread a cloud of goodwill’.

The B Sc Agric Biometry option was discontinued but a new B Sc and B Sc Honours Programme was planned which was distinct from the existing Statistics Programme in its integration of statistics and biology/agriculture as well as its reduced level of statistical theory. The M Sc and Ph D Programmes for advanced applied biometricians continued to attract candidates from all over the African continent, with graduates finding employment in government and non-government structures and in research centres both in South Africa and abroad.¹⁹

In 1999, amidst the restructuring of faculties, Community Resources split from Dietetics. Maryann Green had been the first student (in 1979) to gain an M Sc in Community Resource Management and Sheryl Hendriks was the second. Following her return with a doctorate from the USA in 1987, Green was joined by Ann Haselau (Food Science), Sue Hodgkiss (Clothing and Textiles) and subsequently Sheryl Hendriks (Household Resource Management and Small Enterprise Development). In 1999 Green and Hendriks launched a separate Community Resources Programme in the School of Agricultural Sciences and Agribusiness.

During the 1980s, apart from a few Honours graduates, there was little in the way of research and postgraduate activity but thereafter the output improved. In 2004 the first Ph D candidate graduated, since when at least one doctorate in Community Resource Management has been awarded each year along with a total of 22 Masters graduates.

Sheryl Hendriks (promoted to senior lecturer in 2002) left to join the new Food Security Programme while Joyce Chitja was appointed in Community Resources. In 2008 she became the first female Ph D graduate in Food Security before assuming a post in the Land Affairs Department. In 2006 Unathi Kolansi joined the Community Resource Management Programme under the Leadership Equity Advancement Programme (LEAP) but, following



Sheryl Hendriks

Sheryl Hendriks was the second student to gain an M Sc in Community Resource Management. In 1999 she and Maryann Green launched a Community Resources Programme within the School of Agricultural Sciences and Agribusiness and became senior lecturer in 2002. She then joined the new African Centre for Food Security which she had initiated in 1998.

the retirement of Maryann Green, the Management Programme was phased out as a result of increasing resource constraints. Its essential elements nevertheless remain available to enrich the related disciplines of Dietetics, Human Nutrition, Forestry and Food Security.²⁰

The African Centre for Food Security was one of three innovative agriculturally-related Centres established in the Faculty during the first decade of the century. It was initiated in 1998 by Sheryl Hendriks under the inspiration of her doctoral research in agricultural growth and a food security conference which she attended in Zambia. The University eventually approved a three-year trial period, beginning in 2000, for a unique trans-disciplinary food security Programme. This was designed by a large team which included Sheryl Hendriks, Mike Lyne, Gerald Ortmann, Ignatius Nsahlai, Philip Copeland, Fiona Ross, Marie Paterson, Maryann Green, Eleni Maunder, Neil Ferguson and Rob Gous.

Initially the Programme attracted only one applicant, Likeleli Makhotla from Lesotho, who had to defer her registration until 2001 when four other candidates enrolled. She subsequently became the first in the world to achieve a postgraduate Diploma (Food Security) and an M Agric (Food Security). In

April 2008 Samuel Chingondale and Joyce Thamega-Chitja became the world's first two Ph D graduates in Food Security.

In 2006 the Food Security Programme was expanded to form the African Centre for Food Security (ACFS), in response to increasing student demand for places and the continent's urgent need for capacity development. In the following year the ACFS was also formally recognised as a research centre.

It currently offers the only postgraduate training in food security in the world and by the end of 2008 had produced 17 postgraduate diplomates, 15 completed Masters degrees as well as three Ph Ds.

Another 12 students were due to graduate in April 2009 with 34 more drawn from 16 African countries registered for degree Programmes.

Located in the School of Agricultural Sciences and Agribusiness in 2008 the ACFS had 30 UKZN staff affiliates drawn from 15 disciplines in all four of the University's Colleges. It also benefitted from collaboration with other UKZN Centres such as Health, Economics, and the HIV/AIDs Research Division as well as with academics in other African universities, such as Makerere and the University of Malawi, who participated as research supervisors, examiners and module reviewers.

The ACFS's primary focus was on the eradication of food deprivation and the promotion of related capacity building in a wide variety of skills urgently needed in sub-Saharan Africa. The Centre's importance was recognised when it was nominated as NEPAD's lead institution for the Comprehensive Africa Agriculture Development Programme's (CAADP) Pillar III (Food Security) initiative. The ACFS subsequently led the development of the CAADP Framework for African Food Security which is the only Africa-wide agreement for international action. In November 2006 it was also chosen as the SADC Centre of Excellence for Vulnerability Assessment and Analysis. On these foundations by 2008 further collaborative ventures were envisaged with the African Union, NEPAD and SADC as well as with regional and partner institutions.²¹

The ACFS unsurprisingly also enjoys a close synergy with the African Centre for Crop Improvement (ACCI). This was initially envisaged in 2000 and came into existence the following year on the strength of a R50 million grant from the Rockefeller Foundation to produce an initial 40 Ph D graduates. Directed by Mark Laing and subsequently funded by both the Rockefeller and Gates Foundations, the Centre was the first of its type in Africa, being dedicated to improved food security through the applied breeding of African crops which were drought and pest resistant.

These included traditional maize, sorghum, cassava and rice as well as a range of crops which had previously hardly ever been studied and bred, such as cowpea, pigeon pea and finger millet. Traditional knowledge was combined with modern bio-technology and cross-pollination techniques were adapted to suit local regional conditions. Students were required to work on topics relevant to their home countries, completing two years of coursework on-campus followed by three years of field study supported both by UKZN and home-country co-supervisors in order to meet the ACCI's doctoral requirements.

The Centre initially accepted eight Ph D students a year, drawn from 14 African countries and by 2008 had produced 14 graduates. All of them returned to their countries of origin to work on plant breeding projects aimed at developing new crop varieties and their own national crop research programmes.

The Centre's staff was multi-national like its students, by 2008 comprising four South African's, three Zimbabweans, two Kenyans, an Ethiopian and a Hollander. In 2005 the Faculty of Science and Agriculture supported its application to be formally recognised as a research centre, as did the University Research Committee, in acknowledgement of its innovative work. In November 2008 Senate and Council approved the transfer of the Centre, along with Plant Pathology, from the School of Biochemistry, Genetics, Microbiology and Plant Pathology to that of Agricultural Sciences and Agribusiness.²²

In common with Food Security and Crop Improvement the Centre for Environment Agriculture and Development (CEAD) also attracted a wide range of candidates to its postgraduate Programmes and developed associations with other universities in Africa and overseas. Established in 2005, CEAD embraced the Farmer Support Group (FSG) launched in 1985, the Centre for Environment and Development (CEAD) founded in 1996 and the Centre for Rural Development Systems (CERDES) which started in 1999. The FSG had begun as a much-needed extension service to resource-poor black farmers by offering them advice on crop protection and agronomy. Formally constituted in 1990 and subsequently incorporated into CERDES, it extended its work to participatory action research in the interests not only of small-scale land users but also of development practitioners, natural resource management, institutional development and entrepreneurship.

Under the directorship since May 1999 of cultural anthropologist Monique Salomon, by 2002 it had a 16-strong staff and had been selected as the SADC Regional Centre of Excellence for Community Participation, Indigenous Knowledge and Appropriate Technology. By then the FSG had launched several ongoing projects, primarily in south and central KwaZulu-Natal, in response to requests for assistance. In each case its strategy involved an integrated approach, developing a community design management plan in terms of food security and potential income generation through agricultural produce, craft products and community-based tourism.

As part of the School of Applied Environmental Sciences and then of its successor the School of Environmental Sciences, CEAD offered a variety of postgraduate qualifications. These included a Postgraduate Diploma in Rural Resource Management, a Masters (M Ag) in Extension and Resource Management involving rural project planning, and a Masters in Environment and Development (M Env Dev). The latter had three streams (full and part-time) i.e. Environmental Management (EM), Land Information Management (LIM) and Protected Area Management (PAM). The EM stream was primarily intended for mid-career professionals and attracted those from environmental and local government agencies.

The LIM stream was focused specifically on southern African contexts. The PAM stream was initiated in 2001 with SAPPI funding and ran for five years

in contact-learning mode. In an effort to extend its reach a distance-learning Programme was then launched in collaboration with the International Centre for Protected Landscapes (ICPL) at the University of Wales and with funding from the Darwin Initiative in the United Kingdom.

In addition to its practical and internationally recognised teaching Programmes, CEAD also developed a strong trans-disciplinary research dimension and in 2005 produced its first two Ph D graduates. By 2008 CEAD and its component centres had produced 84 M Env Dev, eight M Agric, two M Sc and six Ph D graduates. It could also boast an experienced group of research associates and two Professors Emeritus (Charles Breen and, from 2009, Rob Fincham), all of whom contributed to the doctoral Programme and to the Centre's outreach activities. These included, in association with other institutions, the African Leadership Seminar in People and Conservation Programmes and the Msunduzi Innovation and Development Institute (MIDI). In common with other Centres and disciplines, all of CEAD's Programmes were subject to periodic review in the light of international trends and new modes of delivery. By 2008 it was refocusing its Masters Programme in Environment and Development in response to changing demands and approaches in the field.²³

In 2003, following its earlier incorporation into the Department of Agronomy, Crop Science realigned itself with Horticultural Science and Plant Breeding to form a new academic Programme focusing on agricultural plant sciences with shared research and technical resources. Crop Science also expanded its traditional postgraduate Programme in sugarcane, oil and protein crops to embrace seed technology and indigenous crop development.

Albert Modi contributed significantly to these new fields of interest and Joseph Adjetey to groundnut production. The discipline could take pride in the achievements of its many graduates both in South Africa and further afield. Between 1960 and 1980 a large number of them came from Zimbabwe and returned to contribute hugely to the agricultural development of that country. In South Africa the local sugar industry and companies like Pannar Seeds have employed and benefited from Crop Science graduates from the Pietermaritzburg campus. So too have the Department of Agriculture and the Agricultural Research Council's research programmes on crop modelling, conservation tillage and soil fertility. While the emphasis is shifting towards the needs of the small-farm sector, the demand for crop scientists with sound science-based disciplinary skills remains as strong as ever.²⁴

The same is true of qualified dieticians and nutritionists. Following the split in 1997 with Community Resources, Dietetics and Human Nutrition proceeded with the implementation of its new (1998) B Sc degree and its new postgraduate Programmes in Human Nutrition. The postgraduate Diploma in Community Nutrition was first offered in 2000 and in 2001 staff member

Marie Paterson was the first Masters graduate, followed a year later by the first doctoral graduate, Penny Love. Her research was significant in developing South Africa's first Food Based Dietary Guidelines for persons over seven years of age. In 2008 there were 34 students registered for the postgraduate Diploma in Dietetics and five for that in Community Nutrition. In 2009 nutritionists were due to begin registering with the Health Professions Council of South Africa and it was anticipated that by 2011 they would start undertaking compulsory community service as dieticians had done since 2003. Envisaged future areas of research include nutrigenomics, functional foods and the development of programmes to address HIV/AIDS at community level.

A more recent development was the long-awaited UKZN Forestry Initiative, eventually launched in 1999 under the leadership of Janusz Zwolinski. He brought to the task more than 25 years of experience in commercial plantation forestry in South Africa and the USA, and in ecological European forestry. He had also been involved for 18 years in research and research management relating to intensive timber production in forest plantations. This had already yielded some 50 articles in refereed international and South African journals, as well as 130 items in edited journals, conference proceedings and internal research reports.

The Institute for Commercial Forestry Research (ICFR) provided the Forestry Initiative with accommodation until June 2004 when it moved into its own new Building. This was opened by the Chief Director of Forestry Linda Mossop and celebrated with a colloquium on 'Forestry Contribution to Development in Africa.' In addition to the ICFR, Forestry on the Pietermaritzburg campus was also actively supported by the School of Agricultural Sciences and Agribusiness to which it belonged and, in particular, by John Bower in Horticultural Science as well as by Mondi, NCT and SAPPI. Numerous memoranda of understanding were signed with institutions abroad and an association with the European SILVA Network facilitated the exchange of students in both directions.

In 2005 staff member Mike Underwood initiated the South African Agroforestry Network which, by 2008, had a 172-strong membership. Underwood was responsible for teaching Community Forestry, Duncan Wilson for Forest Management and Zwolinski for Commercial Forestry. By 2008 the discipline as a whole had produced 26 graduates, 16 of them with Masters and Doctoral degrees, and had 142 undergraduates enrolled for its courses. A new trans-disciplinary Programme was being planned with Crop Science and Horticultural Science as well as closer collaboration with the Centre for Food Security in the interests of promoting food production and improved community sources of income.²⁵

Genetics, one of the 12 founding disciplines at the time of the Faculty of Agriculture's establishment, continued to flourish although it lost Professor J.W. (John) Hastings who resigned at the end of June 2001. Meryn Beukes,

Annabelle Fossey and Caroline Hancock all contributed to the discipline's well-being since the 1990s, as did Emil Kormuth and Michael Meusel. More recent appointees were molecular biologist Che Pillay and animal breeder Edgar Dzomba, associating closely with colleagues in Animal Science.²⁶

In 1999, Grassland Science, another of the founding disciplines but since 1996 under the name of Range and Forage Resources, became part of the new School of Applied Environmental Sciences. This was appropriate to its increasing focus on ecological and environmental science and management, with Wildlife Science becoming a particularly popular student option. In May 2001 Kevin Kirkman succeeded Tim O'Connor to the chair and, while the interest in rangeland ecology and management was sustained, that in intensive or cultivated pastures declined. The discipline reverted to the name Grassland Science and, following the disbandment of the School of Applied Environmental Sciences, it joined the new School of Biological and Conservation Sciences. This was in keeping with international trends as rangeland ecology and grassland science focused increasingly on biodiversity, conservation and ecological management.

The discipline embraces a variety of specialised interests, ranging from production agriculture with livestock, to game ranching and conservation. This involves grazing and browsing animals but also some regions where they are not significant factors, such as the Drakensberg conservation areas where grassland is managed with the use of fire. Rural development has also become a particular interest, focusing on sustainable livestock production in rural communities and the rehabilitation and conservation of degraded regions, with Theresa Everson becoming prominent in these fields. They are reflected in undergraduate teaching i.e. an Ecological Sciences Programme, a three-year Grassland Science 'major' and a four-year B Sc Agriculture degree, as well as at postgraduate level. The Veld Burning and Mowing Trial (BMT) and the Veld Fertiliser Trial (VFT), both initiated in 1950, continue as Africa's longest-running field experiments and among the most enduring world-wide. Although their original objectives were largely agricultural and they still continue to assist agricultural management, these trials also reflect the shift to an ecological focus in attracting the interest of internationally financed research projects investigating ecosystems on different continents.

P.J.K. ('Pete Zac') Zacharias, formerly of Grassland Science, followed his term as Deputy-Dean of the then Faculty of Agriculture (1996–1998) with three years as Deputy-Dean of the amalgamated Faculty of Science and Agriculture (1999–2001) before becoming its Dean (2002–2004). He subsequently became Deputy Vice-Chancellor and Head of the Cluster (later College) of Natural Sciences, subsequently named the College of Agriculture, Engineering and Science.

It was a journey that had begun in May 1980, in his second year of undergraduate study, as a student representative on the Board of the Faculty of Agriculture. In 2008 K. P. (Kevin) Kirkman became Head of the School of Biological and Conservation Sciences, and in 2009 Deputy Dean of the Faculty of Science and Agriculture.²⁷

Horticultural Science was yet another of the founding agricultural disciplines which maintained its high reputation both in teaching and research, strengthened from 2003 by its much closer association with Crop Science and Plant Breeding. Its graduates continued to find employment and attain positions of prominence all over the world in all branches of the field, including the avocado, citrus, deciduous and subtropical fruit industries. While food production remained important the degree Programme was modified, in response to increasing demand, to accommodate aesthetics, floriculture, landscaping and sports facilities. It is recognized that further changes, in response to consumers' expectations and an increasing emphasis on nutritional value and quality, will be necessary to ensure adequate training and relevant research directions.

By 2008 Horticultural Science could boast a long record of research achievements, including the development of vegetative propagation of papaw and release of female 'Honey Gold' clone 45 years earlier, the release of a scab tolerant Ukulinga pecan nut cultivar, the use of pine bark as a growing medium, an investigation of pollination in relation to various fruits, the ecological, soil and manipulation needs of subtropical fruits, the impact which an absence of winter chilling has on deciduous fruits and, not least, physiology research on avocado fruit growth.

This research effort was sustained into the 21st century by John Bower, who succeeded Nigel Wolstenholme to the Chair in 1999. Bower was well versed in the departmental ethos as one of its graduates (B Sc Agric, M Sc Agric and Ph D) but also joined the staff with extensive experience in the industry. Apart from time spent overseas, he had previously been in charge of the Outspan Citrus Centre in Nelspruit, and had also worked as a researcher at the Institute for Tropical and Subtropical Crops. A traditional horticulturist but in the modern mould, his appointment to the Chair was warmly greeted by students and alumni, and also by Horticultural staff members at Stellenbosch and Pretoria. In Pietermaritzburg he was ably supported by Isa Bertling, Renate van Niekerk (*née* Oberholster), John Klug and long-serving senior research associates Peter Allan and Nigel Wolstenholme.²⁸

Following the retirement of Mike Wallis and the merger of the Universities of Durban-Westville and Natal, Microbiology became part of the new School of Biochemistry, Genetics, Microbiology and Plant Pathology and was subsequently offered on both the Pietermaritzburg and Westville campuses. At various times the discipline was led by Charles Hunter, George

Tivchev, Sumaiya Jamal and Stefan Schmidt. Increases in undergraduate and postgraduate numbers attest to its ongoing demand as a field of study, with new modules introduced to keep abreast with training requirements. The earlier research momentum was also maintained, with investigations into the potential of bacteria to deal with high production volume chemical pollutants, and into the microbial ecology of processes such as methane formation out of agricultural waste materials.²⁹

Plant Breeding had its origins on the Pietermaritzburg campus in 1947 when Rabie Saunders, the first Dean of Agriculture and Professor of Genetics, initiated the Natal breeding programme to develop maize hybrids. The tradition of plant breeding was continued by others, such as the celebrated Hans Gevers and Rob Melis. The latter's dry bean breeding programme (1981–1990) to develop disease-resistant dry bean cultivars for KZN's small-scale farmers attracted funding from the De Beers Chairman's Fund. In 1990 it led to Melis establishing 'Pro-Seed', a private plant breeding business based at Ukulinga, from where he has released more than 27 registered cultivars of dry bean, pepper and tomato.

In 1984 the then Department of Genetics offered Plant Breeding as a 'major' in the B Sc degree and in 1991 a dedicated post was established, to which Paul Shanahan was appointed. Two years later he launched a guaranteed curriculum in Plant Breeding and also supervised postgraduate research in a variety of crop species. In addition, he and Melis assisted with supervisions in the new ACCI. Its establishment in 2001 boosted the profile of the discipline in Pietermaritzburg, engaging no less than four plant breeders – Rob Melis (Associate Professor), Pangirayi Tongoona, John Derera and Githi Mwangi – under Mark Laing's directorship.

In 2000 Laing succeeded to the Chair of Plant Pathology in succession to Frits Rijkenberg (1988–1999). In that year it split from Microbiology to again become a discrete discipline within the new School of Applied Environmental Sciences. In 2006 Plant Pathology (with the ACCI) moved to the School of Biochemistry, Genetics, Microbiology and Plant Pathology and then in 2009 to the School of Agriculture and Agribusiness. Apart from the substantial funds attracted to the ACCI, in 1999 Plant Pathology and partners were awarded a R7.5 million project from the Department of Arts, Culture, Science and Technology (DACST) Innovation Fund and in 2002 another R 6.9 million project award from the same source. While continuing to produce highly-trained graduates from numerous African countries and abroad, Mark Laing maintained his research interest in biocontrol, cabbage diseases and plant breeding. Pat Caldwell, who arrived in 1998, worked in epidemiology and electron microscopy and Gus Gubba, a Zimbabwean, joined the staff in 2000 as a virologist and biotechnologist.

In 2008 Plant Pathology and the South African Sugarcane Research Institute jointly hosted an international conference on the role and use of silicon in crop production. The fourth in a series held every three years, it was attended by 126 delegates from 27 countries who were taken down the south coast to witness silicon trials being conducted on sugarcane, bananas, oranges, macadamia nuts and coffee crops.³⁰

Soil Science is yet another discipline which has been characterised by a strong research profile. Following its merger in 1988 with Agrometeorology and Crop Science to form the Department of Agronomy the following year, in 1999 Soil Science became part of the new School of Applied Environmental Sciences and subsequently of its successor the School of Environmental Sciences. There it again found a home with Agrometeorology and remained as closely linked with Agriculture and Plant Sciences as with Environmental and Earth Science Programmes. In 2008 the discipline was involved in 11 collaborative projects with other research organisations and with the industrial sector, while also encouraging closer interaction with related disciplines such as Crop Science and Hydrology.

Between 2005 and 2008 the Soil Science academic staff, comprising J.C. (Jeff) Hughes (now a full Professor), Chris Bester and Louis Titshall, supported by technicians Tad Dorasamy and Rajiv Singh, published 17 peer-reviewed journal articles and four research reports. They also graduated four Ph D and four M Sc candidates and in 2008 had five Doctoral, six Masters and six fourth-year B Sc Agriculture and B Sc Honours students under their tutorship. As in other disciplines curriculum revision is ongoing in the interests of maintaining standards and meeting the expectations of prospective employers in agriculture and industry.³¹

Buildings and facilities

By the turn of the century the agriculturally-related disciplines in Pietermaritzburg were fairly well-equipped in terms of accommodation and facilities, though further developments were prompted by the changing needs of staff and students. In 2002, inter-faculty collaboration, involving Humanities and Management Sciences, Law and Science and Agriculture, led to the School of Business adding R1.25 million from its own funds to those already committed by Billiton and the University for the construction of a new building to be used by all three faculties. The facility was planned to include office space for the Science Foundation Programme's core staff and that of the School of Business, as well as four 80-seater teaching venues that were divisible into eight 40-seater classrooms. It was intended that the Science Foundation would use these for 50% of the day-time teaching period with the rest of it available for general use, while Law and the School of Business would access it after-hours.

Agricultural teaching and research benefitted much more directly following the official opening on 31 July 2003 of 'ACCI House' to accommodate the new African Centre for Crop Improvement and in 2004 a new Forestry building was constructed on the Life Sciences campus. There was, as in previous years, ongoing University-wide concern about adequate Library funding and comparative expenditure on journals and books. Of more specific concern to staff on the Life Sciences campus was the threatened closure of its photocopy unit due to the Library's financial difficulties.³²

Ukulinga Farm continued, as ever, to be a vital teaching and research facility as far as agriculturally related disciplines were concerned. An important development there was the establishment of a poultry management school. Initiated by Rob Gous, a local poultry veterinarian, Dr Roger Horner, and a poultry entrepreneur, Mike Walne, it was a response to the perceived need for a suitable facility to train poultry managers. Although not a University establishment, it was situated on University property and financed with overseas assistance as well as a levy on day-old chick sales in KwaZulu-Natal. Initially housed in Ukulinga's poultry section, it was subsequently allocated land on the Bizley Valley side of the farm, where an office block, lecture room complex, dormitories for 20 students, and poultry houses were established.

Now known as the KwaZulu-Natal Poultry Institute, this highly successful facility is now training poultry managers drawn from all over South Africa. In 2002 there was a review of Ukulinga's management in response to an apparent lack of direction and need to co-ordinate the various activities taking place there. There was also a perceived need for improved communication among module co-ordinators with regard to field trips which sometimes obliged students to miss classes in other disciplines.³³

Research incentives and output

Staff experienced some initial difficulties adjusting to the University Research Committee's new output-based funding policy which sought to provide incentives in the form of research productivity awards in place of the traditional reliance on evaluating initial project motivations. Teething problems, based in some measure on misunderstandings, included the method of incentive payments (whether as taxable salary or into a non-taxable research code), the funding of conference attendance by, as yet, unproductive new staff members, the rewarding of non-accredited journal articles and the level of payment for the successful supervision of Masters and Doctoral dissertations. There was also some dissatisfaction with the University's policy pertaining to research and conference-related travel arrangements.³⁴

In apparent vindication of the incentive policy the year 2003 witnessed a significant increase in the average number of articles produced per author in the University as well as a pleasing increase in the number of published authors

of nearly 23% between 1990 and 2005 (from 591 to 726). A high percentage of the improved productivity was attributable to 30% of the top authors, though the contribution made by staff in agriculturally-related disciplines is not clear. In 2004/5 the University's SAPSE-approved productivity increased by 40% and the upward trend continued, well ahead of the national average, into 2006, producing an all-time high of 1083.71 SAPSE units earned by the University of KwaZulu-Natal and its predecessors. This amounted to a 50% increase over three years and was the second highest for that year among South African universities and research councils.

Between 2004 and 2006 Science and Agriculture made the biggest percentage contribution of all faculties in terms of productivity units earned (33.5%) and specifically in 2006 also contributed the highest (32.5%). In that year 44.3% of the academic staff in Science and Agriculture published in accredited journals, second only to Law (45.83%). A significant overall 20% decline in publication output during 2007 gave rise to concern and investigation, as did the low proportion of staff with Ph Ds, on average 25% throughout the University compared with 56.63% (the highest) in Science and Agriculture.

At a meeting of the University Research Committee in March 2008 various remedial measures were proposed in order to maintain the University's projected image as a research-led institution. These included the expectation that each member of the academic staff would meet certain output requirements (currently at least one accredited journal article a year), would seek an NRF rating to generate research funding and, where still necessary, would complete a Ph D within three years. There was also concern about the high dropout, low throughput and extended completion period which characterised all of the University's postgraduate Programmes. In this regard it was proposed to improve postgraduate accommodation and facilities, provide more generous fee remissions conditional upon the progress of theses, introduce Doctoral bursaries and research grants and re-introduce the graduate assistantships which had earlier been terminated.³⁵

Judging by past performance, staff in the agriculturally-related disciplines probably had less to fear from the new publication output requirements than most others. The plans to improve conditions for postgraduates were decidedly welcome as postgraduate registrations and success had always been of great importance to them.

Postgraduate students

Concern had been expressed in the Faculty of Science and Agriculture (Pietermaritzburg) when, in 2002, graduate assistantships had been replaced with graduate scholarships awarded on the basis of undergraduate results with a minimum 60% credit-weighted average. Mark Laing argued that, in this regard, the University Scholarships Committee should rather accept the

recommendations of the various Faculty Higher Degrees Committees. He pointed out that the 60% rule would exclude students who had been accepted for postgraduate studies in terms of special concessions (Rule R33 candidates) and also disadvantaged students who did not meet the requirement but had been accepted by the Faculty Higher Degrees Committee or a specific discipline as part of an affirmative action or mentoring initiative.

The Faculty of Science and Agriculture gave Laing its support, the view being expressed that the University Scholarships Committee appeared to have been taking decisions which impacted upon the University's 'academic endeavour' without them first being adequately debated in Senate. By the end of that year there was alarm that 'good postgraduate students' were also being lost due to lack of funds.

A Report on Graduate Scholarships by Professors Eleni Maunder (Science and Agriculture) and Ed Boje (Engineering) revealed that the budget for this purpose had declined from R9.1 million in 2004 to R5 million in 2006. They pointed out that postgraduate students made 'a significant contribution to the research endeavours of the University', and that they earned 'substantial subsidy' for it on graduating and on the publications emanating from their work. The Report proposed that the University should either implement a 'blanket' fee reduction for all research Masters and Ph Ds or provide graduate scholarships with automatic guaranteed minimum funding, based on data which would enable students to calculate for themselves whether or not they qualified.³⁶

The College of Agriculture, Engineering and Science favoured the latter option, as did the University Scholarships Committee. However, it was felt that the intention to improve postgraduate support may have been lost when, in 2006, the latter Committee added some procedural changes and linked the awarding of graduate scholarships to the Labour Relations Act in terms of running tutorial projects and serving as assistants.

In October 2007 Senate accepted a proposal to increase the remuneration paid to graduate students involved in teaching and in May the following year also accepted a scheme to put postgraduate student researchers on an equal footing with them. The intention was to pay them not only in relation to their level of study but also to their intellectual contribution and degree of responsibility for the research projects in which they were engaged. This, coupled with the aforementioned University Research Committee's March 2008 proposals to further improve the lot of postgraduates, promised to make the University a much more attractive option for senior students.³⁷

Apart from financial considerations there were other aspects of postgraduate studies that attracted the attention of staff in the Faculty of Science and Agriculture. These included the lax attitude of some students towards the rules governing postgraduate Programmes and the time frames in which they

should be completed, as well as the intellectual property rights of students and their supervisors. In 2006, in the interests of maintaining quality and increasing throughput, the Faculty began to develop a holistic policy for the management of postgraduate students from application to graduation. This predated Senate's University-wide initiative, the Jacobs Commission, along the same lines and to which it deferred pending the finalisation of its Report. In the meantime, the Faculty developed its own documents about improving postgraduate throughput, thesis format and Masters upgrades for conversion to Doctorates. It also developed procedures which included the annual monitoring of students' progress and obliging laggards to choose between continuation or the termination of their research projects.

By May 2008 the University had appointed a Postgraduate Management Task Team which, in November 2008, reported to the College Quality Committee that it had investigated three key areas in an effort to promote throughput, i.e. registration, increasing research productivity and the examination process.³⁸

The Faculties of Science & Agriculture and Engineering also paid particular attention to the appointment of postgraduate examiners and to the University's fee structure for Masters and Doctoral Programmes. The latter was especially important in the light of intended changes to the NRF's policy, which was now to award 'glue money' to rated researchers whose focus projects were associated with the NRF's national facilities and to cease funding existing focus areas. This had potentially serious implications for postgraduates who might anticipate receiving grantholders bursaries that would no longer be available.

Also of particular interest was the new policy of the Higher Education Qualifications Framework (HEQF), gazetted on 5 October 2007 and intended to be implemented on 1 January 2009. It comprised ten levels of qualification, the higher education levels being set at 5 to 10, with levels 8 to 10 being postgraduate qualifications from Diplomas to Doctoral degrees. It stipulated minimum entry requirements for each qualification as well as expected periods of completion. It also allowed for as much as 50% of credits from a completed qualification to be transferred towards another qualification, though the Faculty of Science and Agriculture was not in favour of adopting that provision.³⁹

Postgraduate enrolments remained, as ever, of great importance to the Faculty. In September 2000 Joe Kgobokoe, Deputy-Director of Human Resources in the National Department of Agriculture, announced that the Department had set itself the goal of graduating 200 agricultural scientists at Masters and Doctoral level by 2020. The intention was to identify potential candidates at high school level and finance their training in agriculture through to the highest possible level. The facilities already available on the Pietermaritzburg campus were obviously part of the means to achieving

that objective. In 2002 a decline in the Faculty of Science and Agriculture's undergraduate intake was more than offset by a 13% increase in postgraduate registrations, though it is not clear to what extent this was attributable to an increasing interest in agricultural disciplines.

By 2007 it was reported that the overall decline in the University's enrolments was reflected also at postgraduate level, because it was unable to compete with other institutions in attracting the best students. The College's Academic Affairs Board contended that the University's various Programmes should be better advertised and its high quality research highlighted, while its financial aid processes needed to be reviewed and additional funds found in order to offer scholarships to top students. There was alarm that the decline in postgraduate numbers could call into question the claim that UKZN was a research-driven institution, though the problem was really much more broadly-based.⁴⁰

Undergraduate students

In 2001 overall student numbers at the University of Natal were at an all-time high of 25 500. The ethnic and gender balance was changing, including among students in the Faculty of Science and Agriculture. Its total of 1 796 registrations in 2002 (including undergraduates and postgraduates) comprised 50% black Africans (39% of them female), 14% Indian (58% female) and 2% Coloured (50% female). There was, however, a 6% decline in the Faculty's undergraduate numbers that year (offset by the 13% increase in postgraduates), though the University's numbers peaked overall in 2003, just prior to the 2004 merger, due to a high intake of first-year students.

The subsequent decline in the University's intake was attributed to negative public perceptions with regard to the quality and standard of its Programmes following the merger, a decline in throughput and graduation rates, and a particularly heavy drop in students registering for Management Studies following their relocation to the Westville campus.

By 2007 the only increase in the College of Agriculture, Engineering and Science was in the number of access students. It was difficult for the University to develop an effective enrolment initiative until contradictory statements emanating from the national Department of Education, which constrained future growth, had been clarified.

By June 2007 various strategies were being developed to attract more students and, in particular, to change the image of the Westville campus. As far as Science and Agriculture was concerned a 'careers in science' publication was planned and a series of videos was envisaged so that each School would have its own promotional material to distribute among high schools. These were supported by visits, targeting Science and Mathematics teachers, to

demonstrate the extent to which facilities had been upgraded, particularly on the Westville campus.⁴¹

Student issues

In addition to student recruitment there were improved efforts to smooth their way through the system, to ensure successful retention and eventual graduation. There was initial dissatisfaction with the new systems of the Central Applications Office whose function was to process all applications to tertiary institutions in the region and which was eventually subjected to an independent evaluation. An effort was also made to improve the Faculty's own registration process by providing students with adequate assistance and ensuring that the regulations pertaining to concessions, pre- and co-requisites were observed.⁴²

The Faculty's Science Foundation Programme was refined and enlarged. By late 2007 it was accepting between 450 and 500 students annually into three distinct Programmes which were offered in Pietermaritzburg and Westville. Selection procedures, module evaluation and curriculum materials development had been improved, fund-raising for student bursaries increased and ongoing staff development encouraged. The Faculty was also actively engaged in devising ways of improving the rate of throughput in its various Programmes.

The pass rate of Science Foundation students in 2001 was 65%. Between 1991 and 2003 approximately 58% of students who sat the Science Foundation Programme's final examinations subsequently registered for Science-related degrees in Pietermaritzburg and 44% of those had either graduated or were well on course to do so. Some 32% of those graduates (excluding the 2000 to 2003 intake) had gained postgraduate degrees on the same campus. Unfortunately it is not clear how many of these successful graduates and postgraduates registered for agriculturally-related degrees.⁴³

In common with similar Programmes elsewhere in the University, the SFP was subjected to periodic review with regard to such aspects as staffing, student numbers, curriculum development and funding. By 2006 there was some concern about a decline in SFP graduations to approximately 50%, though it was felt that this should still be considered 'a success' when compared with the graduation rates of mainstream students at several other universities. The problem, however, persisted and there was disquiet in the Faculty about pass rates at all levels, and about poor class attendance and competency in English as the medium of teaching and learning.⁴⁴

English language courses were available to foreign students from 2000 but there was extensive discussion about the level of proficiency among local second language students, and the extent to which lack of comprehension impacted upon their performance. In 2001 the overwhelming majority

of the Faculty's Board members favoured the introduction of an English communication short-course in the first-year curriculum, coupled with the mainstreaming of further proficiency in the language.

A new first-year curriculum, designed to reduce the complexity of options initially facing students and bring them all to the same level in the basic sciences, included a communications skills module and came into effect in 2003. In February 2005 all entrants into the Faculty were subjected to the Standardised Assessment Test for Access and Placement (SATAP) English for Academic Purposes Test. It was found that the mean percentage for access students was 60% (being almost exclusively second language English speakers) while that for mainstream students was 80%. This suggested that between 3% and 8% of the latter category (scoring less than 60%) needed to take a literacy module, rising to as much as 18% (scoring less than 70%). The findings nevertheless indicated that the Faculty's selection of students for both access and mainstream was 'very good'. But then there was also concern about the standard of English proficiency, as well as research and writing skills, reflected in some Masters and Doctoral dissertations.⁴⁵

In 2008 low pass rates in more than 90% of the Faculty's first-year modules in the June 2008 examinations attracted attention. While the overall pass rate in the Faculty was 'reasonably good', the average mark in these problematic modules was just under 50%. This suggested that, at the level of 34/35 matriculation points, the standard of students being admitted to the Faculty might still be too low. The situation was compounded by the arrival of the new 'Outcomes-Based' national senior certificate, whose syllabus appeared to be characterised by 'gaps' that impacted severely on disciplines which depended upon Mathematics and Science.

At a College Teaching Enhancement Workshop held to anticipate the challenges which the 2009 student intake might present, it was concluded that they would arrive with a 'different suite' of mathematical and learning skills to previous intakes and that basic 'prior knowledge' of various disciplines could not necessarily be assumed.

At a follow-up meeting in March 2009 it was concluded that 'poor students are still poor and good students have got worse'. There appeared to be a serious decline in 'student preparedness and ability to work from first principles in any subject', a general lack of skills in reading and writing, a 'high level of dependency on group leaders', serious 'non-participation in routine activities like lectures and tuts', a need for basic study skills such as time management, and various 'personal problems' which affected academic performance.

In response, the Faculty of Science and Agriculture had already introduced a voluntary course in reading and comprehension skills called 'Scientific Communication and Writing'. There were also plans to liaise with the Students' Representative Council in developing a culture of learning and with Student

Counselling in the promotion of study skills and student awareness of the service which that facility provided in addressing personal issues.⁴⁶

These were by no means the Faculty's first efforts to ensure students' success in its mainstream Programmes. As early as November 2001 it became involved in the University-wide Student Development Plan and in the following year established a Faculty Teaching and Learning Forum, which was intended to discuss curricula and teaching delivery. This anticipated the subsequent formation of a University Teaching and Learning Committee.

By 2006 the Faculty's 'student development' strategies included, in some modules, pre- rather than post-lecture assignments as well as advance access to lecture notes so as to enable them to engage more meaningfully in class discussions. There was also a recruitment of Zulu-speaking tutors to assist in practicals, as well as assistance in securing bursaries and in linking students to external specialists for advice in final-year research projects. In response to Senate's 2006 adoption of an Academic Monitoring, Support and Exclusions Policy, the Faculty subsequently also monitored students' progress in order to identify those 'at risk' and to offer them counselling, as well as additional tutoring, through the Student Mentorship Programme.⁴⁷

For all the challenges that it faced the Faculty of Science and Agriculture produced 5,027 graduates between 2003 and 2007 and another 1,017 in 2008, roughly 12 % of them in each case qualifying in agriculturally-related disciplines.⁴⁸

Faculty regulations and curricula

While various strategies were implemented to facilitate the successful passage of students through the Faculty from registration to graduation, the process continued to be subject to the traditional range of regulations. These pertained to such issues as pre- and co-requisites, duly performed certificates, the award of certificates of merit and *cum laude/summa cum laude* degrees, and the granting of supplementary examinations.⁴⁹

An important innovation was the development of a University policy on plagiarism. By 2001 the number of cases reported to Senate reflected a mounting problem, with students finding it increasingly easy to download and copy information from the Internet without acknowledgement. By 2007 the issue was described as 'overwhelming' and a 'Task Team' was appointed to formulate a policy, which was in place by the end of 2008.⁵⁰

The proposal for a 'trimester' academic year, including a 'winter semester', which had presented so many difficulties, lost momentum,⁵¹ but the Faculty of Science and Agriculture, in common with the rest of the University, was still coming to terms with other innovations. Before the new Faculty came into existence in January 1999 workshops were held at which it was agreed that all of its Programmes should be registered with the South African Qualifications

Authority (SAQA) by May 1999. A 'Programme' was defined as 'a collection of courses that work to a specific outcome' and it was agreed that the then Faculty of Agriculture's five current degrees would continue to be offered. The B Sc and B Agric would be 'General Studies' Programmes while Agricultural Management, Dietetics and Human Nutrition would be three-year 'named' Programmes. All existing Honours degrees were also to be registered as Programmes. The first degree in Agriculture was designated B Sc Agric, followed by the relevant Programme, e.g. B Sc Agric (Horticultural Science). All modules were to comprise a minimum of 80 notional hours, which would be valued as 8 credits, and all material taught was henceforth to be organized in units of 8 or 16, with a four-year Programme like the B Sc Agric consisting of 1,280 notional hours per year.

In the absence of a nationally agreed qualifications framework an attempt was also made to establish, if only provisionally, a consistent usage of qualifications that embraced the whole University. The process became even more broadly-based following the merger which created the new University of KwaZulu-Natal, with all proposed new Programmes also requiring national approval from the HEQF. In October 2007 that body gazetted guidelines which defined, simplified and provided consistency with regard to the various qualifications offered by higher education institutions. Implemented in 2008, it was to be followed by a National Qualifications Framework (NQF) which was defined as 'an integrated and comprehensive classification system for national qualifications.'

Its ten levels, with the last five applying to tertiary institutions, raised the challenge of relating the Faculty's current modules to them without any initial assistance being available from either the South African Qualifications Authority or the national Department of Education. All modules were then subject to periodic assessment in terms of their quality and viability.⁵²

Staff issues

Formal expectations of staff in terms of teaching and the assistance rendered to students had never been heavier. There were several other issues that demanded their attention, some longstanding and others more recent. Student evaluations of teaching staff and their modules remained standard practice, in addition to which a formal 'QPA' (Quality Promotion and Assurance) evaluation was now required every three years.

In 2004 a much broader survey of 'Student Opinions of UKZN Services' was conducted, in which areas of dissatisfaction that emerged included unsatisfactory access to 'group study' rooms, inadequate availability of computer training, insufficient time allowed 'to understand things', and limited 'helpful feedback' from teaching staff. Unfortunately, it is not clear to what extent these criticisms applied to the agriculturally-related disciplines.⁵³

Access to personal computers and the Internet, rather than computer training, was vital to staff members. The University's decision in 2001 to lease computers and replace them over a four-year cycle was a welcome development, especially as the NRF was no longer providing funds for this purpose. The formulation of a policy on acceptable Internet and e-mail use, proposed in 2001, was also important to effectiveness in both teaching and research but in 2005 there was still dissatisfaction in the Faculty with the service provided. A Faculty Information Technology Committee was eventually formed to improve relations with the University's Information Technology Division, but discontent with the University's electronic communications policy in general was not readily resolved.⁵⁴

The improvement of academic salaries, the revision of sabbatical policy to ensure that it could still function financially and be utilized properly, and the review of staff promotions policy were all University-wide matters of concern.⁵⁵ So too was the extended employment of staff beyond the retirement age of 60 years, with productivity-based superannuation up to 65 years of age. By 2006 the College of Agriculture, Engineering and Science declared a 'crisis' with regard to staff recruitment. Senate agreed to the appointment of retirees as a short-term means of ensuring delivery of academic Programmes but resolved that each College in the University should develop guiding principles for this purpose, with due recognition of the need for 'Equity and Transformation.' This was subsequently overtaken by a University Council policy which specified the requirements for employment beyond retirement age.⁵⁶ A related staffing issue was the University's development of an 'Equal Opportunity and Employment Equity Policy' in terms of the Employment Equity Act (No. 55 of 1998). Its purpose was to redress 'past imbalances', particularly in terms of race and gender, in the institution's employment profile.

In acknowledgement of the University's changing student profile it also developed a 'Language Policy.' This sought to meet the requirements of the Higher Education Act (No. 101 of 1997) and, in effect, promoted multilingualism. Science and Agriculture was concerned about the financial implications and contended that, apart from promoting proficiency in English, students should be encouraged to study *isiZulu* but not be obliged to do so. This also had implications for the language proficiency of staff members.⁵⁷

The issue of academic freedom, which had featured so prominently in the early decades of the original Faculty of Agriculture prior to its 1976 detachment from the then Department of Agricultural Technical Services, again came to the fore after the turn of the century.

In November 2001 Senate resolved that the University's Academic Freedom Committee should be convened 'to discuss the general question of University autonomy in South Africa at present'. It was a matter of recurring concern in

several local universities, having come to prominence again, for example, in the late 1980s.

By 2007/08 the focus at UKZN had shifted onto the University itself. There was extensive debate in Senate about the exclusion from its Agenda of a submission from the Faculty of Science and Agriculture on the subject of academic freedom. Senate eventually accepted the administrative explanation that this document should have been forwarded, in the first instance, to the Senate Academic Steering Committee (SASC) which had been formed late in 2007.

Apart from the broad issue of academic freedom there remained a practical concern, at least in the Faculties of Engineering and of Science and Agriculture, about the relationship between the University's Faculty Boards, the Academic Affairs Boards and Senate. This structure, it was argued, meant that Faculty Boards and non-senatorial staff members no longer had direct access to Senate.

In March 2008 the SASC invited all faculties to make submissions on Academic Freedom so that it could consider them before advising Senate on the matter the following year. In its submission the Faculty of Science and Agriculture argued that academic freedom was 'intimately linked to freedom of expression' and highlighted five aspects, viz. 'freedom to teach without undue restriction and interference'; 'to pursue research without undue restriction and interference'; 'to discuss matters of academic interest and importance across the university community and with wider society without fear of retribution and in the context of mutual respect'; 'to communicate'; and 'the right of access to information'.⁵⁸

It is unrecorded whether or not staff members in the agricultural disciplines were actively involved in this formulation of what amounted to a re-statement of traditional notions about academic freedom. In view of the struggle which agricultural studies in Pietermaritzburg fought in the early years to achieve these objectives, it almost certainly enjoyed their support, as it would have that of their many predecessors, not least the 'agric-originals' of the late 1940s. On 28 November 2008 Rabie Saunders and his foundation staff were remembered when '60 Years of Agriculture at the University of KwaZulu-Natal' were celebrated in Pietermaritzburg. Former and present staff and students, as well as interested members of the public, were invited to join a 'nostalgic' tour of the campus, including Ukulinga Farm, to view current teaching and research facilities, to participate in an afternoon symposium *cum* panel discussion and to attend a celebratory dinner at the Royal Agricultural Show Grounds.

Harvey Dicks, retired biometrician and popular *raconteur*, led the campus tour and entertained the dinner gathering with a characteristically amusing speech entitled 'Reflections on Sixty Years of Agriculture in Pietermaritzburg'.

His death a few months later snapped another living link with the past, though some of it was captured in a Commemorative Brochure, *Celebrating 60 Years Of Agriculture*, published by the Faculty.⁵⁹

The celebrations in November 2008 were appropriate in that, by the end of 1948, the new 'Faculty of Agriculture' in Pietermaritzburg had, in practice, already been functioning, with staff appointed and registered students in the system. In consequence, the official 60th Anniversary on 15 March 2009 passed without notice.

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CONCLUSION: A FINE BAND OF FARMERS INDEED!

From the mid-1930s a number of prominent individuals, supported by the institutions and associations which they represented, participated in the initial efforts to establish a Faculty of Agriculture in or near Pietermaritzburg. Among these were John Fisher, Principal at Cedara, J.W.Bews and R.B. Denison, successive Principals of the Natal University College, parliamentarians F.N. Broome, F.C.Hollander, R.M. Fawcett and O.L. Shearer, several sympathetic members of the Natal Provincial Council and of the Pietermaritzburg City Council, as well as leaders of the Natal Agricultural Union and other white farmers' organisations.

It was the arrival in 1945 of a new, politically well-connected Natal University College Principal, E.G. Malherbe, which brought their efforts to fruition. He was able to take advantage of the changing post-war economic climate with regard to educational and agricultural development to launch the longed-for Faculty on reasonably favourable financial if not administrative terms. From 1949 full administrative autonomy became a major long-term objective.

By the mid-1960s, the Faculty of Agriculture was well-established in its own Building, though it still had to share it with Extension Services, and the Department of Agricultural Technical Services (Natal Region). In 1962 only temporary relief from the congestion was provided with the addition of another storey. Ukulinga Experimental Farm was playing an invaluable role in the training of students and promotion of research, despite the drawbacks of insufficient water and limited size. Several staff members and postgraduate students had already made significant contributions through their research efforts towards overcoming a variety of farming challenges, many of them relating to the eastern sub-tropical region of the subcontinent. The original 1948 academic complement of 12 (including the founding Dean, Rabie Saunders) had grown to 13 professors, 18 senior lecturers and 16 lecturers, assisted by 18 technicians. They were spread across 13 departments offering students 15 different subject options in which to 'major', with veterinary science being touted as a possible welcome addition if governmental approval and funding was forthcoming.

The Faculty implemented major curriculum changes in 1954 and again in 1965 in an effort to improve and broaden undergraduate training in response to the varying needs of its students. Annual first-year undergraduate enrolments doubled between 1947 and 1966 (53 to 105) and the number of B Sc (Agric) graduates almost tripled between 1951 and 1967 (18 to 53). The output of postgraduates was still small, though there was an encouraging increase in enrolments during the 1960s with as many as 92 in 1966. The 69

students registered for M Scs in that year were boosted by the Department of Agricultural Technical Service's decision to return those of its graduates who were entering the research stream at its various Research Institutes for two years of advanced training.

Although originally intended to be bilingual, in practice, if not in theory, it was already a predominantly English-medium Faculty of Agriculture, attracting students from all over South Africa and further afield. These recruits soon coalesced to create a distinct identity for themselves on the Pietermaritzburg campus. So too did the academic staff, based in part on their physical isolation but also in large measure on the dual nature of their posts. This was modified by the 1963 Agreement between their two masters, the University of Natal and the Department of Agricultural Technical Services. Nevertheless, it continued to circumscribe their academic freedom, inhibiting their full participation in the life and many of the policy-shaping decisions of the University. Full administrative independence from the Department was still more than a decade away.

Between the mid-1960s and mid-1970s the Faculty of Agriculture lost several of its longstanding foundation staff members to retirement. They were gradually replaced by a new generation of scholars, some of them more scientifically-trained graduates of the Faculty and several of whom began to build impressive reputations in their respective fields. There were growing space constraints in a Building still shared with the Department of Agricultural Technical Services while student numbers and course options increased. These could be eased but not resolved by a more equitable re-organisation of available resources among departments.

During the 1970s air-conditioning and computerisation made their first appearance in the Building while Ukulinga continued to be a vital though increasingly expensive resource as the Faculty assumed full financial responsibility for it. After its long-delayed completion the Phytotron provided an additional boost to the Faculty's research output that was built, in part, on earlier initiatives and expanded into new areas of specialisation.

There was a welcome increase in first-year undergraduate enrolments during the early 1970s which enabled the Faculty to increase its average output of B Sc Agric graduates to 42 a year compared with an average of less than 37 a year in the previous 1950–1970 period. Postgraduate enrolments also increased but there were fears that this trend might not be sustained if the Department of Agricultural Technical Services wound down its policy of seconding its research officers back to the Faculty for higher qualifications.

There was continued concern about first-year failure rates, particularly in Mathematics, but by 1976 the Faculty could take pride in being the first to implement a course 'credit rating' system and semesterisation in the University, as well as a non-mandatory system of teacher and course evaluation. Among the

more significant curriculum changes was the establishment of a Department of Home Economics and Dietetics and the proposed introduction of a three-year Bachelor of Agricultural Management degree. During the 1970s, despite opposition from some staff members, the Agricultural Students' Council was granted representation at Faculty meetings and, eventually, at Board meetings as well. Student identity cards were introduced as a necessary security measure but efforts to enforce a student dress code met with only moderate success. This was despite the admonishing of any poorly attired student by Professor Susarah Truter, and later by Professor 'Pottie' Meiring.

The Faculty's ongoing association with the Department of Agricultural Technical Services promoted its conservative image on campus but did provide some benefits in the form of research collaborations, funding and shared equipment. The Brink Report (1968) nevertheless gave welcome momentum towards full administrative as well as academic control by the University, and independence at last from the cumbersome and irritating procedures of the Public Service Commission and State Tender Board. The achievement of that objective was delayed until as late as January 1976 by an unavoidable rationalisation programme, at a time of financial stress, which threatened the Faculty's viability, coupled with protracted negotiations to secure a financial subsidy formula that was roughly appropriate to its particular circumstances.

During the decade following its independence from the Department of Agricultural Technical Services the Faculty of Agriculture reached maturity as it became fully integrated into the University of Natal. As such, it was required to propose its own future strategy along the lines of the 'triennial plans' previously formulated by other faculties. In doing so it saw no need to depart substantially from its 'traditional structure and philosophy', based on a four-year B Sc Agriculture degree intended to produce scientifically trained 'Agriculturalists' or 'Agricultural Specialists' capable of embarking upon research careers as well as other avenues of employment, and the more recent three-year B. Agricultural Management programme with a strong economics bias which was designed for owner-occupiers and intending farm managers. The Faculty established an important precedent for the future when it accepted the idea of grouping existing academic departments into 'Schools', the first envisaged being a 'School of Plant Sciences'. The reconstruction of a more appropriately-sized academic and technical staff complement proved to be a slow process following the rationalisation programme that had attended the Faculty's take-over by the University. Yet it was also realised that circumstances called for a further streamlining of course offerings as well as greater publicity of the Faculty's activities and significance in order to attract more students.

All departments, to varying degrees, underwent curriculum revisions, initiated new research projects and experienced important staff changes,

including the retirement of the last of the Faculty's original academic complement, Ian Behrmann (Agricultural Economics). By the 1980s the Rabie Saunders Building was beginning to show the need for renovations and repairs while there were ongoing efforts to improve the Faculty's library, workshop, storeroom, multicopy, photographic and audio-visual facilities, as well as its parking areas and transport arrangements for field trips. Security and identification cards became the order of the day as 'Ag Fac' grew bigger and more impersonal and the incidence of theft increased.

The urgent need for more teaching and laboratory space to cope with an increasing student intake was alleviated, to some extent, by the departure of Statistics and Biometry to the main campus and of Entomology and the Agriculture Library to the new John Bews (Life Sciences) Building. The limitations of Ukulinga Farm in terms of water resources, size, soil and accommodation continued to impose constraints on the research projects based there. Consideration was given to improving its commercial potential while moving some existing operations that were more suited to conditions at Baynesfield Estate. The Phytotron also found itself under increasing pressure due to a growing number of users and the need for upgrading and maintenance. A Faculty Research Committee was established to facilitate inter-departmental projects but soon found itself confined to a fund-raising function before being disbanded in 1988.

A pleasing increase in postgraduate registrations did impose a heavier load on staff in terms of supervisory work and was accompanied by a revival of the first-year intake in the late 1970s and again in the late 1980s. The Faculty's traditional recruitment of candidates from Zimbabwe declined substantially while those from the then Transvaal province and KwaZulu-Natal increased. The Government's decision in 1986 to permit the enrolment of black students into previously 'whites-only' universities was dampened by the introduction of a financially induced zero-growth policy. These two developments, in combination, necessitated a careful re-assessment of admission and exclusion policies. There were also protracted debates as to what expectations black students had about university education and how those from disadvantaged school and socio-economic circumstances could best be assisted without lowering existing academic standards.

Semesterisation, first introduced into the University by Agriculture, gradually gained favour elsewhere on campus, while the Faculty refined its own teacher and course evaluation system and addressed some significant curriculum changes. These included the introduction of a three-year Agricultural Management option, and an Honours degree to follow the existing four-year B Sc Agric 'Programme' (as degree structures were now to be called). Increasingly inadequate salary scales for both academic and technical staff was a source of growing dissatisfaction but by the late 1980s the University's

deteriorating financial situation made it impossible to contemplate any general salary increase, or even adequately fill existing staff vacancies. The Faculty of Agriculture faced yet another bout of rationalisation and, while amalgamation with the Faculty of Science was still only tentatively contemplated, it was already looming as a distinct probability.

During the 1990s the whole University community underwent an extended process of re-appraisal and cautious forward planning in the light of ongoing financial stringency, significant changes in the complexion and size of its student intake, and major governmental restructuring of South Africa's higher educational landscape. As student enrolment in agricultural institutions continued to decline world-wide the Faculty embarked upon a vigorous publicity and recruitment campaign. This sought to affirm, yet again, its commitment to producing high-quality manpower for commercial agriculture but also, in the spirit of the University's new Mission Statement, to make agricultural education more accessible to the underprivileged and to assist in the upliftment of under-resourced rural communities. To that end the Faculty's schools liaison programme was extended to all ethnic groups and the School of Rural Community Development came to be seen as a new means of participating in agricultural extension work.

The Faculty Board also further explored the possible development of three-year degree 'Programmes' and the formation of 'Schools' of cognate disciplines that might straddle the faculty divide between Agriculture and Science. In 1994, with current national regulations and the academic limitations of the black target constituency in mind, a three-year diploma in Rural Community Development was launched, eventually followed in 1998 by a three-year degree. During the 1990s the Faculty gained another affiliate in the form of the School of Environment and Development, in 1996 renamed a 'Centre' (CEAD). All of the Faculty's departments experienced further staff and curriculum changes and, in several cases, new research initiatives.

Agrometeorology, Crop Science and Soil Science merged to form the new Department of Agronomy while Dietetics and Home Economics changed its name to Dietetics and Community Resources so as more accurately to reflect the substantial changes in focus which had taken place within it. Similarly, Grassland Science became the Department of Range and Forage Resources. Among the more significant curriculum developments were new courses in Molecular Biology, Forestry and Community Forestry as well as new 'majors' in Agribusiness and Wildlife Science. Existing courses were revised and new modules introduced to cater both to the needs of a changing student population and different employment circumstances.

There was concern about standards of literacy, even at postgraduate level, and a recognition of the need also to promote computer literacy as computerisation gathered momentum in the University and in the workplace.

During the 1990s 'educational development' became an increasingly important aspect of the Faculty's teaching function, to the extent that by 1996 it was being 'mainstreamed' as an integral rather than 'add on' part of every course.

Ongoing issues that attracted the Faculty's attention included financial aid packages for disadvantaged students, bursaries and scholarships for top achievers, funding for graduate assistants and student demonstrators and the University's unfavourable postgraduate fee structure in comparison with other institutions. So too did the new criteria stipulated by Senex for the award of *cum laude* degrees and the granting of supplementary examinations.

By 1993 the much-needed refurbishment of the Rabie Saunders Building was complete but the surrounding landscaping, as well as improved safety and security measures, was a longer-term process dependent upon the availability of funds. The increasing use of computers and the installation of a LAN system provided direct access to the Library catalogue, student records and financial information, as well as to electronic e-mail and the Internet, but by 1997 student use of the latter was heavily oversubscribed.

The computerisation of campus library facilities was a boon to both students and staff, though financial considerations necessitated the rationalisation and reduction of book and journal acquisitions, to the potential detriment of both teaching and research. Ukulinga Farm continued to play an important role in both these functions. In 1998 it was placed under a new management structure and amalgamated with the adjoining Bisley Valley Conservancy to provide a convenient area for students taking the Wildlife option to conduct their field work. Activity at the Phytotron, in 1992 renamed the Controlled Environment Research Unit, was still primarily focused on upgrading and maintenance in the absence of funding for additional equipment. Construction of the long-planned Isotope Laboratory got underway while the Electron Microscope Unit continued to offer a sophisticated service to both Agriculture and Science. The Faculty Research Committee was reconstituted but in 1993 gave way to a Joint-Faculty Committee. During the 1990s individual evaluation for FRD research support became the norm for all scientists, while funding from within the University moved towards being based directly on previous publication output.

Student evaluation of teachers and their courses also became the norm in all faculties as part of the personal promotion process. Uncompetitive remuneration and commensurate staff losses were an ongoing source of disquiet. In addition, there was staff dissatisfaction with their medical aid scheme and the difficult choice which each individual had to make about switching from the government to a new university pension scheme. Gender issues also rose to prominence, as did the University's new 'Equal Opportunities and Affirmative Action Policy' in relation to the maintenance

of academic standards and affordability. Cost implications were particularly pertinent in view of the deteriorating financial situation.

The celebration in July 1998 of the Faculty of Agriculture's 50th Anniversary proved to be the swansong of its independence as cost-saving necessitated amalgamation with the Faculty of Science on 1 January 1999. While this proved, on balance, to be beneficial, it marked the end of the traditional 'Ag Fac' collegiality which had begun to dissipate as other students took agricultural courses in increasing numbers and some departments were transferred out of the Faculty after 1976. This was accompanied by the formation of six new 'Schools' of cognate disciplines which transcended the old faculty divide. They, in turn, subsequently became part of an even broader 'Cross Faculty' identity with the formation of a 'College' which constituted an intermediate administrative level between Faculty Boards and the University Senate.

Further restructuring followed the University of Natal's merger in 2004 with the University of Durban-Westville to establish a new University of KwaZulu-Natal. The formation of a 'College of Agriculture, Engineering and Science' and the re-arrangement of the six 'Schools' within the Faculty did not alter the fact that there were twenty disciplines and three specialist 'Centres' dispersed among them which offered the widest variety of agricultural studies at any university in Africa. Nor did subsequent administrative refinements, including a 'College Quality Committee' and a new, smaller Senate, which did not all appear to meet with unanimous staff approval.

Apart from the cost of the merger and restructuring processes, there was an ongoing medley of financial challenges in the form of funding appropriate publicity, library resources, computers, teaching and research facilities, student financial aid and staff salaries. Within these constraints, most agriculturally-related disciplines continued to maintain their nationally, and in some cases, internationally recognised levels of excellence in both teaching and research. Not all disciplines were able to increase their student intake, as Agricultural Economics and Agricultural Engineering did, but there were several new teaching initiatives. These included new 'Programmes' in Hydrology, Community Resources, Human Nutrition, Forestry and Ecological Sciences as well as the Science Education Research Group.

As the formation of 'Schools' overcame traditional subject barriers and suggested new synergies in teaching and research three significant 'Centres' were established and soon attracted international recognition for their contribution to both those dimensions of academic endeavour – the African Centre for Crop Improvement (2001), the Centre for Environment, Agriculture and Development (2005) and the African Centre for Food Security (2006).

After the turn of the century the agriculturally-related disciplines lost another succession of valued and long-standing staff members to retirement and resignation. While some of them retained an active association with the

University as senior research associates, new leaders emerged in several disciplines as both teachers and researchers. They were ably supported by a rising generation of young academics whose emergence was also helping to change the ethnic and gender composition of the staff complement.

Important infrastructural developments included new buildings to accommodate the 'Science Foundation Programme', the African Centre for Crop Improvement, the Forestry Initiative and the Biological and Conservation Sciences. In response to the University's new research productivity incentive scheme its staff publication output improved steadily to produce an all-time high in 2006, with the Faculty of Science and Agriculture well to the fore. Its members welcomed the University's improved financial assistance for postgraduate students, who had always been so important to their research endeavour. They also supported a new holistic postgraduate management policy, in the interests of maintaining quality and improving throughput to graduation. A 13% increase in the Faculty's enrolment of postgraduates in 2002 was followed by a subsequent decline as more financial aid and publicity was needed to compete with other institutions in attracting the best students. While the ethnic and gender profile of the University's student body was changing quite dramatically there was a decline in registrations after the 2004 intake, to the extent that by 2007 the only increase in Agriculture, Engineering and Science was in the number of 'access students', which had risen to between 450 and 500 a year.

Various strategies were devised to increase overall student recruitment and to ensure their successful retention and throughput in all 'Programmes'. There was, nevertheless, considerable staff dissatisfaction about the work ethic of many students and their levels of proficiency in English, research and writing skills, even at postgraduate level. There was also considerable debate about the matriculation level at which students should be admitted to the Faculty and about apparent 'gaps' in the knowledge of the first matriculants to be produced by the national Government's 'Outcomes-Based' education policy. These issues impacted severely on all disciplines that had previously assumed a certain level of familiarity with Mathematics and Science. By 2006 the Faculty had various 'student development' strategies in place and it embraced the University's academic monitoring policy to identify and assist 'at risk' students.

Among new regulations introduced was the development of a formal policy on plagiarism as students discovered how easy it was to download and copy information from the Internet. From 1999 all of the Faculty's degrees had to be registered as 'Programmes' and listed with SAQA. All of its courses had to comprise a minimum prescribed number of notional study hours and carried an agreed value in credit points. From 2008 all qualifications offered by the University had to conform to national guidelines laid down by HEQF and

subsequently all modules taught had to relate to one of the upper five levels outlined in the ten levels of the NQF.

In addition to these new administrative requirements and the increasing needs of their students, staff members had also to promote their own interests to ensure adequate access to computers and the Internet. In addition, they had to come to terms with revised University regulations pertaining to sabbatical leave, staff promotions and extended employment beyond retirement age, as well as new policies pertaining to 'Equal Opportunity and Employment Equity' and the promotion of multilingualism on campus.

The issue of limitations on academic freedom, which had so restricted the activities of staff members in the original Faculty of Agriculture, prior to 1976, when it had been administered by the Department of Agricultural Technical Services, again raised its head. This time it was in relation to the conduct of the University's own administration. In response to an invitation from the Senate Academic Steering Committee (SASC), the Faculty of Science and Agriculture made a written submission on the subject which, in essence, outlined the traditionally perceived essential ingredients of academic freedom. Staff members in the agriculturally-related disciplines almost certainly subscribed to this, as their predecessors would have done but, on the evidence provided by the official records, it remains uncertain to what extent they were actively involved in formulating the Faculty's statement.

These pre-occupations did not deter them from celebrating, in November 2008, the advent of 60 years of agricultural studies in Pietermaritzburg. It was indeed, for all practical purposes, an appropriate time to mark the occasion, though in consequence the official anniversary on 15 March 2009 unsurprisingly passed without notice.



In some respects the Faculty of Agriculture did not lose the conservatism which had characterised it prior to securing independence from the Department of Agricultural Technical Services in 1976. Collectively its staff was instinctively cautious in accepting innovations, such as the conflation of Board and Faculty meetings, the University Research Committee's 'research incentive scheme', the notion of 'Senate's discretion' in selecting recently matriculated applicants for registration, the admission of educationally disadvantaged students and the provision of special arrangements and courses to assist them, the identification of examination scripts by student number rather than name and, not least, the amalgamation with Science to form a new 'Faculty of Science and Agriculture'. Rural associations may have played a part in nurturing a conservatism which was not necessarily inappropriate in all situations.

This did not prevent the Faculty from being remarkably progressive in other respects. It embarked upon semesterisation and a course credit-rating system twenty-two years ahead of the rest of the University. It introduced voluntary staff and course evaluation by students in the mid-1970s, a decade and a half before the rest of the institution, it led the way in implementing a 'postgraduate policy' designed to ensure a more efficient throughput of research students to graduation and it established its own Teaching and Learning Forum to assist needy undergraduates. Within each discipline there were, over the years, numerous innovative course revisions and new options introduced in response either to the requirements of the job market or changing international trends. Similarly, there were several departmental re-alignments and, particularly after the merger with Science and the formation of Schools, new teaching and research associations emerged which transcended the old faculty-divide.

The demise of the traditional 'departments' has been a source of regret, some only three or four staff strong but highly successful and with an ethos attractive to students. On the other hand, they were offered significant new 'major' options such as Biotechnology and Forestry and innovative trans-disciplinary alternatives through the emergence of the African Centre for Food Security, the African Centre for Crop Improvement and the Centre for Environment, Agriculture and Development.

The emergence of these trans-disciplinary Centres, producing graduates at all levels, has attracted considerable international funding and student interest. Understandably, this is highly valued by the University. So too is the greater sociological emphasis on rural development and training for smallholder and subsistence farmers, which is in accord with governmental imperatives. It has also fuelled debate about the future of the traditional 'hard-core' production oriented disciplines in the four-year B Sc Agric degree and their possible loss of students to other institutions where they are still more prominent.

In terms of undergraduate agriculture student numbers Animal Science, Crop Science, Horticultural Science and Range Science could now all be described as 'at risk', although postgraduate numbers are reasonably healthy. Entomology is effectively no longer available to agricultural training in Pietermaritzburg, while supportive disciplines like Biometry, Genetics, Microbiology and Soil Science are under pressure to focus their future survival on the pure sciences rather than on agricultural science.

The loss of independent Faculty and departmental identities through a series of mergers undoubtedly generated new synergies in terms of teaching and research options, but some 'hardcore' disciplines suffered a decline in their enviable national and international reputations in the process. Agricultural studies in Pietermaritzburg could arguably claim to have been top in the field, nationally speaking, during the 1970s and 80s, and, in the case of

some departments, into the 1990s. In terms of traditional agricultural training collectively this is arguably no longer the case.

Change has brought some spectacular successes, the African Centre for Crop Improvement (ACCI) and The African Centre for Food Security (ACFS) being obvious examples, while Biotechnology continues to attract students through Biochemistry and Genetics. But there is both national and international concern about the possible implications for agriculture of a decline in the number of specialist, scientifically trained graduates and postgraduates trained in the 'hard core' production orientated disciplines. In recent decades agricultural studies in institutions on other continents have undergone changes similar to those experienced in Pietermaritzburg, driven by financial constraints and/or by declining interest in these fields as career options.

While developing countries generally have insufficient food supplies and little or no financial resources to invest in appropriate research, richer and better fed developed regions have an over-abundance of the former and far less incentive to invest in food-producing projects. As Professor Mohamed Karan, Dean of Agriculture at the University of Stellenbosch has pointed out, agriculture has, in many ways, become a victim of its own success in terms of scientific advance and hugely increased productivity. Its reduced importance as a percentage of gross national product has, in some countries, promoted the illusion that the sector is almost irrelevant. Several agricultural and science faculties have undergone various forms of merger in order to remain viable. The old Agricultural University of Norway, for example, has recently become part of the Life Sciences University of Norway, with considerable consequences for the way in which agriculture is taught and researched there. In several fields of agricultural expertise international scientific advances are increasingly being made by 'non-agricultural' scientists.

Food and fodder production surely remains the most essential economic activity to ensure human survival. The need for substantially more appropriately trained agricultural specialists in a variety of science rather than sociologically-based fields is self-evident, if food security is to improve rather than decline world-wide in the face of population increase, improved living standards, and global warming.

The need for rural development and appropriate assistance for small-scale agricultural entrepreneurs is also self-evident, not least in southern Africa, but large-scale commercial agriculture has its role to play and desperately needs more graduates in 'hard core' scientific fields.

The issue as to where the greater emphasis should lie remains a matter for debate. It is appropriate here to remember Pete Booysen's speech at the 'Ag Fac' 50th Anniversary dinner in July 1998 when he called for the need to maintain a balance between science and its application, between the needs

of the 'specialists' and the 'general practitioners', and between those of 'commercial' and 'traditional' agriculture.

Since their establishment the agricultural disciplines on the Pietermaritzburg campus of UKZN have extended their impact and reputation far beyond the sub-tropical eastern region of South Africa, whose needs they were originally intended to serve. Their contribution to that region, the African subcontinent and the international scientific community has already been considerable, if unquantifiable.

It has taken three forms.

Firstly, in the training of professionals who have found employment all over the world in the agricultural sector, agriculturally-related industry, government service, national agencies and tertiary education. Their graduates have an enviable reputation, by and large, and have risen to prominence in a variety of fields.

Secondly, in undertaking large-scale community service and extension work which has included the presentation of short courses and demonstrations to various interest groups, participation in discussion panels, service on governmental and other advisory boards, the provision of consultations to public institutions and private bodies, on-site advice to resource managers and, of increasing importance, to under-resourced subsistence farmers.

Thirdly, in publishing and, in many instances, applying innovative research findings which have attracted national and, in many cases, international recognition.

The list of research achievements seems endless:- Rabie Saunders' abiding interest in the genetics of the cowpea, Hamish Scott's ongoing Veld Trials, George Hunter's successful importation of fertilised sheep embryos, and George Quicke's investigations into proteins; Jimmy Orchard's, Malcolm Sumner's, John de Villiers' and Martin Fey's contributions to Soil Science; Karl Nathanson's research on soybeans and cassava, and Ted Bosman's on the control of insect pests; the work of Lieb Nieuwoudt's APRU, that of 'Pottie' Meiring's and Alan Hansen's tractor and fuels research centre, Roland Schulze's applied hydrology research group, Jimmy de Jager's crop growth modelling project PUTU and Mike Savage's focus on soil-plant-atmosphere energy and water relations; Neil Tainton's investigations and books on veld and pasture management, Rob Gous's huge contributions on pigs and poultry; Peter Allan's on macadamia, papaw, kiwifruit and stone fruits, Nigel Wolstenholme's on subtropical fruits and nuts (avocado in particular), Frits Rijkenberg's on the rust diseases of plants, Mike Dutton's on mycotoxin analysis, Rob Melis's dry bean breeding programme, Hans Gevers' high lysine maize cultivar, Mark Laing's work on biocontrol and plant breeding, Eric Senior's on waste technology, Theresa Coetzer's on trypanosomal proteases and, not least, the 1995 production of Africa's first test-tube calf by Arthur Lishman's team.

The above account is by no means exhaustive. Much of this research, and teaching, involved the support of technical and administrative staff, without whose expertise and dedication these achievements would not have been possible. Their contribution is largely unrecorded in the official records but, although unnamed, they should not be forgotten.

Maintaining a suitable equilibrium among the three areas of Faculty endeavour has always posed a challenge, with the most appropriate balance varying substantially from one department to another. In the sixty years of their existence the agricultural disciplines in Pietermaritzburg have clearly demonstrated enough caution, and innovation, to analyse and meet the challenges of the future.

They have also produced the necessary leadership from within their ranks, including a highly regarded Vice-Chancellor (Pete Booysen) and, more recently, a Deputy Vice-Chancellor (Pete Zacharias).

A suitable climate of academic freedom will allow these disciplines to continue exploring and debating the alternatives that might best serve the agricultural needs of southern Africa, while also ensuring their own survival as viable fields of professional training, community service and research in a rapidly changing local and world environment.¹

ENDNOTES

- 1 This Conclusion is based, in part, on comments made and information supplied by Rob Gous, Kevin Kirkman, Frits Rijkenberg, Nigel Wolstenholme and Pete Zacharias.

DEANS OF THE FACULTY OF AGRICULTURE

1947–1950	A.R Saunders
1950–1951	J.D. Scott
1952–1953	E.R Orchard
1954–1955	C.W. Abbott
1956–1957	P.L. Kotze
1958–1959	A.A. Rayner
1959–1960	M.J. Oosthuizen
1960–1962	S.J. Truter
1962–1964	G.V. Quicke
1964–1966	P.J.C. Vorster
1966–1967	S.A. Hulme
1967–1969	W.H. Weyers
1969–1971	C.W. Abbott
1971–1973	K. Nathanson
1973–1975	G. V. Quicke
1975–1977	P.de V. Booysen
1977–1979	W. J. Stielau
1979–1981	T. Bosman
1981–1982	W.J. Stielau
1982–1984	N.M. Tainton
1985–1987	J. M. de Villiers
1988–1990	W. J. Stielau
1991–1994	J.M. de Villiers
1995–1998	F. H. J. Rijkenberg
1999–2001	R. Haines (Science & Agriculture, Pietermaritzburg)
2002–2004	P.J.K. Zacharias (Science & Agriculture, Pietermaritzburg)
2005–2009	J.A. Cooke (Science & Agriculture, Univ. KwaZulu-Natal)

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P de V.; 24/1/1 Le Roux, Prof J. C.; Saunders Dr A.R.;

S 31/1/1 Oosthuizen, Prof M.J.; S 32/1/1 Orchard, Prof E.R.;

S 50/1/1 Scott, Prof J.D.; S 83/1/1 Shaw, Prof H.; S 101/1/1
Sumner, Dr M.E.; 128/1/1 Kotze, Prof P. L.; S 151/1/1

De Villiers, Prof J.M.; S 172/1/1 Vorster, Prof P.J.C.; 186/1/1

Saunders, Dr A.R.; S 203/1/1 Ricketts, Prof Eva; S 233/1/1

Nathanson, Prof Karl; S 255 /2/1 Rayner, Prof A.A.; S 274/1/1

Stielau, Prof Werner Johannes; S 302/1/1 Quicke, Prof George V.; S 309/1/1 Truter, Prof Susarah J.; S 327/1/1 Wolstenholme, Prof Nigel; S 335/1/1 Bosman, Prof Ted; S 435/1/1 Martin, Prof M.M.; S 525 3/1/1 Behrmann, Prof H. I.; S 668/1/1 Allan, Prof Peter; S 675/1/1 Meiring, P.; S 756/1/1 Tainton, Prof Neil Melbourne; S 829/1/1 Gous, Prof R. M.; S 934/1/1 Rijkenberg, Prof Frits; S 936/1/1 Schultze, Prof R.E.; S 989/1/1 Nieuwoudt, Wilhelmus Liberte; S 1022/1/1 Sangweni, Prof S.S.; S 1148/1/1 Lishman, Prof Arthur; S 1252/1/1 Senior, Prof Eric; S 1296/1/1 Wallis, Prof Mike; S 1510 Johnston, Michael Anthony; S 1514/1/1 Lyne, Prof Michael Charles; S 1536/1/1 Zwolinski, Prof Janusz; S 1566/1/1 Zacharias, Prof Peter

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