

FORUM BOTANICUM

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NEWS-LETTER OF THE SOUTH AFRICAN ASSOCIATION OF BOTANISTS NUUSBRIEF VAN DIE SUID-AFRIKAANSE GENOOTSKAP VAN PLANTKUNDIGES

QUO VADIS, SOUTH AFRICAN BOTANY? South African Botanists held their first Congress as an independent Association in Pretoria during January this year. Two days of field expeditions, one to the Magaliesberg and the second to observe mine dump colonisation near Johannesburg, were followed by a plenary session for the delivery of research papers and a day-long symposium entitled Quo Vadis Botany?

The symposium was officially opened by The Hon. Mr. Botha, Minister of Forestry and Water Affairs. After the Minister's address the president of S.A.A.B., Professor Owen Lewis of U.C.T., outlined the objects of the Symposium. He explained that there was a very strong feeling among professional botanists in South Africa that the time had come to take stock of the position of the plant sciences in South Africa, particularly in view of the resurgence of the biological sciences in Europe and America. Botany can still be regarded as the Cinderella of the Sciences in this country in spite of its pivotal position in gaining an understanding of the serious environmental problems that beset us today. It had become an urgent necessity for botanists to look at their future and to take a hand in planning this future to the best advantage of the country.

The symposium was constituted into three workshops: a physiological workshop under the chairmanship of Professor Christopher Cresswell; a taxonomic workshop under the chairmanship of Dr. Bernard de Winter and an ecological and economic botany workshop under the chairmanship of Dr. Denzil Edwards. The main conclusions arrived at by these workshops and decisions for future action to be taken by the S.A.A.B. Council were as follows:

Plant Ecology and Economic Botany.

1. There are approximately 50 plant ecologists and about 15 economic botanists serving the national requirements in ecology and economic botany. These 75 workers are endeavouring to serve the needs of a rapidly developing country by providing both the basic ecological and economic botanical information as well as the ad hoc bases for decision making with regard to the development of its natural economic plant, vegetation and ecological resources; of the environmental impacts of economic developments; of the most appropriate bases for the planned and rational management

and use of the national plant, vegetation and ecological resources. The need for plant ecologists and economic botanists is shown by the employment of over 70% of plant ecologists and economic botanists in state and semi-state institutions concerned with environmental management.

2. The efficient employment of existing manpower in plant ecology and economic botany is far from optimal. Cogent reasons are the lack of administrative support to scientific research personnel whose activity is deployed in administrative fields, in cumbersome systems of financial funding that lead to frustration, unnecessary administrative work and to low quality research; in the too often unrecognised need by governmental and management agencies of appropriate ecological and economic botanical research that leads to research workers having to continually justify their work and provoke agencies into recognising fundamental national needs and often having to enter into development projects at too late a stage to provide the effective advice; in the too frequent lack of purposeful, goal-orientated yet basic research that answers local problems instead of wasting research effort.

3. The critical need for appropriate education and basic training is shown by the facts that no basic training in economic botany is offered by any University in South Africa, and that at three university centres no specialist ecology lecturer is present and that for the remainder there is an average of one ecological lecturer per university. At ten universities during 1974, however, ecological specialisation was greatest at both M.Sc. and Doctorate student level. Inadequate lecturing staff is seen as a chief cause for inadequate basic training and for the lack of adequate training of postgraduate researchers.

Recommendations

1. That the number of university lecturing staff be greatly increased to provide proper training for ecological and economic botanical research workers, and to provide the much needed specialisation needed by research students within these fields.
2. That the number of posts available at various institutes and organisations be tripled so that ecologists and economic botanists can meet the national demands for research and knowledge in these fields, and that adequate competitive salaries and job prospects be created.
3. That S.A.A.B. draws to the attention of the highest governmental authority through a personally presented detailed and well motivated memorandum the steady deterioration of the South African environment; of the national role of botanists and their essential value to the country; and of the need to co-ordinate to the

utmost the work of botanists into the national framework of basic research, economic development, planning and management of the national resources.

4. That S.A.A.B. draws to the attention of the relevant authorities the urgent need for environmental impact statements of developmental projects so as to avoid the detrimental effects on the environment that have been caused by many past and current projects.

5. That S.A.A.B. undertakes a programme to explain and promote through various media the necessity and importance of botany and of its various fields in the life and welfare of the country.

Taxonomy and Plant Morphology

1. The number of taxonomists available for the tasks of routine plant identification, taxonomic research and the teaching of taxonomy throughout the country is woefully inadequate. In order to be able to comply with the taxonomic needs of the plant sciences, particularly of plant ecology but also other branches of Botany which are vital to the conservation of our environment, the number of posts in the field will have to be virtually doubled.

A committee responsible for compiling a report outlining the unsatisfactory situation of South African taxonomy for submission to the Prime Minister's Scientific Advisory Committee has been formed. Together with this report will be submitted the now famous I.U.B.S. Resolution No. 9 on the strengthening of taxonomy which reads:-

"The International Union of Biological Sciences

Recognising that the future of mankind depends on the treatment given to natural resources and that a rich variety of living organisms is a fundamental part thereof, Recognising that our present knowledge is very deficient and that in most biological disciplines and especially in ecology, a proper knowledge of the systematics of the investigated organisms is of decisive importance,

Realising that the biota of many countries are still imperfectly known, that the taxonomic handbooks are lacking for many organisms and areas, and that competent taxonomists are too few to cope with all the material that requires determination,

Urges all governments, especially those providing technical assistance to developing countries to strengthen taxonomy and especially taxonomic infrastructure required for training taxonomists and for making the ecological studies necessary to facilitate improvements in the use of resources and the effectiveness of technical development ..."

2. The need and value of taxonomic research and services must be actively brought to the attention of the relevant authorities in order to create the climate to develop taxonomy in South Africa. It is scandalous that a great deal of taxonomic

work on the South African flora has to be carried out by foreign visiting Botanists. The present interest in the environment and its conservation creates an ideal situation for improving the position of plant taxonomy to the advantage of the community as a whole.

3. The teaching of plant taxonomy at South African universities at undergraduate and postgraduate levels is decidedly not satisfactory. A committee of university teachers has been elected to investigate the situation and to recommend improvements to the university taxonomic course structures.

4. A strong need exists for the deepening of taxonomic research into biosystematic and evolutionary studies.

Plant Physiology

1. The training of plant physiologists at South African universities is of a satisfactory standard and lack of adequate equipment no longer seems to be a limiting factor. At postgraduate level, lack of finance to purchase the increasingly costly physiological journals is cutting back dangerously on research information available to students and research workers.

2. In the spectrum of South African Plant Physiology the two fields of plant water relations and ecophysiology have been seriously neglected; these areas must be strengthened to eliminate the frightening lack of expertise that has become apparent in these vital fields of environmental study.

3. The most alarming feature of South African Plant Physiology is its lack of planning and co-ordination and, in spite of a whole host of economically important problems urgently in need of solution, the lack of posts available for trained plant physiologists.

A strong recommendation is to be made to the Prime Minister's Scientific Advisory Committee for the establishment of an Institute for Experimental Plant Science similar in function to the Australian unit which has been operated with such outstanding success by the C.S.I.R.O.. An institute of this kind, while conducting much of the physiological work in its own laboratories, will involve the universities in its research programmes by offering contractual work in various fields of expertise.

4. Co-operation between universities in enterprises such as the Savanna Ecosystems Project at Nylsvley should be strongly encouraged in view of the general lack of specialised physiologists throughout the country. (O.A.M. Lewis).

DEPARTEMENT PLANTKUNDE, UNIVERSITEIT VAN STELLENBOSCH: Prof. J.A. de Bruyn wat verlede jaar die voorsitterskap van die Departement oorgeneem het, is vanaf die begin van Maart tot aan die einde van die jaar met studieverlof. Prof. De Bruyn is van voorneme om in Stellenbosch te bly gedurende sy verloftydperk en voort te gaan met sy navorsing oor fisiologie van stuifmeelontkieming by Setaria.

Die Departement is verheug dat nie minder nie as ses studente vanjaar ingeskryf het vir die honneursgraad in Plantkunde. Benewens die formele onderrig werk elke student aan 'n selfstandige projek waarin verskeie vakgebiede van plantkunde geïntegreer word. Hierdeur sal hulle ook ervaring opdoen van praktiese taksonomie.

Die nagraadse studente, asook enkele voorgraadse studente, het gedurende die April-vakansie 'n toer na Barrydale, Oudtshoorn en Knysna onderneem. Hierdie toer het onder die leiding van mnr. A.D. Spreeth en dr. J.J.A. van der Walt gestaan.

Mej. E.M. Marais, B.Sc., S.O.D., is vanaf 1 Februarie in die Departement werksaam as tegniese beampte. Sy was vroeër 'n sitotegnikus by die Tygerberghospitaal.

Mnr. P. Drijfhout het op 1 Februarie 1975 diens aanvaar as tuinboukundige in die Botaniese Tuin van Stellenbosch. Hy was voorheen verbonde aan die Nasionale Botaniese Tuin in Brumeria, Pretoria.

Sy hoof verantwoordelikheid is die versorging en instandhouding van die versameling vetplante en xeromorfe plante. Hy het so pas 'n goeie geleentheid gehad om die soorte in die veld te leer ken toe hy 'n toer deur die Richtersveld en Namakwaland meegemaak het.

Mnr. Drijfhout is aangestel in die plek van mnr. H.E. Meyer wat die aftree-ouderdom bereik het. Mnr. Meyer is vanjaar in 'n tydelike hoedanigheid aangestel en kan die personeel nog uit sy ryke ondervinding en kennis put. Dat dit so is, was baie duidelik op die pas afgelope toer deur Namakwaland waar sy kennis van Namakwaland en sy vetplante baie bygedra het tot die sukses van die toer en hy hoë lof inge-oes het van prof. Schulze, die leier van die groep uit Würzburg, wat die toer meegemaak het.

By die Universiteit van Stellenbosch is die professor in Plantkunde, tans prof. P.G. Jordaan, ook hoof van die Botaniese Tuin. Die hoofskap is uit en uit 'n erepos en is in die verlede met die werksverdeling in die departement nie juis in aanmerking geneem nie.

Lank reeds word die behoefte gevoel om die wetenskaplike skakeling tussen die Botaniese Tuin en die Departement van Plantkunde en die plantkundige administrasie van die Tuin, op 'n beter basis te bring. Die aangeleentheid geniet nou aandag en een van die hoofake van mnr. R.O. Moffett, wat sedert 1 Mei 1974 tegniese beampte in die

departement is, is om die hoof van die Tuin by te staan met die aangeleentheid wat daar die aandag van 'n plantkundige vereis.

Prof. P.G. Jordaan is as 'n genomineerde van die Staat, 'n lid van die Raad van Trustees van die Nasionale Botaniese Tuine van Suid-Afrika en is vir die afgelope ses of sewe jaar die verkose ondervoorsitter van die Raad.

Prof. M.P. de Vos het 'n hersiening van die genus *Homoglossum* (Iridaceae) byna voltooi. Die genus is naverwant aan *Gladiolus*, en dis 'n vraag of dit nie by *Gladiolus* ingesluit behoort te word nie. Sy besluit, aan die hand van morfologiese, anatomiese en sitologiese ondersoek, om *Homoglossum* as 'n aparte genus te handhaaf.

Sy het ook verlede jaar begin met 'n ondersoek van die genus *Ferraria* (spinneploem of krulletjie) (Iridaceae) en het reeds 'n groot versameling van soorte bymekaar verkry vanaf Namakwaland tot Meiringspoort, (en een spesie uit Zaïre) met die hulp van verskeie medewerkers.

Die lewende materiaal word gebruik vir die sitologiese en anatomiese ondersoek. Uit die sitologiese ondersoek blyk dat daar diploïede, tetraploïede en heksaploïede spesies in die genus is.

Dr. J.J.A. van der Walt het teen die einde van verlede jaar uit Nederland teruggekeer. Hy het die navorsingsprojek oor *Commiphora* by die Rijksherbarium in Leiden afgehandel, en is van voorneme om nou op die Geraniaceae te begin werk. 'n Veelsydige studie van al die genera van hierdie familie wat in Suid-Afrika voorkom, sal onderneem word. Aangesien dit 'n groot projek is, sal spanwerk noorsaaklik wees. Mnr. Moffett gaan waarskynlik op *Sarcocaulon* werk, terwyl mnr. Spreeth ook oorweeg om 'n projek uit die Geraniaceae in sy doktorsale studie te kies. Die aftaselektronmikroskoop wat verlede jaar deur die Universiteit van Stellenbosch aangekoop is, sal ook gebruik word om onder andere die stuifmeel van die Geraniaceae te bestudeer.

Mnr. J.E. Watts, lektor in plantfisiologie, het sopas begin met sy doktorsale studie. Hy onderneem 'n ondersoek na die opname, verspreiding en fisiologiese werking van 2,4,5-trichloorfenoksiepropionsuur (2,4,5-TP) in peerbome. Dit is gevind dat 'n herfstoediening van 2,4,5-TP tot 'n verhoogde vrugset by ouer Packham's Triumph peerbome lei, maar in baie gevalle het dit geen effek op jonger bome nie. Hy hoop om met hierdie ondersoek meer lig te werp op die faktore wat by vrugset betrokke is.

Mej. J. van Reenen, 'n M.Sc.-student, se anatomies-sitologiese studie van *Gethyllis* nader voltooiing.

Die studie oor die morfologie en voortplanting van *Orothamnus zeyheri* wat mnr. P. van der Merwe vir die verkryging van die Ph.D.-graad onderneem, nader ook voltooiing. Suksesvolle enting van die vleiroos op *Leucospermum conocarpodendron* dui daarop dat *Orothamnus* waarskynlik nader verwant is aan *Leucospermum* as wat tot dusver vermoed is.

Mnr. L.M. Raitt, tegniese beampste in plantfisiologie, het begin met 'n studie van die fisiologiese basis van sout toleransie by *Didelta*. Hy doen hierdie werk met die oog op die verkryging van die Ph.D.-graad.

Gedurende die eerste kwartaal van hierdie jaar het die Departement besoek ontvang van die volgende Buitelandse plantkundiges:

Prof. H.A. Mooney uit Kalifornië. Op 21 Februarie 1975 het prof. Mooney 'n lesing gegee met die titel "Ecological comparisons of shrubby communities of California and Chile".

Dr. D.F. Cutler, Jodrell Laboratory, Royal Botanical Gardens, Kew. 'n Gesamentlike byeenkoms waarby dosente en studente van die Universiteit van Kaapstad, die Universiteit van Wes-Kaapland en die Universiteit van Stellenbosch teenwoordig was, is by die Universiteit van Wes-Kaapland gehou op 5 Maart 1975. Dr. Cutler het die vergadering toegesprek oor "Plant anatomy at the Jodrell Laboratory with special reference to S.E.M. studies of the Aloineae."

'n Groep van elf plantkundiges uit Würzburg. Hierdie groep plantkundiges onder leiding van prof. E.-D. Schulze het 'n toer deur S.W.A. en sekere dele van Kaapland onderneem. Hulle is veral geïnteresseerd in die aanpassing van plante in droë habitats en doen eko-fisiologiese werk op hierdie plante. Op 4 Maart het dr. Van der Walt, mnr. Meyer, Moffett en Drijfhout die groep by Vioolsdrif ontmoet en hulle vir 'n week deur die Richtersveld, Namakwaland en Cereskaroo begelei. Vir die lede van hierdie departement was dit 'n aangename en stimulerende ondervinding om met sulke entoesiastiese en weetgierige plantkundiges in die veld te wees. Gedurende die toer het dr. Van der Walt Pelargoniums en mnr. Moffett Sarcocaulons versamel.

Die groep is deur die personeel van die Navorsingseenheid vir Plantkunde, Stellenbosch, deur die S.W. Kaap begelei om vir hulle die flora wat "ganz capensis" is te wys.

CONSERVATION: At the beginning of this year a Conservation Unit was established at the Herbarium in the Royal Botanic Gardens, Kew by the Ministry of Agriculture.

The Unit's main responsibility will be to coordinate interdivisionally Kew's conservation role, while also expanding relations with external bodies. Particular emphasis will be given to ensuring that Kew as a whole provides practical aids and

information for maintaining species both in the wild and in cultivation, so as to relieve pressure on wild populations. A fundamental point of work will be to encourage other botanic gardens to become through their own awareness important conservation collections.

The International Union for the Conservation of Nature and Natural Resources' Threatened Plants Committee, based at Kew and under the Chairmanship of the Director, Prof. Heslop-Harrison, will also be administered from the Unit in order to coordinate staff. One of the major activities of the Threatened Plants committee will be to identify as rapidly as possible what the 20 000 to 25 000 threatened species of plants are, where they occur and what form the threat takes. Already work is well under way in North America and Europe and also in South Africa.

ON-LINE AT LAST! : During February the Botanical Research Institute was finally connected by telephone line to the Department of Agricultural Technical Service's Burroughs B6700 computer. The Institute has an Olivetti Teletype Terminal at present, but should be getting a CRT screen and printer as a more permanent acquisition in the near future.

The terminal will be used for computer program development and the entry of remote jobs. Later, it will also be used for interrogation of the herbarium data base and for communication with research units. (J.W.M.)

RHODES UNIVERSITY: Dr. I.D. Railston, formerly of the University of Glasgow, has joined the staff of the Botany Department as a lecturer.

Dr. R.A. Lubke, formerly of Wits University, has joined the Department as lecturer in systematic botany. Dr. Lubke is an Old Rhodian.

ACOCKS: The Fertiliser Association of South Africa has awarded a gold medal to Mr. John Acocks for his work on the veld types of South Africa. It is an annual award for service to agriculture in the Republic over a long period. The presentation ceremony will take place in Cape Town on May 16.

Mr. Acocks, a member of the Botanical Survey Section of the Botanical Research Institute, is continuing with his work on veld types. He is stationed at the College of Agriculture, Middelburg, Cape.

RECENT VISITOR TO THE BOTANICAL RESEARCH INSTITUTE: At the invitation of the Institute, Dr. J.L. Guillerm from the Centre d'Etudes Phytosociologiques et Ecologiques L. Emberger at Montpellier, France visited South Africa for about five

weeks during January and February. His visit was the first part of an agreement whereby Mr. J.C. Scheepers from our Institute hopes to visit Montpellier later this in reciprocation.

Dr. Guillerm saw many South African veld types during his visit, including those of the Northern and Eastern Transvaal, Natal Drakensberg, Midlands and Coast, South Western Cape and the Orange Free State. He was particularly impressed by activities at the Ecosystem research site at Nylsvley.

He also attended the congresses of both the South African Association of Botanists (in Pretoria) and Grassland Society of Southern Africa (in Pietermaritzburg) and delivered a seminar in Pretoria on ecological research at Montpellier. (J.W.M.)

VACANCIES AT THE BOTANICAL RESEARCH INSTITUTE:

Technicians

1) Ecosystems (Pretoria)

A Technician is required to assist in measurement of tree growth in the Primary Producers Group of the Nylsvley Ecosystems Project (Transvaal). The work includes field work using sophisticated scientific apparatus. There will be opportunities for contact with scientists in related disciplines from centres throughout South Africa.

The successful applicant will be expected to

- (a) collect data and help maintain instrumentation in the field; and
- (b) exercise data quality control in the laboratory and assist in the construction of basic accessory equipment.

2) Botanical Survey (Pretoria)

A Technician is required to assist with the survey and mapping of South African vegetation. Successful applicants will be required to assist with the gathering of field data and with the transformation and interpretation of the data in the laboratory. There will be opportunities for using modern remote sensing and computer aids.

Minimum qualifications for technicians. National Diploma for Agricultural Technicians (Botany) or equivalent.

Salary: According to qualifications and experience on the scale R3 000 x 150 - 3 300 x 180 - 5 100 - 5340. A subsistence and travelling allowance is paid during periods away from Pretoria.

Professional Officers (Pretoria)

1) Botanical Survey (Pretoria)

A Professional Officer is required to carry out Botanical surveys and mapping of

South African vegetation. The successful applicant will be given a specific project in accordance with his qualifications, aptitudes and experience:

He will be required to collect data in the field, transform and interpret the data in the laboratory and write up the results for publication. He will have technical assistance and opportunities for using modern remote sensing aids, mapping equipment and computers.

2) Economic Botany (Pretoria)

Two professional posts are available for work on our programme to explore the economic potentials of South Africa's flora. These posts will ensure stimulating projects for researchers who enjoy field work and who are interested in the preservation and utilisation of our flora. The posts are as follows:

A. Conservation of germ plasm.

The incumbent will be expected to trace and collect material of economically valuable and threatened species in all parts of South Africa and South West Africa, to keep records and to contribute information to our data bank.

B. Anti-cancer survey

The incumbent will take over control of this on-going survey, which has already yielded exciting, positive results in man's fight against cancer. He will be expected to liaise with collectors, and with his counterpart in the U.S.A., to co-ordinate the programme. He will also plan and help carry out field collecting programmes, and share in the results of the screening of plants for anti-cancer activity.

C. Weed Research

We would also like to hear from anyone interested in doing research work on weeds and other noxious plants, or in any other branch of economic botany, in South Africa (whatever their special field).

Minimum qualifications for professional officer: B.Sc. degree with majors in Botany and one of the following, Geology, Chemistry, Bio-chemistry, Plant Genetics or Zoology.

Salary: According to qualification and experience on the scale R3 480 x 180 - R5 100 - 5 340.

Application forms (Z.83) are available from all Government Service Offices or from the Director, Botanical Research Institute, Private Bag X101, Pretoria.

Telephone: 86-1164.

S.A. ASSOCIATION OF BOTANISTS - S.A. GENOOTSKAP VAN PLANTKUNDIGES

INCOME AND EXPENDITURE - INKOMSTE EN UITGAWES

1.6.1974 - 7.3.1975

| <u>Income/Inkomste</u> | | <u>Uitgawes/Expenditure</u> | |
|----------------------------|-----------------|---------------------------------|-----------------|
| Balance in savings account | | Sekretarieleel: | R33-30 |
| 1.6.1974 | R406-41 | Eicker: | R14-54 |
| Membership fees: | 671-34 | Du Plessis | 4-50 |
| 1 Life | R50-00 | Downing | 13-26 |
| 4 Institutional | R125-00 | De Bruyn | 1-00 |
| 97 Individual | R496-34 | Forum Botanicum | R180-00 |
| Dividends | 52-50 | S.A. Munt (Medalje) | 262-65 |
| Interest (savings account) | 9-09 | Master Labels | 72-00 |
| | | Gemeenskaplike Raad | 150-00 |
| | | S.A.G.P. Noord-Transvaal | 66-00 |
| | | Onthaalkoste (Jacot-Guillarmod) | 9-00 |
| | | Balans op hande | 7-00 |
| | | Balans in spaarrekening | <u>359-39</u> |
| Total | <u>R1139-34</u> | Totaal | <u>R1139-34</u> |

FORTHCOMING CONFERENCE: A conference on Environmental Management will be held at the University of Cape Town from 23-25 June. Enquiries to:

School of Environmental Studies
 University of Cape Town
 Private Bag
 RONDEBOSCH
 7700

NEW MEMBERS:

Dr. C.E.J. Botha, Botany Department, University of Fort Hare, Alice.
 Mnr. P.C. du Preez, Departement Plantkunde, Universiteit Oranje Vrystaat, Bloemfontein.

Mr. D. Edgecumbe, 20 Hilldene Road, Hillcrest, 3600.

Mnr. M. Gilliland, Hansweg 8, Valhalla, Pretoria.

Mnr. C.J. Johnson, Departement Plantkunde, Universiteit Wes-Kaapland, Bellville

Mnr. J.A. Pretorius, Departement Plantkunde, Universiteit Oranje Vrystaat,
Bloemfontein.

Mr. E.R. Robinson, Department Botany, University of Fort Hare, Alice.

Mnr. A.J. Viljoen, Departement Plantkunde, Universiteit Oranje Vrystaat,
Bloemfontein.

Mr. V.R. Smith, Institute for Environmental Sciences, University Orange Free
State, Bloemfontein.

Mev. C.C. Verwoerd, Berglaan 537, Pretoria-Noord.

Mr. R.D. Walmsley, National Institute for Water Research, Pretoria.

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