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BOLUS HERBARIUM : CLOSURE DURING REMOVAL

The Bolus Herbarium and Library is to be moved from Cape Town back to the main campus of the University of Cape Town. All operations for users such as loans or access to the collections will have to cease during the months of the removal which are as follows:

Herbarium: November and December 1988, January 1989;

Library: December 1988 and January 1989.

It is hoped that users will not be too seriously inconvenienced by this.

Prof. A.V. Hall, Keeper

ANNUAL REPORT OF THE BOTANICAL RESEARCH INSTITUTE
1987/1988 - Part II

Accommodation

The National Herbarium and Mary Gunn Library, together with other parts of the BRI, underwent major disruptive changes with the installation of fire protection (halon flooding) and air conditioning. These alterations were almost completed by 1 April 1988. This will be followed immediately by three further additions to the Herbarium, namely, the installation of three working bays on the south side of each herbarium wing, a special room for decontaminating and drying specimens and a new SEM room and various other rooms adjacent to the moss Herbarium. These additions should be complete by July, 1988. In spite of the considerable disruption caused by the building operations during the last nine months productivity remained on par due only to the concerted efforts of all staff concerned.

Visitors

In addition to numerous local visitors from various universities, Government institutes, nature conservation departments etc., together with members of the general public, the herbarium was also consulted by officers and personnel from Lesotho, Botswana, Swaziland, Bophuthatswana, Venda and the Transkei.

A number of overseas botanists visited the Institute and Herbarium. These included: Dr N. Jurgens (Hamburg, W.Germany); Miss S. Liede (Hamburg, W.Germany); Prof. O.H. Volk (Würzburg, W. Germany); Dr G. Davidse (St Louis, USA); Mr S. Hammer (New Mexico, USA); Dr R. Mithen (Harare, Zimbabwe); Dr J. Scott (Australia); Prof. V.H. Heywood (Kew, England); Prof. C. Wu (Tamshui, Taiwan).

Collecting expeditions

These included trips to the north-western OFS (general collecting), Richtersveld (Asclepias, various legumes and general collecting); south-western Cape (lichens), central Karoo (general collecting); Natal - Itala Game Reserve (general collecting); Namaqualand (Carex, Hepaticae and general collecting) and the north-eastern OFS (general collecting).

Herbarium services

Plant identifications numbering 273 batches and 15 620 specimens were undertaken for officers of this Institute, various state departments, provincial administrations, universities and neighbouring states. The major users of the service were: universities, 30% of the material identified; the BRI 29%; botanic gardens 14%; museums 9%; private collectors 8%; nature conservation 5%; Forestry 3% and Agriculture 2%. Identifications for 152 visitors numbered 946. In addition, backlogs totalling 8 501 specimens (mostly exchanges which date back more than 15 years), were checked and, where necessary, named or renamed. Enquiries received by telephone totalled 978. New accessions to the herbarium numbered 19 618.

Specimen loans sent to local and overseas herbaria numbered 84 (comprising 11 374 specimens) with existing 74 loans (5 400 specimens) returned. The total number of outstanding loans is 327 (35 357 specimens).

9 761 specimens were despatched as part of exchange agreements and 4 525 were received by PRE. Specimens received as gifts totalled 1 001 while 1 414 specimens were dispatched as gifts in return.

Research and related activities

The family Polygonaceae (G. Germishuizen). A revision of the genus Oxygonum was completed for southern Africa. Eight new taxa were described and an existing taxon reinstated. Work on the genera Fagopyrum, Emex and Rumex is still in progress.

The family Ricciaceae (Hepaticae) (S.M. Perold). Descriptions of 35 Riccia taxa have been completed towards a revision of the genus. Three papers were published which included two new white-scaled species of Riccia. Two additional papers are in preparation, one describing a further two new white-scaled Riccia species.

Revision of Vigna (Fabaceae) (B.J. Pienaar). The taxonomy of the two major species complexes, V. unguiculata and V. vexillata has been completed together with V. nervosa. Work on the remaining four taxa (V. frutescens, V. luteola, V. lobatifolia and V. oblongifolia) is in progress.

Revision of Carex (Cyperaceae) (C. Reid). 15 taxa have been delineated with five taxa, mainly from the winter rainfall region, still requiring further investigation. Two new species were identified and are being prepared for publication.

Revision of the broad-leaved species of Asclepias (A. Nicholas). A review of the literature is under way. 847 selected specimens from local herbaria were loaned and examined. A preliminary assessment of the genus is that it is one of convenience and will probably have to be split into a number of smaller, more natural, genera.

Contributions to the moss flora (J. van Rooy). The 2nd fascicle has been published. Fascicle three is nearing completion. Dr R.E. Magill has completed 12 families with two still outstanding and Mr J. van Rooy has completed nine genera in the family Orthotrichaceae with a single genus outstanding. A start has also been made with the illustrations for this fascicle.

Contributions to the lichen flora (F.Brusse). Sixty eight new lichen taxa were recorded for southern Africa. Two new genera, Schizodiscus and Lithoglypha were published as well as eight new species of Parmelia and one of Porpidia.

Transvaal Wild Flowers (Vol. 2) (G. Germishuizen). Work on this volume is progressing well with over 200 taxa (50%) having been illustrated with texts completed for 90 of these.

Plant species and synonym list (various contributors). Edition 2, part 2 (Dicotyledons) has now been published.

Research support

Scanning electron microscope (S.M. Perold). 3 384 micrographs were prepared for various BRI and outside workers. These include grass leaf surfaces, Oxygonum pollen, Vigna seeds and stigma surfaces, Coccinia leaf surface glands, lichen epicortex structure and Riccia spores and thalli.

Expansion of the fruit, seed and spirit collections (E. Retief and G. Germishuizen). This has been contributed to largely from material collected during fieldwork for other projects. The fruit collection was extended by 170 to 4 567 collections, the seed collections by 414 to 4 134 collections and the spirit collection by 371 to 3 726 collections.

Publications

28 articles appeared in local (23) as well as overseas (5) journals. A further 24 articles are in press awaiting publication.

Contributions to outside publications

Various members of the Division contributed to the following publication by checking the text: I. Sinclair - A pocket guide to the butterflies of southern Africa.

NATAL HERBARIUM, DURBAN (NH)

Mrs M. Jordaan, Curatrix of the herbarium and officer-in-charge of the unit for the past three years, was transferred to the National Herbarium in July, 1987. Miss R. Williams, previously at the University Herbarium, Durban-Westville, was appointed in her place. Mr D.B. Ntombela resigned at the beginning of March and a replacement for him has not yet been found. Continuity and considerable support were provided throughout the year by Mrs H. Noble and Mr A.M. Ngwenya.

A steady flow of specimens (167 - 382 per month) was received for identification. The number of specimens identified totalled 3 439. This is significantly less than the previous year's figure of 6 596. There were, however, noticeable increases in all other activities, namely 437 visitors to the herbarium, four student groups, 1 296 telephone enquiries, 312 letters written, 738 speci-

mens sent out on loan, 4 121 specimens mounted and 3 506 specimens accessioned, 3 501 specimens were renovated in an attempt to upgrade the condition of the older and more valuable collections.

A single major collecting trip was undertaken to the Itala Nature Reserve and several shorter 1-2 day trips to localities closer to Durban. Mr Ngwenya assisted Dr Pablo Weisser of the BRI on two major trips to Zululand.

ALBANY MUSEUM HERBARIUM, GRAHAMSTOWN (GRA)

Mrs E. Brink continues to curate the herbarium. Miss S.A. Olivier was appointed as an Herbarium Assistant at the beginning of the year to assist with various curatorial functions. She, however, resigned again in November with the post remaining vacant to date.

Mrs R. Hart, appointed by the Albany Museum to curate the Pocock Marine Algae collection, resigned in May. Her place was filled by Dr A. Jacot Guillarmod, who retired from the herbarium the previous year. Mr Neil Abrahams has continued his invaluable, voluntary assistance in labelling specimens and mounting reprints and articles.

Despite the many upheavals, the herbarium continued to remain functional with 1 448 specimens identified, 573 visitors received, 480 telephone enquiries answered, 244 letters written, 1 108 specimens mounted, 2 509 specimens accessioned, 136 specimens sent out on loan and 555 specimens sent out as gifts. Educational displays prepared during the year included nine for the Albany Museum and 19 for the herbarium.

The garden which has always been associated with the herbarium is to be redesigned by a local horticulturist and will be renamed after Miss G.V. Britten who died in October, 1987, having devoted 63 years of her life to the herbarium.

The removal of alien species from the Grahamstown Nature Reserve continued throughout the year. Clearing the infestation, which dates back to 1935, is an impossible task for one man. Mr R. Klaas and Mrs Brink his supervisor, who visited the reserve 40 times during the year, deserve considerable credit for their undaunted efforts in this regard.

GOVERNMENT HERBARIUM, STELLENBOSCH (STE)

The herbarium remains in the temporary accommodation in the old Carnegie Library of the University while renovations are being undertaken in the Natural Sciences building. These are proceeding on schedule which should allow the herbarium to return to the building, but on the second floor, by the end of 1989.

During the year 4 405 specimens were identified. These were mainly for the unit's own staff, including ecologists in Stellenbosch and Cape Town, local state departments (Agriculture, Forestry, Nature Conservation) and small amounts for the Universities of Stellenbosch and Cape Town, private firms and individuals. Telephone enquiries during the year numbered 282, with 150 letters written. Accessions to the herbarium were 5 397 and loans sent out 25, comprising 2 629 specimens in 58 genera. The unit also received 320 individual visitors and two groups of students.

A single general collecting trip was undertaken to a site at Houw Hoek to be developed by Houwteq. A preliminary collection of all flowering material was made. This work has now been taken over by the University of Stellenbosch. Mr E.G.H. Oliver made several trips to collect material of Ericaceae.

Mr Oliver continued his work on the minor genera of Ericaceae. With the inclusion of Phillippia and Blaeria in Erica, the small African genus Ericinella has also had to be included. A problem now exists with the monotypic genus Bruckenthalia. The last complex of four genera is also proving extremely variable and difficult to unravel.

FLORA RESEARCH DIVISION

Flora of southern Africa (FSA)

The FSA subproject has continued to co-ordinate taxonomic research on southern African plants. There are about 190 potential contributors to the FSA, the majority of whom are overseas specialists in their plant groups. Through them, the FSA maintains scientific con-

tacts with other countries. The Department continued the research contract to the University of Cape Town for the Orchidaceae volume, with Dr H.P. Linder as the active researcher. The sixth meeting of the FSA working group was held during the Congress of the South African Association of Botanists at Cape Town in January 1988. News of interest to FSA contributors was circulated in Forum Botanicum, the newsletter of SAAB.

One Flora fascicle was published: Bryophyta, Part 1, Fascicle 2, covers 94 species and 32 genera in the 10 families Gigaspermaceae to Bartramiaceae, by Dr R.E. Magill of the Missouri Botanical Garden. To date, the total number of species treated in published parts of the FSA is 2 884, which is 13% of the total of 22 000 species in the southern African flora.

Another fascicle is in press: Volume 16, Part 3, Fascicle 16, Fabaceae, Crotalarieae, Aspalathus, by the late Prof. R. Dahlgren of the University of Copenhagen, Denmark. This fascicle, which was put in final form by Mrs E. du Plessis after the death of Prof. Dahlgren, covers the 278 species of the genus Aspalathus, and will be the largest FSA fascicle yet published.

One ancillary volume was published: List of species of southern African plants, Edn 2, Part 2, covering dicotyledons, by G.E. Gibbs Russell, W.G. Welman, E. Retief, K.L. Immelman, G. Germishuizen, B.J. Pienaar, M. van Wyk and A. Nicholas. The List of species is a precursor to the FSA that presents up-to-date coverage of all taxa at increasing levels of approximation. Edition 2 includes for each genus the name and author, the current revisor and the literature necessary to identify specimens to species and to determine important synonymy; and for each species the name and authors of currently accepted names and of important synonyms since the completion of Flora capensis. During this half-century, about 12 000 commonly used names have gone into synonymy for our 24 000 taxa. Future editions will contain additional species information such as distribution, conservation status and life form.

Dr B. de Winter and Dr G.E. Gibbs Russell attended the week-long Nomenclature Section preceding the International Botanical Congress

in Berlin. Dr De Winter was asked to serve on the General Committee, that governs all nomenclatural matters in the years between International Botanical Congresses. Dr Gibbs Russell was appointed to the Special Committee for Registration of Plant Names, that will try to achieve greater stability in nomenclature by controlling the effectiveness and validity of publication of plant names.

Institute staff members, and outside contributors on contract and working voluntarily made the following progress with volumes and fascicles for the FSA:

Bryophyta: Dr R.E. Magill of the Missouri Botanical Garden has completed 12 families for the third fascicle on mosses, and Mr J. van Rooy has completed eight genera in the family Orthotrichaceae. Illustrations for the third volume are being done by Miss G.C. Condy.

Vol. 2: Poaceae - Oryzoideae, Centostecoideae and Bambusoideae. Two more species groups in Ehrharta have been completed by Dr Gibbs Russell and Dr R.P. Ellis and published in Bothalia.

Revisionary studies in Arundinoideae have been undertaken by Dr Ellis in conjunction with Dr G. Davidse of the Missouri Botanical Garden (Prionanthium, Tribolium and Urochlaena), Dr Linder of the Bolus Herbarium (Pentaschistis and related genera) and Mr N.P. Barker (Pentameris and Pseudopentameris).

Miss M. Koekemoer is preparing single-page treatments of important pasture species illustrated with colour photographs of diagnostic features. These treatments are written in a simple style suitable for farmers, and information about pasture value will be contributed by staff of the Pasture Research Centre.

A group consisting of Dr Gibbs Russell, Mrs L. Fish, Dr H.M. Anderson, Miss M. Koekemoer, Mr N. Barker and Mrs W.J.G. Roux are working on a manual for identification of the 200 genera and 970 taxa of southern African grasses. Information is being recorded through the DELTA computer system, as a prototype for the next approximation of Taxon-PRECIS. As a result computer-aided identification will be possible in addition to identification in the traditional ways by keys and illustrations.

Vol. 5: Liliaceae - Aloinae. The FSA manuscript for Aloe by Dr H.F. Glen and Mr D.S. Hardy is with referees. Dr Glen, assisted by Mrs S.M. Perold, has examined certain key tropical African species for leaf epidermal types using the scanning electron microscope. Five papers supporting or extending the FSA manuscript have been prepared, and several more are in preparation. The manuscript of Kniphofia by Dr L.E. Codd is with the Editor, and Mr J. van Jaarsveld of the National Botanic Gardens, Kirstenbosch has produced a final version of his Gasteria treatment.

Vol. 5: Liliaceae - Asparagoideae. Miss K.L. Immelman has taken over this fascicle, left incomplete at the retirement of Mrs A.A. Mauve (Obermeyer). The 70 species were accepted without change, but outstanding nomenclatural problems required much work, as did re-writing keys to the species and revising distribution maps.

Vol. 8: Orchidaceae. Dr Linder has completed the first draft of the entire manuscript, except the genus Disperis, which will be contributed by Dr J. Stewart of the Royal Botanic Gardens, Kew. Miss C. Smith of Cape Town has completed most of the illustrations. The fascicle will cover about 50 genera and 440 species.

Vol. 9: Salicaceae, Fagaceae, Urticaceae and Piperaceae. FSA manuscripts have been prepared by Miss Immelman and Dr Ib Friis of the Botanical Museum, Copenhagen, for all genera and a synopsis of Salix was published in Bothalia. Publication of the FSA fascicle, awaits completion of Moraceae by Dr H. Baijnath of the University of Durban-Westville.

Vol. 11: Mesembryanthemaceae. Dr H.E.K. Hartmann and her students at the University of Hamburg, West Germany, have completed several genera in Leipoldtiinae.

Vol. 16: Fabaceae. Mr B.D. Schrire's account of the tribe Desmodieae, as well as a conspectus of Tephrosia subgenus Barbistyla in the tribe Millettieae, was published in Bothalia. He is now working in the tribe Indigoferae and has intensively studied species limits in Indigofera. Mr Schrire is world co-ordinator for Indigoferae for the ILDIS (International Leguminosae Database and Information Service)

project and attended a co-ordinator's meeting in Edinburgh.

Vol. 23: Lythraceae, Lecythidaceae and Rhizophoraceae. Miss Immelman undertook phenetic studies to clarify species limits in Amnania using the DECORANA computer program package and presented a paper on her results at the 1988 SAAB Congress. Nesaea, Galpinia, Heimia and Lythrum showed fewer problems at species level.

Vol. 24: Myrtales. Work is progressing at various levels in this group. Prof. E.F. Hennessy at the University of Durban-Westville is working on Combretum, Prof. A.E. van Wyk at the University of Pretoria is working on Myrtaceae and Melastomataceae. Manuscripts of Onagraceae by Dr P. Goldblatt of the Missouri Botanical Garden and of Trapaceae by Dr B. Verdcourt of the Royal Botanic Gardens, Kew, are with the Editor.

Vol. 25: Ericaceae. Mr E.G.H. Oliver has continued studies in the 'minor genera'. The small southern tropical African genus Ericinella has also been included in Erica. He read a paper on problems of classification of capsular genera at the 1988 SAAB Congress.

Vol. 28: Convolvulaceae. Prof. A.D.J. Meeuse of the University of Amsterdam has submitted a treatment of the 15 genera and 120 species in this family, and Miss W.G. Welman of the BRI is converting it for the FSA.

Vol. 30: Pedaliaceae - Gesneriaceae. Prof. H-D. Ihlenfeldt and his students of the University of Hamburg, West Germany, are preparing the manuscript for the families Pedaliaceae, Martyniaceae and Orobanchaceae. Prof. O.M. Hilliard based at the Royal Botanic Gardens, Edinburgh, has completed an adaptation of her treatment of Streptocarpus for FSA.

Vol. 30. Acanthaceae - Justicieae. Miss Immelman's completed FSA manuscript is with the editor, and Mrs J. Munday's treatment of Monechma is finished. These two large genera await completion of small genera by several researchers from other institutions before the fascicle can be published. Included with it will be Myoporaceae and Plantaginaceae by dr Glen.

Pretoria Flora

Dr O.A. Leistner completed the family Sterculiaceae and brought the text for all families (except Cyperaceae) up to date with the latest information. A total of 100 pages was translated by Mrs E. du Plessis and typeset by Mrs S.S. Brink. A further 149 pages were given a final check. Texts of 81 species must still be finalized, out of a total of 1 780.

Namaqualand Flora

Dr C. Boucher of the University of Stellenbosch was awarded a contract by the Department of Agriculture and Water Supply to produce an identification manual for the 3 500 species comprising this unique flora. Taxonomic treatments will be contributed by specialists in particular families, with other groups being written up by Mrs G.D. Court of Grahams-town, who has begun her work with Lamiaceae. Contributions are co-ordinated by Miss A. le Roux of Cape Nature Conservation, Stellenbosch.

Palaeoflora of southern Africa

Dr J.M. Anderson and Dr H.M. Anderson are in the final stages of completing the second volume in the Molteno Palaeoflora series. This study deals with the gymnosperms, and includes a revision of the taxa occurring throughout the Gondwana Triassic Realm. A total of 22 genera and 90 species (17 genera and 60 species from the Molteno Formation) are described. The work focuses particularly on exploring new methodologies in sampling, taxonomy and data presentation in the study of fossil floras. This has led to new insights on speciation processes, diversity trends and phytogeographic patterns.

Liaison Officer, Kew

Mr Schrire is in his third year of duty as South African Liaison Officer. He has provided information about taxonomic and related subjects to 174 researchers on the southern African flora, and has pursued his researches in Fabaceae, which are detailed above. He represented the PRECIS computer system for the Institute at the third meeting of the Taxonomic Databases Working Group held in Edinburgh in October 1987.

DATA SUBDIVISION

The subdivision co-ordinates the computer work of the Institute.

Two large systems maintained on the B7900 mainframe are the taxonomic database PRECIS and the ecological database PHYTOTAB. Links are maintained to IBM mainframes for the library (SABINET), the ecological bibliography and for typesetting. Several divisions now operate their own microcomputers: the Vegetation Ecology Division has the Hewlett-Packard 9845B; the Herbarium and Flora Research Divisions share a Burroughs 26 network linked to the B7900 mainframe; the Plant Structure and Function Division has two Olivetti PC's, and the Experimental Ecology Division in Cape Town and the Stellenbosch Unit each have IBM PC's.

PRECIS, managed by Mrs J.C. Komarovsky and Mr N.P. Barker, consists of four components. In this year, information from PRECIS was supplied to about 90 research projects throughout South Africa and overseas. Specimen-PRECIS contains herbarium specimen label data in 24 data fields for 643 000 specimens in PRE herbarium. About 12 000 specimens were added during the year. Taxon-PRECIS contains recent useful literature, synonymy, status as naturalized alien, and status of current taxonomic research for the 24 000 plant taxa in southern Africa. It served as the data source for the List of species of southern African plants, Edition 2, Part 2, Dicotyledons, and an index to the nearly 2 000 plates in volumes 1 - 49 of The Flowering Plants of Africa. Name changes for 1986 were published in Bothalia, and the lists of 1987 name changes were prepared. Future developments will include distribution, life form, distinguishing characters, flowering time and importance to man. Prototypes have been designed for Poaceae, Fabaceae and for the Namaqualand Flora. A paper on this aspect of PRECIS was presented at the 1988 SAAB Congress by Dr G.E. Gibbs Russell. Nomenclature-PRECIS has begun as a prototype for Poaceae, to be developed further when staff is available. Curatorial-PRECIS is being developed on the Burroughs 26 microcomputer network by Mr T.H. Arnold, and will link information from specimen-PRECIS to the curatorial and administrative needs of the Herbarium Division.

Dr Gibbs Russell presented a seminar at the Royal Botanic Gardens, Kew and an invited paper at the 14th International Botanical Congress, Berlin, about practical results from the PRECIS system. She also conducted a workshop to teach use of the DELTA system for recording descrip-

tive information at the National Botanical Gardens, Kirstenbosch and demonstrated use of DELTA for grass identification at the 1988 SAAB and Grassland Society Congresses.

PHYTOTAB, managed by Mr M.D. Panagos, includes 48 published ecological surveys and field data sets. Mrs C. Vermeulen is currently loading habitat descriptions, species names and community names into the database. Miss M. Morley is responsible for PHYTOTAB use at the Stellenbosch Botanical Research Unit. During the last year, extensive use of the system was made by Mrs D. Roberts and Mr H. Bailey of the University of Natal, Durban and Mr M. Peel and Mr D. Snyman of the Pasture Research Centre, Pretoria. New programs were developed by Mrs B.C. de Wet and Mr R.H. Westfall for automatic phytosociological classification and for habitat analysis.

Smaller systems continuing on the B7900 include the Garden Records system, developed by Mrs de Wet and maintained by Mrs K. Clarke, for the plants in the botanic garden, and PHOTOS, developed by Miss A.P. Backer for photographic vegetation records for Vegetation Ecology Division.

STRUCTURE AND FUNCTION DIVISION

In December 1987 Dr J.J. Spies became head of this division in succession to Dr R.P. Ellis, who is now a Specialist Scientist.

Dr Gerrit Davidse of the Missouri Botanical Garden, St Louis, USA, spent three months working in the Division as a recipient of a Department of Agriculture and Water Supply Research fellowship. During this period, the taxonomy and cytogenetics of the endemic Cape Fynbos arundinoid grasses were concentrated on, particularly the genera Prionanthium, Tribolium and Urochlaena.

Cytogenetics

Dr Spies and his team, in collaboration with Dr Davidse of the Missouri Botanical Garden, concentrated on chromosome numbers of the winter rainfall grasses. Approximately one-third of the world's species belonging to the tribe Arundineae, is restricted to South Africa, the majority being endemic to the western Cape. This cytogenetic study presented an

opportunity to study the chromosome numbers of many of these species, 43 in all, for the first time. The study further indicated that basic chromosome numbers of 6, 7 and 13 are found in the tribe. These findings support the anatomical suggestion that Merxmuellera, Pentaschistis, Pentameris, Prionanthium and Pseudopentameris are related.

Intensive studies on the genera Alloteropsis, Digitaria, Ehrharta, Heteropogon, Pentaschistis, Prionanthium, Tribolium and Urochlaena are progressing well. Preliminary studies on Digitaria eriantha indicate that the low seedset observed may be attributed to abnormal meiosis and the resultant gamete abortion.

Comparative anatomy

Dr Ellis concentrated on the genus Pentaschistis in conjunction with Dr H.P. Linder of the University of Cape Town and Dr G. Davidse of the Missouri Botanical Garden. An intensive fieldwork programme was undertaken with the objective of collecting and studying in the field as many of the ±60 species of Pentaschistis as possible. This was highly successful and 52 different species were located in this single growing season, including 17 new and undescribed taxa. To date, only three known species of Pentaschistis have not been collected for anatomical study. Preliminary indications of the leaf anatomy, morphology and biology are that Pentaschistis cannot be studied in isolation from Merxmuellera, Pentameris and Pseudopentameris and that all these genera may be artificial as presently constituted and that realignment of taxa is needed to reflect relationships more naturally.

Mary Gunn Library

The future well-being and safety of the book and journal collection should be ensured by the installation of airconditioning and a fire detection and extinguishing system. These extensive renovations disrupted the work of our librarians, Mrs E. Potgieter and Mrs B.D. Lategan but, nevertheless, a valuable service was provided to many South African botanists. A total of 1 750 books and journals was borrowed, 2123 interlibrary loans were handled, 2 629 enquiries dealt with, 28 360 photocopies made and 270 volumes were bound. During the year 224 new books were purchased, in addition to the 411 journal titles to which the Institute subscribes.

VEGETATION ECOLOGY DIVISION

The functions of the Vegetation Ecology Division under Dr J.C. Scheepers are to study the vegetation of South Africa and its ecological relations. This work involves three main aspects: the identification, description, classification and mapping of the various kinds of vegetation; study of the ecological relationships between different kinds of vegetation - with one another and with the environment - and of the various processes and mechanisms that determine the behaviour of plant communities; and the application of such ecological knowledge to the management and utilization of vegetation resources.

Transvaal bushveld and forest studies

Mr R.H. Westfall is studying the vegetation ecology of the Sour Bushveld of the Waterberg area of the central Transvaal. Fifty stands representing 10 different vegetation types have been sampled. A new method for determining species cover with greater precision than the usual scale-estimation methods was developed. Cover results now compare favourably with cover values obtained with the cover meter for structural analyses. The new method entails counting individuals within transects which are related to crown size and individual spacing and should be of interest to those who are interested in determining cover quickly on a species basis.

The Sabie transect has been extended by Mr G.B. Deall into the Montane and Subalpine Belts of the Eastern Transvaal Escarpment. Floristic analysis of these additional data yielded 11 new communities distributed amongst forest (three communities), woodland (three communities), shrubland (two communities), and grassland (three communities). A series of papers is being finalized for publication.

Coastal studies

The vegetation study of the KwaZulu coastal dunes between Richards Bay and the Mlalazi Lagoon by Dr P.J. Weisser was terminated after the main results were published. Twelve 1: 20 000 vegetation maps of the dune area between Kosi Bay and Sodwana were produced from aerial photographs. They are currently being used for the drawing of conservation-priority maps. Vegetation monitoring on dunes continued.

Mr M.G. O'Callaghan has laid out 22 permanent transects across the salt marshes of four western Cape estuarine systems to obtain a better understanding of their dynamics and environmental relationships. Variations in salinity and water depth were measured from March to September, soils were sampled in September, and vegetation was sampled on a bi-monthly basis between March and November. Data have not been fully analysed as yet. Preliminary indications are that inundation period, inundation regularity and salinity are important factors in determining vegetation patterns.

Cape fynbos studies

Research on the Mountain Fynbos in the Cederberg is making good progress. The preliminary checklist of the Cederberg flora, completed during the year, totals nearly 1 400 taxa. The list is being updated by further collections and from literature. The special study in the Welbedacht area, required by management prior to an experimental burn, was completed by the addition of 17 relevés to last year's data base. Another 40 relevés have rounded off the northern sector; and analysis of the data has commenced.

Mr D.J. McDonald has finalized publications on the vegetation, environment and flora of the Swartboschkloof, Jonkershoek, near Stellenbosh. He is also making good progress on his studies of the fynbos and other vegetation in the mountain catchments of the Langeberg in the south-western cape. The fieldwork on the Boosmansbos transect is nearing completion and field data will be synthesized and compared with the results from the first transect.

Grassland studies

The field work for the survey of the vegetation in the Amersfoort area of the eastern Transvaal Highveld has been completed by Miss B.J. Turner. All field data have been loaded onto the Burroughs mainframe computer and production of the final classification table is nearing completion. Good progress is being made with the writing up of this study.

Mr P.J.J. Breytenbach has completed preparatory work and commenced field work in the Grootvlei area of the south central Transvaal Highveld.

Karoo studies

A reconnaissance study of the karoo and other vegetation in the Graaff-Reinet and Middelburg areas of the eastern Karoo Region by Mr A.R. Palmer is well advanced. He has prepared a hierarchical classification of the vegetation. A study of the soil gradient, which corresponds with this classification, has also been undertaken, and both are being prepared for publication. Other publications in preparation include a phytogeographical account of the flora of the study area and an assessment of the use of LANDSAT MSS data to map the vegetation.

Central technical support services

Miss A.P. Backer has loaded bibliographic references from 1976 to 1986 onto ATMS and these have been transferred to STAIRS. The second ecological literature data base is now operational and literature searches can be undertaken.

Further progress has been made on the ecological data bank by Mrs B.J. Vermeulen. Forty-seven literature data sets have been obtained comprising theses, publications, reports and field data sets. From these sources the data have been compiled for the phytosociological data base. Thirty-five matrix data sets have been loaded onto the computer of which 24 sets have appeared in published versions and 11 sets are awaiting classification.

EXPERIMENTAL ECOLOGY DIVISION

Research emphasis of the Division, headed by Dr M.C. Rutherford, has increased in Karoo systems and the Strandveld sectors of the Fynbos Biome, while maintaining levels of work in other parts of this biome. This is in keeping with the Division's increased focus on problems of the more arid, drought-stressed ecosystems, the alien invasive plant-stressed ecosystems as well as on the special stresses that develop in the Fynbos Biome through substrate disturbance. Various experimental perturbations have been initiated at field research sites through installation of replicated shade structures, irrigation plots and rain-out shelters. Since many of the expected effects of these applications are long-term, results are necessarily limited at this stage.

Liaison with the Botany Department of the University of Cape Town has increased with, for example, various post graduate students tackling suggested mini-projects on aspects that directly complement some of the research facets of the Division. Various levels of active liaison have been maintained with other researchers within the co-operative Fynbos and Karoo Biome Programmes.

The Division's experimental nursery area at Rosebank came under threat through the unexpected sale and redevelopment of part of the land that was being used. Partial relocation of structures has resulted in unsatisfactory conditions which are hopefully temporary.

Fynbos reproductive ecology

Dr C.F. Musil has found that densities of seedlings, in the first year of coastal fynbos vegetation recovery following a late spring fire, were considerably higher than those of resprouting plants. In shaded conditions and in close proximity to burnt alien Acacia saligna, densities of fynbos seedlings decreased, whereas those of resprouting plants increased. Seedling recruitment of both A. saligna and fynbos species was not confined to any one particular season, but was staggered over a period of several months from early autumn to late spring. Species with large seeds, such as A. saligna and certain members of the Proteaceae and Restionaceae emerged earlier and from greater depths than those with small seeds.

Fynbos - alien invasive plant interactions

Dr M.C. Rutherford and Mr J. de W. Bösenberg have established that plant populations of the calcareous substrates of the West Coast Strandveld, South Coast Strandveld and Limestone Fynbos react in different ways to introduced Acacia cyclops. The largest proportion of positively affected species were annuals (including alien species such as Lolium temulentum) on the more arid consolidated sands in Strandveld. The highest proportion of negative species response occurred within typical Limestone

Fynbos and included species such as Protea obtusifolia and Adenandra obtusata. Species that were positively associated with Acacia cyclops on the lime stone substrates were mainly of Strandveld affinity and included Rhus glauca and R. laevigata. Decreasing soil moisture levels may reduce the tolerance of some Strandveld species, such as R. glauca, to presence of Acacia cyclops.

Fynbos transformation studies

Mr G.W. Davis and Mr A.P. Flynn have found that physical disturbance of Mountain Fynbos by rotivation can reduce both floristic and micro-environmental variability during the first two-and-a-half years of recovery. Multivariate and correlation analyses of data from an experimental site indicated that changes in the seasonal water and surface temperature regimes are significantly associated with these system changes. A trial on seed of the dominant species, Leucadendron zanthoconus, showed that burial below 20 mm significantly reduced germination, a factor to be considered in interpreting the observed pattern of revegetation following rotivation. The increase in productivity of two introduced Protea species on the disturbed treatment, relative to the undisturbed control, was not significant.

Mr Davis has constructed a preliminary computer model which simulates the utilization of fynbos veld by a wildflower harvesting business. The current algorithm matches seasonal market demands (based on export trade figures) against the availability and retrieval costs of flowering material from a set of hypothetical populations of suitable plant species. These can then be assessed for levels of expected exploitation and possible degradation.

Functional ecological studies in Karoo

Mr G.F. Midgley's water relations data from a small number of non-succulent shrubby plant forms in the winter rainfall Karoo suggest

that there are a limited number of important structural and functional adaptations which determine the success of these forms under arid conditions. The two most important structural characteristics appear to relate to the root/shoot ratio and rooting habit. These probably determine seasonal patterns of plant water stress and, at least, the potential for plant growth, flowering and seed set. The functional ability to adjust leaf osmotic potential to minimize water stress, and the ability to withstand tissue water deficit may determine the success of evergreen non-succulent forms with limited root development.

Mr L.W. Powrie has started to construct a computer database of important plant species population responses in Karoo using both formal and the largely untapped informal information sectors. The database pays special attention to plant responses to major events including episodic rainfall, drought, mass defoliation and selective defoliation incidents. The database is multipurpose but will also allow for systematic sifting of information for the objective identification of key research problems concerning Karoo plants.

PLANT EXPLORATION DIVISION

The Division, under Mr M.J. Wells, continued to concentrate on weeds, plant invaders and food plant research. Highlights were the publication of Declared weeds and alien invader plants in South Africa, Plant invaders of the Transvaal and Barrier plants of southern Africa.

Conservation of germ plasm

Mr T.H. Arnold and Mrs L.D. Jacobs made one collecting trip to KwaNdebele, during which 60 seed samples of tribal crop plants were obtained. In addition, 722 samples of previously collected material were split for distribution, labelled, packaged and stored in chest freezers. Thirty collections were sent to researchers at the Summer Grain Centre at Potchefstroom. Thirty samples of indigenous food plants, legumes and cucurbits, collected by Miss S.E. Chadwick, were distributed to people who wished to experiment with growing them - including workers from the FAO, Israel and the USA. Mrs H. Joffe col-

lected 106 seed and 29 vegetative samples of indigenous plants from the garden for distribution to interested nurserymen. Germination experiments are also being carried out to test the longevity of garden seed stored under our freezer conditions.

Indigenous food plants

Mr A.A. Balsinhas abstracted information from seven publications, bringing the references consulted for the national food plants data bank to a total of 224. The newly consulted references contributed information about 617 species and resulted in the addition of eight new names to the list of food plants which now includes 1 617 species.

Miss Chadwick prepared manuscripts on nine of the 14 priority food plants of the veld that are being studied: Cucumis metuliferus, C. africanus, C. kalahariensis, Acanthosicyos horridus, Coccinia rehmannii, C. sessilifolia, C. adoensis, Bauhinia petersiana and Guibourtia coleosperma. These manuscripts are to be published as species brochures in the illustrated series Plants in southern Africa. Plants of these species have been grown in the nursery in order to replenish seed stocks - depleted as a result of providing researchers and entrepreneurs with material. Three lectures were presented: 'The mighty cucumber' to the Botanical Society of South Africa, 'Edible fruits' to college teachers and course advisers of the Department of Education and Training, and 'A botanist in southern Africa' to the South African Association of Botanists.

Primitive crop plants of African origin

Twenty five crop frequency/preference questionnaires were filled in with the help of local tribesmen in KwaNdebele by Mr Arnold and Mrs Jacobs.

The morphological characteristics of 267 Sorghum collections and 722 Pennisetum collections were analysed, bringing the total number analysed to 2 266. The chlorox test for tannin content was applied to 122 samples, bringing the total to 1 132 samples tested. All of the Sorghum and Pennisetum material collected (except that from the last field trip) has now been processed and all records have been entered

in the computer data bank. Field work has been completed and the next stage of the work will involve computer analyses of the data.

Barrier plants

'Barrier plants of southern Africa', Memoirs of the Botanical Survey of South Africa No. 55, was published. This memoir contains the results of a survey made whilst Miss L. Henderson, now of the Plant Protection Research Institute, was on our staff. It includes suggestions for indigenous hedging and shelter belt plants to replace the often-used alien species, some of which have become invasive.

Woody invaders

The popular version of Miss Henderson and Mrs K.J. Musil's survey of woody plant invaders of the Transvaal was published. Mr Wells completed a chapter on invaders of the fynbos for a publication on invaders of Mediterranean-type ecosystems of the world. He also presented a paper on medical problems possibly caused by the invasive alien Solanum mauritianum.

Catalogue of problem plants

This catalogue which appeared last year has sold well and is widely used by agricultural and conservation personnel. More information about listed and additional species is being filed by Mr Wells for possible future editions. He reported on additions to the list at the 8th National Weeds Conference. The catalogue and file material has proved invaluable in providing background information on plants put forward for classification as declared weeds or invaders.

Declared weeds and invader plants

A bulletin on plants already declared as weeds or invaders (alien spp. only) under Act 43 of 1983 was published. Its preparation was co-ordinated by Mrs D.M.C. Fourie.

Water conservation gardening

Public interest in gardening under drought conditions continues. Mrs Fourie has been called on to give four lectures on the subject and to answer queries as far afield as Majorca.

Garden utilization

Mrs H. Joffe, who was recently promoted to Senior Agricultural Research Technician, has significantly increased the level of garden utilization this year. In addition to seed for propagative purposes, she collected 148 seed samples and 35 samples of vegetative material requested by various researchers, for illustration, educational or display purposes. One hundred and four seed and fruit collections were cleaned and prepared for the herbarium carpological collection. A boost was given to the herbarium spirit collection with the inclusion of 73 seed or fruit and 158 flowering collections from the garden. In all, 723 colour slides were taken of various parts or developmental stages of plants in the garden. These were supported by 218 voucher specimens for the herbarium. Research staff were assisted with finding or monitoring progress of garden collections. Garden staff were also assisted with germination experiments, and garden records staff with mapping and naming. New, more comprehensive garden utilization record forms were introduced and existing records were transferred to them. Mr Wells assisted with the text of a brochure on the garden which is now ready for publication.

Scientific information service

Mrs Fourie handled 324 written and 272 telephonic requests for material and information, and dealt with 47 individual visitors and 13 groups. She also obtained collecting permits from various authorities for both visitors and Institute staff.

A layman's guide to botanical publications

Over the years many requests have been received, especially from overseas visitors, regarding books dealing with various aspects of our flora and vegetation. Answers to these queries have been combined and amplified, resulting in a list of publications that can serve as a layman's introduction to this vast subject. A draft of the list has been completed by Mrs Fourie and will now be circulated to publishers for suggested additions. It currently contains 350 references, classified according to the regions and plant groups that they cover. Publication of this guide is scheduled for the coming year.

Liaison service

In the absence of a liaison officer, no facilities could be offered to visiting school groups but Mrs Fourie provided or arranged lectures and/or tours for teachers, trainee teachers and a few special interest groups. A publicity and educational article on the Institute, by Mr Wells, appeared in Archimedes.

PRETORIA NATIONAL BOTANICAL GARDEN

The garden staff, under the direction of Mr D.H. Dry, divided their attention between building up the scientific and display collections and providing service facilities and public amenities.

Mrs K. Clarke recorded 599 accessions, mainly seed and cuttings collected in the Fynbos and Succulent Karoo, by Mr D.F. Strydom, Mr N.A. Klapwijk and Mrs H. Joffe. Mrs Joffe and Mr Klapwijk are experimenting with various methods of germinating and establishing indigenous species that have proved difficult to grow in the past. Mr Klapwijk obtained the National Diploma in Horticulture and was appointed as an Agricultural Research Technician at the start of the year. He received the Pretoria Technikon's prize as best horticulture student. His talents are being put to good use in re-developing the water garden in the general planting area.

Mr N.F. van Zyl obtained his National Diploma in Horticulture, with six distinctions, at the end of the year. He has also been appointed as an Agricultural Research Technician and is responsible for the propagation of material for mass plantings. Garden development, including mass planting, has had to be curtailed in favour of maintenance. This is due to the exceptionally heavy rains (over 600 mm) the last few months which have resulted in the need for weed control, road repairs and lawn maintenance.

The nursery, under Mr D.S. Hardy, has benefited by renovation of the main glasshouse which has received a new wet wall and extractor fans. The old fan and wall fittings are being re-used in a smaller glasshouse.

The public has also not been neglected. Mr L.C. Steenkamp has been responsible for paving an additional 2 200m of nature trails and 26 new benches have been located in the garden.

BIOSYSTEMATICS DIVISION

Pending further developments this division has continued to devote itself largely to the scientific and technical editing of the publications of the Institute. Dr O.A. Leistner is in control of the division, Mrs E. du Plessis assists with the editing of The Flowering Plants of Africa/Die Blomplante van Afrika and Flora of southern Africa and she is responsible for most of the translations from English to Afrikaans required by the Institute, and Mrs B.A. Momberg assists with the editing of Bothalia and Memoirs of the Botanical Survey of South Africa. About one-third of the typesetting required by the Institute was done in-house, by Mrs S.S. Brink.

Bothalia

Numbers 1 and 2 of Vol. 17 and the index to Vol. 16 were published. It is planned to publish the first number of each volume in May and the second in October of each year.

The Flowering Plants of Africa (FPA)/Die Blomplante van Afrika

Vol. 49,3 & 4 were published and 50,1 & 2 are in press.

Memoirs of the Botanical Survey of South Africa

The following were published after having been presented to the printer in camera-ready form:

No. 55 Barrier plants of southern Africa (L. Henderson), and No. 56, List of species of southern African plants edn 2, part 2. No. 57, the third edition of Veld types of South Africa by J.P.H. Acocks will go to press soon.

The National List of Trees

The third, revised and enlarged edition of this work by B. de Winter, J. Vahrmeijer and F. von Breitenbach was published.

Plant invaders of the Transvaal/Indringerplante van die Transvaal (L. Henderson & K.J. Musil) and Verklaarde onkruid en uitheemse indringerplante in Suid-Afrika/Declared weeds and alien invader plants in South Africa (M. Henderson, D.M.C. Fourie, M.J. Wells & L. Henderson) were published.

SEMINARS

During the year several interesting public seminars were held, two dealing with species concepts from different viewpoints - these were a continuation of the series on the same subject held during 1986/87. Details of the seminars are as follows:

1987.03.25

Prof. G.J. Bredenkamp (PU vir CHO): Spesiebegrippe: 'n ekologiese standpunt.

Dr J.J. Spies (NIP): Spesiebegrippe: 'n sitogenetiese standpunt.

1987.06.25

Dr J.M. Anderson (BRI): Species concepts: a palaeobotanical viewpoint.

Dr R.P. Ellis (BRI): Species concepts: an anatomical viewpoint.

1987.08.06

Dr M. Zavada (USA): Evolution of Angiosperms: a palaeobotanical perspective.

1987.09.10

Dr G. Davidse (USA): Fruit dispersal in grasses.

1987.09.24

Dr G.E. Gibbs Russell (BRI): Changes in the ICBN resulting from the Berlin Botanical Congress.

1988.02.25

Dr E. Kovács-Endrődy (Geological Survey): Two antagonistic approaches to the study of fossil plants.

SOME NEWS AND VIEWS FROM THE BOTANY DEPARTMENT, UNIVERSITY OF THE WIT-
WATERSRAND

FAREWELLS - In March the Department bade farewell to professor C.F. Cresswell who left us, after serving the Department for 25 years, to take up the position of Deputy Vice Chancellor on the Durban campus of the University of Natal. We wish him well in this new phase of his academic career and know that Wits' loss is Natal's gain.

Dr Takeo Horiguchi and his charming wife Kayo returned to Japan in September after spending three years as a Post Doctoral Associate in professor Pienaar's research group. We will miss this charming couple and in particular the knowledge and technical expertise they brought with them. Another aspect that the phycologists will miss is the entertaining evenings we had testing the culinary delights of so many algae that we study. Takeo has been offered a lectureship and takes up his new position on 1 December. We wish him and Kayo all the best for the future.

Dr David Knox and his family decided to return to their home country, New Zealand. Dave left after 12 years dedicated service and his interest and involvement in School Liaison work will be sadly missed. We wish him and his family all the best for the future in their new surroundings.

ARRIVALS - Dr Colin Straker is the most recent addition to the staff. He has Ph.D. in Botany from U.C.T. having specialized in ericoid mycorrhizas. He comes to us after an 18 month period of post-doctoral study in the laboratories of the Institut National de Recherche Agronomique, Dijon, France, where he continued his mycorrhizal research. He's currently lecturing in mycology and plant pathology and his current research interests are host-fungal recognition and specificity in ericoid mycorrhizas, and the role of mycorrhizas in plant endemism in fynbos vegetation of the Agulhas plane.

Dr Alan Critchley has a Ph.D. in Phycology from the Portsmouth Polytechnic, U.K. (1981). This research comprised ecological studies on the brown alga Sargassum muticum. In 1982 he was a Royal Society Research Fellow in the Netherlands. From 1983 until June this year Dr Critchley lectured in cryptogamic botany in the department of Botany,

University of Natal, Pietermaritzburg. He currently lectures in cryptogamic botany, phycology and plant diversity. Dr Critchley's current research interests are marine ecology, seaweed biogeography and the commercial utilization of algae.

Dr Kevin Balkwill took up the curatorship of the C.E. Moss herbarium at the beginning of the year. After obtaining his Ph.D. in plant systematics in 1985, from the University of Natal, Pietermaritzburg, he completed his national service - during which time he was able to complete some research on edible plants used on survival courses. His current research interests are the systematics of the Acanthaceae and the flora of serpentiniferous habitats.

Dr Leszek Vincent joined the Botany Department in May this year. He has a Ph.D. in plant systematics from the University of Natal, Pietermaritzburg (1984). Most of 1985 was spent in the herbarium of the Royal Botanic Gardens, Kew, U.K. as a post-doctoral fellow. This was followed by a move to Rhodes University where Dr Vincent lectured predominantly in Plant Systematics and Biosystematics. His current research and probably life-long research interests are the systematics of the Asteraceae (Compositae) with a special interest in the Senecioneae and the generic concept of Senecio in particular.

Visiting the department at the moment is Prof. Arthur Bailey from the University of Alberta, Canada. He's on sabbatical and is working with Prof. Mike Mentis on the development of computerized fire expert systems, the study area being Pilansberg National Park, Bophuthatswana. Prof Bailey is the co-author of Fire Ecology - United States and southern Canada (Wiley) and is one of the few specialists in the relatively unknown field of fire ecology. His presence in the department is certainly sparking a lot of interest in the field.

Dr Kevin Rogers recently returned from his sabbatical. Most of his time was spent on research into the use and design of artificial wetlands for wastewater management, at the Centre for Irrigation and Freshwater Research (CSIRO) in New South Wales, Australia. He also visited and lectured at institutions in Australia, New Zealand, Canada and the U.S.A. and managed to prepare some past research for publication.

The research led to an important breakthrough in the concept of vertical flow and our understanding of plant responses to such hydraulic formats - in the field of wastewater management.

THE SYSTEMATICS FORUM - In an effort to increase the dialogue/interaction amongst the systematists in the Transvaal region, the Systematics Research Group at the University of the Witwatersrand have started a lunch-time informal discussion group called The Systematics Forum. Increasing the contact amongst participants is facilitated by informal discussions on recently published research, research in progress, research strategies/methodologies and any other topic of relevance to plant systematics in general. Of necessity, some of the topics are rather controversial! For information regarding the topic and next meeting date contact Leszek Vincent (011) 716 4009.

RESOURCE ECOLOGY GROUP - The ecologists in the Botany and Zoology departments have formed the Resource Ecology Group. Lunch-time seminars and informal discussions are held on a regular basis. Some recent topics covered include: 'The ecophysiology of agaves and cacti' by Prof Park Nobel (U.S.A.), 'The right way to test a model' and 'Privatization and game'. The co-ordinator of the group is Prof. Mike Mentis (011) 716 2360.

DR P.L.D. VINCENT

RECENT PUBLICATIONS FROM THE B.R.I.

THE FLOWERING PLANTS OF AFRICA/DIE BLOMPLANTE VAN AFRIKA

An Index to Volumes 1 - 49 of The Flowering Plants of Africa/ Die Blomplante van Afrika has been published by the Botanical Research Institute in September 1988. It is a bilingual publication with an introductory account of the history of the journal since its inception in 1921. Apart from correct names, the Index proper also contains synonyms, misspelt names and misidentifications, with an indication of the correct name in each case. The Index comprises 44 pages and the local price is R4,68, excluding GST. The overseas price is R5,85 to which R6,00 bank charges should be added. It is available from the Directorate of Agricultural Information, Department of Agriculture and Water Supply, Private Bag X144, Pretoria, 0001. It may also be purchased from The Librarian, Botanical Research Institute, Private Bag X101, Pretoria, 0001.

EMSIE DU PLESSIS

Flora of southern Africa, Vol. 16, 3, 6 (1988). This volume, which appeared in early August, is a treatment of the genus Aspalathus by the late Professor Rolf Dahlgren of the Botanical Museum at the University of Copenhagen, Denmark. He died in a car accident in February 1987 while the editorial preparation of the manuscript was well under way at the BRI. The volume comprises 430 pages and 278 species are treated. All but one of the 146 line drawings are professor Dahlgren's own work. The local price of the volume is R67,15 plus R8,06 GST; the overseas price is R83,95 plus R6,00 bank charges.

EMSIE DU PLESSIS

The Flowering Plants of Africa/Die Blomplante van Afrika, Vol. 50, 1 (1988). This issue, which is the first with the new look, appeared on 5th August 1988. Readers will notice that the old grey rather drab cover has been replaced with a moss-green cover carrying a reduced version of one of the included colour plates - rather after the style of the Kew Magazine. Artists such as Ellaphie Ward-Hilhorst, Gillian Condy, Esmé Hennessy, Aleida van der Merwe, Rosemary Holcroft, Herrat March, Trevor Edwards, Claire Smith and Inge Oliver have contributed to this issue. Some of the more interesting plants figured and written up are Adansonia digitata, Podocarpus latifolius (a gymnosperm!), Smodingium argutum, Nepenthes madagascariensis and Combretum racemosum. As pointed out in the editorial, the price per copy has been increased to R25 (GST excl.), but this is still well below cost.

D.J.B. KILLICK

AETFAT 12th PLENARY MEETING, HAMBURG 4 - 10 SEPTEMBER 1988

Systematics is alive and well (if systematists have any doubt!) as shown in the two Floras presented at the meeting - those of East Africa and Zambesiaca, - as well as the numerous publications from South Africa. The latter drew much attention as they were prominently displayed at the Secretariat desk by the publisher, A.A. Balkema.

A decided leaning towards ethnobotany, the preservation of rare and more often useful species and the present status of the African forests served to emphasize the importance of correct identification. Computerization and the development of improved data accessibility at the National Herbarium(PRE) demonstrated useful management of large numbers of specimens. Supporting techniques such as chromosome counts, flavonoid patterns, leaf anatomy and immunochemistry all found a valid place in the discussions.

Field excursions to the Botanic Garden which is part of the Institut für Allgemeine Botanik, and to the heath-land near the mediaeval City of Luneburg, as well as a trip through the woods in an open 'horse-box' seating twelve participants in rows behind the plump rumps of paired horses with names like 'Hans und Lotte' or 'Max und Morris' were highlights in a busy week. The beautiful Hanseatic City of Hamburg with its great port, quiet river Elbe and wonderful reconstruction of buildings destroyed in the second world war had much to offer and invited a return visit in the future.

South Africa was well represented with Dr H. Baljnath (Snowy) as co-ordinator and contributed one tenth of the total number of participants (194) and the African genus Ficus was not overlooked! The Secretariat is thanked for organising a stimulating and challenging meeting.

The next AETFAT meeting is to be held in Malawi in 1991 with Dr J. Senyani as organiser. Systematists, start planning now to be in this lovely country in 3 years time.

DR M.L. FREAN

REDAKTRISE/EDITOR

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