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

BOTANICAL RESEARCH INSTITUTE: The following is a review of the activities of the Institute:-

Herbarium section:

National Herbarium Pretoria. Preparatory steps have been taken for the move to the new building in the grounds of the Pretoria National Botanic Garden at Brummeria, which is due for completion at the end of 1972. In this building the herbarium will be housed in four large halls.

The S.W.A. Herbarium, Windhoek, was incorporated in the Botanical Research Institute on the 1st August, 1971. Its staff consists of the Curator Mr. W. Giess (Chief Technician), Mr. M.A.N. Müller (Professional Officer) and Miss H.S.L.E. Hübsch (Technical Assistant).

The Stellenbosch Herbarium, which is housed in a building of the University of Stellenbosch, has expanded its herbarium and office space by almost 100 per cent.

The five herbaria of this section have in the last year added a total of about 23,000 specimens to their collections. The new acquisitions include herbarium specimens as well as spirit material, fruits and seeds.

Time and labour-saving methods are being used increasingly with success. Methods include quick-reference collections in which each taxon is represented by a single specimen kept in a plastic bag for safe handling and cabinet lists with notes on distribution and distinctive features of species.

A photographic record is being built up of the leaves of all South African trees. Leaves are shown in both incident and translucent light.

Work is being done on an Index of South African Plant Names (suggested abbreviation ISAPLAN). This will give all current names of South African Flowering Plants. It will include author names, publication details, basionym, type and type locality. A mini duplicating machine was acquired recently to put names on 12 x 7,5 cm index cards. Work on names of grasses and trees is at an advanced stage. As a step towards indexing all species, a list of names currently in use at the National Herbarium and their most recent synonyms is being compiled. Genera are being arranged according to Dalla Torre & Harms and species are in alphabetical sequence. The work is being prepared for distribution.

Editing of the Bibliography of South African Botanical Literature up to 1952 compiled by A.A. Bullock, who retired 3 years ago from Kew, has almost been completed and it is hoped to publish the work during the next two years as a Botanical Survey Memoir.

Numerous corrections have been made to the preliminary computer print-out of the Index of South African Place Names with a view to publication in the foreseeable future.

Work is progressing on a Pretoria Flora. Line drawings of most species have been completed and descriptive keys to more than half the species have been drawn up. An experimental visual punch-card key to the families is being tried.

A study of the anatomy and cytology of the Hypoxidaceae, which is being undertaken by Miss M.F. Thompson (Stellenbosch), should be completed before the end of 1972.

The taxonomy of the South African species of *Cussonia* is being investigated by Mr. R.G. Strey (Durban). Several undescribed species have come to light.

Mr. L.A. Coetzer has started work on a study of taxonomy and anatomy of the South African species of the genus *Bauhinia* sens. lat.

Drs. B. de Winter and D.J.B. Killick are preparing an illustrated handbook to the trees of Southern Africa.

Dr. L.E. Codd is continuing his work on the taxonomy of the Labiatae (Lamiaceae) of Southern Africa and is rounding off a revision of the Southern African members of the genus *Zantedeschia* with Mrs. C. Forssman.

The Mary Gunn Library has profited by its move to its new building which accommodates the entire collection. An IBM microfiche/film reader and printer was acquired. The Institute's extensive collection of plant specimens and books on microfiche can now be used to the best advantage.

Flora of Southern Africa section.

Progress with the Flora of Southern Africa is unfortunately rather slow. Five volumes are in the course of preparation, namely Volumes 9, 16, 21, 22 and 25. The two volumes nearing completion are Vol. 21, in which only the genus *Hermannia* is outstanding, and Vol. 22 (Flacourtiaceae, Guttiferae, Begoniaceae etc.). A renewed invitation is extended to taxonomists here and abroad to contribute to the Flora.

Dr. J.H. Ross, presently liaison officer at the Royal Botanic Gardens, Kew, is making good progress with the Mimosoideae for the Flora (Vol. 16). He recently completed a revision of Bew's Flora of Natal and Zululand (1921), which is now in the press and will appear as Botanical Survey Memoir No. 39.

Mr. E.G.H. Oliver of the Botanical Research Unit, Stellenbosch, has started work on a new project on the minor genera of Ericaceae. This will form part of Vol. 25 of the Flora of Southern Africa.

Mrs. A.A. Mauve has completed the revision of the South African species of *Gladiolus* started by the late Dr. G.J. Lewis. The revision will be published as a supplement to the Journal of South African Botany.

Dr. R.A. Dyer is making excellent progress with the revision of Phillips's Genera of South African Plants. He has almost completed the dicotyledonous families: still to be done are Aizoaceae, Thymelaeaceae, and a few small families. Mrs. A.A. Mauve has started on the monocotyledonous families.

Miss M. Gunn is well advanced with her contribution, as one of the authors, to the proposed book on the handwriting of collectors and authors. She is providing biographical information for the book.

The publication, Flowering Plants of Africa, continues to make a regular appearance. At present the Institute has only one artist, Miss H. March, but Miss B. Pascoe of the Botanical Research Unit, Durban, is also contributing in her spare time.

Mr. R.P. Ellis is working on a project entitled "A study of the leaf and embryo anatomy of the Gramineae of Southern Africa." The anatomy is being studied from a taxonomic and diagnostic point of view and the anatomical characters are being recorded in such a way that they can be computerised, the eventual aim being the generation of identification keys and descriptions by computer.

The Pretoria National Botanical Garden:

The process of consolidation of the garden was completed with the purchase of the last private property on the northern slopes of the Daspoort Range and the total area now comprises 76 hectare. Two new shade-houses and a new glass-house were erected during the last year and two additional boreholes were sunk of which one delivers 2 000 gallons and the other is still to be tested.

The development of ecological regions is progressing very well. The propagation of material by methods of rooting cuttings of a wide range of materials is having a profound effect on new introductions to the garden, since reliance on seed, which is often difficult to procure, has been reduced considerably.

Progress with the new building for the Botanical Research Institute:

The building has reached the stage where bricking-in of the partitions in the concrete framework is nearly complete. Plastering has also been started and the installation of workbenches and other equipment should start soon. The building is situated centrally in the Botanical Garden near the C.S.I.R. and its setting and general features have evoked much favourable comment. The date of completion is set at about September, 1972 and the opening provisionally during March/April, 1973.

DEPARTMENT OF PLANT PATHOLOGY, THE UNIVERSITY OF STELLENBOSCH:- The Department of Plant Pathology was established in 1921 and there are at present three teaching staff members: Prof. P.S; Knox-Davies, Dr. M.J. Hattingh, Mr. P.S. van Wyk.

Two categories of research work are being undertaken: (a) projects of a short-term, *ad hoc* nature to solve plant disease problems of immediate importance (especially diseases of cereal, vegetable and forage crops), and (b) research work of a more fundamental nature, usually for advanced degrees.

Research work by staff members.

Dr. M.J. Hattingh: A study of the vesicular-arbuscular mycorrhizal fungus *Endogone*. This project will be continued with Prof. J.W. Gerdemann, University of Illinois while Dr. Hattingh is on study leave for a year from July, 1972.

Mr. P.S. van Wyk: A study of some diseases of Proteaceae.

Research projects by postgraduate students.

(a) Ph.D. Candidates:

Mr. D.J. Engelbrecht: Viruses of grapevine, with special reference to their symptoms, distribution, effects and control in South Africa.

Mr. K.T. van Warmelo: Cytology and development of the perithecium of *Neocosmospora*.

(b) M.Sc. Agric. Candidates:

Mr. J.N.W. de Jager: Vertical and horizontal resistance to stem rust in commercial wheat cultivars.

Mr. J.T. Loubser: Evaluation of methods for detecting *Pseudomonas solanacearum* in soil.

Mr. P.G. Marais: Epidemiology of vine downy mildew in South Africa.

Mr. W.J.K. van der Walt: Studies of some sap-transmissible viruses of apple and pear in South Africa.

Mr. A.B. van Jaarsveld: Etiology of lupin blight caused by *Phomopsis leptostromiformis*.

The following studies will be initiated during 1972.

Mr. G. Holz: Etiology and control of *Fusarium* bulb rot of onions.

Mr. M.A. Holtzhausen: Viruses affecting stone fruits, with special reference to those occurring in the Eastern Free State.

Mr. P.J. Meyer: Identification and occurrence of some graft-transmissible viruses of pome fruits in the Western Cape.

BOTANICAL ACTIVITIES OF THE NATAL PARKS BOARD:- Some recent changes in the structure of the Natal Parks Board will greatly enhance the possibilities for botanical and related activities.

A newly created Conservation Division, headed by an Assistant Director Conservation, contains three complementary sections, namely Reserves, Fish and Field, and Research.

The Reserves Section is ultimately responsible for the conservation and management of the habitats, plants and animals in the nature reserves controlled by the Board. Conservation is effected through implementation of separate management plans for each reserve which are drawn up in consultation with the Research Section. Botanical and related research needed for the management plans have involved, to date, studies on the effects of fire and grazing on grassland composition and on scrub encroachment (Roger Porter, Hluhluwe Game Reserve); vegetation mapping and ecology (Brian Downing, Umfolozi Game Reserve); food preferences of black rhinoceros (Peter Hitchins, Hluhluwe Game Reserve); food requirements of francolin, wildfowl and other game birds (Robin Maguire and Michael Mentis, Queen Elizabeth Park); the effects of browsing by eland on forests (Jeff Skinstad, Giant's Castle Game Reserve).

The Fish and Field Section is responsible for the conservation of fauna and flora in Natal outside of proclaimed sanctuaries. Protection of rare indigenous plants is effected through implementation of Provincial Ordinances. Botanists and other officers of the Board are required to keep an eye open for plant species which may be in need of special protection.

Routine botanical researches of the Natal Parks Board are, therefore, largely orientated towards the solution of field problems, whether related to pasture management in general or to the food and cover requirements of a particular animal species. Other botanical needs do, however, often arise like, for example, research into the vegetation in and around Lake St. Lucia. The Board relies on outside institutions or individuals if specialist knowledge is required, as when cryptogams or chemical analyses of plants are involved. The Board participates in the CT and Project Aqua activities of the IBP which involve the conservation of flora at a national level.

A good deal of botanical research still needs to be done in the various nature reserves of Natal which total over 2 000 km² in extent. The Board might at some future date consider appointing at least two additional botanists, one of whom it is hoped will be a plant taxonomist, to its present staff. The

Board maintains three herbaria, one at Hluhluwe Game Reserve, one at the Royal Natal National Park and another at Oribi Gorge Nature Reserve. Duplicate specimens of plants collected from nature reserves in Natal are normally sent to the University Herbarium in Pietermaritzburg, and the National Herbarium in Pretoria.

NATAL PARKS; GAME AND FISH PRESERVATION BOARD

Vacancy for Professional Officer/Senior Professional Officer: Research Section.

Salary scales: Professional Officers: R2400 x 120 - 3600 x 150 - R4200
Senior Professional Officers : R4200 x 150 - 4800 x 300 - R5400

Botanist - ecological studies. An ecologist is required to undertake studies related to the conservation and management of vegetation in one or more Zululand game reserves. An interest in vegetation mapping, or in the quantitative assessment of vegetation trends, would be an advantage.

This officer will not be provided with official housing in the first instance.

Staff benefits include pension and medical schemes, annual holiday bonus and generous vacation and sick leave privileges. Entry points in the relevant scales are determined by qualifications and experience.

Official forms of application are obtainable from the Chief Administrative Officer, P.O. Box 662, Pietermaritzburg. Closing date: 31st January, 1972.

DEPARTMENT OF BOTANY; UNIVERSITY OF CAPE TOWN:

Assoc. Prof. E.A. Schelpe is Acting Head of the Department of Botany, and is continuing his taxonomic work on South African and Tropical African *Pteridophyta* and South African mosses.

Dr. A.V. Hall is developing and applying computer-based aids in a taxonomic revision of the genus *Satyrium*. These aids include data-banking, automatic key-forming and group-forming, and are being studied using FORTRAN V programs on a UNIVAC 1106 computer.

Dr. K.H. Schütte attended First International Mycological Congress in Exeter in September. Chaired section on Translocation. In conjunction with

Dr. C.P. Burger of the Department of Mechanical Engineering, has developed a very sensitive dendrometer for measuring water stress in trees.

Miss. J.M. Graves. In conjunction with Miss J.M. von Maltitz, a preliminary investigation into the seasonal fertility of the kelp *Ecklonia maxima* is being carried out. A programme of research into the taxonomy and life history of South African *Bryopsis* has also been initiated.

Dr. D.T. Mitchell has discontinued his work on physiology of dormancy of sclerotia of *Claviceps purpurea*, but his main interest still centres on carbohydrate physiology of fungi. A gas chromatograph has been acquired to detect and determine soluble sugars and polyols and this instrument is being used to investigate host/parasite relations of certain rusts of S.W.Cape. Miss S.M. Roberts (B.Sc. Honours, 1971) is helping, and her results will be submitted for a higher degree.

Dr. P. Goldblatt is visiting various European Herbaria in search of types in connection with his revision of the genus *Moraea*.

Mr. H.R. Tölken. The taxonomic revision of the genus *Crassula* is at present being written up.

Oceanographic Research Unit stationed in the Department

Mrs. P. Reinecke - C.S.I.R. Research Assistant is working on phytoplankton samples collected from the Agulhas current. At present she is working on the dinoflagellate genus *Ceratium*.

Government Seaweed Research Laboratory stationed in the Department

Mr. R.H. Simons. This unit, administered by the Division of Sea Fisheries, is embarking on broad-front coastal surveys whose purpose is to estimate standing crops of economically important seaweed species such as *Ecklonia maxima* and *Laminaria pallida*. A satisfactory method for achieving this is a subject of present research. Small-scale, in-depth, surveys which have been the main objectives in the past are continuing.

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