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

DEPARTMENT OF BOTANY, UNIVERSITY OF RHODESIA: Professor H. Wild left on Sabbatical leave for Europe on 10th September, 1972. He will be based in Professor J.G. Hawkes' Department of Botany, University of Birmingham, and hopes to work principally in the relationship of vegetation to heavy metal soils and to a lesser extent on the Compositae Volume of the Flora Zambesiaca. In connection with the heavy metal work, he also hopes to spend some time with Professor Anthony Bradshaw at Liverpool University, Dr. Rorison and his co-workers at Sheffield University and Professor Peterson at Westfield College, London University. In relation to Flora Zambesiaca matters he intends to visit Professor T. Norlindh at the Riksmuseum, Stockholm, Dr. J. Grau at the Botanische Staatssammlung, Munich and Professor A. Fernandes at the Centro de Botanica, Lisbon, as well as Kew, The British Museum and Oxford.

Mr. P.I. Thomas who has been supervised by Professor Wild, has now submitted his M. Phil. thesis on the ecology of the Nkai nickel/copper deposit using principle components analysis. Parts of the thesis will shortly be published in the Journal of Ecology.

Mr. John Hill has recently started an M. Phil. project under the supervision of Professor Wild and the sponsorship of the Rhodesian Ministry of Mines on the biological stabilisation of Rhodesian mine dumps using races of grasses and other plants tolerant to various types of toxicity, i.e. arsenic, heavy metals and high salt concentrations.

Mr. G.V. Pope of the National Herbarium, Salisbury has been assisting Professor Wild with the Tribe Astereae for the Flora Zambesiaca. This section is now written up in draft form.

Dr. George Scott, reader in the department, is shortly concluding a term of office as Dean of the Faculty of Science. He proceeds on Sabbatical leave as Visiting Professor to the Department of Plant Sciences at the University of Western Ontario, Canada in January, 1973. He has been running a new M.Sc. course in Plant Physiology this year.

Mr. H.D.L. Corby, Senior Lecturer, reports that his current research activity is on various aspects of the nodulation of legumes, namely: (a) the occurrence of nodulation amongst Rhodesian legumes, (b) the shape of leguminous root-nodules, (c) the improvement of methods of making legume inoculants, (d) nodulation of legumes of the heavy-metal serpentines of the Great Dyke, (e) the colour of leguminous roots.

Dr. B.H. Walker is in the final stages of a project concerning the ecology of the Kalahari Sand vegetation in Wankie National Park and is also engaged in the development of a model for Wildlife ecosystems. With Dr. John Hanks of the Zoology Department, he has been conducting a new M.Sc. degree course in 'Tropical Resource Ecology' for the first time this year, as well as assisting in the Diploma Course in Field Ecology for non-graduates. He is supervisor of Mr. R.D. Kelly for an M.Phil. project based on a comparative study of primary productivity under different kinds of land-use in the south-eastern lowveld of Rhodesia.

Dr. David Mitchell, our hydrobiologist has been commissioned by the International Biological Programme, on behalf of the International Hydrological Decade, to write and edit a manual on Aquatic Weeds principally for the use of engineers, hydrologists and other people concerned with the administration of water bodies. The book will include a brief review of the ecology of aquatic vegetation and a discussion of methods of control and utilisation.

He is continuing a survey of man-made lakes in Rhodesia with a view to obtaining understanding of the structure and function of these ecosystems so that they can be properly managed. We have recently advertised for a research fellow to assist with this work.

Dr. Mitchell has been invited to attend the IBP/UNESCO Symposium on the results obtained by the Freshwater Productivity (PF) section of the Inter-

national Biological Programme to be held at Reading from the 12th to the 18th September. He will also attend the Jubilee Symposium of the Societas Internationales Limnologiae.

In our Microbiology Section under Dr. H.L. Lloyd, the following programme is in progress.

Alternaria leaf spot of tobacco: work on the nature of resistance of *Nicotiana tabacum* to Alternaria leaf spot is continuing. The major objective is to develop a general model of host-pathogen interrelationships using as a basis the *Alternaria tenuis* - *Nicotiana tabacum* interaction.

Bacterial leaching of minerals: the first laboratory phase of this research programme which has been largely a feasibility study is now complete. Work is now in progress on the second (pilot plant) phase in which emphasis is based on the design of a plant to optimise bacterial leaching of copper from low grade sulphide ores. Exploratory studies are due to commence on the possible use of bacterial leaching as an initial process for the extraction of nickel from low grade ores.

J.C. Parkin: Fungal deterioration of stored maize. This project was completed during the 1971/72 season. Its objective was to survey the extent of and determine the factors which contributed to fungal deterioration of stored maize in Rhodesia.

Fusarium bark disease of coffee: this three year programme is designed to investigate the ecology of Fusarium - the causal organism of a limited, though potentially serious disease of coffee in Rhodesia. Work commenced in June, 1972.

P.L. Ingram: Interrelations between *Xylaria* spp. (*Podonordaria* spp.) and *Macrotermes falciger*. Investigations over the past two years on the nutritional role of *Xylaria* spp., the fungal inhabitant of the fungal comb in termitaria of *M. falciger*, have been based mainly on the cellulolytic activities of the fungus and termite gut bacteria in relation to the main dietary energy source of *M. falciger* cellulose.

R.A. Bailey: Ecology of *Verticillium dahliae*. *Verticillium dahliae*, the casual organism of verticillium wilt of cotton has only recently become a

possible threat to cotton in Rhodesia and the major objective of this programme is to study the synecology of *Verticillium dahliae* which will serve as a basis for implementing control measures against the disease.

C. Marshall: Epidemiology of *Helminthosporium turcicum*. The possible instability of a new source of single gene resistance (Htn.) in maize to Helminthosporium leaf spot has prompted this study on the epidemiology of *Helminthosporium turcicum* in relation to the Htn. gene in diverse maize germ plasm.

D. Fernandes: The translocation, persistence and mode of action of systemic fungicides in tobacco.

B.S. Purchase, our bacteriologist, is writing his Ph.D. thesis on nitrification in tropical grasslands. He goes on Sabbatical leave in December and will spend three months in the Biochemistry department at Imperial College, London, and five months at Rothamsted Experimental Station.

Under Dr. Malcolm Stuart, our virologist, research continues on the nature of the causal agent and epidemiology of Maize-Streak, Ratoon Stunt of Sugar Cane and Multiple Sprouting of Citrus.

Mr. D.G. Anderson has commenced an M.Phil. degree on Maize Streak, and with Miss M.A. Connell's departure, her work on Tobacco Vein-browning Virus is being continued by Dr. Stuart.

Publications 1971/72:

Lloyd, H.L. 1972. Alternaria leaf spot of tobacco II. Independent segregation of morphological and virulence traits in conidial populations of *A. tenuis* Nees. Mycopath et Mycol. Applic 33: 1-6.

Lloyd, H.L. 1972. Therapeutic effect of 6-furfuryl-amino-purine on tobacco Alternariosis. Nature, 1972. (in press).

Lloyd, H.L. 1971. New Records of Rhodesian Fungi. Kirkia 8(1): 1-2.

Lloyd, H.L. 1971. Fundamentals of diseases of senescence - a prelude to plant chemotherapy. Rhodesia Science News 5: 6-8.

UNIVERSITY OF DURBAN-WESTVILLE: 1972 has been nothing if not eventful for the Botany Department of the University of Durban-Westville. The end of 1971 saw a flurry of packing ready for the imminent move to the new University Precinct at Chiltern Hills and, early in 1972, the move was made.

Installed in its palatial new buildings, which it shares temporarily with homeless pharmacists and subcontractors, the department is beginning to resume a more normal life encouraged by the progress in building all around us and the sight of the greenhouse complex growing rapidly. We are, however, without our former Head of Department, Professor Lewis, who returned from the United Kingdom with news of his appointment to the Bolus Chair of Botany in Cape Town.

Dr. T.D. Steinke returned recently from a year's study leave in the United Kingdom where, as British Council Scholar, he undertook studies on photosynthesis in swards of perennial ryegrass at the Grassland Research Institute at Hurleigh.

Two members of staff were awarded higher degrees in 1972. Mr. Ward was awarded an M.Sc. by Natal University for his dissertation on the ecology of Isipingo - and he is currently engaged in studies of aquatic macrophytes of St. Lucia. Mr. G. Naidoo, temporary lecturer in the department during the absence of Professor Lewis and Dr. Steinke, was the first candidate to be awarded an M.Sc. degree by the University of Durban-Westville. His dissertation was entitled, "The uptake and translocation of ^{32}P under different conditions in *Eragrostis curvula* (Schrad.) Nees." Prior to this, Mr. Alban Barnabas was awarded his M.Sc., with distinction, by the University of South Africa for his work on "Translocation of ^{14}C -labelled assimilates in *Eragrostis curvula* (Schrad.) Nees."

Current projects include taxonomic studies on *Cyperus* species by Mr. Baijnath, an anatomical-taxonomic treatise of Natal species of *Scleria* by Mrs. Hennessy, flavonoid studies of *Plectranthus* by Dr. Getliffe and Dr. Steinke will continue work on photosynthesis and the translocation of assimilates in addition to his growth studies of mangroves.

S.A.A.B. AND THE INTERNATIONAL ASSOCIATION OF PLANT TAXONOMISTS:

Most taxonomists in the Republic are probably aware of the existence of the I.A.P.T. but only a small number of them are members of this body. This fact was brought to my attention by Prof. Frans Stafleu when he visited our country towards the end of 1971. You may ask why you and other South African taxonomists should become members. There are a number of good reasons. I.A.P.T. publishes "Taxon" the journal which has become a focal point of modern plant taxonomy. No plant taxonomists can afford not to take note of this vital and often provocative publication. "I read our library copy", you may reply. If you do, it is likely that you only have time to skim or else you are depriving others of the opportunity to read it properly. Much of its contents needs to be studied, not skimmed. As is the case with as many journals, "Taxon" is feeling the financial stress which is universal, particularly for the independent journals. The costs of printing, paper and labour have risen tremendously, and the only way to offset this is by an increased circulation.

By joining I.A.P.T. you will be supporting Taxon and will receive a free copy of one of the most important journals in taxonomy.

The journal is what you personally would gain by joining. One needs, however, only study the aims, objects and activities of the I.A.P.T. as set out in Taxon 1,1: 5 (1951) to realize that the development of plant taxonomy on an international scale rests in the hands of this body. I repeat the information here in full since it is of such importance.

Aims

To consider measures for the future development of Plant Taxonomy and Plant Geography, and to organize the execution of such plans as require international co-operation.

To the latter belong:-

The holding of International Congresses and Symposia in the field of Plant Taxonomy and Geography.

Editing and publication of the International Rules of Botanical Nomenclature and the handling of proposals for the amendment.

Standardisation of phytographical terminology.
Publications of monographs of plant groups.
Promotion of exchange of materials and literature.
Maintenance and publication of the Index Herbariorum.
Co-ordination of the compilation and publishing of indices to plant names and illustrations.
Photographing and distribution of prints of types and other historical specimens.
Phytogeographical cartography.
Stimulations of opportunities for exchanges of members of faculties and staffs of institutions in different countries and botanical travel in general.

Publications

"Taxon". The official News Bulletin of the I.A.P.T.
"Regnum Vegetabile". A series of handbooks for the use of Plant Taxonomists and Plant Geographers, e.g. Index Herbariorum, Rules of Nomenclature, Genera Plantarum, Distribution Maps, Monographs of Plant Groups, etc.

From the foregoing it will be evident that it is important that as many taxonomists as possible should be members of the I.A.P.T.

To show that I am prepared to pay more than lip service to this ideal, I am offering to collect the fees of all South African members and to transfer these as a lump sum to save on postage, bank- or clearing-house fees, as is suggested in the Taxon article quoted before.

Enclosed in this Forum you will find a questionnaire. All taxonomists and other interested botanists are requested to complete it and return it to me in the addressed envelope provided. I have requested the International Bureau for Plant Taxonomy and Nomenclature to send me application for Membership forms and will send these to you on request.

For your information the different categories of membership and the fees as supplied in Taxon 20, 5/6(1971) are given below:

Membership categories and fees

The Council of I.A.P.T. has decided to introduce two new categories of membership:-

1. Life Membership. Members for life make a one time payment of US \$ 120- irrespective of the number of previous years of membership. Their rights are the same as those of regular personal members: they receive Taxon free of charge and Regnum vegetabile against reduced prices. Some volumes of Regnum vegetabile will be made available against no charge at all.

2. Emeritus Membership. Members of I.A.P.T. who have attained emeritus status in their profession may apply for emeritus membership if they have been regular personal members for three or more years. The fee for 1972 will be US \$ 8.-.

Membership fees for 1972. As foreseen a year ago (see my note in Taxon 20: 196) a further adjustment of the membership fees of I.A.P.T. is necessary to meet the costs of production of Taxon. The volumes will remain at about 800 pp. a year (four issues) but a comparison with the prices of comparable journals easily shows that US \$ 10.- is insufficient to cover even the bare costs. Our hidden sources of income, which have enabled us for such a long time to maintain a very low price, have alas not kept up with the price increases caused by the inflation and economic expansion of the Dutch economy and by the monetary difficulties around the dollar. Very reluctantly, therefore, the Council I.A.P.T. has decided to revise the fee structure again. Actually this revision is the second step in a process announced last year; we sincerely hope to be able to maintain the 1972 level for at least a few years.

Regular personal members	US \$ 12.-
Emeritus personal members	US \$ 8.-
Associate personal members	US \$ 8.-
Regular institute members	US \$ 50.-
Associate institute members	US \$ 37.50
Supporting institute members	US \$ 74.- (minimum)
Life members: A one time payment of US \$ 120.-	

(Note:- Transfer membership fees. The transfer of membership fees will meet with relatively high exchange fees if they are sent out of the country separately. To save money on overseas postage and on bank collection or clearing-house fees we suggest to have the fees collected by one person in each country.) (B. de Winter).

MISSOURI BOTANICAL GARDEN: Dr. Peter Goldblatt, who worked at the Botany Department of the University of Cape Town for the past few years, recently took up an appointment at the Missouri Botanical Garden in St. Louis, U.S.A.

The Missouri Botanical Garden is one of the major botanical gardens in the U.S.A. and has a large Botany Department and Library associated with it. Most research is systematic and most of the ten professional botanists work on Central and South American floras. One of the larger projects is the production of the Flora of Panama. Although the main interest at the Garden has for a long time been concerned with the South American tropical flora, the herbarium contains material from the whole world, including a growing African section, and contains upwards of 2 000 000 specimens, which are now housed in very modern compactors.

Dr. Goldblatt's position as research botanist was created due to the need for additional staff to work on the biosystematics of the *Papaver orientale-bracteatum* complex, a project funded by the United States Department of Agriculture and closely associated with the world-wide narcotic drug problem. The project is concerned with the search for alternative sources of useful alkaloids such as codeine, particularly if the cultivation of *Papaver somniferum*, the source of opium, is banned throughout the world. Another aspect is the need to find harmless analogues of heroin to facilitate the curing of drug addiction. The work involves the collection and study of *Papaver* in Iran and Turkey in the flowering season and subsequent cytological and breeding studies at the Missouri Botanical Garden. Dr. Goldblatt's other duties are related to the Missouri Botanical Garden's African flora project, and is semi-curatorial in that he is organizing and coordinating contacts in Africa and hopefully, will increase the flow of specimens to the herbarium. Otherwise he is continuing his study on African Iridaceae and will also in time begin to study the New World representatives of this family.

It will be of interest to the readers of Forum to know that the Missouri Botanical Garden in St. Louis, U.S.A., is now officially recognized as the center in North America for the collection, assembly, and study of African plant specimens. Hopefully also, the Missouri Botanical Garden will in time become

a place for active study of the African flora. The herbarium has, since its inception, been interested in African material, the nucleus of which is based on the valuable specimens of Drege, Ecklon, and Zeyher, which formed part of the Bernhardt collection. Since then, close contacts with several European institutions, especially Berlin, have resulted in our obtaining much valuable African material including types of collectors such as Schimper, Krauss, Schlechter, and Dinter. More recently the herbarium has followed an active policy of acquiring African material and this has been forwarded first by an exchange program with African institutions where the Missouri Botanical Garden has offered photographs of type specimens at the British Museum and Kew in return for plant material and later by a fund which has provided for the purchase of material. Results of this program are that the acquisition of African specimens has risen from a trickle of several hundred in the 1950's to over 7 000 in 1971. The herbarium is now regularly visited by American botanists who need to examine African material and more and more loans are being sent to researchers working on African flora. There is still, however, much to be done in establishing contact with African botanists and botanical institutions to foster mutually beneficial relationships. It is the affirmed policy of the Missouri Botanical Garden to encourage by the limited means at its disposal, the study of African flora both in the U.S. and elsewhere.

PROF. IRENE MANTON F.R.S., Emeritus Professor of Botany in the University of Leeds, England, will be in the Republic from 4th November to 4th December to carry out electron microscope studies of nano-plankton off South African coasts. She will be here under the auspices of the CSIR and will be accompanied by her technician, Mr. K. Oates. Prof. Manton will be giving a few lectures on her work during her visits to Cape Town, Durban and Johannesburg.

DEPARTEMENT MIKROBIOLOGIE, LANDBOUFAKULTEIT, U.O.V.S.: Die Departement is veral geïnteresseerd in die fisiologie van mikroorganismes. Hulle is dan ook uitmuntend toegerus wat fasiliteite betref vir werk in dié rigting, en beskik onder andere oor 'n fermenteer-apparaat, gaschromatograawe en 'n piroliseerder. Die volgende projekte geniet tans aandag:-

(1) Die identifikasie van mikroörganismes deur middel van gaschromatografie en pirolise-gaschromatografie. Daar is alreeds geslaag daarin om tussen *Escherichia coli* en *Enterobacter aerogenes* te onderskei, op grond van hul vlugtige metaboliese produkte, deur gaschromatografie. Pogings word ook aangewend om mastitisveroorsakende bakterieë so te identifiseer.

(2) Studie van die spoorfisiologie van *Helminthosporium* en ander verwante plantpatogene swamme.

(3) Studies van mikroörganismes in die rumen en in die spysverteringskanaal van termiete.

1ST INTERNATIONAL CONGRESS OF ECOLOGY: This congress with the theme Structure, Function and Management of Ecosystems will be held in The Hague, Netherlands from 8-14 September 1974. Further details will be given in the next issue of Forum.

EPIPHYTIC ORCHIDS OF SOUTHERN AFRICA: This publication, announced in the June issue of Forum, has now appeared and is available from the publishers, the Natal Branch of the Wild Life and Conservation Society of South Africa, P.O. Box 295, Durban, at R3,00 per copy (soft cover) and R4,50 per copy (hard cover). The book contains 51 full-page black-and-white line drawings very clearly executed by the author, Mr. E.R. Harrison of Zululand, and 46 maps showing the distribution of the various species, subspecies and varieties. The forty-two species occurring in Africa south of the Limpopo are included in the book which is 100 pages in extent.

The manuscript of the book has been very kindly donated to the Wild Life Society by the author and any profits from sales of the book will be paid into the Society's Book Publication Fund.

The Natal Branch of the Society and Mr. Harrison are to be congratulated on the production of this very worthwhile book which is a welcome addition to the rapidly increasing literature on our flora. It is hoped that the Branch will continue with its plan to bring out works of a similar type.

CONTRIBUTIONS FROM THE BOLUS HERBARIUM: No. 4 of this series is now available from the Bolus Herbarium, University Private Bag, Rondebosch, Cape, at a price of R2,00 (excluding postage). The title is "A Revision of the Genera *Lapeirousia* Pourret and *Anomatheca* Ker in the winter rainfall region of South Africa" by Peter Goldblatt.

EDITORIAL ERRORS: The Editor wishes to apologise for the incorrect labelling of last month's Forum which should have been Vol. 10, No. 10 October, 1972.

In the obituary notice to Dr. Hutchinson in the last issue, information additional to that supplied by Dr. Dyer has been pointed out as being incorrect. Mrs. Hutchinson died some time ago and Dr. Hutchinson is survived by two sons as well as two daughters. The Editor regrets these errors and tenders his apologies to the author. (E.G.H.O.)

MEMBERSHIP LIST: A full list of members of the Association will be published in the December issue of Forum. This was requested by members at the Annual General Meeting in Johannesburg in July.

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