ENCEPHALARTOS

JOURNAL OF THE
CYCAD SOCIETY OF
SOUTHERN AFRICA

TYDSKRIF VAN DIE
BROODBOOMVERENIGING
VAN SUIDELIKE AFRIKA

NO. 5

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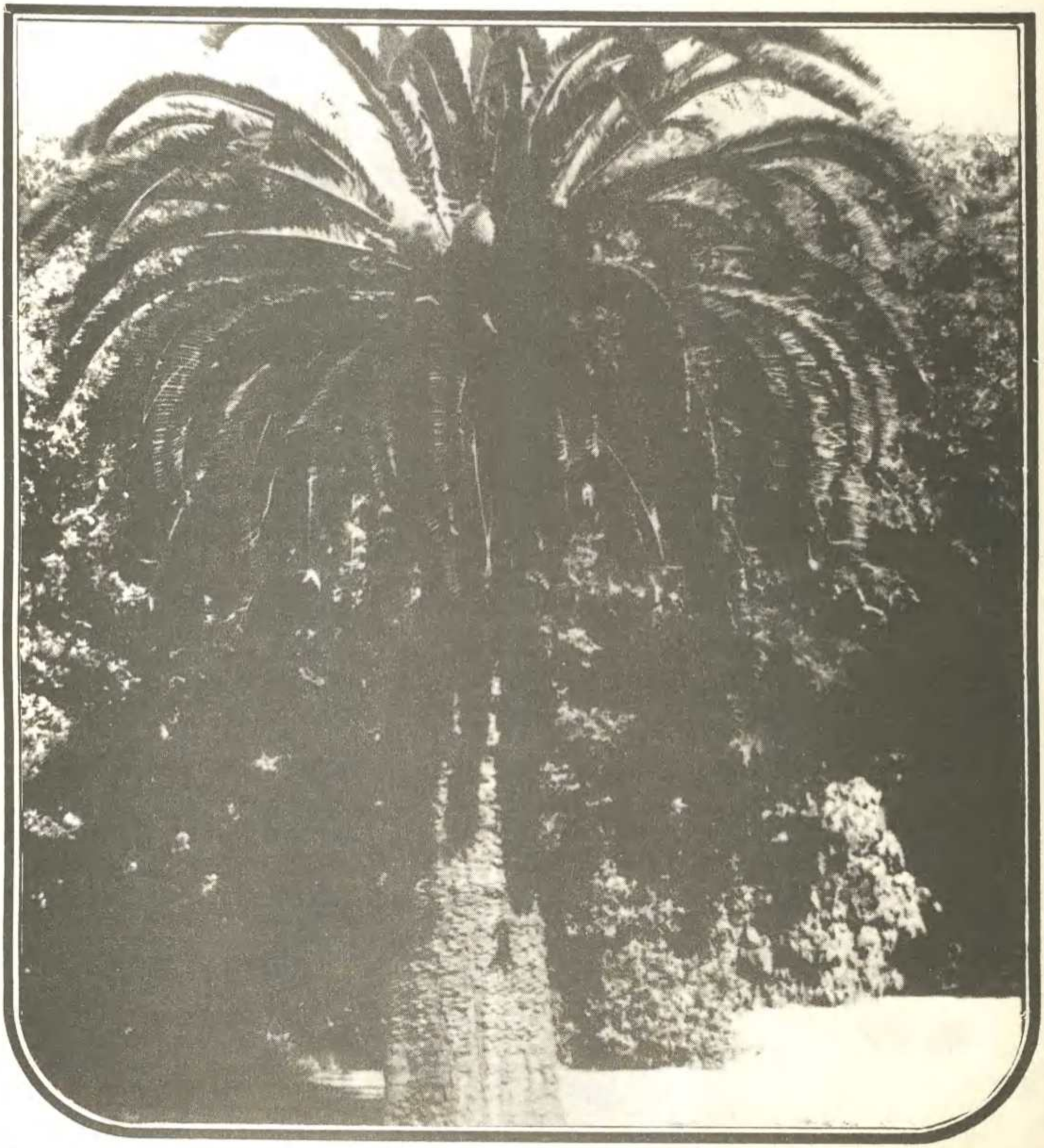

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VOORBLAD / COVER

Encephalartos

woodii

EDITORIAL

One of the objectives of the Cycad Socie=ty is to promote the conservation of our cycad species in their natural habitat. Because there are unfortunately selfish people who will not hesitate to remove all cycads from their natural habitat (and this also applies to other plants and animals), it is essential that there are laws and regulations to ensure the conservation of our environment. We therefore wholeheartedly support any rea=sonable measures from the side of the authorities to achieve this objective.

It can happen, however, and it does some=times happen in our opinion, that well-intended laws do not contribute to, and in some cases actually work against con=servation. It is therefore necessary to continually evaluate existing regula=tions and, if necessary, to make changes. We are grateful for the fact that this is indeed done. The Transvaal ordinance was changed recently, for example, con=cerning the possession of cycad seed=lings, which made it much more realistic. Also in other provinces there are signs of a more realistic approach in this connection. We are convinced that one of the best ways to promote the conser=vation of cycads is to encourage cycad

REDAKSIONEEL

Een van die doelstellings van die Brood=boomvereniging is om die bewaring van ons broodboomspesies in hulle natuurlike ha=bitat te bevorder. Aangesien daar onge=lukkig selfsugtige mense is wat nie sal skroom om alle broodbome uit hulle na=tuurlike habitat te verwyder nie (en dit geld vir ander plante en diere ook), is dit nodig dat daar wette en regulasies moet wees om die bewaring van ons kosbare natuur te verseker. Ons ondersteun dan ook heelhartig enige redelike maatreëls van owerheidsweë om hierdie doel te be=reid.

Dit kan egter gebeur, en dit gebeur vol=gens ons mening ook soms, dat goed-be=doelde wette nie meehelp om bewaring te bevorder nie, en in sommige gevalle selfs bewaring teenwerk. Daarom is dit nodig om voortdurend bestaande regulasies te evalueer en, indien nodig, veranderinge te maak. Ons is dankbaar dat dit wel ook gedoen word. So is die Transvaalse or=donnansie byvoorbeeld onlangs gewysig t.o.v. die besit van broodboomsaailinge, wat dit baie meer realisties gemaak het. Ook in ander provinsies is daar tekens van 'n meer realistiese benadering in hierdie verband. Ons is daarvan oortuig dat een van die beste maniere om die be=waring van broodbome te bevorder, is om

EDITORIAL

- CONTINUED -

lovers to cultivate plants from seed, especially seed obtained from the many plants growing in gardens and parks. It should furthermore be made possible and easy for such persons to donate, receive and exchange seed and seedlings. In this way their desire to collect plants of different species will be satisfied, without any threat to nature.

One of the major sources of uncertainty and frustration in this connection is the fact that the different provinces each has its own, separate ordinance which controls the movement of cycad seedlings and seed, amongst others, and the fact that these ordinances are all different. A person who for example wants to le= gally donate a few seedlings to someone in another province, is not only com= pelled to obtain information about two different ordinances, but also has to go through the time-consuming process of export and import permits, involving two administrations. This often leads to the situation where he or she rather does it in the quicker and easier, but illegal, way. Another result of the present system is that nature conserva= tion officials, who are overloaded with work anyway, have to spend time on ad= ministrative actions which may in any case have nothing to do with nature con= servation.

While it has now already been decided to abolish the Provincial Councils this year and to re-allocate their functions, an ideal opportunity now exists to solve the above-mentioned problem.

We therefore wish to make a strong plea for nature conservation to be viewed as a national matter in the new dispensa= tion and for it to be controlled by the same laws throughout South Africa (and preferably also in the independent home= lands). We cannot see why cycads in one part of the country should be protected differently from those in any other part. Furthermore we would like to ad= vocate that laws which apply to cycads

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- VERVOLG -

broodboomliefhebbers aan te moedig om plante van saad te kweek, veral van saad afkomstig van die baie plante wat in tuine en parke groei. Verder behoort dit vir sulke persone moontlik en maklik ge= maak te word om saad en saailinge te skenk, te ontvang en te ruil. Sodoende sal hulle behoefte om plante van verskil= lende spesies te versamel, bevredig word, sonder bedreiging vir die natuur.

Een van die grootste bronne van onseker= heid en frustrasie in hierdie verband is die feit dat die verskillende provinsies elk sy eie, afsonderlike ordonansie het wat die beweging van o.a. broodboomsaai= linge en saad beheer, en die feit dat hierdie ordonnansies almal verskillend is. 'n Persoon wat byvoorbeeld 'n paar saai= linge of sade wettiglik aan iemand in 'n ander provinsie wil skenk, word nie net verplig om inligting oor twee verskil= lende ordonnansies in te win nie, maar moet ook die tydsame proses van uitvoer- en invoerpermitte deurloop, waarby twee administrasies betrokke is. Dit lei dikwels daartoe dat hy of sy dit liewer op die vinniger en makliker, maar onwet= tige, manier doen. 'n Ander gevolg van die huidige stelsel is dat natuurbewa= ringsbeamptes in twee administrasies, wat in elk geval oorlaai is met werk, tyd moet spandeer aan administratiewe hande= linge wat in elk geval niks met natuur= bewaring te doen mag hê nie.

Terwyl daar nou reeds besluit is om die Provinsiale Rade vanjaar af te skaf en om hulle funksies her-toe te ken, is daar nou 'n ideale geleentheid om bogenoemde probleem op te los. Ons wil dit dus graag sterk bepleit dat in die nuwe be= deling, natuurbewaring as 'n nasionale aangeleentheid gesien word en dat dit dwarsdeur Suid-Afrika (en verkieslik ook in die onafhanklike tuislande) deur die= selfde wette beheer word. Ons kan nie sien waarom broodbome in een deel van die land anders bewaar moet word as dié in enige ander deel nie. Verder wil ons dit graag bepleit dat wette wat brood= bome raak, so eenvoudig en toepasbaar as

EDITORIAL

- CONTINUED -

should be made as simple and enforcable as possible, and should be clearly aimed at the conservation of plants in their natural habitat. There should be the minimum possible interference with the handling of seed and seedlings which do not originate from nature.

The Cycad Society, as representative body for a wide variety of cycad interests, will gladly assist in the planning of a realistic and effective set of regula=tions to ensure the conservation of our beloved plants.

Opinions which are expressed in the editorial are those of the Editor and do not necessarily represent the policy of the Cycad Society. Likewise are opinions expressed in articles published in ENCEPHALARTOS those of the authors and not necessarily those of the Cycad Society or the Editor.

REDAKSIONEEL

- VERVOLG -

moontlik gemaak moet word, en duidelik op die bewaring van plante in hulle na=tuurlike habitat ingestel moet wees. Daar moet so min as moontlik ingemeng word met die hantering van saad en saai=linge wat nie uit die natuur afkomstig is nie.

Die Broodboomvereniging, as verteenwoor=digende liggaam vir 'n wye verskeidenheid van broodboombelange, sal graag saamwerk in die beplanning van 'n realistiese en doeltreffende stel regulasies om die bewaring van ons geliefde plante te ver=seker.

Menings wat in die redaksionele artikel uitgespreek word, is dié van die Redakteur en verteenwoor=dig nie noodwendig die beleid van die Broodboomvereniging nie. In=gelyks is menings uitgespreek in artikels wat in ENCEPHALARTOS ge=publiseer word, dié van die skry=wers en nie noodwendig dié van die Broodboomvereniging of die Redakteur nie.

REGIONAL NEWS STREEKNUUS

Natal

On Thursday, 13 February 1986, 25 members and guests attended a function during which Prof. Nathanaël Grobbelaar, Head of the Department of Botany at the Uni=versity of Pretoria, delivered a lecture on "Symbiotic nitrogen fixation by Cycads". During his lecture, he showed many excellent slides on the subject. The evening was concluded with the ser=ving of refreshments and members had the opportunity to get to know each other.

The Natal committee is planning on excur=sion to Moyeni Estates, High Flats du=ring May. Natal members will be infor=med of the date in due course.

Oos-Kaap / Eastern Cape

Ongeveer 45 Oos-Kaapse lede van die Vereniging en ander belangstellendes het op 12 Februarie die streek se eerste by=eenkoms vir 1986 by die Port Elizabethse Technikon bygewoon. By dié geleentheid het Cynthia Giddy 'n praatjie gelewer en skyfies gewys oor die broodbome van Australië. Daarna het die teenwoordiges die geleentheid gehad om gesellig saam te verkeer en om Cynthia te ontmoet en vrae aan haar te stel.

Die voorlopige datums vir die res van die jaar se byeenkomste is 19 April, 24 Julie en 1 November, met die moontlikheid van nog een in September. Lede sal skriftelik ingelig word oor die besonderhede van elke byeenkoms.

FOCUS ON... FOKUS OP...

In each edition of ENCEPHALARTOS we focus on one Southern African species, in the form of an in-depth article in layman's language. In this edition the spotlight falls on that unique cycad of which only one specimen has ever been found in nature.

In elke uitgawe van ENCEPHALARTOS fokus ons op een Suider-Afrikaanse broodboom= spesie, in die vorm van 'n in-diepte-artikel in leketaal. In hierdie uitgawe val die kollig op daardie unieke brood= boom waarvan slegs een voorbeeld ooit in die natuur gevind is.

ENCEPHALARTOS WOODII

BY ROY OSBORNE

INTRODUCTION

Ask any cycad enthusiast with a complete collection of Encephalartos what his or her most prized possession is - the answer is invariably: "my Woodii". Ask any beginner what his or her ultimate goal is - the reply will be: "to own a Woodii". Because of its majestic appea= rance and its rarity, Encephalartos woodii is indeed one of the most sought-after of the 132-odd different cycad species.

Since there was only one specimen ever discovered, E. woodii is rather "special" and considered by many to be the rarest plant in the world. But its rarity sta= tus must be seen in perspective. E. cu= pidus, E. latifrons and E. inopinus are considered highly endangered species in habitat and are by no means common in botanic gardens or private collections. Dion califanoi, D. caputoi and Micro= cycas calocoma are similarly rare. Cycas panzhihuaensis is endangered, C. micholitzii has not been seen in ha= bitat since 1905 and the natural popu= lation of C. hainanensis was almost en= tirely destroyed by a violent typhoon in 1973. Amongst plants other than cycads, there are some strong contenders for the title of 'rarest plant' - how about the Leguminous tree of Mauritius which cannot be propagated vegetatively and whose seed allegedly has to pass through the intes= tine of the now extinct dodo in order to germinate? By contrast, E. woodii grows relatively quickly, suckers freely and is surprisingly well represented in bo= tanic gardens and even in private collec= tions throughout the world.

DISCOVERY

The discovery of the solitary specimen of E. woodii in Zululand in 1895 by Medley Wood is a fascinating story, clearly summarised in Dr Dyer's cycad monograph in Bothalia (1965). It bears repeating for those who may not have access to that publication.

John Medley Wood (1827-1915), merchant sailor, Natal farmer, trader, sportsman, Founder of the Natal Herbarium, Curator of the Natal Botanic Gardens (later the Durban Botanic Gardens), was above all a botanist with a passionate interest in the local indigenous flora, and with nu= merous scientific publications to his credit. Dr Wood's name is commemorated in the genus Woodia, an Asclepiad, and in no less than 60 species with epithets woodii, medleyi and medley-woodii.

Medwood Gardens in the Durban city centre is named in his honour. His own descrip= tion of the discovery of "Wood's cycad" is quoted from an article in the Garde= ners Chronicle of 2 May 1908 (p. 414):

> "In the year 1895 I was on a botanical collecting trip with wagon and oxen in Zululand, and having reached a spot where the country was very rough, I stayed for several days botanising in the vicinity, and in so doing found a solitary clump of Encephalartos, consis= ting of four stems, the tallest of which was 18 ft. high with proportionate girth of stem, and with a few offsets at the base; the stems were all male, and not another plant of the species could be found in the vicinity."

The site of this remarkable find was a steep, south-facing slope on the fringes of the Ngoye Forest, about 30 km from Mtunzini. Stangeria eriopus and E. ngoyanus are also present in the area and it is not surprising that the local tribesmen believed the latter species to be seedlings arising from E. woodii.

In 1903 Medley Wood sent his assistant, James Wylie, who later succeeded him as Curator of the Botanic Gardens, to Zululand to fetch some of the smaller offshoots. Three of these, about 1 m in height, were planted in the Durban Gardens, where, after about two years of dormancy, they commenced vigorous growth. Dr Wood reported later that, of the seven Encephalartos species then in the Gardens,

> ".... these three, as far as the foliage is concerned, are, in my opinion, not only the handsomest of all, but are strikingly different from any others."

In a subsequent expedition to the Mtunzini site in March 1907, Wylie collected two of the larger trunks for the Botanic Gardens. At that time he noted that the biggest of the original four trunks was badly mutilated and was not expected to survive.

Specimens of the material had by then reached Kew Gardens, where, on the basis of leaf character, the plant was listed under the name Encephalartos altensteinii var. bispinosa J.M. Wood. Other plants from the basal offsets had been shipped to the horticultural firm, Messrs Sander and Sons, of St. Albans and Bruges, who published a description in the Gardeners Chronicle of 25 April 1908 (p. 257) naming the plant officially as Encephalartos woodii. This firm exhibited their specimens at the centenary exhibition of the Ghent Botanical and Horticultural Society, the largest plant on show having a stem 46 cm high and 26 cm diameter with "a handsome head of 25 leaves".

In his book "The Living Cycads" (see ENCEPHALARTOS no. 2), Prof. Charles Chamberlain of Chicago describes his visit in 1912, in the company of a Zulu guide briefed by Wylie, to see the one remaining trunk of the Mtunzini stand which he recorded as 3 m in height.

E. woodii, photographed in Durban Botanic Gardens with Dr Medley Wood, ca. 1914
(Photograph by courtesy of Durban Corporation)

E. woodii: the same plant as photographed with Medley Wood in 1914, taken 71 years later. (Photograph: Roy Osborne)

According to old Forestry Department records at Eshowe, it appears that one of their officers named Prior was con= cerned about the survival of the re= maining stem, threatened as it was by the joint effects of the activities of the Zulu medicine men and veld fires in the area. In 1916 he arranged for it to be sent to the Government Botanist in Pretoria. Records indicate that the trunk despatched was 3,6 m long, 46 cm in diameter and had a mass of some 650 kg. Dr Dyer believes that this may have been the plant growing pre= viously in the Union Buildings rockery which was transplanted in 1964 to the grounds on the Botanic Research Insti= tute, a move which it unfortunately did not survive.

Whilst three of the original four stems are thus accounted for, and the fourth was presumably damaged beyond saving, the Forestry records do indicate one final trunk, possibly an offshoot or basal sucker, being sent to Durban in 1916. This plant was given by Wylie to Maurice S. Evans, who had been a good friend of Medley Wood, and he planted it in the grounds of his home on the Berea. It is thought that at a much later stage this plant found its way into a private collection in Durban.

Despite numerous excursions in the Ngoye/Mtunzini areas in the years that followed, no other specimens of E. woodii were ever discovered. Ian Garland, well-known Natal conservationist, points out that the area has not been comple= tely and systematically surveyed and maintains that it is not impossible that one or more plants are present in some particularly remote area. Perio= dic rumours are heard of another plant being found, but these are regarded with scepticism. (All the 'woodii's' so far investigated have turned out to be rather broad-leaved varieties of E.

James Wylie, horticulturalist who succeeded Medley Wood as Curator of the Durban Botanic Gardens (Photograph by courtesy of Durban Corporation)

A very healthy "young" plant of E. woodii (Photograph: Roy Osborne)

natalensis.) Regretably then, the species is regarded as being extinct in nature.

PRESENT DISTRIBUTION

As mentioned previously, there is a surprising number of plants of E. woodii in botanic and private gardens throughout the world (I have heard estimates of 500 specimens). All have been derived as offsets or basal suckers from the original rootstock discovered by Medley Wood and hence all are male plants. Some of these merit special attention.

The most impressive specimens of E.woodii are undoubtedly those in the Durban Botanic Gardens. The two trunks moved by Wylie in 1907 comprise a magnificent pair on the Old Conservatory terrace, while two other plants, one alongside the steps descending from the terrace and one with the bulk of the excellent collection in the Gardens, are now of similar size. Measurements of these four plants taken in November 1985 indicate that the trunks have not grown much in height over the last few decades - the individual height remain in the 4,5 - 5 m range recorded some years previously. However, the stem diameters have certainly increased to their present 60 - 75 cm at mid-height with somewhat larger basal measurements due to a characteristic buttressing effect. A plant in the 'Southampton Square' of the Old Fort Gardens in Durban is similar in height but somewhat narrower in girth.

Appropriately, one of the first available suckers from these plants was placed in the Medwood Gardens in the centre of Durban but was subsequently stolen from its site in 1976 (see ENCEPHALARTOS no.1). Rumour has it that this removal was initiated by an unscrupulous American collector.

In the Republic, Kirstenbosch gardens obtained a sucker from James Wylie in 1916. This plant is now 4 m in trunk height, has a circumference of 1,5 m and coned in 1985. The Transvaal has a number of specimens, examples being located at the Provincial Administration's Hartbeeshoek Nursery, the University of Pretoria gardens and the grounds of the Botanic Research Institute. At least four private collectors have large adult specimens.

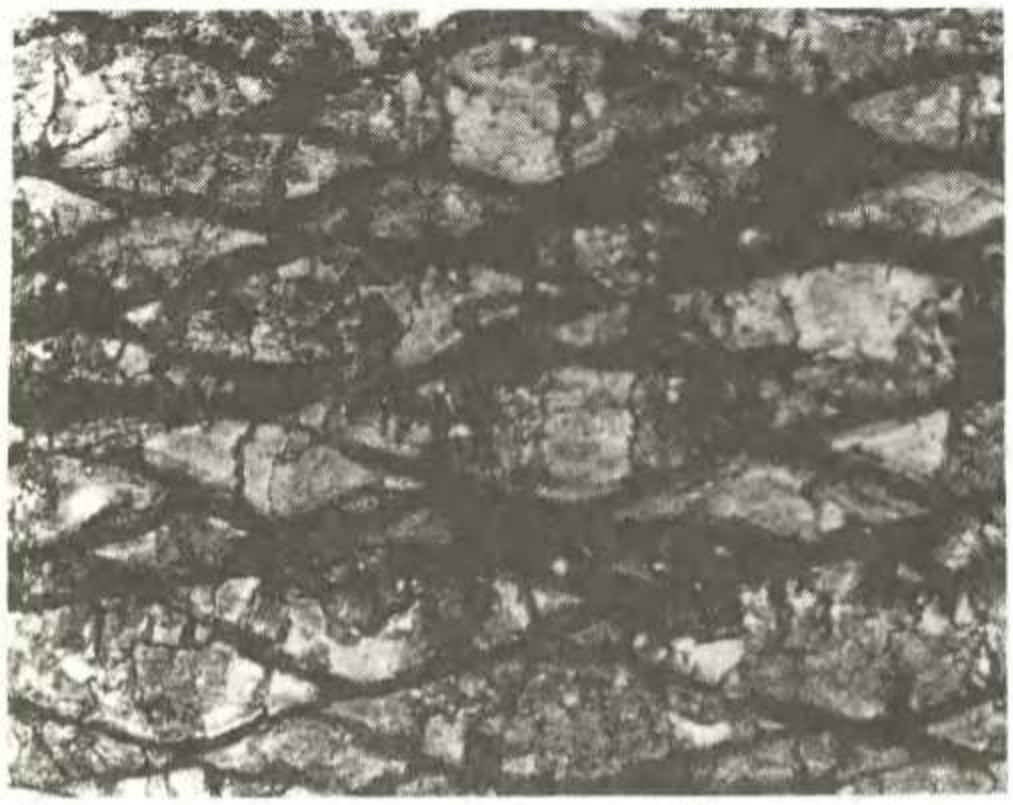
Suckers from the original plants were sent to various botanic gardens and institutes throughout the world, largely under an exchange scheme arranged by Ernest Thorp, which allowed the Durban gardens to acquire a number of unusual rare exotics in return. The specimen in Kew Gardens, which arrived in 1899, has grown well in their conservatory conditions but has never coned. In the USA, E.woodii is well represented. Large plants are found in the gardens of Madame Ganna Walska's Lotusland collection at Montecito (a photograph of the group of three plants appeared in Vol. 57 of the Cactus and Succulent Journal, 1985), in Loran Whitelock's collection, at Fairchild Tropical Garden in Miami, at the Foster Botanic Garden in Hawaii and at Longwood Gardens in Pennsylvania - a total of 8 adult plants, all of which have coned! Other adult plants in the USA are to be seen at the Los Angeles State and County Arboretum, at Cycadia Nursery in California and in the possession of a few private growers. Besides coning well, the American plants seem to sucker prolifically and a fair number of smaller plants have been distributed from these parents.

Specimens of E.woodii are found in a few surprising places in other parts of the world too. Examples are Dublin's National Botanic Garden at Glasnevin, the 'Les Cèdres' Gardens at Saint-Jean-Cap-Ferrat in France, at Manila in the Philippines, at Hiroshima in Japan, in at least one Australian garden and, closer to home, at the Ewanrigg Gardens near Harare, Zimbabwe.

DESCRIPTION

1. Stem

E.woodii trunks can reach up to 6 m in height. Mature plants have a stem circumference of up to 235 cm (i.e. 75 cm diameter). On the basis of these measurements, a single trunk would have a mass of 2,5 tons. The additional weight being supported results in an increased basal girth (up to 100 cm diameter) with a characteristic buttressing effect being observed in mature specimens. Furthermore, the leaf bases surrounding the stem become compressed to give a close-packed grid pattern. Thus, although other species may be taller than E.woodii (e.g. E.transvenosus may reach 13 m), it is certainly the 'heavyweight' of the South African cycads.



Close-up of trunk of E. woodii, showing the pattern of compressed leaf-bases. (Photograph: Roy Osborne)

Stems of mature plants are often bran=ched at the woolly crown. Lateral suckers often arise from leaf bases at points along the stem but basal suckers are generally more vigorous.

2. Leaves and Leaflets

The length of a typical E.woodii leaf can vary from 2,5 to 3 m on large mature plants - 2 m is more usual in younger plants. Emergent leaves are bright green and densely hairy at first, these hairs being shed at maturity. The fully-deve=loped leaves are gracefully curved and collectively form the dense umbrella-shaped canopy which makes this species so decorative.

The median leaflets are typically about 25 cm long and 5 cm broad at the widest part, smooth along the margins, with a flattened curve at the tips. The dark green and leathery leaflets are set in pairs into the leafstalk at an angle oblique to the long axis so that each presents its maximum surface to the sun=light - the combined leaf-stacking effect being reminiscent to a venetian blind in appearance. As usual, leaflets become smaller towards the tip and base of the leafstalk and are reduced to a series of prickles towards the base. Younger leaves, especially those of suckers, have leaflets with 2 to 5 lobes or teeth on one or both margins.

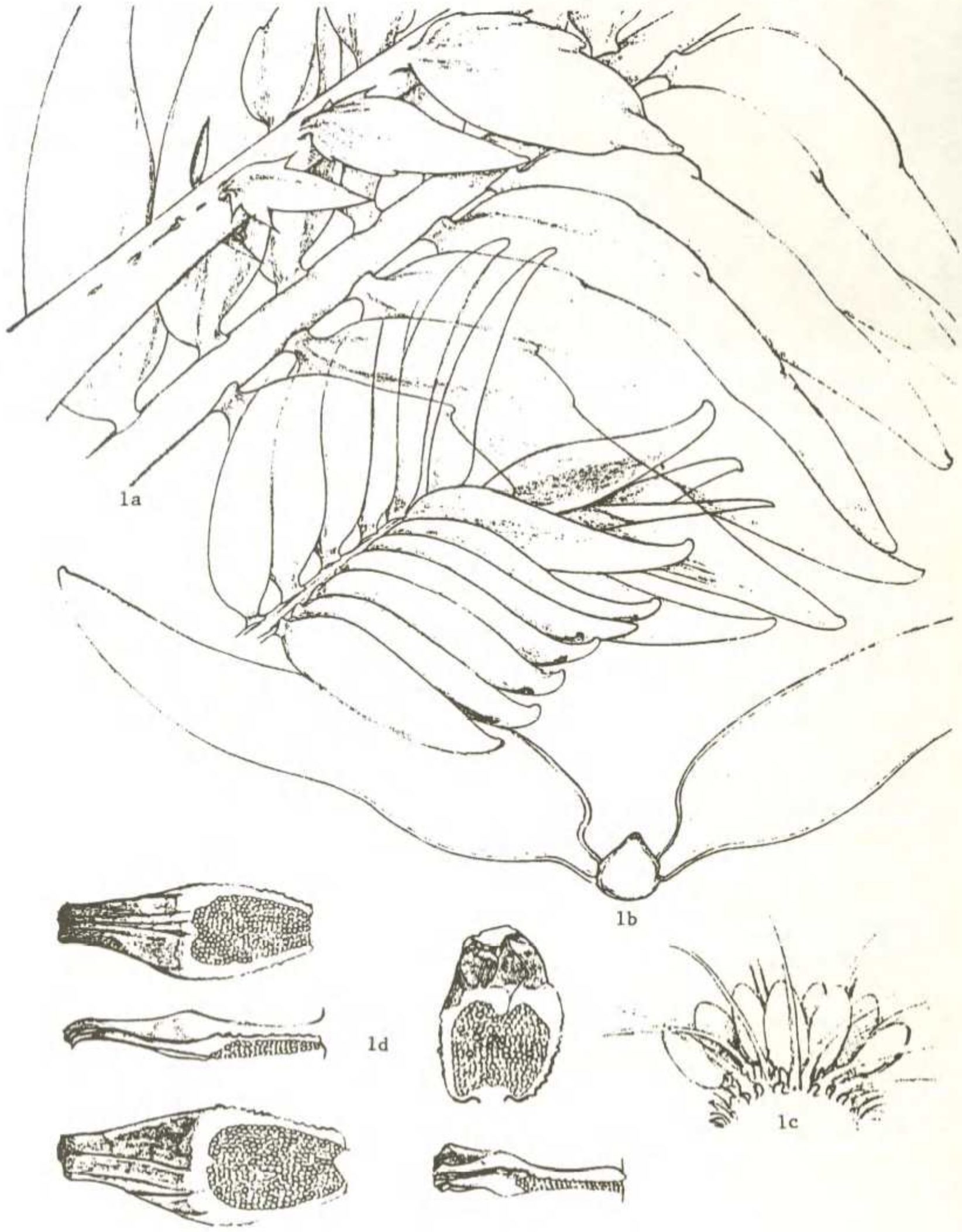
3. Cones

The multiple bright orange-yellow male cones are quite spectacular in appearance, as illustrated by the excellent photograph on the dust cover of the new edition of Cynthia Giddy's "Cycads of South Africa". Although 6 to 8 cones are common on one head, in recent years the large plants in Durban Botanic Gardens have borne up to 16 (in 1982) and an incredible 21 (in 1983) cones on a single crown. The cones are more cylindrical in appearance than other Encephalartos male cones, typically 40 to 90 cm long, although occassionally up to 120 cm, and 15 to 20 cm in diameter.

AFFINITIES

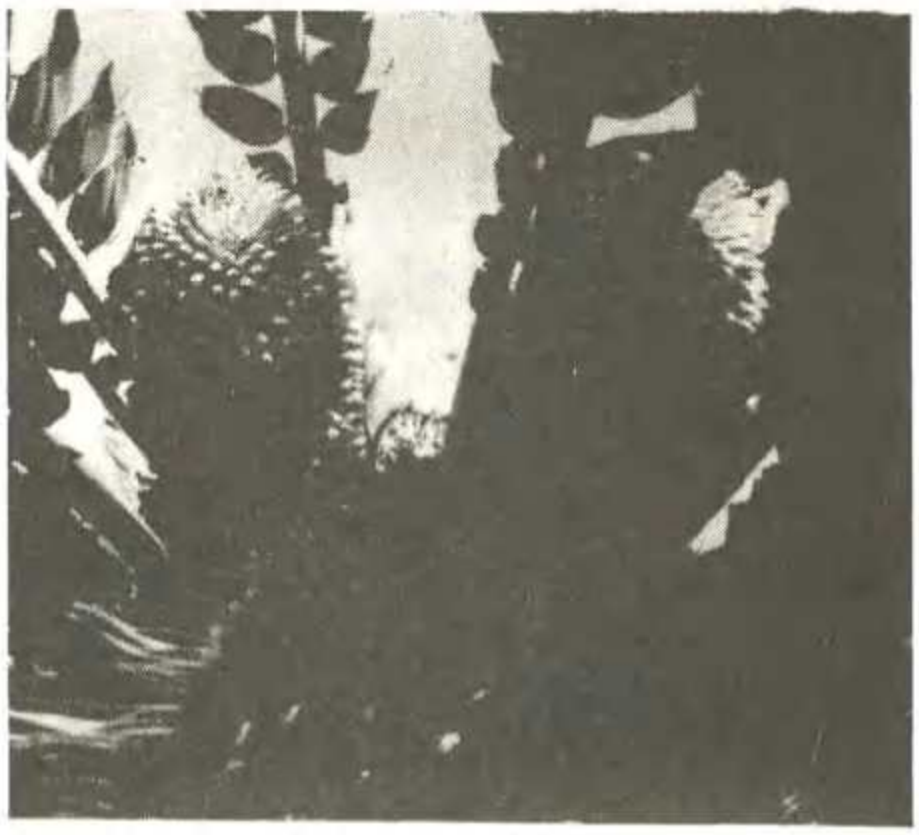
It is interesting to speculate on the origin of E.woodii - several schools of thought exist. Hutchinson and Rattray (1933) stated that the species appears to be closely allied to E.altensteinii (from which E.natalensis was separated by Dyer and Verdoorn in 1951) and to E.hildebrand=tii from East Africa. Henderson (1945) had no doubt that this was a distinct species. Dyer and Verdoorn (1966) specu=lated that the single male plant disco=vered was either a relic from a species now extinct or that it was a mutant from E.natalensis. The latter viewpoint seems to be that of Medley Wood when he propo=sed the name 'var. bispinosa'. The fact

Median portion of E. woodii leaf, showing stacking pattern of leaflets. (Photograph: Roy Osborne)



Douglas Goode 85'

Fig.I: Details of leaf structure and male cones of *Encephalartos woodii* (from "Cycads of Africa & Madagascar" by Douglas Goode, presently in print, and reproduced in reduced scale by kind permission of the author).
1a: Lower, mid- and terminal leaf detail.
1b: Transverse section of rachis showing attachment of median leaflets.
1c: Cluster of male cones at the crown.
1d: Details of male cone scales.



Male cones of E. woodii.
(Photograph: Harry Gerber)

that it does hybridise artificially with E. natalensis may count against the mutant theory.

To my knowledge there has not as yet been any study of the E. woodii chromosomes which would be useful evidence in further speculations. I would not rule out the possibility that E. woodii is a simple polyploid of E. natalensis and this could be easily tested by comparative chromosome counts.

PROPAGATION AND CULTIVATION

As evidenced by the relatively large number of plants presently in cultivation, E. woodii is readily propagated from offsets and suckers. Due to the paucity of existing stock plants, such rooted suckers command high prices - e.g. one specimen with a 50 cm stem was advertised in ENCEPHALARTOS no. 1 for R3 800 and was sold promptly to a Transvaal collector.

Apart from the remote possibility of a spontaneous sex change in one of the existing mature plants, vegetative propagation remains the only immediate route for multiplication of the species. In the longer term, two projects are under way which hold hope for more prolific progagation (as described in ENCEPHALARTOS no. 2). The first method involves repeated back-crossing using E.woodii pollen with E. natalensis and with the resulting successive generations of females so produced until an almost pure E. woodii arises (97% 'woodii' after 5 generations). The alternative project involves tissue-culture techniques presently being investigated, with the dual potential results of a larger number of plantlets being obtained and the opportunity to experiment with hormone-controlled gender manipulation of the plantlets so produced. The ultimate objective - to obtain a female of the species - may not be impossible.

ACKNOWLEDGEMENTS

I am indebted to Marie Jordaan, Esmé Hennessy, Ken Wyman, Tony Hitchcock, Maxine Phillips, Mary Collins, Brian Huntley, Ernest Thorp, Loran Whitelock, Mr J. Winter and Prof. Nat Grobbelaar for their kind assistance during my researches into E. woodii, to Dough Goode for the artwork and to Drs R.A. Dyer and Piet Vorster for their comments on the first draft of this paper.

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SAADBANK SKIET WORTEL

Baie belangrike nuus vir lede van die Broodboomvereniging is dat die Vereniging se Saadbank nou in volle werking is. Danie Nel het ingewillig om as Saadbank=beampte op te tree (baie dankie, Danie!) en hy is baie entoesiasties oor hierdie nuwe diens wat deur die Vereniging aan sy lede gebied word. Hy is alreeds aan die werk en binne die eerste maand vanjaar is pakkies saad aan 24 lede voorsien en R60,00 is ontvang as donasies t.o.v. pos=geld en hanteringskoste.

Saad van die volgende spesies is nou op aanvraag beskikbaar van Danie Nel (Bowkerweg 120, Escombe, 4093; tel. no. 031-442505): Encephalartos villosus, E.transvenosus, E.friderici-guilielmi en E.natalensis. Verdere voorrade van in=heemse sowel as buitelandse saad word ver=wag. Besonderhede oor beskikbare saad sal in elke uitgawe van ENCEPHALARTOS gepubliseer word. Daar word ook beoog om 'n saadbankvraelys by 'n toekomstige uitgawe in te sluit.

Donasies om posgeld en hanteringskoste te help dek, sal verwelkom word. Tjeks of posorders moet uitgemaak word aan "Die Broodboomvereniging van Suidelike Afrika" en moet aan Danie gestuur word, tesame met die naam en adres van die aansoeker. Alhoewel alles moontlik ge=doen sal word om slegs bevrugte en kor=rek-geïdentifiseerde saad uit te stuur, aanvaar Danie (en die Broodboomvereni=ging) nie verantwoordelikheid t.o.v. die vrugbaarheid en identifikasie van die saad wat hy uitstuur nie.

Donasies van vrugbare, korrek-geïdentifi=seerde saad sal baie welkom wees en Danie sal graag kontak wil maak met enige lede wat sodanige saad aan die Vereniging kan verskaf.

Die sukses van die Saadbank is geheel en al afhanklik van die ondersteuning van die lede van die Vereniging. U word dus versoek om u heelhartige steun aan hier=die belangrike nuwe aktiwiteit van die Vereniging te gee.

SEEDBANK TAKES ROOT

Very important news for members of the Cycad Society is that the Society's Seedbank is now fully operational. Danie Nel has agreed to serve as Seedbank Officer (thanks very much, Danie!) and he is very enthusiastic about this new service offered to its members by the Society. He is already at work and within the first month this year, par=cels of seed were supplied to 24 members and R60,00 was received in donations towards postage and handling costs.

Seed of the following species is now available on application from Danie Nel (120 Bowker Road, Escombe, 4093; tel. no. 031-442505): Encephalartos villosus, E. transvenosus, E.friderici-guilielmi and E.natalensis. Further supplies of indigenous as well as exotic seed are expected. Particulars of available seed will be published in each edition of ENCEPHALARTOS. It is also envisaged to enclose a seedbank questionnaire in a future issue.

Donations to help cover postage and hand=ling costs will be welcomed. Cheques or postal orders must be made out to "The Cycad Society of Southern Africa" and must be sent to Danie, together with the name and address of the applicant. Al=though everything possible will be done to only send out fertile and correctly-identified seed, Danie (and the Cycad Society) does not accept responsibility concerning the fertility and identifica=tion of seed that he sends out.

Donations of fertile, correctly-identi=fied seed will be very welcome and Danie would like to make contact with any members who are able to supply such seed to the Society.

The success of the Seedbank depends en=tirely on the support of the members of the Society. You are therefore requested to give your full support to this impor=tant activity of the Society.

GIVE AND TAKE GEE EN NEEM

The exchange of plants is illegal in terms of the Plant Improvement Act. This act has however no bearing on the exchange of pollen and seeds and the unconditional donation of plants. Members are invited to use this column for offer's and requests in this con=nection.

The Nature Conservation Ordinances of the various provinces may how=ever control the exchange and donation of seeds and plants and members are advised to contact their local provincial nature con=servation office for information, permits, etc.

Persons who want to arrange over=seas exchanges should consult the Department of Agriculture, Divi=sion of Plant and Seed Control. In this case import and export permits are usually required and a phytosanitary certificate is gene=rally necessary.

The 'Give and Take' column is also available for requests concerning any other items of interest to members, e.g. books, photographs, etc.

Die ruil van plante is onwettig in terme van die Plantverbeteringswet. Hierdie wet het egter geen betrek=king op die ruil van stuifmeel en saad en die onvoorwaardelike sken=king van plante nie. Lede word genooi om hierdie kolom te gebruik vir aanbiedings en versoeke in hierdie verband.

Die Natuurbewarings-ordonnansies van die verskillende provinsies mag egter die ruil en skenking van saad en plante beheer en lede word aangeraai om met hulle plaaslike provinsiale natuurbewaringskantoor in verbinding te tree t.o.v. inlig=ting, permitte, ens.

Persone wat oorsese ruilings wil reël moet met die Departement van Landbou, Afdeling Plant- en Saad=beheer in verbinding tree. In hierdie geval is invoer- en uitvoer=permitte gewoonlik nodig en 'n phyto-sanitêre sertifikaat word algemeen vereis.

Die 'Gee en Neem'-kolom is ook beskikbaar vir versoeke t.o.v. enige ander items wat vir lede van belang mag wees, bv. boeke, foto's, ens.

- John Hendricks (110 Brookmeade Drive, Statesville NC 28677, USA) is working on the taxonomy of the genus Cycas and wants to make contact with anyone who can supply male and female sporophylls and records of numbers of sporophylls, ovules, etc., of Cycas thouarsii, espe=cially if the plant is known to be de=rived from the Comores Islands source.

- Roy Osborne (20 Maryvale Road, Westville 3630) would like to purchase a copy of Prof. C.J. Chamberlain's book, 'The Living Cycads' in either the original or the later reprint form. He is also interested in the same author's book of 1935, 'Gymnosperms, Structure and Evolution'.

- John Hendricks (110 Brookmeade Drive, Statesville NC 28677, USA) has two extra copies of Professor D.D. Pant's book 'Cycas and the Cycadales' (publi=shed in 1962, and second edition in 1973, by Central Book Depot, Allahabad, India), and is prepared to offer them to members at the original cost of $20. Air mail postage to the RSA would be about $10 extra.

(This rather difficult-to-get-hold-of book will be reviewed in a forthcoming issue of ENCEPHALARTOS - Editor.)

- Colin Pinker (PO Box 2115, Nelspruit, 1200; tel.no. 01311-24373 (home), 27409 (work)) would be grateful if anyone could help him increase his collection. He is looking for seeds or seedlings of the following Encephalartos species: arenarius, caffer, cupidus, cycadifolius, heenanii, inopinus, laevifolius, latifrons, lehmannii, longifolius, ngoyanus, princeps, trispinosus and umbeluziensis. He only wants a maximum of four of each - even one will be welcome. He has E. frederici-guilielmi and other mixed swops to offer.

- Piet Vorster (Brandwagstraat 34, Stellenbosch, 7600; tel.no. 02231-78909) soek dringend na 'n plant of saad van dié vorm van E. villosus wat geen dorinkies op die blaartjies het nie (Giddy, bladsy 35 (46), fig. 9).

-Maans Kemp (51 Constance Road, Broadwood, Port Elizabeth, 6065; tel. no. 041-323344(H), 533121(W)) is looking for a few seeds of each of E. eugene-maraisii, E. inopinus, E. laevifolius, E. cupidus and E. heenanii. He has small numbers of seeds of E. longifolius, E. horridus and lehmannii.

- Mr Barnard (19 Brink Street, Rustenburg, 0300) wants to sell his cycad collection, consisting of 111 plants (many of them large) of 21 different species. The price is R20 000.

NEW COMMITTEE

The Executive Committee of the Cycad Society of Southern Africa for 1986 has now been finalised, and concists of the following:

PRESIDENT (Elected directly by members);	Roy Osborne
ADDITIONAL MEMBERS (Elected directly by members):	Marion Debruyne (Membership Officer)
	Piet Vorster
REGIONAL REPRESENTATIVES (Appointed by regions):	Eastern Cape - Frank Marx
	Natal - Danie Nel (Seedbank Officer)
CO-OPTED MEMBERS (Co-opted by Committee):	Cynthia Giddy (Pollen Exchange Officer)
	Maans Kemp (Editor, ENCEPHALARTOS)

NUWE KOMITEE

Die Uitvoerende Komitee van die Broodboomvereniging van Suidelike Afrika vir 1986 en 1987 is nou gefinaliseer, en sien as volg daar uit:

PRESIDENT (Direk deur lede verkies):	Roy Osborne
ADDISIONELE LEDE (Direk deur lede verkies):	Marion Debruyne (Lidmaatskap-beampte)
	Piet Vorster
STREEKSVERTEENWOORDIGERS (Deur streke aangewys):	Natal-Danie Nel (Saadbankbeampte)
	Oos-Kaap - Frank Marx
GEKOÖPTEERDE LEDE (Deur Komitee gekoöpteer):	Cynthia Giddy (Stuifmeelruil-beampte)
	Maans Kemp (Redakteur, ENCEPHALARTOS)

Z A M I A

by H.A. Peters

INTRODUCTION

Of the ten genera of the ancient cycad family, Cycadaceae, only Zamia is native to the United States. Three of its thirty to forty species occur there. They are almost entirely restricted to Florida. The other species are endemic to warm parts of the Americas and West Indies. From the stems of the Florida species, the Seminole Indians obtained sago starch, which, after washing to remove a poison, they used as food. The starch has been called Florida arrowroot. The name comes from 'zamiae", a mistaken spelling in some texts of Pliny for "azaniae" (pine cones) and alludes to the appearance of the repro= ductive parts.

DESCRIPTION

Zamias are mostly low, evergreen, palm= like shrubs with partly or entirely subterranean, thick stems or trunks. Their leathery, parallel-veined, toothed or toothless, pinnate leaves have an almost fernlike aspect. The unisexual reproductive bodies, not true flowers, are in separate cones, the female cones usually larger than the male cones. The fruits are berry-like drupes.

"Coontie" and "seminole bread" are col= loquial names applied to three species that are native to Florida (the first three below).

SOME SPECIES

Endemic to Florida, Z.floridana has a short portion of its stem above ground level. Its ovate to ovatelanceolate leaves have fourteen to twenty pairs of somewhat twisted, sickle-shaped leaf= lets, up to 15 cm long by 6 mm wide. They have rolled-under, few-toothed margins. The densely-downy female cones are 12 to 15 cm long.

Z.floridana, variety portoricensis, of Puerto Rico, differs from the species in being of a looser growth habit. From its usually subterranean stem sprout wiry-stalked leaves with rather distantly spaced, narrow-lanceolate, bright green leaflets. An intermediate hybrid between Z.floridana and this variety is sometimes cultivated.

Occuring natively in the West Indies as well as Florida, Z.integrifolia has a trunk up to 45 cm tall and leaves with angled stalks and six to eighteen pairs of toothless or (near their apexes) slightly toothed leaflets.

A native of Mexico as well as of the West Indies and Florida, Z.pumila has a stem below ground or exposed for not more than about 15 cm. From 60 to 120 cm long, its prickly-stalked leaves have two to thirteen pairs of linear, lanceo= late, or oblong-ovate leaflets, with rolled-under margins, toothed above their middles. Female cones, narrowly egg-shaped, are up to 12 cm in length. Often in clusters, male cones are somewhat shorter and cylindrical.

Mature Zamia floridana plants in containers (photograph: Maans Kemp)

West Indian Z.debilis has leaves up to 75 cm long, with non-prickly stalks and six to about twenty-four linear-lanceo= late to oblong-wedge-shaped leaflets, up to 20 cm long, notched at their blunt apexes and toothless or irregularly toothed. Female cones are up to 10 cm long and 5 cm wide. Male cones are up to about 8 cm long.

Also West Indian, Z.anqustifolia has an ovoid stem, and leaves with comparatively long, slender stalks and four to twenty pairs of narrow leaflets, 10 to 20 cm long. The reddish-hairy cones are up to 8 cm long.

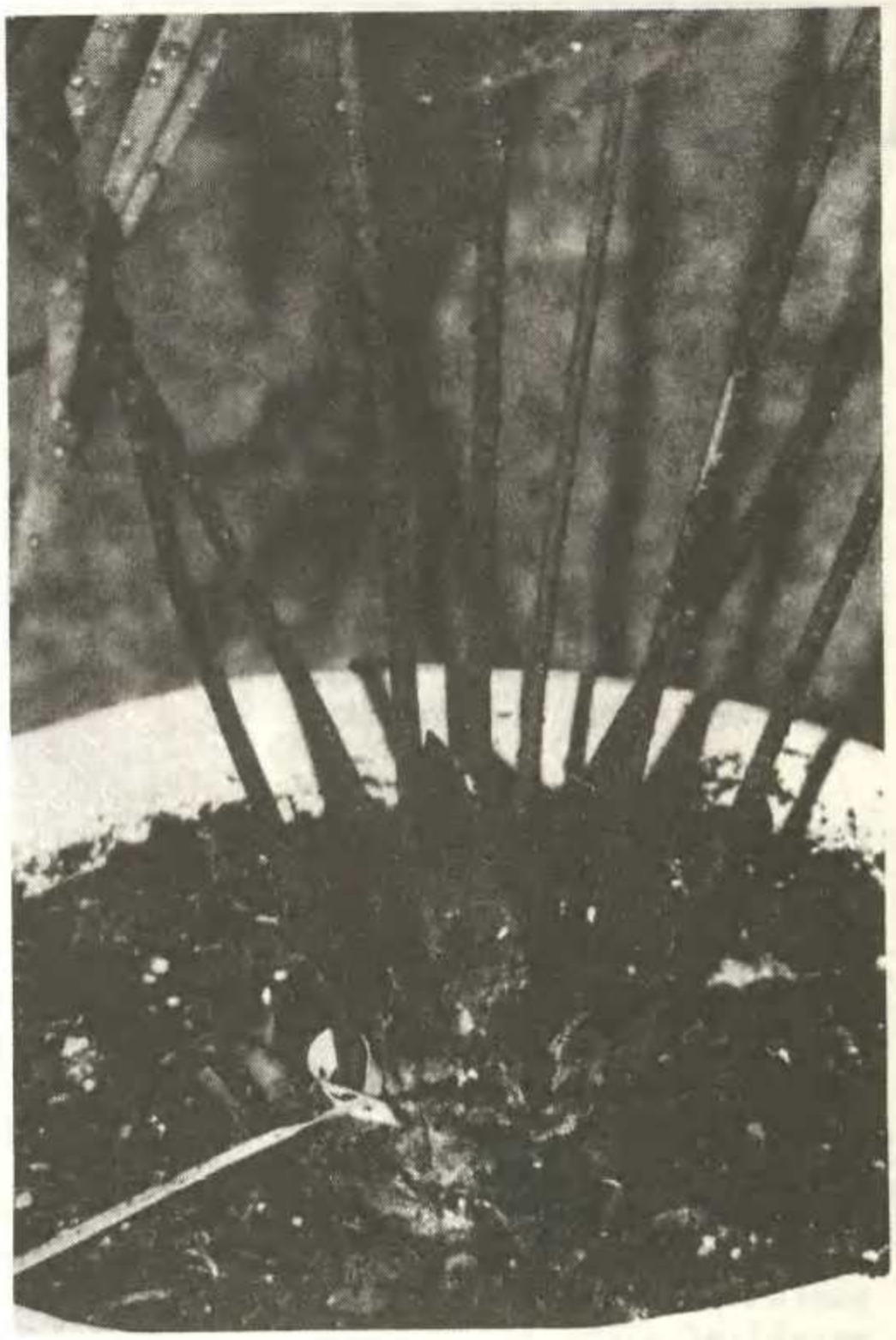
Native to Cuba, Z.ottonis has a short, thick, above-ground stem and leaves 30 to 45 cm long, with nine to fifteen pairs of obovate, 5 to 10 cm-long leaf= lets; brownish-hairy on their undersides and toothed at their apexes. The cones are brown-hairy.

Native to Mexico and Guatemala, Z.loddi= gesii has a trunk up to 20 cm tall, and leaves up to 90 cm long, with prickly stalks and three to twenty-seven pairs of linear-lanceolate leaflets up to 20 cm long and spiny-toothed along the margins of their upper halves. The female cones are about 5 cm long.

By some botanists accepted as a variety of the last, Z.latifolia, of Mexico, has a stem up to 20 cm tall and leaves with usually prickly stalks and lanceolate to obovate leaflets, 10 to 25 cm long, with teeth or spines on the margins above their middles.

Wild from Guatemala to Panama, Z.skinneri has a trunk up to 120 cm high and leaves with cylindrical stalks and two to eleven pairs of oblong-lanceolate to broad-ovate leaflets, 20 to 30 cm long. In clusters of up to four, the male cones are cylin= drical.

Mexican Z.fischeri, an elegant species with a thick trunk, has leaves of some= what fernlike aspect, up to 45 cm long and with narrowly-lanceolate leaflets, toothed above their middles. The cylin= drical cones are 2,5 to 7 cm long.



Zamia floridana plant with female cone. (Photograph: Maans Kemp)

GARDEN AND LANDSCAPE USES AND CULTIVA= TION

In Florida and places with approximately similar climates, Zamias do well in ordinary soils outdoors. They prefer just a little shade, but will grow where it is sunny, if the soil does not become excessively dry. They may be used at the fronts of shrub beds, for edging paths, among rocks, as groundcovers, and as underplantings beneath palms and other trees. They do well in pots and other containers, outdoors in warm climates, and in greenhouses. They are propagated by seed.

(Reprinted from the November/December 1984 edition of the newsletter of The Palm and Cycad Society of New Zealand, with their kind permission.)

BITS AND PIECES STUKKIES EN BROKKIES

POLLEN EXCHANGE

Members are reminded of our Pollen Exch=ange, under the management of Cynthia Giddy. Members who possess or have ac=cess to cycad plants of cone-bearing age, are requested to complete the form en=closed with this issue, and to send it to Cynthia. Members who need pollen or female cones to pollinate, can contact Cynthia for information on possible con=tacts in their area. Please support this service by the Society.

STUIFMEELRUIL

Lede word herinner aan ons Stuifmeelruil, onder bestuur van Cynthia Giddy. Lede wat in besit is van of toegang het tot broodbome van keël-ouderdom, word versoek om die vorm wat by hierdie uitgawe inge=sluit is, te voltooi en aan Cynthia te stuur. Lede wat stuifmeel soek, of keëls om te bestuif, kan met Cynthia in verbin=ding tree vir inligting oor moontlike kontakte in hulle gebied. Ondersteun asseblief hierdie diens deur die Vereni=ging.

OVERSEAS SEED ORDER

In ENCEPHALARTOS no. 4 (December 1985) persons interested in a joint order of Australian cycad seeds, were asked to contact Leon Meiring in Port Elizabeth (PO Box 2847, North End, 6056). Leon reports that the response so far has not been sufficient to warrant such an exer=cise. Unless more persons join in, the idea of the joint order will be dropped.

UITSLAG VAN VERKIESING

Stembriefies is by ENCEPHALARTOS no. 4 ingesluit waarop lede kon stem om twee lede tot die Uitvoerende Komitee van die Vereniging te verkies. Die kandidate was Cherryl Burger, Marion Debruyne en Piet Vorster. Marion Debruyne en Piet Vorster was die suksesvolle kandidate. Baie geluk, Marion en Piet, en baie dankie aan Cherryl vir haar deelname. Baie dankie ook aan die lede wat hulle stembriefies ingestuur het. Volledige besonderhede oor die nuwe Komitee vers=kyn elders in hierdie uitgawe.

ELECTION RESULT

Ballot papers were enclosed with ENCEPHA=LARTOS no. 4 on which members could vote to elect two members to the Executive Committee of the Society. The candidates were Cherryl Burger, Marion Debruyne and Piet Vorster. Marion Debruyne and Piet Vorster were the successful candidates. Congratulations, Marion and Piet and thanks very much to Cherryl for her par=ticipation. Thank you also to those mem=bers who sent in their ballot papers. Full particulars of the new Committee appear elsewhere in this edition.

HERNUWING VAN LIDMAATSKAP

Lede wat nog nie hulle ledegeld vir 1986 betaal het nie, word versoek om dit so gou as moontlik te doen. Voltooi asse=blief die groen vorm wat in ENCEPHALARTOS no. 4 (Desember 1985) verskyn het en stuur dit, saam met u ledegeld, na ons Lidmaatskapbeampte, Marion Debruyne. Haar adres verskyn op die vorm. Ledegeld vir gewone lede beloop R12,00 per jaar, vir pensioenarisse en studente R6,00 en vir oorsese lede R25,00.

Volgens die Vereniging se grondwet verval die lidmaatskap van 'n lid wat nie teen 31 Maart sy/haar ledegeld betaal het nie.

MEMBERSHIP RENEWAL

Members who have not yet paid their mem=bership subscription for 1986, are re=quested to do so as soon as possible. Please complete the green form which ap=peared in ENCEPHALARTOS no. 4 (December 1985) and send it, together with your subscription, to our Membership Officer, Marion Debruyne. Her address appears on the form. Subscription for ordinary members amounts to R12,00 per year, for pensioners and students R6,00 and for overseas members R25,00.

According to the Society's constitution, the membership of a member who has not paid his/her subscription by 31 March, is terminated.

VORIGE UITGAWES VAN ENCEPHALARTOS

Lede wat sedert die begin van hierdie jaar by die Vereniging aangesluit het, of enigiemand anders wat belangstel, kan kopieë van die eerste vier uitgawes van ENCEPHALARTOS, wat in 1985 verskyn het, koop teen R10,00 per stel of R2,50 per individuele kopié. Op hierdie manier kan u sorg dat u 'n volledige stel van ons tydskrifte besit. Stuur asseblief u naam en adres, tesame met 'n tjek of pos=order, uitgemaak aan "Die Broodboomver=eniging van Suidelike Afrika", aan die redakteur (sien adres op bladsy een).

BACK COPIES OF ENCEPHALARTOS

Members who joined the Society since the beginning of this year, or anyone else interested, can buy copies of the first four editions of ENCEPHALARTOS, which appeared in 1985, at R10,00 per set or R2,50 per individual copy. In this way you can ensure that you possess a com=plete set of our journals. Please send your name and address, together with a cheque or postal order, made out to "The Cycad Society of Southern Africa", to the editor (see address on page one).

PUBLICATIONS OF THE BOTANIC RESEARCH INSTITUTE, PRETORIA

The Botanical Research Institute publi=shes five major works: Flora of Southern Africa, Palaeoflora of Southern Africa, Bothalia, The Flowering Plants of Africa and Memoirs of the Botanical Survey of South Africa.

Full details of these publications and the current price lists are available from the Division of Agricultural Infor=mation, Department of Agriculture, Private Bag X144, Pretoria 0001.

The publication of most interest to our members is undoubtedly Dr Dyer's 'The Cycads of Southern Africa', which ap=pears in Bothalia, Volume 8, Number 4 of 1965. Although stocks are limited, the Director of the B.R.I. has told us (in February 1986) that this is still availa=ble. The price is R3,20 (GST excluded).

ENCEPHALARTOS will keep members advised of new and interesting publications from the Institute.

NEW CYCAD BOOK

Exciting news for cycad lovers is that a new book, "CYCADS OF AFRICA AND MADAGAS=CAR", by Douglas Goode, is currently in its final stages of preparation and should be released towards the end of the year.

The book will comprise about 290 pages which will include some 136 plates, nearly all of which are in full colour. Each species has a descriptive text, ac=companied by a locality map and plate which gives leaf and cone scale details in actual size drawings.

The publication represents the accumulated efforts by the author over fifteen years, working during nights, weekends and holi=days, including countless field trips. The author has had to wait several years to obtain cone scale samples from some of the rarer species.

"CYCADS OF AFRICA AND MADAGASCAR" will be published by C. Struik of Cape Town and an order form for both the limited and the ordinary editions will probably be sent out with a future issue of ENCEPHALARTOS.

CYCADS OF AUSTRALIA

Len Butt of 25 Ortive Street, Yeronga, Queensland 4104, Australia, has written to say that copies of his feature 'CYCADS OF AUSTRALIA' which appears in 'AUSTRALIAN PLANTS' Vol. 13, No. 101 of December 1984, are in short supply and may not be avai=lable from the address given in our re=view of this work (see ENCEPHALARTOS no. 4, Page 9). Len does however have 20 copies for distribution and is prepared to offer them to our members at Austra=lian dollars 3,50 or US dollars 2,20, including postage costs.

HAVE YOU RENEWED YOUR MEMBERSHIP?

HET U U LIDMAATSKAP HERNU?

LIVING FOSSILS IN CULTIVATION

by Ken Wyman

Often referred to as "Living Fossils", the Cycads have earned this title because they belong to an order of plants which flourished during the Jurassic period, some 140 to 200 million years ago. At this stage the Earth enjoyed a very tropical climate throughout and the Cycads were spread world-wide.

Cycads are descendent from primitive types of fern. Their seeds are borne in cones - male and female cones being borne on separate plants. These cones are often brightly coloured and become a most attractive feature of the plants during the several months which they take to mature. When this development has taken place, the cones will begin to disintegrate.

If the seeds are fertile they will ger= minate without difficulty, although germination may take several months. To determine whether the seeds are fertile, the fleshy covering should be removed. If this covering is still hard the seeds should be soaked in water two or three days previously. Once the fleshy cove= ring is removed, the seeds should be dropped into a deep receptacle containing water. The fertile seeds will sink and the infertile ones will float on the surface and should be discarded. The seeds can then be sown in fairly deep containers in loose, sandy soil, and placed in semi-shade. Care should be taken not to over-water.

It has been found that Cycads generally do not require special methods of cul= tivation. When planting, it is suffi= cient to incorporate a quantity of well-rotted leaf mould in the hole prepared for the plant. Thereafter it is most important not to over-water the plant, particularly if the soil tends to be heavy and not well-drained. Large, mature Cycads should never be transplan= ted if this can be avoided, as the plants suffer a tremendous setback, and may even die if the job is not carefully done. If, however, it becomes necessary to transplant such a Cycad, the operation should be carried out in the winter when growth slows down. The later this can be done in the winter the better, as new growth will commence immediately in the spring.

The plant to be removed should be well-watered a week previously. In this way a minimum of root damage will occur and the plant will re-establish far more quickly. Any damaged portions of root should be removed and the cut ends sealed with flowers of sulphur. Approx= imately half the leaves should be re= moved. Leaving a fair amount of foliage will assist in the rooting process and will also be more aesthetic than a plant entirely devoid of leaves. In replanting the Cycad, care should be taken not to damage the rather soft fleshy roots, and also to replant it to the same depth - no deeper than previously. After trans= planting, do not over-water as the roots will suffer and the re-establishment of the plant will be slower. In the dry areas the stem and leaves may be misted frequently to prevent dehydration.

During the past ten to fifteen years, Cycads have gained great popularity and it has become the vogue to assemble as near to a complete collection of the in= digenous species as possible. The com= mercial value of these plants has also escalated, particularly overseas, where cycads are marketed for unbelievable sums. Both these factors add to abso= lutely ruthless plundering of plants from their natural habitat, to the extent that some species have become almost extinct in the wild. For this reason Cycads are now protected in all provinces and heavy penalties and strict protec= tive laws are laid down by the Nature Conservation Ordinances of each Province. In Natal it is necessary to obtain a

permit from the Natal Parks Board before selling Cycads and consequently one must ensure that an invoice is received with any plant purchased. Furthermore, it is necessary to obtain an export permit before removing a Cycad from Natal and an import permit if a plant is to be brought into the province. If in any doubt as to the legal requirements in this regard, one should contact the Parks Board for further information.

Having ascertained the legal requirements, it is advisable to ensure that one ob= tains only those plants which are suited to local climatic conditions.

(To be continued - EDITOR)

(Ken Wyman is Curator of the Durban Botanic Gardens.)

FROM THE BOOKSHELF

"BOTANCIAL EXPLORATION OF SOUTHERN AFRICA"

by Mary Gunn and L.E. Codd, published by A.A. Balkema, Cape Town, 1981

This fascinating book serves as an intro= ductory volume to the FLORA OF SOUTHERN AFRICA and represents the information gathered in a lifetime's study by Mary Gunn, former Librarian of the Botanical Research Institute, and Dr Leslie Codd, former Director of the Institute, both major contributors themselves to botani= cal advances in this country.

Part 1 tells the story of botanical ex= ploration from the days of the East India Company to modern times and includes nu= merous reproductions of early botanical drawings and maps. Part 2 is a compre= hensive list of the surprisingly large number (about 3300 entries) of travellers, soldiers, missionaries, V.O.C. officials and master gardeners, naturalists and professional plant collectors who have contributed to the exploration of our flora. The biographical notes, illustra= tions and anecdotes about these often colourful and adventurous characters makes for entertaining browsing and pro= vides an invaluable reference source. This text will also be an important part of any Africana library.

Amongst the entries are many names that will be recognised by the cycad enthu= siast. The 18th century collectors and botanists such as L.M.A. du Petit Thouars (of Cycas thouarsii) and Francis Masson and Carl Thunberg (see ENCEPHALARTOS no. 1 - Maans Kemp tells of their dis= covery of Encephalartos longifolius), were amongst the earliest explorers of flora in the Southern Hemisphere. The next century saw exploration at an ac= celerated pace, with familiar names like B.C. Seeman, William Stanger, John Medley Wood, Joseph Burtt Davy and Sir Joseph Hooker appearing. Contemporary contri= butors to botanical research who appear in the list include Drs R.A. Dyer and Inez Verdoorn (Honorary Members of the Society), Drs Piet Vorster, Amy Jacot Guillarmod, Esmé Hennesy, Prof. Nat Grobbelaar, David Hardy (active members of the Society) and personalities like John Lavranos, Cyntha Letty and Barbara Jeppe.

In his foreword to the text, Dr Bernard De Winter of the B.R.I. makes the apt comment .... "To both authors South African botany owes a debt of gratitude which will grow in significance as the years go by."

Although it is not specifically a 'cycad' book, there will be many members who will find interest and enjoyment in this excellent work. The current retail price is approximately R40.

ROY OSBORNE

FINANSIËLE VERSLAG

AAN DIE LEDE VAN DIE BROODBOOMVERENIGING

In my hoedanigheid as ouditeursklerk het ek die rekeningkundige rekords van die Broodboomvereniging van Suidelike Afrika vir die jaar geëindig 31 Desember 1985 ondersoek.

Die rekords is op 'n akkurate en sinvolle wyse bygehou, wat my taak by die opstel van die finansiële state aansienlik vergemaklik het. Ek het my op die integriteit van die bestuur verlaat, maar ek vertrou dat die aanbevelings in my verslag aan die Komitee 'n interne kontrole daar sal stel.

Die finansiële posisie van die Vereniging vir die jaar, word op 'n redelike en betroubare wyse deur die finansiële state weerspieël.

FINANCIAL REPORT

TO THE MEMBERS OF THE CYCAD SOCIETY

In my capacity as auditor clerk, I examined the accounting records of the Cycad Society of Southern Africa for the year ending 31 December 1985.

The records were maintained in an accurate and comprehensive manner, which eased my task in many ways during the drawing up of the financial statements. I relied on the integrity of the management, but I trust that the recommendations in my report to the Committee will help to establish an internal control.

The financial position of the Society for the year is reflected by the financial statements in a fair and trustworthy manner.

W.D. Nel
1986-01-11

INKOMSTE- EN UITGAWEREKENING VAN DIE BROODBOOMVERENIGING VAN SUIDELIKE AFRIKA VIR DIE JAAR GEËINDIG 31 DESEMBER 1985/INCOME AND EXPENDITURE ACCOUNT OF THE CYCAD SOCIETY OF SOUTHERN AFRICA FOR THE YEAR ENDED 31 DECEMBER 1985

	1985	1984
INKOMSTE/INCOME	4 266,58	382,50
Ledegeld/Subscriptions	3 781,57	372,50
Advertensies/Advertisements	265,00	
Donasies/Donations	204,00	10,00
Kommissie Ontvang/Commission Received	8,00	
Rente Ontvang/Interest Received	8,01	
UITGAWE/EXPENDITURE	(3 043,70)	(625,82)
Tikwerk/Typing	32,03	
Saadbank/Seed Bank	65,47	
Reisonkostes/Travelling Expenses	61,60	
Posgeld/Postage	455,80	144,40
Skryfbehoeftes/Stationery	205,97	70,64
Drukwerk/Printing	195,73	210,78
Nuusbrief/Newsletter	1 848,76	200,00
Oos-Kaap-Streek/Eastern Cape Region	92,89	
Natal-Streek/Natal Region	35,45	
Honoratium:Ouditeursklerk/Honorarium:Auditor Clerk	50,00	
OORSKOT/(TEKORT)/ SURPLUS/(DEFICIT)	1 222,88	(243,32)

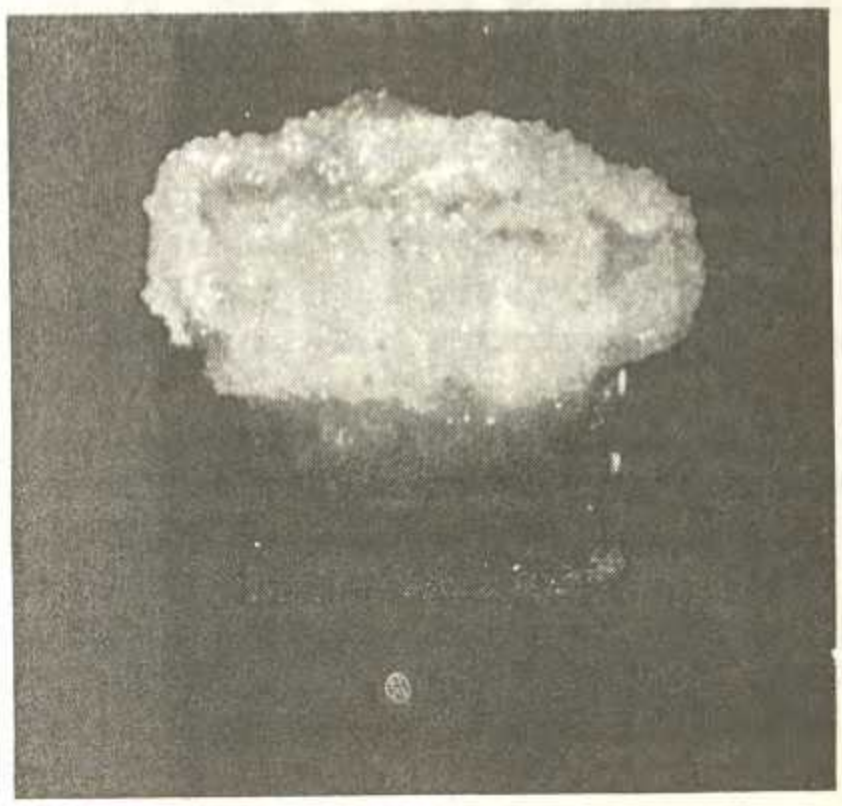
DIE BROODBOOMVERENIGING VAN SUIDELIKE AFRIKA/THE CYCAD SOCIETY OF SOUTHERN AFRICA

BALANSSTAAT SOOS OP 31 DESEMBER 1985/BALANCE SHEET AS ON 31 DECEMBER 1985

	1985	1984
KAPITAAL AANGEWEND/CAPITAL EMPLOYED		
Kapitaalfondsrekening/Capital Fund Account	979,56	(243,32)
Hierdie jaar/Current year	1 222,88	
Soos voorheen/As before	(243,32)	(243,32)
	979,56	(243,32)
AANWENDING VAN KAPITAAL/EMPLOYMENT OF CAPITAL		
Bedryfsbates/Current Assets	1 229,56	246,68
PERM (spaar)/PERM (savings)	1 229,56	246,68
Bedryfslaste/Current liabilities	(250,00)	(490,00)
Ledegeld vooruitbetaal/Prepaid subscriptions	200,00	490,00
Opgelope Honorarium/Accrued Honorarium	50,00	
	979,56	(243,32)

TISSUE CULTURE

Following on the work done a few years ago by Arthur Koeleman with Prof. Small, a new research project into the tissue culture of South African species of Encephalartos has been commenced and early indications are promising. Roy Osborne is now engaged full-time on this research and he reports that callus tis= sue can rapidly be obtained from small cubes of root tissue from E. natalensis (see photograph). The next, and some= what more difficult, stage will involve subculturing this callus into more flasks with hormonal control programmes which will direct shoot and root formation. When the technique is finalised, an attempt will be made to propagate E.woo= dii and similarly rare species in this manner.



Cube of root tissue with callus growth. (Photograph: Roy Osborne)

FROM THE PRESIDENT

The year 1986, and this issue of ENCEPHALARTOS, see the first 'official' year for the Cycad Society. The previous steering committee has now given way to your first elected and properly constituted committee (see details elsewhere). I am honoured to be your President for this first term of office. Our numbers now stand at just on the 400 mark and the usual welcome is extended to all new members. Please participate fully in all aspects of the Society.

Perhaps the most significant development in the past few months has been the establishment of the Society's official seedbank (see details elsewhere) under the capable and enthusiastic management of Danie Nel. Please support this important part of the Society's activities with donations of and requests for seed.

Also significant, but less welcome, is the news that the current spate of cycad thefts continued unabated (see reports elsewhere). This concerns us all, as cycad collectors as a group get a bad name through the reprehensible acts of a few. It is stressed once again, for obvious reasons, that members should obtain cycad plants only by purchase from authorised nurserymen or as bona fide donations. Records of any such transaction must be kept in your possession.

To the many members who have paid their 1986 'subs' already: thank you for your co-operation. Those who have not yet renewed their membership must please do so promptly (see reminder notice elsewhere).

Finally, to the many people who have sent in notes saying how much they appreciate the Society and in particular ENCEPHALARTOS: thank you for your support and encouragement. Many members have given donations over and above their membership fees for 1986; thank you for your kindness. Donations from the following members are acknowledged with thanks:

VAN DIE PRESIDENT

Die jaar 1986, en hierdie uitgawe van ENCEPHALARTOS, lui die eerste 'amptelike' jaar vir die Broodboomvereniging in. Die vorige loodskomitee het nou plek gemaak vir u eerste verkose en behoorlik-gekonstitueerde komitee (sien besonderhede elders). Dit is vir my 'n eer om u President te wees vir hierdie eerste ampstermyn. Ons ledetal staan nou ongeveer op die 400-merk en die gewone verwelkoming word gerig aan alle nuwe lede. Neem asseblief deel aan alle aspekte van die Vereniging.

Moontlik die mees betekenisvolle ontwikkeling gedurende die laaste paar maande was die vestiging van die Vereniging se amptelike saadbank (sien besonderhede elders) onder die bevoegde en entoesiastiese bestuur van Danie Nel. Ondersteun asseblief hierdie belangrike deel van die Vereniging se werksaamhede d.m.v. skenkings van en versoeke om saad.

Ook betekenisvol, maar minder welkom, is die nuus dat die huidige reeks broodboomdiefstalle onverpoos voortgegaan het (sien verslae elders). Dit raak ons almal, aangesien broodboomversamelaars as 'n groep 'n slegte naam kry as gevolg van die laakbare optrede van 'n paar persone. Dit word weer eens beklemtoon, om klaarblyklike redes, dat lede broodboomplante slegs behoort te verkry deur dit by geregistreerde kwekers te koop of as bona fide-skenkings te ontvang. Rekord van enige sodanige transaksies moet in u besit gehou word.

Aan die baie lede wat alreeds hulle 1986-ledegeld betaal het: dankie vir u samewerking. Diegene wat nog nie hulle lidmaatskap hernu het nie, moet dit asseblief onverwyld doen (sien herinneringskennisgewing elders).

Laastens, aan die baie persone wat geskryf het om te sê hoeveel hulle die Vereniging en in die besonder ENCEPHALARTOS waardeer: baie dankie vir u ondersteuning en aanmoediging. Baie lede het donasies bo en behalwe hulle ledegeld vir 1986 gestuur; dankie vir u gaafheid.

Mr C.C. Venter, Mrs D. Venter, Mrs R. Bell, Roy Clemence, Dr O. Minnie, Pieter Stroe=bel, Tony Titchen, Trevor Crawford, George Walters, Bunny Wentzel, Mr J. Swanepoel, Mrs G. van Wyk, Mr A.H.Jonker, Mr and Mrs S. Sacks, Mrs K. du Plessis, Mr M. Geldenhuys, Dr and Mrs E.U. van der Merwe, Mr L.C. van Vuuren, Mr E.W. Bronk=horst, Mr S. Holzbauer, Mr K. Bischof=berger, Leon and Cheryl Burger and Douglas Goode (commission on prints sold).

ROY OSBORNE
PRESIDENT

Donasies van die volgende lede word met dank erken: mnr. C.C. Venter, mev. D. Venter, mev. R. Bell, Roy Clemence, dr. O. Minnie, Pieter Stroebel, Tony Titchen, Trevor Crawford, George Walters, Bunny Wentzel, mnr. J. Swanepoel, mev. G. van Wyk, mnr. A.H. Jonker, mnr. en mev. S. Sacks, mev. K. du Plessis, mnr. M. Geldenhuys, dr. en mev. E.U. van der Merwe, mnr. L.C. van Vuuren, mnr. E.W. Bronkhorst, mnr. S. Holzbauer, mnr. K. Bischofberger, Leon en Cheryl Burger en Douglas Goode (kommissie op afdrukke verkoop).

ROY OSBORNE
PRESIDENT

MEET YOUR NEW COMMITTEE

Roy Osborne

-Born in Hornchurch, United Kingdom
-Family moved to South Africa when he was aged four
-Settled at Port Elizabeth
-Matriculated Grey High School, Port Elizabeth
-Obtained B.Sc.(Honours) in Botany at Rhodes University, Grahamstown
-Worked in Zimbabwe
-Moved to Durban to start chemical con=sultancy firm
-Spent six months in New York
-Appointed to present post of lecturer in Chemistry at University of Natal, Durban
-Awarded M.Sc. degree for discovery of jessic acid, a chemical compound found in leaves of Combretum trees
-Married Angela Williams of Bulawayo. They have four children
-Cycad interests: enjoys growing cycads from seed
-Other interests: flying (he has a private pilot licence), gardening and horticul=ture
-Initiated the Society in 1984 and became chairman of the steering committee
-Address: 20 Maryvale Road, Westville, 3630; tel. no. 031-866953

Marion Debruyne

-Born in Gillingham, Kent, United Kingdom
-Moved to Rhodesia in 1952
-Moved to South Africa in 1972 and settled at Phalaborwa in 1976
-Married to Paul Debruyne. Has two children from a previous marriage
-Cycad interests: collecting, enjoys cultivating foreign species from seed (concentrating on Australian species at present)
-Other interests: pottery, gardening, reading (mainly gardening and plant studies)
-Address: 18 Jakkalsbessie Crescent, Phalaborwa, 1390; tel. no. 015224-2357

Piet Vorster

-Born in Pretoria
-Matriculated at Afrikaans Boys' High School, Pretoria
-Obtained M.Sc. degree in Agriculture and D.Sc degree in Botany at University of Pretoria
-Worked at Botanical Research Institute in Pretoria from 1969
-Appointed Research Officer in Department of Botany, Stellenbosch University in 1979
-Currently doing research on Pelargonium
-Married Elsa Brits. They have one son
-Cycad interests: interested in cycads for past 20 years; has collection of approximantely 120 species from all over the world, many cultivated from seed by himself; interested in taxonomy and hibridisation of cycads
-Other interests: Palms
-Address: Department of Botany, University, Stellenbosch, 7600; tel. no. 02231-78909

Frank Marx

-Born in Port Elizabeth
-Matriculated at Lawson Brown High School, Port Elizabeth
-Worked for BSB (Farmers' Co-operative)
-Joined SA Railways in 1944
-Obtained B.Admin degree through UNISA
-Spent 1968 to 1970 at Transport Services head office in Johannesburg
-Returned to Port Elizabeth and is cur= rently Superintendent (Personnel) in Cape Midlands regional office
-Married Elsa Scheepers. They have one son
-Cycad interests: collecting (especially Eastern Cape species)
-Other interests: stamp collecting, antiques, gardening
-Address: 9 Broadway Avenue, Fernglen, Port Elizabeth, 6045; tel. no. 041-311760

Danie Nel

-Born at Cradock
-Completed school career there
-Joined SA Railways Police
-Accepted post in Durban after completing his training
-He is married and has three children
-Other interests: collects coins, bank notes and first day covers
-Address: 120 Bowker Road, Escombe, 4093; tel. no. 031-442505

Cynthia Giddy

-Born at Cradock
-Matriculated at Jan van Riebeeck High School, Cape Town
-Obtained B.A. Honours degree in Psychology at Rhodes University, Grahamstown
-Started aloe and later cycad nursery at Umlaas Road in 1969. This is the largest cycad export nursery in South Africa, exporting seedlings to private collectors, nurseries and botanical gardens in 17 countries
-Published a book, "Cycads of South Africa", in 1974. Revised edition appeared in 1985
-Has visited USA three times and has lectured on cycads, in the USA and at Kew, England
-Married Ted Giddy. They have four daughters
-Cycad interests: cultivating from seed
-Other interests: photography, genealogy, building of miniature dolls' houses
-Address: PO Box 45, Umlaas Road, 3730; tel. no. 03325-478

Maans Kemp

-Born at Humansdorp
-Martriculated Nico Malan High School, Humansdorp
-Obtained B.Sc degree and teachers diploma at Stellenbosch University
-Taught at Jansenville High School and Muir College, Uitenhage from 1970 to 1980
-Obtained B.Sc Honours degree through UNISA
-Appointed Public Relations Officer for Port Elizabeth Technikon in 1980 and Organiser, Student Activities in 1984
-Obtained Public Relations Diploma at PE Technikon
-Married Petro Sauerman. They have two children
-Cycad interests: collecting on small scale, cultivating from seeds, reading and writing about them, seeing and photographing them in nature
-Other interests: in the process of publishing a family history of his side of the Kemp family, stamp collecting, woodwork, reading
-Address: 51 Constance Road, Broadwood, Port Elizabeth, 6065; tel. no. 041-323344

A WORLD LIST OF CYCADS

- SUPPLEMENT -

by Roy Osborne and John Hendricks

In the brief period since the publication of "A World List of Cycads" in ENCEPHALARTOS no. 3, we have received information of new taxonomic developments which merit notation and discussion. We also take the opportunity to make additions and corrections to the original list.

CYCAS

Additions : C.guizhouensis K. Lan & R.F. Zou — China

C. szechuanensis C.Y. Chen & L.K. Fu — China

Corrections: C.baguanheensis L.K.Fu & S.Z. Cheng — China

C.hainanensis C.J.Chen & C.Y. Chen — Hainan Island, China

C.panzhihuaensis L.Zhou & S.Y. Yang — China

CERATOZAMIA

Deletion : C.miqueliana H. Wendland

Correction : C.mexicana var. miqueliana H. Wendland (Schuster) — Mexico

ZAMIA

Addition : Z.sylvatica Chamberlain — Mexico

An important step in the taxonomy of New World cycads is the pending publication in Taxon of two papers by Dennis Stevenson and Sergio Sabato. These papers include a listing of all validly-published names within the Zamia and Ceratozamia genera, which will supercede our listing of these taxa in ENCEPHALARTOS no. 3. Whereas we used currently-valid names, they have systematically corrected technical taxonomic errors, arising mainly in Schuster's work, and have re-instated several names, thus effectively broadening our list. Neither they nor we analysed the names for botanical soundness of the taxonomic assignments. The Stevenson/Sabato list contains several obvious synonyms and a number of instances where the same taxon is assigned to different levels. Whilst on the short term basis this leads to further confusion, its purpose is to provide a sound platform for future classification and the list should be accepted on this basis.

In another paper, the same authors, with Mario Vasquez-Torres, analyse relationships within Ceratozamia specifically. In contrast to the greater number of species (18) in the validly-published-names list, they recognize only 10 species. In their treatment, three taxa presently listed as varieties of C.mexicana are upgraded to species rank (C.latifolia, C.miqueliana and C.robusta), several varieties and forms are eliminated, and C.microstrobila is reduced to synonomy with C.latifolia. This appears to be a much more satisfactory treatment for this genus, and also augurs well for future work on Zamia.

These systematic studies are very encouraging and give promise of elevating the quality of taxonomy of the New World species to that of Encephalartos and Macrozamia. It is our intention to review and update the valid species list periodically in future.

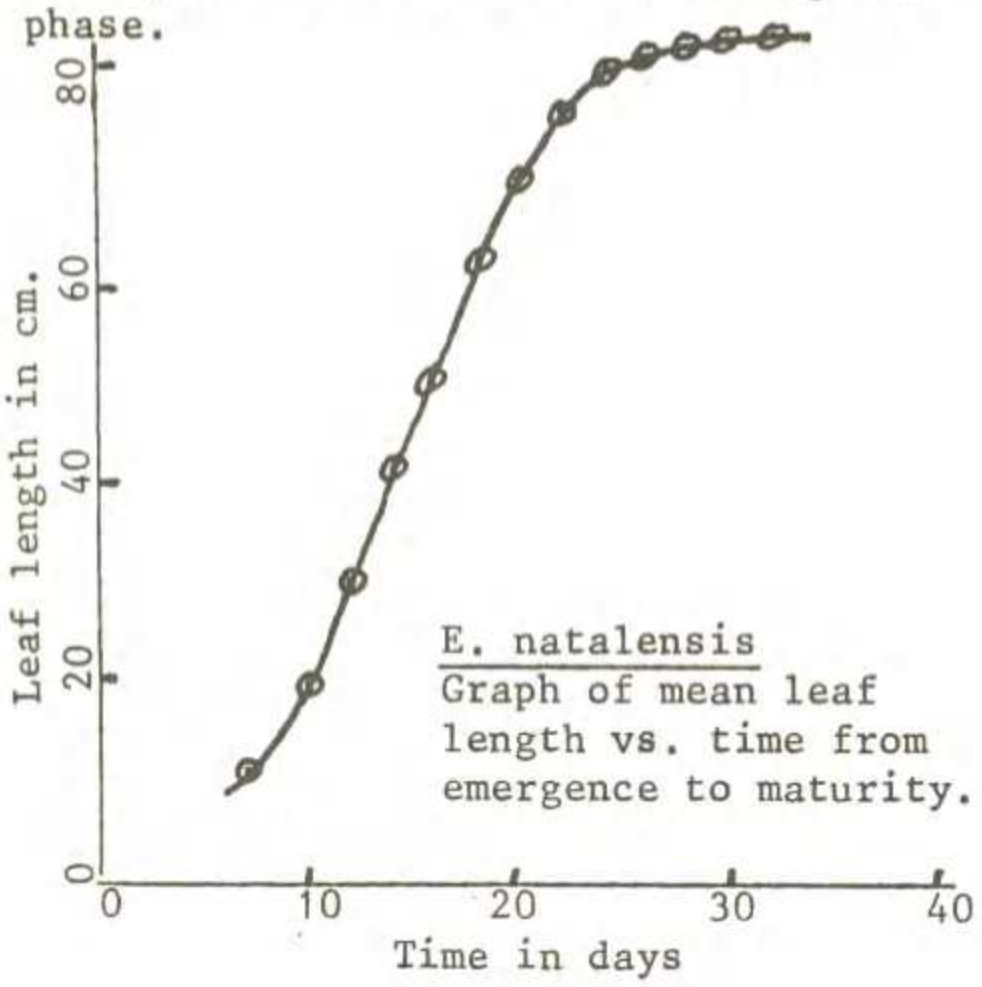
GROW MAN, GROW...

by ROY OSBORNE

How strange it is that most people (including a great many cycad enthu=siasts) confess to the slow growth rate of cycads - tortoises of the plant world? Yet Loran Whitelock, writing in the Cactus and Succulent Journal (Vol XLVII) in 1975 on the subject of cycad growth rates says: 'when new leaves emerge, they grow VERY RAPIDLY, usually reaching maturity in 5 to 8 weeks... Cycads are not as slow growing as we have been led to believe.'

In an attempt to quantify one aspect of cycad growth, I studied the performance of a recently-transplanted sucker of Encephalartos natalensis, about 10cm in diameter, through its first crop of leaves. The experiment was simple - when the crown of leaves emerged, I numbered them (1 to 6) from the outside inwards, and then measured the length of each leaf every 48 hours.

When the average leaf length is plotted against time on a graph, the typical growth curve is obtained; a slow period of growth initiation, followed by a phase of very active growth which even=tually falls off to a slow ending-off phase.



E. natalensis
Graph of mean leaf length vs. time from emergence to maturity.

Two things are evident from the graph:

(a) the whole development of the leaf crown, from emergence to maturity, took about 5 weeks.
(b) the fastest growth rate occurred in the middle of this period and reached a maximum of 11,8 cm/48 hours, equivalent to 0,04 mm/ minute.

How does this 0.04 mm/minute compare to other plants? Strasburger's Textbook of Botany, one of the best-known botanical texts, has this to say on the subject:

> "The filaments of the anthers of many grasses elongate at a rate of about 0,5 to 1,0 mm/minute. Bamboo shoots can grow at about 0,3 mm/minute and vigorous shoots of cucumber at about 0,1 mm/minute. Most plants remain well below this level."

At about half the rate of a vigorous cucumber, I don't think my E. natalensis has done at all badly! Bear in mind it is a young one too. I would expect an older plant of a species like E. trans=venosus or one of the East African giants to be very much faster. Perhaps one of our members will carry out the exercise for us?

My good friend Prof. Alko Meijer of the Department of Mathematics at the Univer=sity of Natal was kind enough to examine my data from his professional point of view. He confirms that the growth of individual leaves and the average leaf length fits a sigmoid curve. For those 'into' maths, the formula is:

$$n(t) = \frac{n_o \, e^{r_o t}}{1 + \frac{n_o}{k}(e^{r_o t} - 1)}$$

where n(t) is the calculated length at time t in days,

n_o is the initial leaf length,

r_o is the growth index,

k is the leaf length at maturity.

Another useful simple experiment would be to examine which zones along the leafstalk expand most. Apparently a trait of most ferns is to grow by continuous division at the leaf tip, a process the botanists call acroplastic growth. This style of growth is thought to have occurred in the earlier (now extinct) types of cycads. By contrast, most modern plant leaves grow by being pushed out from the bottom (basiplastic growth). It might be very useful to compare Cycas and Encephalartos in this regard.

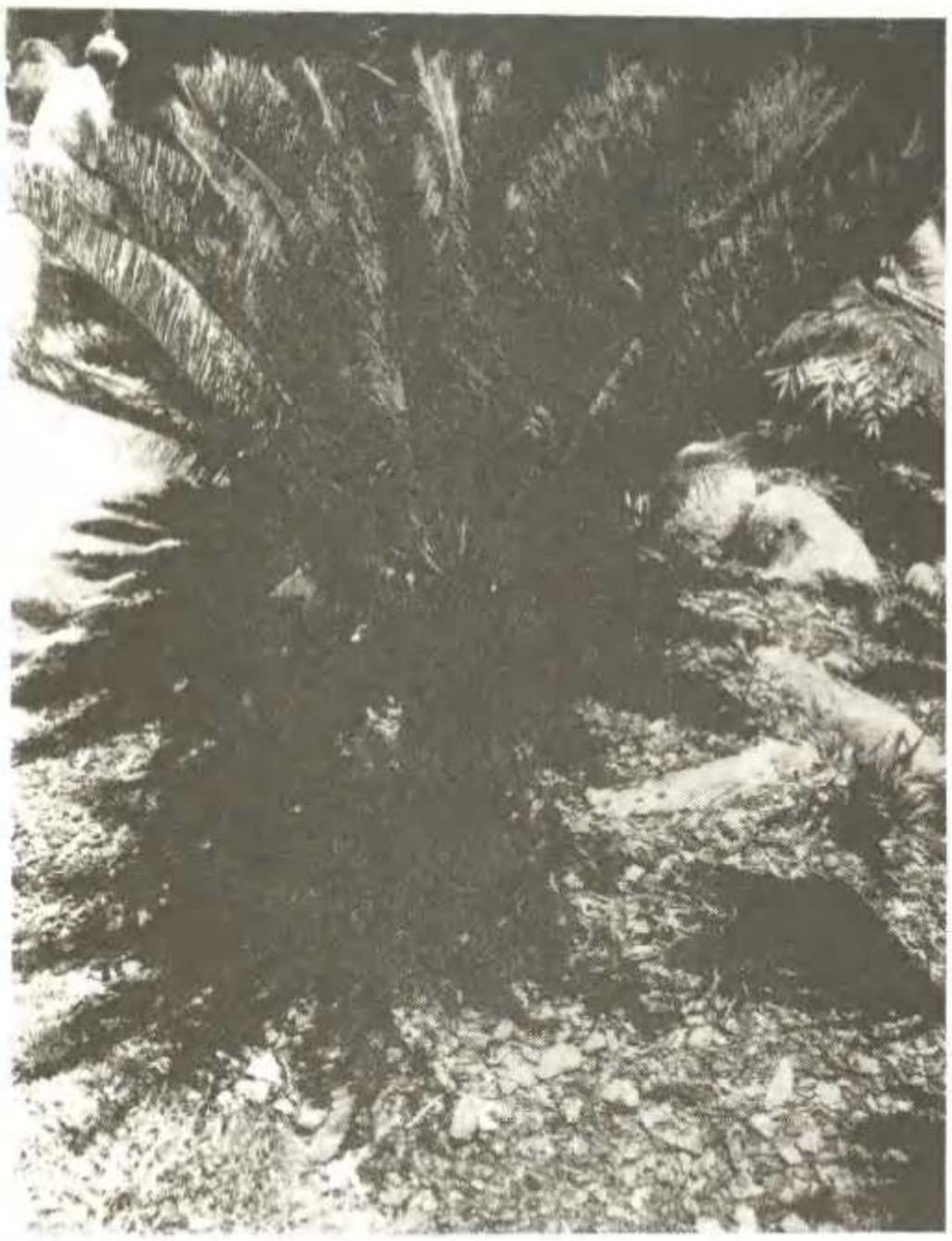
MODJADJI OUTING

All members and cycad lovers in general are invited to join an outing to the Modjadji Nature Reserve near Duiwelskloof on Saturday, 3 May 1986. Mr Jack van der Merwe will act as guide for this visit to the home of the famous forest of Encephalartos transvenosus. Those who wish to join in this outing must meet at the Duiwelskloof Hotel at 09h00 the Saturday morning, and must bring a picnic lunch. Braai facilities are available for those who prefer to use that. Participants are advised to wear stout walking shoes and to bring a raincoat or umbrella, in case of inclement weather.

The reserve has to be informed of the number of persons to be expected. Persons who will be attending, or who require more information, must please contact Marion Debruyne at Phalaborwa (tel. no. 01524-2357) before 4 April, to enable her to make the necessary arrangements.

If there is enough interest, a North-Eastern Transvaal branch of the Cycad Society will be formed during this outing. It is envisaged to elect a small committee consisting of a chairperson and two other committee members, as well as a representative to the central Executive Committee of the Society.

NEW CYCAD



NEW AUSTRALIAN CYCAS

Len Butt wrote from Australia to tell us of the discovery of a new species of Cycas from the coastal area of Northern Queensland. Found only in a restricted area of a cattle ranch, the plant has been tentatively called Cycas 'Glen-Idle' and is unusual in having foliage which is powder-blue in colour.

A specimen of the new Cycas from Australia, growing in a garden. (Photograph: Len Butt)

Police to keep watch on illegal sale of cycads

Weekend Post Reporter

GRAHAMSTOWN — Police manning roadblocks in the Fish River area of the Ciskei and South Africa may no longer only be on the lookout for such illegal cargoes as firearms and drugs.

Hidden behind the backseat or stashed under luggage they may find a cycad — the illegal sale of which has recently flourished in the Fish River and Peddie areas.

Conservation officials on both sides of the Ciskei border have sounded a stern warning that motorists who illegally purchase these rare, indigenous plants at the roadside, run the risk of prosecution.

Several motorists have already been fined.

All species of cycads have been declared endangered in terms of recent legislation and first offenders face fines of up to R3 000 (or 12 months' imprisonment).

Ciskei's head of nature conservation Mr Livingstone Ngadle said the sale of cycads was a lucrative outlet for people in the area particularly with the present unemployment situation.

The sellers were mostly youths who asked between R5 and R30 a cycad — far less than they would cost from a nursery.

Mr Ngadle said an education programme was being conducted with the assistance of tribal authorities to inform the rural population of the need to conserve cycads. But it was difficult to convince them that this was more important than the prospect of partially relieving their plight.

He blamed motorists — particularly from upcountry, where the demand was greatest — for tempting people in the area with offers of cash for cycads.

In one case a whole truckload of cycads had been stopped on its way to the Transvaal, which suggested the possibility of large-scale cycad trafficking.

A senior officer at the regional headquarters of the Department of Nature and Environmental Conservation in Grahamstown, Mr Dan van Schoor, said "pantechnikon loads" of cycads had in the past been transported out of the province. However, the new legislation made it possible to put an end to this.

He said that anyone transporting a cycad required a receipt from a registered nursery licenced to sell cycads and a permit from his department.

WEEK-END POST (Port Elizabeth)
12 October, 1985

Thieves take 8 cycads

Daily News Reporter

EIGHT cycads, valued at hundreds of rands, have been stolen from the Botanic Gardens in what is suspected to be a theft instigated by a collector of the protected plant.

Miss Ann Lambert, curator of the Botanic Gardens, said the fact that the thieves carefully selected a variety of Eastern Cape species pointed to either a collector being involved, or a strong likelihood that the thieves would try to sell the plants to collectors.

Miss Lambert said the Cycad Society of Southern Africa was very concerned about the theft — one of the largest ever suffered by the Botanic Gardens — and is to circulate a list of the plants stolen to all its branches.

Police have asked for anyone offered a plant for sale to contact them.

The plants, all mature speciments, were stolen last Friday night. They include two Ecephalartos Horridus, two Ecephalartos Caffer, two Ecephalartos Laevifolius, one Ecephalartos Trispinosus and one Ecephalartos Inopinus.

"They (the thieves) were obviously well organised with a truck and spades, because the plants were well anchored."

Miss Lambert said it was illegal for people to buy a cycad unless they had special permission from the Parks Board.

THE DAILY NEWS (Durban)
15 January, 1986

EX PRESS

Thieves carry off valuable cycads from PE garden

CRIME REPORTER

THIEVES made off with three extremely rare and valuable cycads from a Framesby Extension home on Tuesday night, turning the garden into a mess and leaving the owner heart-broken.

According to Mrs Nolene Young, of Barnard Street, Framesby Extension, she and her husband decided to buy the house when they moved to Port Elizabeth from Durban recently, as they were attracted by the eight cycads in the garden and the general layout of the yard.

But on Wednesday, Mrs Young, a keen gardener, discovered to her horror that somebody had removed three of the cycads, leaving gaping holes and footprints in the yard.

One of the cycads, she said, was about 1,3 metres high. The other two were comparatively small. The remaining five cycads were untouched.

Mrs Young said she expected the thieves to be back for the other cycads, and will take the necessary precautions to protect them.

She reported the matter to the police, and was promised additional patrols of the area.

The secretary of the East Cape region of the Cycad Society of South Africa, Mr Pieter Stroebel, said certain species of cycads are virtually unobtainable, and therefore very expensive.

He said the biggest cycad stolen from Mrs Young's garden must have been "a few hundred" years old, and added that a plant of that size was very heavy, and would require more than one person to carry it.

Mr Stroebel added that racketeers sold cycads on the black market for astronomical prices, depending on the species.

He described the loss of Mrs Young's trees as "very sad".

EASTERN PROVINCE HERALD (Port Elizabeth)
23 November, 1985

CYCAD CRIMES

COMMITTEE STATEMENT

On the evening of Friday, 10 January 1986, a total of eight large cycad specimens was stolen from the internationally known collection in the Durban Botanic Gardens. The list comprises two Encephalartos horridus and one E.trispinosus (each ± 40 cm diameter), two E.caffer (± 10 cm diameter), one E.inopinus (± 1 m tall) and two E.laevifolius (± 20 cm diameter). These plants were apparently removed in such a way that damage undoubtedly resulted.

This reprehensible deed is condemmed by the Cycad Society. The Society has offered its full co-operation to the Investigating Officers in any way which may help bring the perpetrators to justice. Members are therefore warned that attempts may be made to sell these plants. If you are approached, you are asked to find out as much detail as possible and to report your suspicions immediately to Mr J. Human or Mr T. Golding of the Investigations Unit, Security Department, Durban Corporation (tel. 031-322457), or alternatively to ask one of the Society's committee members to act on your behalf.

This act is just one of a current spate of similar thefts which may or may not be related. We are reminded of the theft of the prize E.woodii from Medwood Gardens in September 1976 (see ENCEPHALARTOS no. 1), the thefts from Dickie Rutzen's collection in Northcliff and those from the Lowveld Botanic Gardens in April last year (see ENCEPHALARTOS no. 2) as well as the recent removal of plants from Mrs Nolene Young's Port Elizabeth home just before Christmas (see elsewhere). If one or two of the criminals behind these acts could be arrested and publicly made an example of, with the maximum penalties allowed, others might be deterred from continuing with these reprehensible acts.

LETTERS BRIEWE LETTERS BRIEWE

Readers are invited to write to the editor (See address elsewhere.) Where applicable, experts will be asked to deal with specific questions.

Lesers word genooi om aan die redakteur te skryf (sien adres elders). Waar van toepassing sal kenners gevra word om spesifieke vrae te beantwoord.

Dear Sir,

The Los Angeles State and County Arboretum and Botanic Garden was recently awarded a conservation grant (Institute of Museum Services # IC-50152-85) to investigate the methods of artificially pollinating cycad cones. We plan to:

1. explore the use of various types of instruments to introduce or inoculate pollen into the female cones,
2. evaluate the use of water versus air as pollen carriers,
3. test the storage of pollen and define its maximum span of viability,
4. test the cold storage of seeds and determine the maximum shelf life,
5. contrast wind versus biological pollinators,
6. investigate any information that may apply to this project.

We solicit assistance from your membership for methods that have given them positive results in producing viable seed, and for any observations or suggestions that they feel would be helpful to this project.

LORAN M. WHITELOCK
RESEARCH ASSOCIATE
DEPARTMENT OF ARBORETA AND BOTANIC GARDENS
301 NORTH BALDWIN AVENUE
ARCADIA
CA 91006-2697
UNITED STATES OF AMERICA

Readers who are able to help must please write directly to Loran.
EDITOR

Sir,

I would like to enquire about a few South African cycads where there seems to be some confusion in the names. Many people talk about Encephalartos 'Retiefii' or 'Piet Retiefii' which is found in that area. Is this a variety of E. lebomboensis or is it a different species? Also, there are reports of a 'new' species from the Msinga area of a cycad which is similar in some respects to E. laevifolius. What is the status of this plant? Are these plants in any way connected to the two colonies, said to be E. laevifolius, in the Vryheid district?

It seems that more field research is needed and perhaps some changes in the existing classification.

HERMANN KISTNER
GREYTOWN

Piet Vorster replies:

The populations near Piet Retief, Msinga and quite a few other localities as well, cannot be matched with described species, at least not as the described (named) species are circumscribed at present. Mr Kistner is quite right when he suggests that field work is necessary. Research material is urgently required, and the author would be grateful if readers could send cones and leaves (the whole leaf, though it can be cut into convenient lengths) of unidentifiable plants to him at the Department of Botany, University of Stellenbosch. As these plants have not been named formally, one can call them by any convenient name for reference purposes, but it is customary amongst collectors to call them for example Encephalartos (Piet Retief). To the best of my knowledge the Msinga plants are quite dissimilar to E. laevifolius.

LETTERS BRIEWE LETTERS BRIEWE

Sir,

With reference to the question in ENCEP=HALARTOS no. 1 about the cycad in the Botanic Gardens in Rio de Janeiro, I think your correspondent is referring to a plant known as Cycas undulata, which is presently listed (ENCEPHALARTOS no. 3) under the botanically more valid name of Cycas circinalis forma undulata. The name is very descriptive of the undulate edges of the dark green leaf=lets - the whole plant literally shim=mers. The plants I have seen have a mainly subterranean caudex and females have loosely arranged sporophylls. This arrangement parallels that of Cycas revoluta, except that the C. undulata has a sparse brown tomentum on the megasporophylls. In C. circina=lis the megasporophylls are much more elongate and looser in arrangement. Another observation is that the portion of the caudex which is above ground level is a bright reddish-brown. The new growth is mildly tomentose and very glacous.

We have only very young plants of this species in Hawaii but a Cycas species from Thailand which looks similar. I would like to hear from any of your members who may have comments on these plants, especially as regards country of origin.

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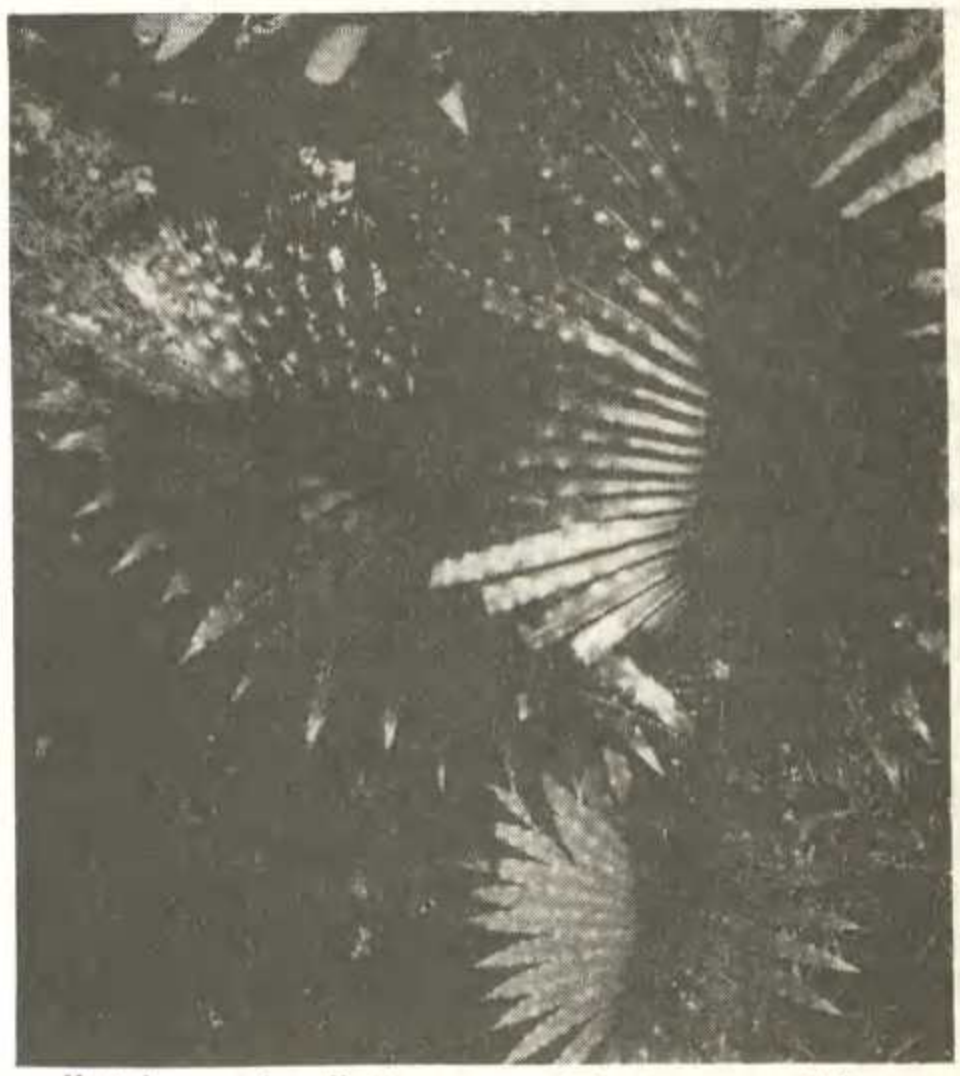
96816 U.S.A.

John Hendricks comments:

A Cycas with subterranean stems and un=dulate leaflet margins from Indo-China was described in 1820 as C. undulata Desf. and again later in 1885 as C.tonki=nensis Linden & Rodigas. Schuster con=fused this taxon with the undulate leaf=let form of the large, arborescent C.rum=phii found only in the Mariana Islands and Gap in the Carolines and compounded the error by naming it C.circinalis forma undulata - corrected in 1938 to C.rumphii forma undulata. Smitinand (1971), recog=nizing the relationship of sporophylls, etc., described the Indo-China taxon as



The "shimmering" Cycas. Three seedlings photographed together, showing the undulate leaflet margins. (Photograph: Leland Miyana)

C.micholitzii forma simplicipinna, its present official name. C.'repanda' is synonomous with or very closely allied to this plant, and the name 'repanda', apparently applied by Burle Marx when he collected for the botanical garden in Rio, has no taxonomic significance.

It is interesting to note that Willie Tang found this plant in a botanic garden in China, mis-labelled C.siamensis. Their similarity is limited to their short stems. In 1912, Craib described another close relative of C. micholitzii with flat leaflet margins as C. immersa. Schuster assigned this as a synonym of C. siamensis. Sowatabanhu (1961) cor=rectly regarded it as a subterranean form of C. micholitzii but Smitinand (1971) accepted Schuster's assignment when he described it as C. micholitzii forma simplicipinna. The mis-labelling is understandable!

C. micholitzii forma simplicipinna is reported to inhabit rather high (600 - 1500 m) areas from China through to Burma, Laos, Thailand and Vietnam. It would be surprising if some variations did not exist over such a wide distribution area. The habitat has been inaccessible for some time.

LETTERS BRIEWE LETTERS BRIEWE

Sir,

There has been something of an insect problem experienced by cycad enthusiasts in the East London area recently, and I wonder if you have any comments, or if members in other parts of the country have had the same problem. The insect in question is a small (about 2 mm long) yellow maggot with a segmented body. Large numbers of these infested the emer=gent spring leaf crop of many cycads and in most cases the leaves turned black and died. In other cases the leaves that did develop had twisted and distorted leaflets, as shown in the accompanying photograph of an E.trispinosus leaf.

OWEN SANDERS
BEACON BAY

Any comments from our members? Please write to us.

EDITOR

Sir,

May I take the opportunity of saying how much I appreciate the Society and in par=ticular, ENCEPHALARTOS? I appreciate the issues being on time. This is really im=portant to people like me in the UK where enthusiasts are very few and far between, and where the newsletters are the main link to our hobby.

MAXINE PHILLIPS
LONDON, UK

Dear Sir,

To date I have received the first four issues of ENCEPHALARTOS. May I extend my congratulations to you and all other in=volved with this excellent production. I enclose herewith a donation towards the good work of the Society.

TREVOR CRAWFORD
TINGALPA, QUEENSLAND, AUSTRALIA