

PLATES 1078, 1079.

ENCEPHALARTOS LEBOMBOENSIS.

Swaziland, Zululand.

CYCADACEAE.

*Encephalartos lebomboensis* Verdoorn sp. nov., ab *E. altensteinii*, inter alia, plantis omnino paullo minoribus, foliolis infimis spinosis reductis strobilis faciebus squamarum minus prominentibus (usque 1.5 cm. prominentes) differt.

*Truncus* usque 4 m. altus, plus minusve 30 cm. diam. *Folia* plurima, erecto-patentia, apicem versus recurvata, 1-2 m. longa, foliolis infimis spinosis reductis; petioli 3-10 cm. longi, basin versus 2-3 cm. diam., pubescentes demum glabrescentes; pulvini brunco-lanati demum glabrescentes; foliola lineari-lanceolata, 12-17 cm. longa, 1.2-2.2 cm. lata, marginibus utrinque 1-4-spinuloso-dentatis nonnunquam integris. *Bractee* lineari-acuminatae, plus minusve 4 cm. longae, 1 cm. latae, dorso dense lanatae. *Strobilus masculinus* breve pedunculatus, luteus, plus minusve cylindricus, 46 cm. longus, 13 cm. diam.; squamae 17-seriatim; facies squamarum 1.2 cm. prominentes, apicibus obscure plano-rhomboideis marginibus inferioribus acutis patentibus deinde recurvis; squamae intermediae in toto 3.3 cm. longae usque ad 4 cm. latae, subtus parte inferioribus fertilibus 2 cm. longis marginibus lateralibus acutis superne irregulariter laciniatis. *Strobilus femineus* luteus, breve pedunculatus, 44 cm. longus, 22 cm. latus; squamae 14-seriatim; facies squamarum intermediarum 1 cm. prominentes, umbilicis sub-centralibus excavatis pubescentibus; squamae intermediae in toto (stipites inclusi) 6 cm. longae, 4.8 cm. latae; stipites scarlatini, 4 cm. longi; brachia alata, 1-1.8 cm. longa, marginibus irregulariter laciniatis; pars squamae supra stipitem laciniato-lamellata. *Semina* scarlitina, 4 cm. longa, 1.8 cm. lata.

SWAZILAND: Near Stegi in garden (originally from Lebombo Mts. nearby). *Keith* in Nat. Herb. Pretoria, 28362 a and b, type male and female respectively; *Verdoorn* and *Christian* 723 and 724, *Christian* 597; Lebombo Mts. 8 miles from Stegi, *Dyer* 4795; *Erens* 2016; ZULULAND: Cecil Mack's Pass *Verdoorn* and *Christian* 717; *West* 2118; Ingwavuma, *Verdoorn* and *Christian* 721; *Conyngham* A, B, and C; in garden Native Recruiting Corporation (originally from surroundings) *Verdoorn* and *Christian* 718, 718 a and 719.

For over 20 years Captain D. R. Keith has had growing at his home, Ravelston, near Stegi in Swaziland, an avenue of the species of *Encephalartos* figured here. The plants had been taken from rocky ridges in the Lebombo mountains a few miles from the homestead. Captain Keith had been given to understand that it was *E. altensteinii*, and under that name had sent a plant to the National Botanic Gardens, Kirstenbosch and to Ewanrigg, Mr. H. B. Christian's garden near Salisbury, Southern Rhodesia.

In the revision of the South African species of *Encephalartos*, Flora Capensis 5, section 2, 1933, a very broad concept is taken of *E. altensteinii*, including plants from Bathurst Division in the Cape Province to Natal and the Transvaal. One of the authors, J. Hutchinson writes "I have not seen specimens from Natal and the Transvaal". Further study of the genus, especially of plants in their natural habitats, leads to the conclusion that this wide concept involves several distinct species. M. R. Henderson, in the Journal of South African Botany 11, part I, 1945, resuscitates *E. transvenosus* Stapf and Burtt Davy, the Transvaal species, and suggests that the plants in the Lebombo Mountains (the species under discussion) also belong to a distinct species, which he refers to as "West's Cycad" (because the species was first brought to his notice when a specimen collected by O. West in the Lebombo Mountains near Ingwavuma was sent to him from the National Herbarium). West's collection led to the National Herbarium's getting the very able help of Mr. L. H. Conyngham, Magistrate at Ingwavuma, who sent specimens and plants from his area and later acted as guide to a party (including the present author) to the specimens in the wild. Going north from there to Stegi, it was found that the species, with some local variation could be found at intervals on the rocky ledges and in depressions of the Lebombo range. The largest colony seen was about 7 miles from Captain Keith's homestead near Stegi. The type was, therefore, chosen from that area, and the description based in the main on those specimens. It was observed that the plants at Ingwavuma had the stems more woolly at the crown, and the cones with the scale-faces somewhat more prominent and pubescent than in those at Stegi. In all other respects they compared very well.

In separating this species from *E. altensteinii* it is necessary first of all to define, *E. altensteinii*. It was described by Lehmann in Pugill, 6: 11 (1834). In the actual description no locality or collector is mentioned, but in the introductory part of the paper Lehmann states that his cycad material was received from Echlou and Zeyher and that it came from "the country of the 1820 Settlers". In the Botanical Magazine under Tab. 7162 Hooker quotes the following from a letter of Charles Zeyher's "*E. altensteinii* is found in woods on the Boschman's River . . .". It would, therefore, seem feasible for the present, to restrict the name to the tall cycad which grows in forests and along rivers in the coastal strip

from the Bushman's River to the neighbourhood of East London.

From this plant our species differs principally in being smaller in every respect, (with average leaflets 1-2.2 cm. wide as against 1.5-3.2 cm. wide in *E. altensteinii*), and the leaflets always definitely reduced to prickles at the base. The scales in both male and female cones differ too, being less prominent in our species, the female smoother on the face and the male with acute-edged, winglike "shoulders" which are laciniate.

The figure was prepared from material sent in by Captain Keith in July 1948 from a male and female plant in his garden near Stegi. These plants originally came from a spot in the Lebombo Mountains about 7 miles from the homestead.

DESCRIPTION.—*Stems* up to 4 m. high and about 30 cm. diameter; apex dome-shaped, woolly, wooliness obvious when plant is coning, (of those seen the Ingwavuma specimens were even more woolly than those at Stegi), *Leaves* in a dense crown, erect-spreading, straight except towards apex where they are somewhat recurved or twisted, 1-2 m. long; petiole usually 3-10 cm. long (to lowest prickle) and 2-3 cm. diameter above the pulvinus, slightly pubescent when young becoming glabrous, rounded above and below; rhachis rounded dorsally and also above with 2 longitudinal grooves; pulvinus brown woolly with deciduous wool. *Leaflets* green, faintly yellowish-green beneath, in an open V or the upper sometimes in a narrow V, spaced below, more crowded above and sometimes overlapping, reduced towards the base to prickles, usually first to lobate prickles and finally to straight prickles, linear-lanceolate, the median about 12-17 cm. long and 1.2-2.2 cm. broad, usually with 1-4 proclivent needle-pointed teeth on both margins but more often on the lower margin, sometimes upper leaflets entire and margins with a thickened rim obvious from beneath, gradually narrowing to the pungent apex, shortly and unequally narrowed towards the base and then abruptly widening into a footlike attachment 6-12 mm. long shortly produced upwards and more so downwards; veins sometimes faintly visible below, about 20 (or more). *Bracts* very densely woolly dorsally, glabrous within, more or less linear-acuminate, those surrounding the base of the female cone about 4 cm. long and 1 cm. wide. *Male cone* (scales just beginning to open) apricot-yellow, green towards apex (turning bluish-black when bruised or faded), cylindrical, tapering to base and apex, very slightly curved at this stage, 46 cm. long and 13 cm. diameter; scales in 17 spirals; the scale-faces prominent for 1.5 cm. with an apical rhomboid area (sometimes obscure), the lower edge of which is acute and somewhat produced, on scales at centre projecting forward and those towards the base recurved; medium scale (removed from cone) viewed from below 3.5 cm. long and up to 4 cm. broad, the lower two thirds covered by sporangia, lateral angles (or shoulders) acute, wing-like and irregularly laciniate; peduncle apricot-yellow, 3 cm. long. *Female cone* apricot-yellow in general, green in crevices towards apex and salmon-coloured at base where pressed against another cone, with greyish or foxy pubescence on the umbilicus, oblong in outline narrowing slightly to apex, about 44 cm. long and 22 cm. diameter; spirals about 14, scale faces 4.5 by 3.5 cm. protruding about 1 cm. (slightly more so towards apex of cone, and in all Ingwavuma cones),

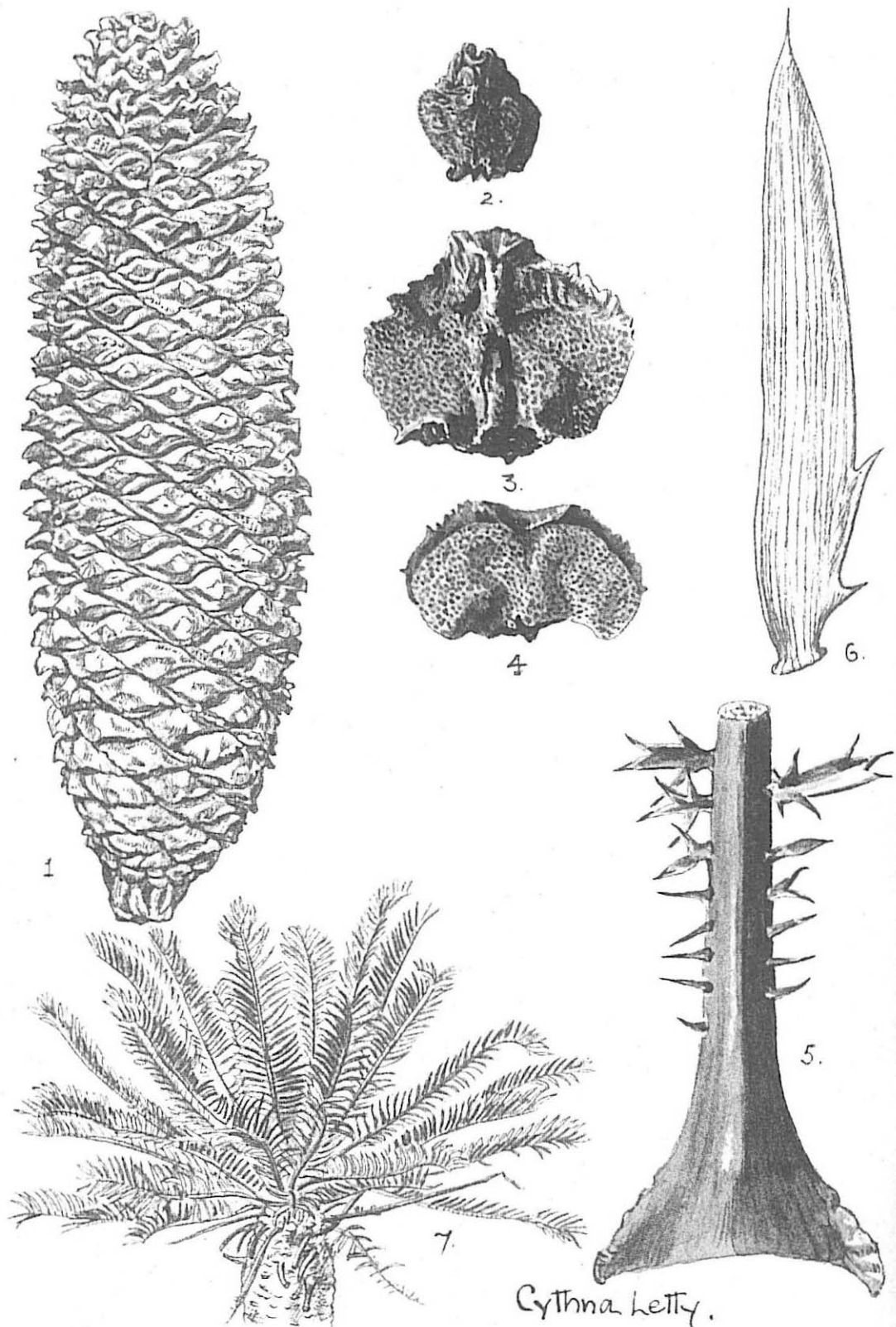
rounded with a more or less central umbilicus, which is depressed subrhomboid about 10–20 by 5–10 mm., excavate, thickly pubescent with rather greyish or foxy hairs, (more densely and thickly in *Ingwavuma* cones) with a line or acute ridge running laterally from the corners to the corners of the scale face, sometimes 2 lines on upper rounded angle; median scale removed from cone, viewed from below, stipe and inner part of scale scarlet, 6 cm. long including stipe, 4·8 cm. at greatest width; stipe about 4 cm. long; sinus arms winged and irregularly laciniate on the margins, 1–8 cm. long; scale above sinus rough with protruberances (laciniate lamillae). *Seeds* scarlet, 4 cm. long, 1·8 cm. broad, distal end fleshy, truncate.—I. C. VERDOORN.

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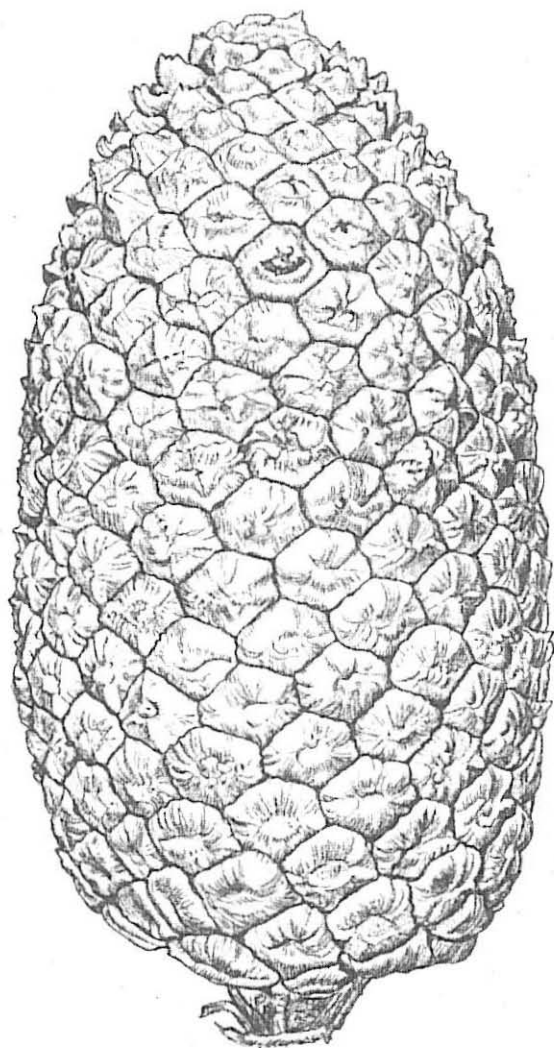
PLATE 1078.—Fig. 1, male cone with scales just beginning to open (much reduced); 2, scale from near apex of cone viewed from below; 3, ditto from centre of cone (note sporangial surface and lateral angles winglike and irregularly laciniate); 4, ditto from near base of cone; 5, base of leaf showing leaflets reduced to prickles; 6, leaflet from lower half of leaf; 7, habit, note leaves recurved or twisted near apex.

PLATE 1079.—Fig. 1, female cone (much reduced); 2, median scale viewed from above; 3, ditto viewed from below; 4, entire leaflet from just above the centres of leaf (leaflets just below had 1–2 spines on one margin and 3 on the other).

F.P.A., December, 1949.



Cythna Letty.



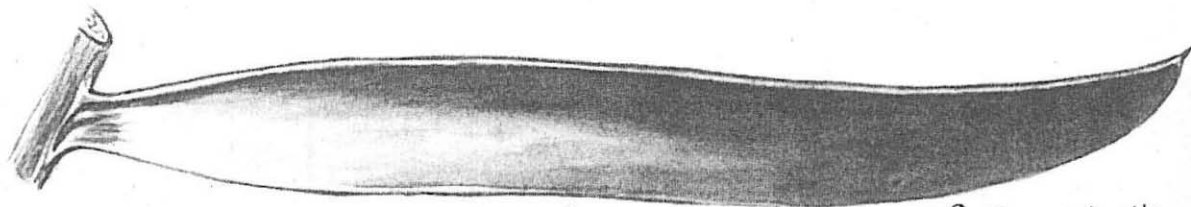
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Cytha Letty.