FAMILY CHARACTERS OF CYCADACEAE IN SOUTHERN AFRICA

The plants are either male or female and it is not possible to determine the sex in the absence of cones. They have subterranean or aerial stems which are commonly branched from the base but rarely above. The stems produce alternating tufts or whorls of leaves and bracts from the apex (often termed palm-like although there is no relationship between the two groups). The leaves have a strong central stalk or rhachis from which are produced many leaflets, neither strictly alternate nor opposite. The pollen of the male, and seeds of the female, are produced on scales which are densely aggregated into cones, the female cone being larger than the male in their respective species. The male scales produce pollen on their under surface in densely arranged cells, the tip of the scale being sterile and produced into a beak of varying length (FIG. 4). Each female scale produces two comparatively large exposed seeds, directed inwards from the scale head or bulla and they lie above the scale stalk (FIG. 5); the seeds are red, yellow or amber in colour when ripe and have a fleshy covering over a hard inner jacket which encloses the endosperm (food supply of embryo).

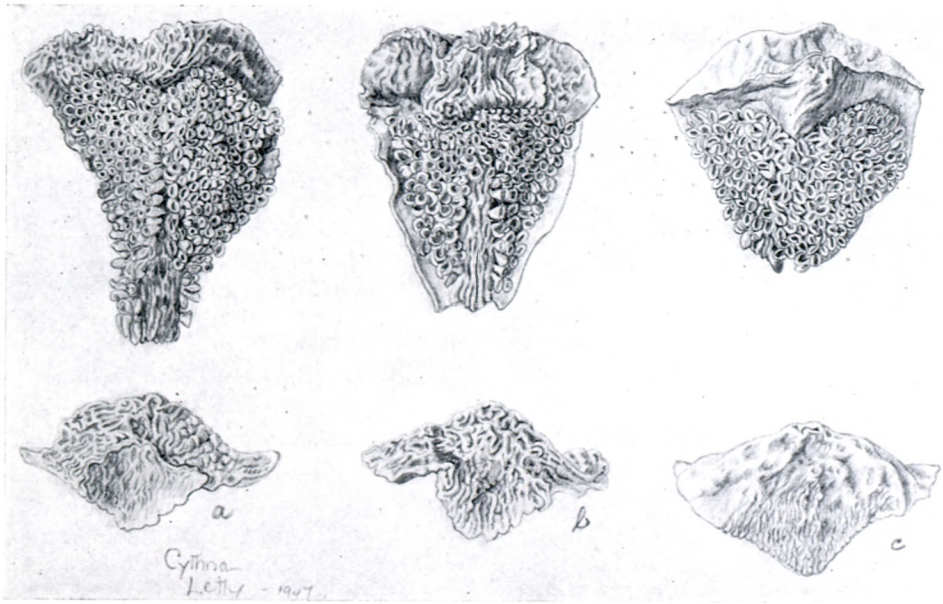

FIG. 4.—Male cone scales, under-surface and face of: (*a*) *Encephalartos caffer* (Henderson 1505); (*b*) *E. caffer* from East London (G. G. Smith 6901); (*c*) *E. ngoyanus* (Verdoorn and Christian 716b).

In Cycads, which belong to the group of plants known as Gymnosperms, the seeds are exposed and are not enclosed in special containers such as pods and fleshy fruits as they are in the flowering plants termed Angiosperms.

The two South African genera, *Stangeria* and *Encephalartos* may be distinguished as set out in the following 'key':

Stems subterranean, tuber-like; leaves somewhat fern-like, falling entire from the stem; leaflets with a prominent mid-rib and with branched, spreading lateral veins..... .....STANGERIA.

Stems subterranean or up to 30 ft or more tall, protected by densely packed leaf-bases which appear as leaf-scars; leaves with a central stalk from which spread at varying angles numerous leaflets along its length; the leaflets have parallel venation.....ENCEPHALARTOS.

FIG. 5.—Female cone scales with 2 seeds each: left, upper and right, lower view of *Encephalartos lebomboensis*.