purple in colour, but becomes blue after 6–7 days. After the ‘secretion’ of the cytoplasm the nuclear chromatin segments diminish in size, while the nucleoli become more and more evident, and the nucleoplasm has the same appearance as in a leaf which has never been fed. The third layer of gland-cells, perhaps concerned in the secretion of mucus, also shows marked changes; for the long spindle-shaped nuclei of the resting condition shorten within one minute, after ten minutes they are more or less globular, then pass through changes similar to those described above, and after some days resume their spindle shape—an indication of rest.

LILY H. HUIE.

A NEW CYCAD FROM THE ISLE OF PORTLAND¹.—

Dr. Woodward lately obtained an exceedingly fine specimen of a cycadean stem from the Purbeck beds of Portland, which is now in the fossil-plant gallery of the British Museum. The stem, which is probably the largest known, has a height of 1 m. 18.5 cm., and measures 1 m. 7 cm. in girth at the broadest part. A striking feature of the specimen is the conical apical bud enclosed by tapered bud-scales, bearing numerous ramental outgrowths on the exposed surface. The surface of the stem presents the appearance of a prominent reticulum of projecting ridges, of which the meshes were originally occupied by the persistent petiole-bases. The substance of the leaf-stalks has for the most part disappeared, while the interpetiolar ramental tissue has been mineralized and so preserved as a projecting framework. In structure the ramenta are practically identical with those of *Bennettites*, as described by Carruthers and other writers. The petiole-bases also agree very closely with those of *Bennettites*, consisting of a mass of parenchymatous tissue traversed by numerous vascular bundles and secretory canals, with a distinct band of cork at the periphery. No trace of any inflorescence has been found. It is proposed to name the plant *Cycadeoidea gigantea*.

A. C. SEWARD.

OBSERVATIONS ON THE LORANTHACEAE OF CEYLON². II. ANATOMICAL.—I. Emergences on the Embryo of *Loranthus neelgherensis*.—The hypocotyl of the fully-developed embryo

¹ Abstract of a paper read before Section K at the Liverpool Meeting of the British Association, 1896.

² Ibid.

is densely covered with green columnar emergences, whose cortical cells contain chlorophyll, starch, tannin, and a substance giving the reactions of a fat. Irregular masses of a similarly reacting material are frequently found covering the cuticle.

A *single* stoma occurs on the free surface of each emergence, and in the embryo of this species stomata are confined to the emergences.

The cuticle covering the general epidermis is continuous over the guard-cells of each stoma, except for a small oval slit which allows of communication between the intercellular space and the air. The stomata thus suggest either a xerophytic habit for the plant or an abnormal function for themselves.

The emergences flourish during the germinating (epiphytic) stage, and later, when semi-parasitism is achieved, cease to be functional.

II. Mode of penetration into the host of L. neelgherensis.—Unlike many species, *L. neelgherensis* develops no well-marked organ of attachment (suctorial disc) at the free end of its hypocotyl.

Where much resistance to the entry of the sucker is offered by the host, there are formed at the edges of the attached surface of the hypocotyl a series of acropetally arising, hair-bearing cortical ridges. The later-formed ridges, wedging themselves in between the older ones and the bark, force these older ridges away. The firmly-attached hairs of each ridge so forced away tear off masses of the bark, and thus the softer tissues, through which the sucker readily and cleanly bores, are exposed by instalments. Where the sucker comes in contact with lignified structures, dissolution is more gradual, and stages of disintegration (erosion figures) are to be observed.

In *L. loniceroides*, where a well-marked suctorial disc is formed, attachment occurs once for all. This attachment is maintained (1) by the growth of the edge of the disc hard against the bark; (2) by the outgrowing hairs forming a matted sclerotic mass firmly fixed into the outer layers of the host.

F. W. KEEBLE.

PRELIMINARY NOTES ON FLORAL DEVIATIONS IN SOME SPECIES OF POLYGONUM¹.—The genus has long been known to show considerable departures from the arrangement and number of parts accepted as most typical (Per. 5. St. 5 + 3, C. 3), such as is found in *P. Convolvulus*. Eichler's 'Blüthendiagramme,'

¹ Abstract of a paper read before Section K at the Liverpool meeting of the British Association, 1896.

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