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ON *CYCAS TAIWANIANA*, SP. NOV., AND *C. SEEMANNI* A.Br.

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(PLATES 330; 331).

THE characters employed in grouping the different species of the genus *Cycas* are not altogether satisfactory. No doubt this is due to the absence of complete materials for the knowledge of the species, either in cultivation or in herbaria. The portions of the plants necessarily best known are the leaves; they have been employed as a basis of classification, the characters depended upon being the revolute margins, or the more or less flat nature of the segments. But the fact that in the most characteristic revolute species (*C. revoluta* L.) there are plants with flat margins shows that this can be of little value, while the revolute species from India (*C. Beddomei* Dyer) has its affinities with the *C. circinalis* and the Australian species, and not with *C. revoluta* or *C. inermis*. Neither can the presence of tomentum on the spadices be of much value, as this depends in several species on the age of the spadix. It appears to me, looking at the materials existing in the Herbarium of the British Museum, and at the published figures and descriptions, that the form of the barren expansion in the female spadices will supply, in the present state of our knowledge, better characters for grouping than any hitherto suggested. Three types are present:—

First. Where the apex is dilated into a rhomboidal lamina, with teeth on the two upper margins of the rhomb, the terminal one being usually much larger. To this group belong *C. circinalis*, *C. Rumphii*, *C. Seemanni*, the Australian species, &c.

Second. Where the lamina is longer than broad, and is deeply cut along the sides into spiny teeth. To this belong *C. revoluta* Linn., *C. inermis* Lour., and *C. Taiwaniana* here described.

Third. Where the lamina is broader than long, and the spiny teeth are borne chiefly on the upper margin. To this group belong the species discovered and figured by W. Griffith,—*C. pectinata* Griff., *C. Jenkinsiana* Griff., *C. macrocarpa* Griff. The materials for the history of this group are still very imperfect.

In the herbarium of Dr. Hance, which was some years ago

acquired by the British Museum, there is part of a leaf and three foliar spadices of a *Cycas* from the Island of Formosa. It belongs to the group of *C. revoluta*, though the barren lamina approaches the species of the first group. It may be thus described:—

Cycas Taiwaniana, sp. nov.—Leaf with numerous erecto-patent subopposite segments, springing from a terete rachis; petiole unknown; segments flat, linear-lanceolate (5 to 7 in. long, rather more than $\frac{1}{4}$ in. broad), decreasing below to a base about half the width of the segment, decurrent, but scarcely turned upwards on the rachis, shining, paler on the under surface. Male cone unknown. Female spadices nearly glabrous, long, with slender stipes; fruit (3 or 4) borne above the middle; lamina nearly as broad as long, deeply cut on both sides into linear acuminate spines of the same substance as the lamina; terminal spine somewhat longer, broad and serrate.

The specific name is from Tai-wan, the native name of Formosa. No more definite information is contained on the label than that the specimens were collected in the island of Formosa by Mr. Swinhoe, and sent to Dr. Hance in the autumn of 1867, from whose herbarium, as I have said, came the specimen in the British Museum on which the species is founded.

In the *Flora Vitiensis* Dr. Seemann described a *Cycas* which he found in the Fiji Islands, and referred to *C. circinalis* L. A. Braun subsequently pointed out characters by which he separated it from *C. circinalis* L. and named it *C. Seemanni*. Baron von Mueller has described the plant at length. Dr. Masters having lately given the Botanical Department a series of photographs of the plant, it seemed to the Editor desirable to give an illustration of this fine Cycad, discovered by and named after the founder of this Journal. It has a stem thirty feet high. In the specimen figured from the photograph, an adventitious bud, developed two-thirds up the stem, has maintained its connection with the stem and developed into a branch. The stem is marked by alternate constrictions and enlargements, caused by the alternation of the fruiting spadices and the normal leaves. The scars left by the spadices are smaller, and these being food-consuming organs, the stem is constricted where they have been borne. The petiole is unarmed, and the numerous segments (50 to 70) are papyraceous, spreading and curved; they gradually decrease from a little above the constricted base, and end in a long acuminate apex. The male cone is two feet long, and the scales have a short, acute, ascending apex on the upper part of the cone. The female spadix bears from six to eight fruits; it has a dilated, subtriangular apex, with small spines along the upper margins and a terminal one scarcely larger than the others. It was found in Viti-Levu and Ovalau by Dr. Seemann.

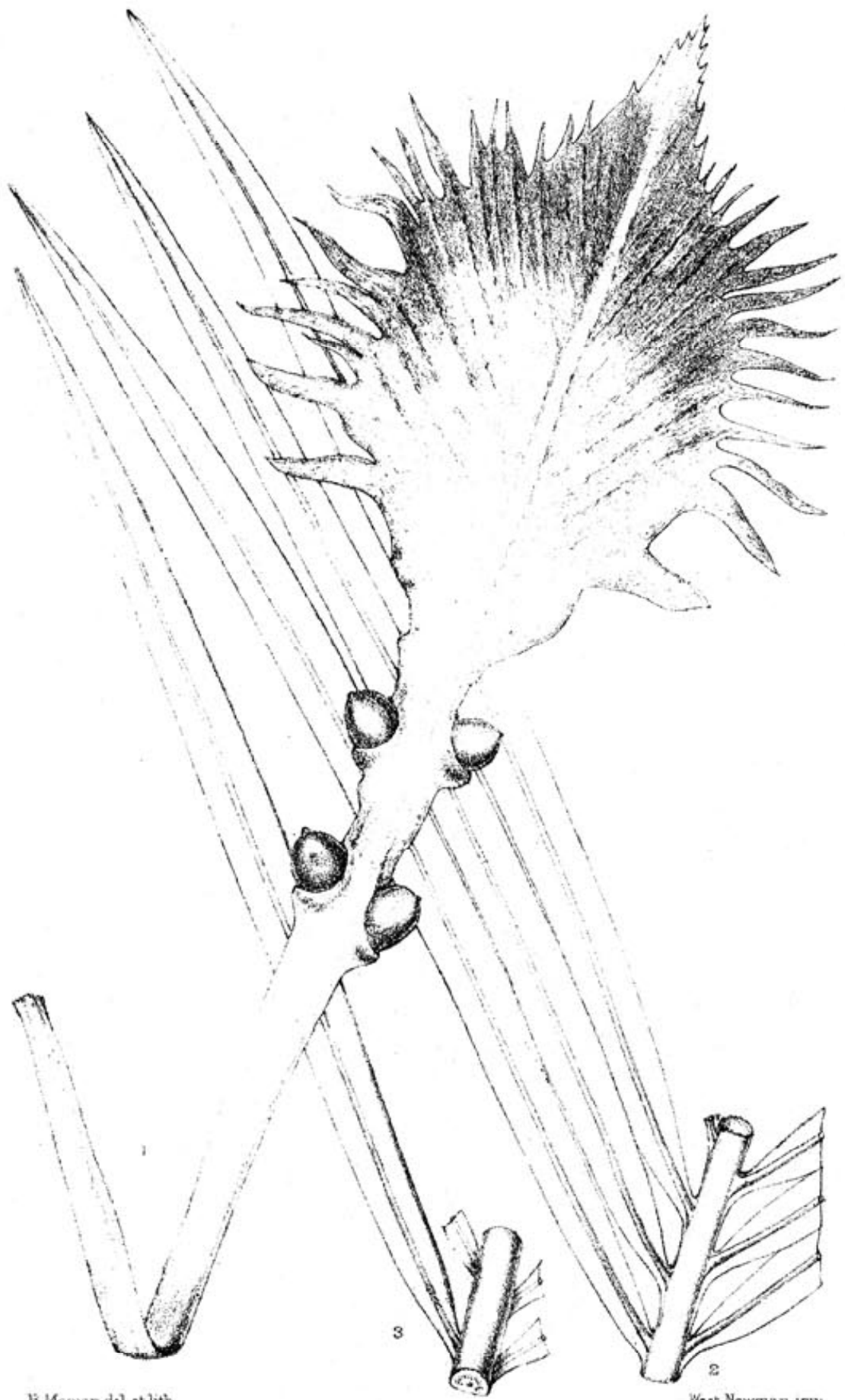
In the Museum Herbarium there are specimens of a Cycad from the Tonga Islands, collected by Banks and Solander in Capt. Cook's first voyage, which was referred by Dr. Seemann with his Fijian plant to *C. circinalis* L. It differs in the texture and form of the segments of the leaves, and the presence of a large terminal spine on the spadix; but until more materials are obtained from the Tonga,

Fiji, New Caledonia and neighbouring islands, it is undesirable to add new names to the genus, as they may represent only unimportant geographical modifications.

EXPLANATIONS OF PLATES.

TAB. 330.—*Cycas Seemanni* A. Br. Representing the general aspect of the plant, the male and the female fruiting heads, with a single spadix, all somewhat reduced in size from photographs.

TAB. 331.—*Cycas Taiwaniana*, from specimen in the British Museum.



R. Moran del. et lith.

West, Newman sculp.

Cycas taiwaniana, sp. nov.