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The Western Catalpa. (*Catalpa cordifolia*, Jaume [*C. speciosa*, Warder.])

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"In habit and also partly in structure this species is most nearly related to *L. conchatum*, Setch. and Fosl. from the Pacific coast of North America. The conceptacles of sporangia however approach those of *L. haptericolum*, from New Zealand, and *L. nitidum*, Fosl. from Japan. If only a cursory examination be made, the conceptacles of sporangia may easily be confounded with those of the cystocarps."

Lithothamnion Patena, Heydr., Lith. Mus. Paris, 1901, p. 542.
Melobesia Patena, Harv. Ner. Austral. p. 111, tab. 40.

Foslie though previously regarding this plant as a form of *L. lichenoides*, Heydr. states in a letter that he now considers it "a separate species as remarked in 'Antarctic and Sub-Antarctic Corallinae' now in the press."

DISTRIBUTION. New Zealand.

Cheilosporium Wardii, De Toni, Syll. Alg. vol. iv., p. 1828.
Amphiroa Wardii, Harv., Ner. Austral. p. 99, tab. 38.

DISTRIBUTION. Australia.

Corallina armata, Harv., Ner. Austral. p. 103, tab. 40, fig. 1-7.

DISTRIBUTION. New Zealand.

Corallina Cuvieri, Lamour., Pol. flex. p. 286; Harv. Ner. Austral. p. 106. *Jania granifera*, Decne. *J. subulata*, Sow.

DISTRIBUTION. S. Australia, New Zealand.

IX.—THE WESTERN CATALPA.

(*Catalpa cordifolia*, Jaime [*C. speciosa*, Warder.])

W. J. BEAN.

A number of enquiries have recently been addressed to Kew as to the likelihood of this tree proving of value in the British Isles for the production of timber. Some of these enquiries probably had their origin in statements that have appeared in the daily press describing the wonderfully durable qualities of the timber of this tree. But one correspondent says: "I was told by the chief engineer of 3,000 miles of railroad in the Southern States of U.S.A. that the railway companies were now planting large areas to supply them with sleepers, and that he had known this timber to stand 30 years in situations where 'White Oak' rotted in 6 or 7 years."

The wood of *Catalpa cordifolia* undoubtedly possesses a remarkable quality of resisting decay in moist places or in contact with the soil. Numerous instances of this are recorded by American authorities. In Sargent's *Silva of North America*, vol. vi., p. 90, the following statement occurs: "The trunks of the *Catalpa* trees killed by the sinking and subsequent submersion of a large tract of land near New Madrid, Missouri, which followed the earthquake of August, 1811, were standing and perfectly sound

"67 years later, although all their companions in the forest had "disappeared long before. Undecayed fence-posts believed to "have been continuously in the ground for more than half a century "demonstrate, too, the remarkable duration of the wood of this "Catalpa." Mr. B. Landreth, president of the Pennsylvania Forestry Association, stated in 1888 that he had in his possession a piece of gate-post which had stood in place 100 years and was still in a perfect state of preservation (*Garden and Forest*, 1888, p. 500).

Catalpa cordifolia inhabits moist fertile situations in the States of Illinois, Indiana, Kentucky, Tennessee, Missouri and Arkansas. Under forest conditions it grows 100 feet, occasionally 120 feet, high, but in open situations where the branches have room for lateral development, it attains to only half those heights. The finest trunks are $4\frac{1}{2}$ feet in diameter. The blade of the leaf is ovate with a long, tapering apex and frequently more than one foot long by 6 to 8 inches broad; the petiole is about half the length of the blade. It is a very handsome tree in regard to both its foliage and its flowers, the latter being $2\frac{1}{2}$ inches across with a white, campanulate corolla blotched with yellow and spotted with purple. The oldest specimens in Kew were raised in 1880 from seed sent by Professor Sargent, and they have flowered annually for several years past.

The species may easily be confounded with *Catalpa bignoniæ-folia*, a well-known ornamental tree that has been cultivated in English gardens since early in the eighteenth century. Besides differing, however, from *C. cordifolia* in its slower growth and smaller stature, it can also be distinguished by its shorter, less tapering leaves, its fewer-flowered panicles, its smaller, more profusely spotted flowers, and the thinner walls of the fruit. It is of little value as a timber tree compared with *C. cordifolia* and if large plantings of the latter were contemplated, care should be taken to obtain the seed true.

The wood of *C. cordifolia* is light in weight and colour, and although coarse-grained and neither hard nor strong, it takes a fine polish and can be used for furniture and cabinet work. Millions of trees have been planted by railway companies and others in the United States, especially in the west. It is highly valued there for making railway sleepers on account of its great durability when in contact with the earth. In this respect it is superior to 'White Oak,' but the wood does not afford so firm and sound a grip for the bolts holding down the rail to the sleeper as the 'White Oak' does. It is also very useful for gate-posts, fencing, telegraph poles, &c.

And now the question arises as to whether this tree is likely to be of any value for forest planting in the British Isles. We may say at once that the replies made by Kew to enquirers on this matter have been to the effect that it is very improbable that this Catalpa can be grown for profit in this country, and to dissuade them from devoting land and capital to its cultivation on any other than an experimental scale. It is certainly quite hardy in the South of England; at Kew it has withstood the winters of the last 25 years quite uninjured. But it does not grow fast. The trees at Kew, however, do not give a fair idea of its capabilities

under forest conditions. They have been transplanted several times, are situated quite in the open, and the soil is not good. The localities in the British Isles where it would be most likely to succeed are the south and west of England and perhaps the north of Ireland. Although a mild climate is no doubt favourable to its quick growth, it is not that alone that will make its cultivation a success. It has experienced 32° Fahr. of frost at Kew without injury and is perfectly hardy in the severe New England climate. Abundant sunshine with a moist fertile soil are more important desiderata, and where those are available more profitable crops than this *Catalpa* can be secured. Certainly it will not be a success—as some enquirers had been led to hope—on barren uplands and places where ordinary crops could not be grown.

X.—DIAGNOSES AFRICANAE: XIX.

881. *Hibiscus Allenii*, *Sprague et Hutchinson* [Malvaceae—Hibisceae]; ab affini *H. micrantho*, Linn. f., foliis profunde trilobatis et seminibus pubescentibus tantum nec villosis recedit.

Herba erecta, 30–50 cm. alta, simplex vel ramis lateralibus rectis angulo acuto divergentibus munita, caulibus et petiolis et pedunculis pilis stellatis flavescentibus patule hirsutis. *Caulis* teres, basi 1·5–3 mm. diametro, internodiis 3–6 cm. longis. *Stipulae* filiformes, 3–5 mm. longae, pilis simplicibus hirsutae. *Folia* saltem 3-lobata, irregulariter serrata, lobis oblongis vel oblongo-lanceolatis 2–5·5 cm. longis 0·8–2 cm. latis rarius (in foliis basalibus ramorum) elliptico-oblongis 1–2 cm. longis 0·8–1·2 cm. latis, superiora et media profunde 3-lobata, inferiora minus profunde 3–5-lobata, lobo intermedio interdum utrinque lobulo circa medium orto munito, lamina utrinque strigosa supra pilis simplicibus subtus pilis 3–4-radiatis, venis utrinque subius magis prominulis; petioli 1–2·3 cm. longi. *Flores* in axillis solitarii, pedunculis 2·5–3 cm. longis circ. 5 mm. infra apicem articulatis sub fructu usque ad 4 cm. longis. *Bracteolae* 8, rarius 9, lineares, obtusae, 2·5–3·75 mm. longae, circ. 0·5 mm. latae, extra et marginibus pilis biradiatis et simplicibus hirsutae. *Calyx* apice extra et margine pilis simplicibus ceterum extra pilis 2-radiatis hirsutus, intus glaber; tubus 2 mm. longus; lobi lanceolati, subacuti, 5–6·5 mm. longi, 1·75–2·5 mm. lati. *Petala* carminea, oblique elliptica, rotundata, 12 mm. longa, 6–6·5 mm. lata, basi 2 mm. tubo stamineo adnata, intus glabra, extra parte eorum in alabastro visa stellato-pilosa. *Stamina* 25; columna tota 11–12 mm. longa, staminum verticillos tres gerens, ultra verticillum superiorem 2 mm. producta, dentibus 5 triangularibus vix 0·5 mm. longis; verticillus inferior 1 mm. supra petala insertus, e staminibus 5 compositus, filamentellis simplicibus 1·5–2 mm. longis; verticilli medius et superior e staminibus 10 compositi, filamentellis e basi bifurcatis quam iis verticilli inferioris brevioribus; verticillus medius 3·5–4·5 mm. supra inferiorem, superior 2·5 mm. supra verticillum medium situs. *Ovarium* globosum, 2·5 mm. diametro, minute dense appresse albo-pubescent, oculis 3–4 ovulatis; styli glabri pars