

ACACIA (*Willdenow*).

*Acacia pycnantha* (*Bentham*). "Broad-leaved Wattle," "Golden Wattle." Australia.—A small tree. Affords one of the best barks for tanning, containing 30 per cent. of tannin. The true leaves are produced only during the young state, and are succeeded by broad, flattened, foliaceous appendages, which resemble the leaves of the puka or broadleaf (*Griselinia littoralis*). The wood is used for turnery-work, and is excellent for firewood.

*A. melanoxylon* (*Robert Brown*). "Blackwood," "Lightwood." Southern Australia.—Wood used for carriage-building, furniture, cooper's work, and many other purposes. Of rather slow growth in this colony.

*A. decurrens* (*Willdenow*). "Black Wattle." Australia, Tasmania.—"A small or middle-sized tree. Its wood is used for staves, for turners' work, occasionally for axe- and pick-handles, and many other purposes; it supplies an excellent firewood. A chief use of the tree would be also to afford the first shelter in treeless localities for raising forests. Its bark, rich in tannin, and its gum, not dissimilar to gum arabic, render this tree highly important. The English price of the bark ranges from £8 to £11; in Melbourne it averages about £5 to £8 per ton. It varies, so far as experiments made in my laboratory have shown, in its contents of tannin principle from 30 to 40 per cent. in bark completely dried. In the mercantile bark the percentage is somewhat less, according to the state of its dryness, it retaining about 10 per cent. moisture. 1½ lb. of black-wattle bark gives 1 lb. of leather; whereas 5 lb. of English oak-bark are requisite for the same results; but the tannin principle of both is not absolutely identical. Melbourne tanners consider a ton of black-wattle bark sufficient to tan twenty-five to thirty hides; it is best adapted for sole-leather and other so-called heavy goods. The leather is fully as durable as that tanned with oak-bark, and nearly as good in colour. Bark carefully stored for a season improves in tannin-power considerably. From experiments made under the author's direction it appears that no appreciable difference exists in the percentage of tannin in wattle-bark, whether obtained in the dry or in the wet season. The tannin of this acacia yields a gray precipitate with ferric, and a violet colour with ferrous salts; it is completely precipitated with a strong aqueous solution by means of concentrated sulphuric acid. The bark improves by age and desiccation, and yields about 40 per cent. of catechu, rather more than half of which is tannic acid. Bichromate of potash, added in a minute quantity to the boiling solution of mimosa tannin, produces a ruby-red liquid fit for dye-purposes; and this solution gives with the salts of sub-oxide of iron black pigments, and with the salts of the full oxide of iron red-brown dyes. As far back as 1823 a fluid extract of wattle-bark was shipped to London, fetching then the extraordinary price of £50 per ton, one ton of bark yielding 4 cwt. of extract, of tar-consistence (*Simmonds*); thus saving much freight and cartage. Tan-extract is best obtained from the bark by hydraulic pressure and evaporation of the strong liquid thus obtained in wide pans under steam-heat, or, better still, to avoid any decomposition of the tannic acid, by evaporation under a strong current of cold air. For cutch or terra japonica the infusion is carefully evaporated by gentle heat. The estimation of tannic acid in acacia-barks is effected most expeditiously by filtering the aqueous decoction of the bark after cooling, evaporating the solution, and then redissolving the residue in alcohol, and determining the weight of the tannin principle obtained by evaporating the filtered alcoholic solution to perfect dryness. The cultivation of the black wattle is extremely easy, being effected by sowing either broadcast or in rows. Seeds can be obtained in Melbourne at about 5s. per pound, which contains from 30,000 to 50,000 grains. They are known to retain their vitality for several years. For discrimination in mercantile transactions it may be noted that the seeds of the genuine *A. decurrens* are somewhat smaller, comparatively shorter, rounder, and not so flat as those of *A. dealbata*; while the funicular appendage does not extend so far along the seeds, nor is the pod quite so broad. From those of *A. pycnantha* they differ in being shorter, thus more ovate than oblong. Seeds should be soaked in warm water before sowing. Any bare, sterile, unutilized place might most remuneratively be sown with this wattle-acacia. The return could be expected in from five to ten years. Full-grown trees, which supply also the best quality, yield as much as 1 cwt. of bark. Mr. J. Dickinson states that he has seen 10 cwt. of bark obtained from a single tree of gigantic dimensions at Southport. A quarter of a ton of bark was obtained from one tree at Tambo without stripping all the limbs. The height of this tree was 60 ft., and the stem 2 ft. in diameter. The rate of growth of the tree is about 1 in. in diameter of stem annually. It is content with the poorest and driest soil, although in more fertile ground it shows greater celerity of growth. This acacia is, perhaps, the most important of all tan-yielding trees of the warm temperate zones for its strength in tannic acid, its rapidity of growth, its contentedness with almost any soil, the ease with which it can be reared, and its early yield of tanner's bark, and, indeed, also gum and stave-wood. This tree is to be recommended for poor land, affected with sorrel. It is hardier than *Eucalyptus globulus*, thus enduring the climate of south England, although it hardly extends to sub-alpine elevations."—*From Baron von Mueller's "Select Extra-tropical Plants."*

In New Zealand this species is commonly confused with the grey or silver wattle (*Acacia dealbata*), which has been generally planted, but from which it may be distinguished by its green foliage and interrupted pod, which requires fully a year to ripen, so that pods and flowers are to be seen on the tree at the same time. Silver wattle and black wattle are alike naturalized in several localities in the North. Bark of the black wattle from Hokianga, analysed in the Colonial Laboratory, yielded 23 per cent. of tannin. A good specimen of the black wattle is to be seen in the grounds of the Hon. W. B. D. Mantell, F.G.S., &c., Wellington.

EUCALYPTUS (*L'Heritier*).

The genus comprises about 135 species, nearly all of which are restricted to Australia, a few only being found in New Guinea, Timor, and the Molucca Islands. They occur from sea-level to nearly 6,000 ft., and vary from mere shrubs to magnificent trees 470 ft. high. Several species afford