

WESTERN AUSTRALIAN DEPARTMENT OF AGRICULTURE

TREES OF WESTERN AUSTRALIA

No. 3 – TUART

No. 4 – ILLYARRIE

by

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GOVERNMENT BOTANIST



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By C. A. GARDNER, Government Botanist

3—TUART

(*Eucalyptus gomphocephala* D.C.)

EARLY settlers of the Swan River Colony soon learnt to value the timber of a tree which the aborigines called "Tooart." It ranked with that of the jarrah in local importance and, because of its toughness, was used for keelsons, stern posts, bridge supports, shafts and wheelwright's work—in short for all purposes where great strength, solidity and durability were needed.

The Tuart is restricted naturally to the limestone areas of the western coastal plain extending northward from the Vasse district. Its southern limits are to be found along the Sabina River near Busselton, where the coastal limestone dips. To the north, the Tuart extends as a large tree in an almost unbroken belt throughout the limestone country as far north as Yancheep. As a smaller tree, up to about 40 feet in height, it may be found well to the north of the Moore River.

The best specimens of the Tuart are found in the Vasse district around Wonerup and Ludlow, where individual trees attain a height of 140 feet, the trunks being up to 45 feet in length and 25 feet or more in girth. The Tuart does not grow mixed with other *Eucalyptus* trees except to a limited extent in the northern parts of its range where it occurs with jarrah and the marri or redgum.

In the southern areas of its habitat where the largest trees are found and a true Tuart formation exists as a forest, the trees are associated with peppermints and other smaller trees which form an under-storey to the massive Tuarts. Unlike the jarrah and karri

forests, the Tuart forest has comparatively little ground covering of small shrubs, and in consequence takes on a park-like appearance.

The Tuart is what would be termed a "box" tree in Eastern Australia, in other words, it is a completely rough-barked species with a pale grey, somewhat fibrous, close, dense bark which extends eventually to the branchlets.

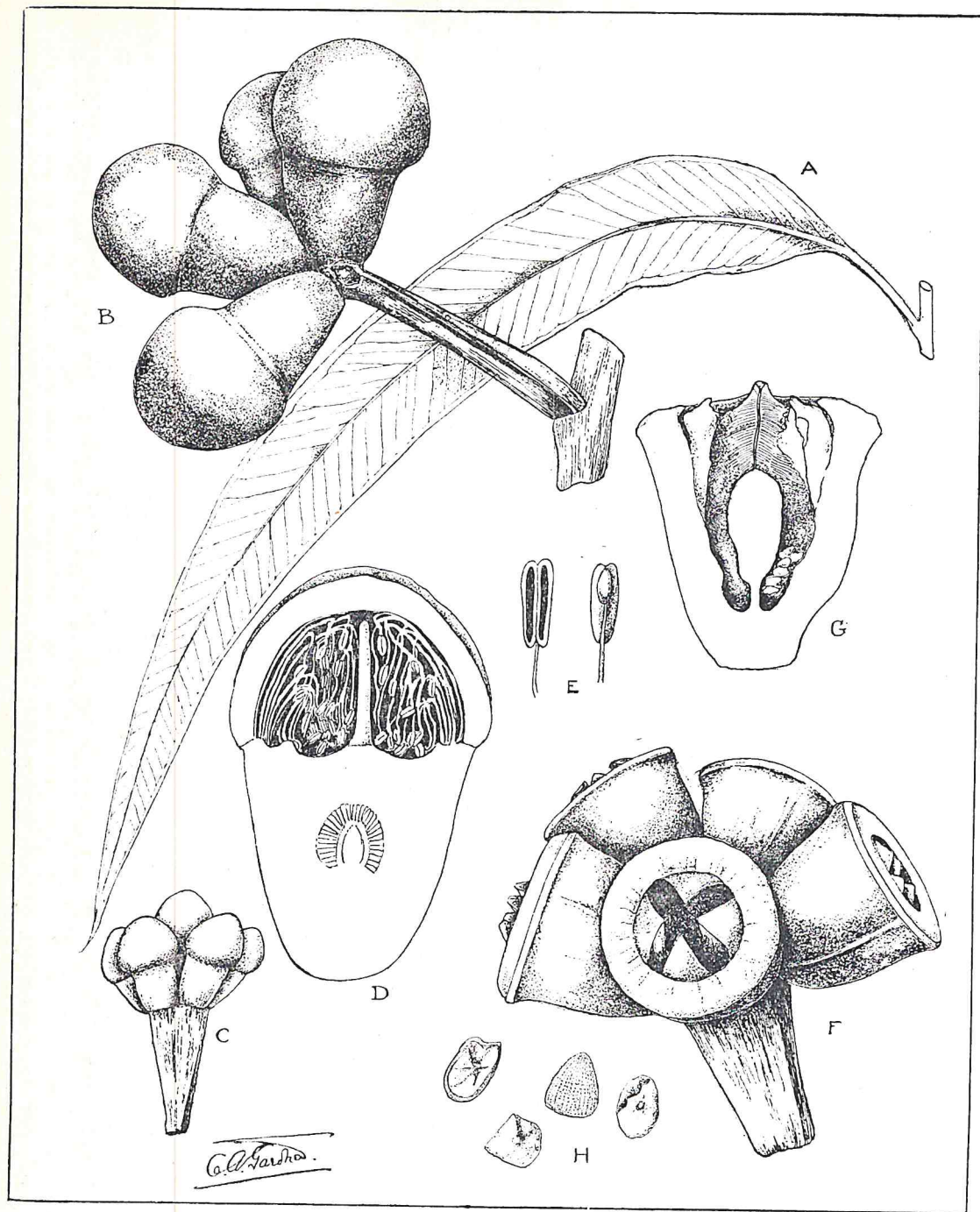
The timber is a pale yellow in colour, and is very hard and dense with a strong interlocked grain—a characteristic which makes it desirable for use where strains or abrasions are encountered. For this reason it is largely employed in the construction of railway wagons, and formerly it was extensively used for the pins which supported telegraph insulators. The timber is reasonably termite resistant and is even stronger than that of the wandoo or whitegum.

The area of prime Tuart forest is of very limited extent, and the timber growing in State forests is reserved for Government requirements.

The flowers of the Tuart yield a profuse good quality nectar and Tuart honey is light in colour, of a pleasing flavour, and fine-grained when candied. Nectar yields are affected by damage to the flower buds caused by the Tuart bud weevil which

Tuart trees in a park-like setting near Busselton. Few stands like this are to be found today

—Photo by courtesy of Forests Department.



TUART (*Eucalyptus gomphocephala* D.C.)

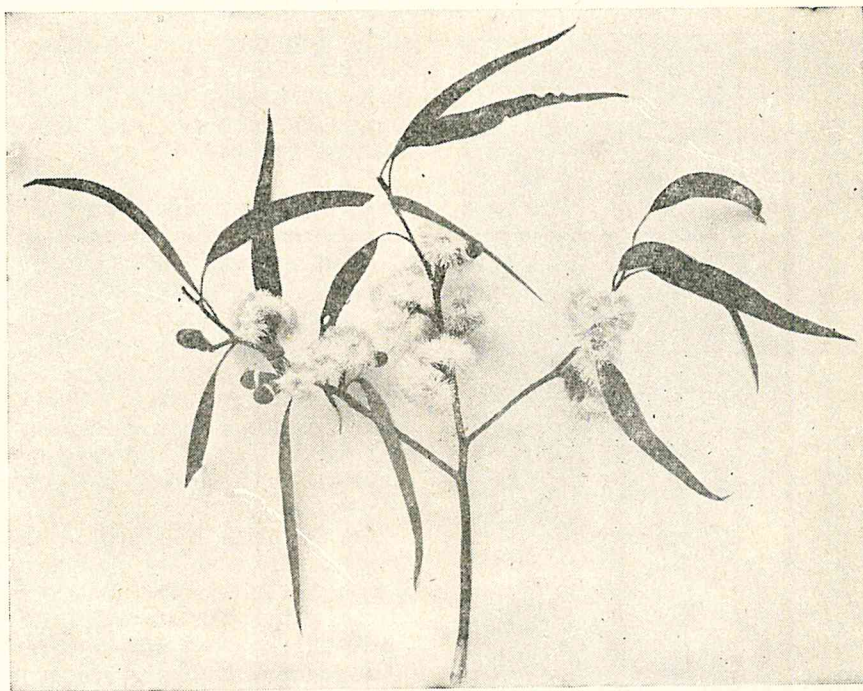
A—Leaf; B—Buds (one and a half times natural size); C—Buds (half natural size); D—Section of flower bud (twice natural size); E—Anthers (much enlarged); F—Fruits (natural size); G—Section of fruit (slightly enlarged); H—Seeds (much magnified). Icon. origin

bores through the young buds and causes them to fall. Tuart leaves yield 0.03 per cent. of oil.

DESCRIPTION OF TREE

Typically 50 to 120 feet tall, with spreading or spreading-erect branches, covered throughout with a pale grey, rough, somewhat fibrous persistent bark. Leaves alternate, pendulous, lance-shaped, curved like a sickle, the midrib prominent, the lateral nerves spreading at a fairly wide angle, the intramarginal nerve distinct from the leaf-margin. Flowers in axillary umbels or heads, the

common stalk much flattened and thick, and supporting from three to seven flowers which are stalkless. Calyx-tube bell-shaped, the operculum hemispherical to ovoid-hemispherical much broader than the calyx-tube. Stamens with yellowish-white filaments inflected in the bud, the anthers versatile (centrally attached), oblong, opening in longitudinal parallel slits. Fruits stalkless, bell-shaped, smooth or with one faint rib, three-quarters of an inch long, the disc slightly raised narrow, the capsule deeply included in the fruiting calyx-tube with broad triangular truncate valves almost level with the orifice of the fruit.



Tuart flowers and leaves. Note operculum being pushed off on lower left-hand spray, prior to opening of the blossom

4—ILLYARRIE

(*Eucalyptus erythrocorys* F. Muell.)

UPON his return from a trip along the old stock route between Perth and Geraldton in December 1851, James Drummond, writing to Sir William Hooker, Director of the Royal Botanic Gardens, Kew, mentions the discovery of a very striking *Eucalyptus* which he collected on limestone hills to the west of the "Valley of the Lakes." This tree was distinguished by its brilliant scarlet bud caps and bright yellow stamens expanded in a cross-shaped pattern.

Shortly afterwards, Augustus Oldfield a botanist collecting specimens between Port Gregory and Shark Bay, encountered the same tree which the local aborigines called the "Illyarrie."



Close-up of the trunk of the Illyarrie, showing white bark partly covered by patches of older bark.

—Photo. J. A. Mallett.

It was not until 1860, however, that Baron von Mueller gave the plant the name of *erythrocorys*, in reference to its bright red bud-cap.

The species remained in obscurity, however, until in recent years it was found in some abundance at Bookara Siding not far from Dongara. Today it is found in many parks and gardens both in the city and in the country, and it is successfully cultivated abroad.

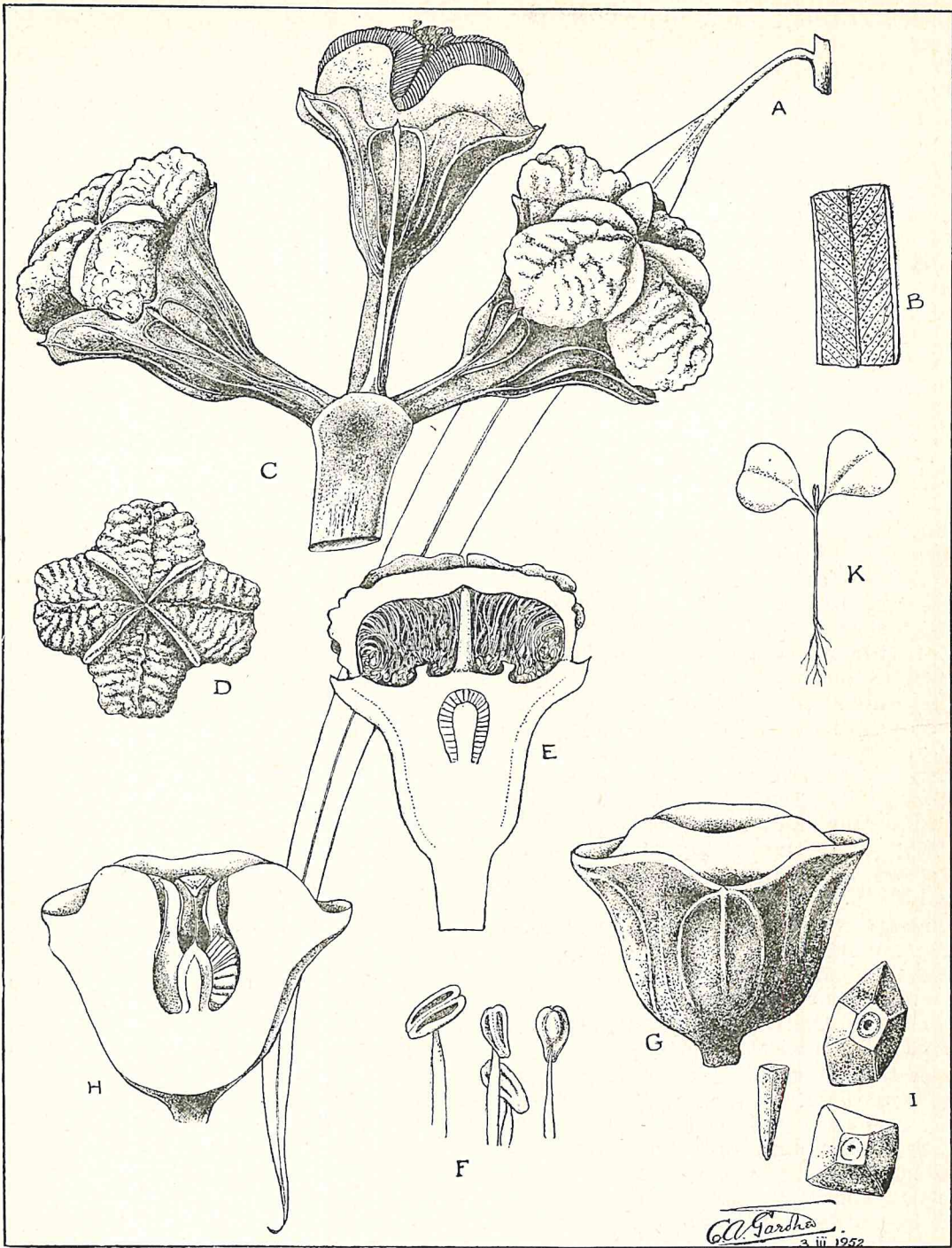
Of no value to the sawmiller—it is a small tree and the timber is brittle and short-grained—the Illyarrie is one of the most decorative species of the genus and deserves to be better known. It is by far the most spectacular of those species of *Eucalyptus* in which the stamens, instead of being in a continuous series, extend in four radiating clusters. The contrast of scarlet, yellow and green found in the buds and flowers when the tree is in blossom make it a desirable specimen for any garden.

The Illyarrie has proved its ability to adapt itself to many classes of soils and, although naturally restricted to the coastal limestone, it has proved hardy in cultivation in the low rainfall areas, in heavy soils and in granitic loams.

Nothing seems to be known concerning its value either as an oil-yielding tree or as a nectar producer, although the flow of nectar seems to be copious.

DESCRIPTION OF TREE

The Illyarrie is easily recognised among other species of *Eucalyptus* because of its four-lobed biretta-like scarlet operculum together with its yellow flowers, the stamens of which are in four tufts giving



ILLYARRIE (*Eucalyptus erythrocorys* F. Muell.)

A.—Leaf (slightly reduced); B—Portion of leaf showing nervation and oil dots; C—Umbel of buds in various stages of development, the central one showing the bud-cap fallen (one and a half times natural size); D—Operculum or bud-cap; E—Section of bud (almost twice natural size); F—Stamens (much enlarged); G—Fruit (natural size); H—Section of fruit showing seeds; I—Seeds (much enlarged); K—Seedling, showing expanded cotyledons. Icon. origin.

the open flowers a cruciform appearance.

It is a tree of 15 to 25 feet in height with spreading branches and opposite pendulous narrow green leaves. The bark is white, occasionally with older bark forming a persistent covering in patches, at other times it is clean and white. The timber is pale and brittle and of no commercial value.

The young leaves of coppice shoots or seedlings are broad and rigidly hairy, and pale green or grey in colour. The narrow pendulous leaves are indistinctly veined and the intramarginal nerve (the nerve or vein parallel to the margin) is at some distance from the margin of the leaf. The leaf is fairly copiously dotted with oil cavities.

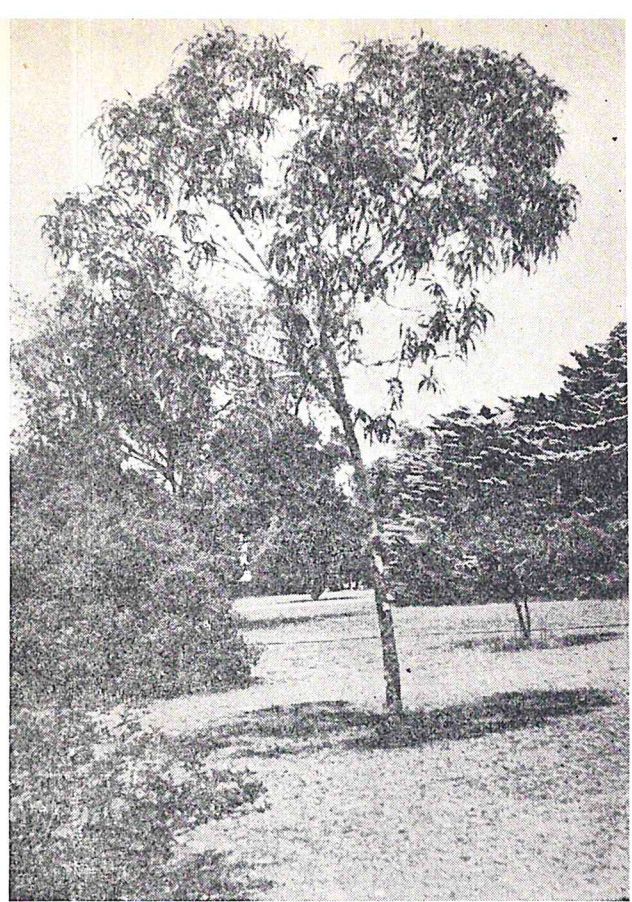
The flowers are produced in umbels of three, the common stalk or peduncle being thick and flattened and of a purplish colour, as are the individual flower-stalks or pedicels. The buds are large and the green calyx-tube is four-toothed. Each tooth is continued downwards as a rib on each side of which is another rib which unites with the central rib some distance below the tooth.

The operculum is of brilliant scarlet in marked contrast to the green calyx, and is cross-shaped and more or less transversely wrinkled or warty with a narrow median crest. Alternating with these four lobes are four erect ridges which protrude slightly above the general level of the operculum. It is indeed an exact replica of a biretta.

The stamens are inserted on the margin and inner side of a four-lobed ridge immediately inside the bud cap or operculum, and are in four clusters so that when the flower opens, the sulphur-yellow filaments expand in a cruciform pattern.

A section of the bud shows a circular ridge between the staminal ring and the style, and this in fruit develops into the raised summit of the disk. The stamens have versatile (centrally attached) oblong-shaped anthers which open in parallel longitudinal slits. They are all fertile.

The fruit is widely bell-shaped, and exhibits the same ribbing as the calyx-tube when in the bud stage; the summit of the fruit or disk has four depressions corresponding to the intervals between the



ILLYARRIE.—This specimen is growing near the entrance to King's Park, Perth

—Photo. J. A. Mallett.

tufts of stamens, while inside there is a convex elevation dipping in the centre towards the capsule. The fertile seeds are almost black and more or less pyramidal in shape, while the sterile seeds (packing) are narrowly wedge shaped. The Ilyarrie is one of the most ornamental of the species of Eucalyptus and is adaptable for all classes of soil. It thrives inland as far as Tammin in heavy soils, and is equally at home in sand despite the fact that under natural conditions its distribution, like that of the Tuart is governed by the presence of coastal limestone.

The tree is not uncommon in various places between the Murchison River and Jurien Bay. It is common at Bookara Siding near Dongara, and fairly large trees occur on the limestone to the south of Lake Logue and on the limestone flats, while to the south-west of Cockleshell Gully the trees are found in a reduced form on steep limestone hills.