LEAFLET No. 2015

WESTERN AUSTRALIA

DEPARTMENT OF AGRICULTURE

1952

CONTENTS

Reprinted from

"THE JOURNAL OF AGRICULTURE OF WESTERN AUSTRALIA"
VOL. 1 (Third Series)————SEPTEMBER-OCTOBER, 1952

57989/10/52—4,200 By Authority: WILLIAM H. WYATT, Government Printer, Perth.

GIMLET TREES (Eucalyptus salubris F. Muell.)

TREES OF WESTERN AUSTRALIA

By C. A. GARDNER, Government Botanist

Nos. 7 and 8—THE GIMLET TREES (*Eucalyptus salubris* F. Muell. and *E. campaspe* S. Moore)

NEXT to the salmon gum, the gimlet tree is perhaps the best-known of the trees of the Eastern Agricultural Districts and the Eastern Goldfields. A thin reddish-brown bark, and a fluted or spirally-twisted trunk (especially in the young trees), distinguish at a glance the gimlet trees or fluted gums from all other Eucalyptus trees. This bark has a thin outer layer which when removed reveals a sappy pale green, inner bark, and sometimes this inner green bark is exposed when the trees shed their reddish-brown outer bark towards the end of summer.

The bark is "clean" and smooth throughout, although occasionally there remain pieces of ribbony bark persisting at the base of the trunk.

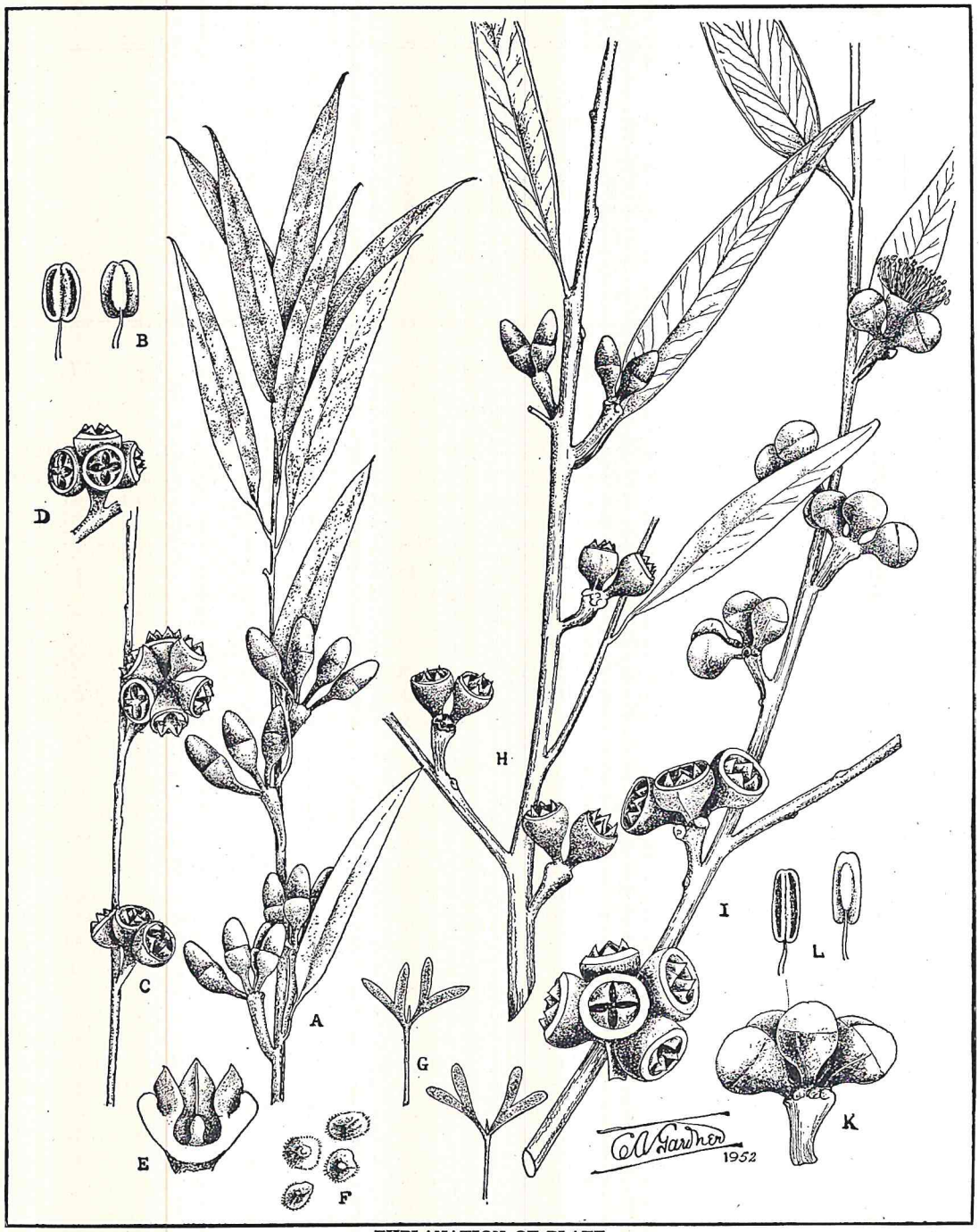
The timber is pale brown, straight-grained and very strong and durable, and for this reason, as well as for the fact that the young trees, especially when growing close together, have slender straight trunks, they are sought after for rails and for poles. The timber is not termite-resistant, and the older trees are frequently hollow as a result of termite infection.

The presence of gimlet trees is an indication of good loamy soils, often with a large proportion of clay, and the tree usually occurs with the salmon gum, forming open woodland. When they grow separately, it is usually found that the gimlet trees inhabit the heavier soils. Salmon gum and gimlet country is usually regarded as being first-class country for wheat-growing.

There are two distinct trees called gimlets, the common gimlet *(Eucalyptus salubris)* and the silver-topped gimlet *(E. campaspe)*. The former enjoys a wide range—extending from the Mullewa and the Mount Gibson country near Ninghan eastwards to the north of Kalgoorlie; southwards through Dowerin and Cunderdin as far south as Lake Grace, and eastwards to Ravensthorpe and Salmon Gums. Its eastern extremities are found as far inland as Ularring and Queen Victoria Spring, always occurring on low lying areas, frequently in association with the salmon gum.

The silver-topped gimlet on the other hand, is confined to the Eastern Goldfields, and is recorded from the Bullabulling and Coolgardie districts to as far south as Higginsville. The two trees are very closely related, and in their appearance and floral structure the essential differences between them are restricted to the smaller branches and twigs, the leaves and the anthers. In the common gimlet the branchlets are reddish and shining, the leaves of a deep lustrous green, and the anthers broad. The fruits are usually small.

In the silver-topped gimlet the smaller branches and twigs are covered with a white powder, giving them a silvery or frosted appearance. The leaves are a pale bluish green (glaucous), anthers



EXPLANATION OF PLATE

A—G. THE COMMON GIMLET (Eucalyptus salubris F. Muell). A, branchlet with leaves and buds. B, anther. C and D, fruits. E, fruit in longitudinal section. F, seeds. G, expanded (seedling) cotyledons.

H—L. THE SILVER-TOPPED GIMLET (Eucalyptus campaspe S. Moore). H, branchlet with leaves, buds and fruits of the Higginsville form. I, branchlet with buds and fruits of the Coolgardie (Montana Hill) form, also K, buds and L, anthers of the Coolgardie form.

—Icon. origin.

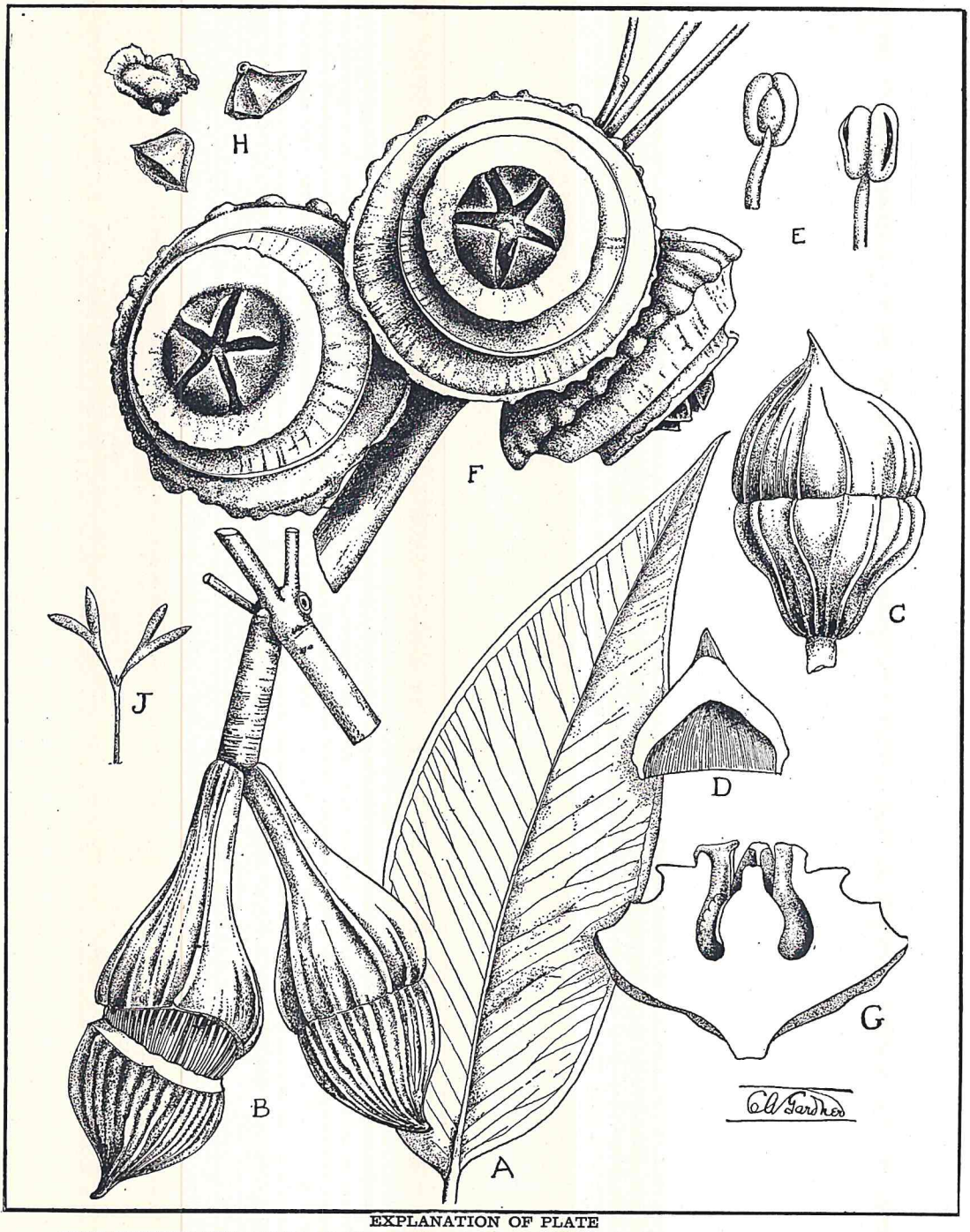
SILVER-TOPPED GIMLET (Eucalyptus campaspe S. Moore)

long and narrow, and the fruits typically larger. The trunk, bark and branching habit of the two are similar.

The common gimlet was named *salubris* by von Mueller because of what he termed its "sanitary importance"—its health-giving properties, ascribed to what he regarded, from its very numerous oil-glands, as a high yield of eucalyptus oil. Examinations of the oil made by Baker and Smith from trees grown in the Hine's Hill district have scarcely confirmed this, the yield being 1.4 per cent., and the cineole content of the oil 10 per cent., with much cymene and high boiling aldehyde. Further examinations from other trees and districts may result in a higher production of oil, as is the case with the salmon gum.

The bark is rich in tannin, containing up to 18.6 per cent. When dry it is very friable, and its action as a tanning agent is said to be rapid. The native name of the common gimlet is given as Gnardarup.

The silver-topped gimlet is named *campaspe* from the fact that on the Eastern Goldfields it grows on plains or level stretches of soil. Variations in its oil-yield are rather interesting. Trees from Widgiemooltha gave a yield of 0.72 per cent., with a cineole content of 15 per cent.; alcohols about 20 per cent., and the oil of a terpene type. Trees from Gibraltar on the other hand gave an oil of what is probably a pinene type; a yield of 1.2 per cent., and a cineole content of 64 per cent., with alcohols 10 per cent. These two forms are illustrated, the Higginsville plant (near Widgiemooltha) shown in figure H, while the Coolgardie (Gibraltar ?) form



EXPLANATION OF PLATE

PEAR-FRUITED MALLEE (Eucalyptus pyriformis Turcz.).—A, leaf. B, buds. C, bud of the typical form. D, operculum in longitudinal section. E, anthers. F, clusters of fruits of the typical form. G, longitudinal section of the fruit. H, seeds. J, cotyledons (seed-leaves).

—Incon. origin.

is shown in figure I. There are distinct differences between the two, and the species require further investigation, both botanically and chemically.

Both trees are eminently suitable for planting, in parks, in gardens, and as street trees. Trees planted in Tammin are proving very successful as street trees. They are also suitable for windbreak and shade purposes.

DESCRIPTION OF THE SPECIES

1.—COMMON GIMLET (Eucalyptus salubris F. Muell.)

A tree 60 to 80 feet tall, attaining a diameter of 30 inches, and a trunk up to 50 feet long, but usually much smaller, the branches erect, usually slender. The trunk of the young plant is typically fluted or spirally twisted, but this is not always the case, and old robust trees usually have a smooth cylindrical trunk. Bark thin, smooth, greenish-red or reddish-brown, shining. Timber pale, hard and dense, strong, with a narrow white sapwood. Leaves alternate, petiolate, erect, narrow-lanceolate, shining on both surfaces, deep green, acute or attenuated into a long hooked point, the midrib narrow and conspicuous, the lateral nerves not very distinct, making a rather wide angle with the midrib, the intramarginal nerve close to the leaf margin. Flowers in axillary umbels, the peduncle more or less flattened, rather long, or sometimes short, bearing 4-7 flowers on slender pedicels. Calyx-tube obovoid to hemispherical, smooth; operculum ovoid to almost cylindrical, smooth, usually red in colour and obtuse. Stamens numerous, the filaments inflected in the bud; anthers white, opening in longitudinal slits. Fruit obovoid to hemispherical, often slightly 2-angled, with a narrow convex rim or disc, and prominently exserted deltoid valves typically four in number. Seeds minutely fringed.

2.—SILVER-TOPPED GIMLET (Eucalyptus campaspe S. Moore)

A slender tree 25 to 35 feet tall, with the typical appearance of the common gimlet, but the upper parts of the branches and the branchlets covered with a white powder. Leaves petiolate, alternate, erect or spreading, usually broader than those of Eucalyptus salubris, and blue-green in appearance—never deep green and lustrous. Flowers in axillary umbels, the peduncles usually short and broad, and the flowers almost sessile, the whole inflorescence powdery-white; calyx-tube hemispherical to shortly obovoid; operculum conical to hemispherical, rarely longer than the calyx-tube, smooth. Stamens numerous, the white filaments inflected in the bud; anthers versatile, rather narrow, opening in parallel longitudinal slits. Fruit hemispherical to obovoid-turbinate, 7-10mm. long, the disc flat, the valves (usually four) broadly deltoid and exserted. Seeds unknown.

No. 9—THE PEAR-FRUITED MALLEE

(*Eucalyptus pyriformis* Turcz.)

THIS species, named by the Russian botanist Turczaninow, takes its name pyriformis from its pear-shaped buds. It is a shrubby eucalypt, and hence a mallee, rarely exceeding 12 feet in height, with a rough bark and smooth stout branches, often of a shining red colour. The leaves are alternate rigid and erect, thick, pale grey-green on both surfaces, and ovate-lanceolate to lanceolate in shape, the midrib conspicuous, the lateral nerves only moderately so and diverging from the midrib at a wide angle, the intramarginal nerve distinctly removed from the leaf-margin.

The oil-glands are concealed, but numerous. Flowers very large, usually two or three together on thick recurved peduncles, very rarely solitary, the pedicels robust, as long as or longer than the calyx-tube or sometimes shorter, rarely the flowers without pedicels. Calyx-tube from obconical (i.e., conical but attached by the apex) to depressed-hemispherical, with several longitudinal ribs; usually pale or glaucous in the bud; operculum hemispherical to shortly conical, usually beaked, longitudinally ribbed, but usually less markedly so than the calyx-tube, very thick and with a broad base. Stamens numerous, long, the filaments yellow, pink or red, inflected in the bud; anthers oval in outline, versatile (attached above the base) opening in longitudinal parallel slits; style thick and straight. Fruit very large (4-7cm. diameter—i.e., 2-3 inches), varying in shape from elongated obconical to depressed hemispherical (the latter illustrated on Plate II), strongly and irregularly longitudinally ribbed, either tapering into the pedicel at the base, or when broad almost sessile (stalkless), the disc very broad, abruptly raised above the rim, and depressed in the middle; capsule 4-6-valved, the valves broadly deltoid and not exserted. Fertile seeds more or less pyramidal, and winged on the margins, dark brown or black; sterile seeds very narrow. Cotyledons bifurcated.

The species occurs in poor sandy country over a wide expanse of country. From the lower Murchison River in the north it extends southwards to near Watheroo, and eastwards to the Eastern Goldfields as far as Queen Victoria Spring, and northwards to Leonora. The

typical form has short pedicels and a short calyx, but the common form from the Goomalling-Dowerin district, called the "Dowerin Rose"—the variety *elongata*—has elongated buds tapering into a long pedicel.

It is suitable for planting in parks and gardens, being exceptionally hardy and among the most decorative of all the species of *Eucalyptus*. It is always a shrub and does not produce a large bulbous stock, but remains shrubby, branching from the ground. It yields an oil of the cineole-pinene-eudesmol type. With a yield of 1.1 per cent., the cineole content being 56 per cent.

Already common in certain parks, this species should be more extensively planted in the agricultural areas, especially in areas free from frost. Its floriferous habit and large blooms promise well for its value as a pollen and nectar producer, and it should be of value to the apiarist. In the size of its blossoms it is little smaller than *Eucalyptus macrocarpa*, and where the latter thrives, *Eucalyptus pyriformis* should succeed.