

# Meet the Eucalyptus

By FRANCISCO N. TAMOLANG

The forestry world is becoming conscious of a "new" tree of great promise, the Eucalypt or Eucalyptus. There is at this instant in Australia, a tour on Eucalyptus, by delegates from different nations to acquaint them with this tree and to find out the possibility of using it in solving the various forestry problems of their respective countries. The Eucalyptus has earned for itself the reputation as an excellent reforestation tree and this reputation is well founded.

Perhaps, the only genus of the dicotyledons represented by the greatest number of species is the *Eucalyptus*. It took some time to explore this prolific genus and although some difficulties were encountered in the botanical explorations, the results brought to light interesting facts. A reliable estimate reveals that nine out of every ten trees in Australia are eucalypts. Blakely, an Australian botanist, records about 600 or more species covering the hot, dry center of the continent, among the temperate coastal sand drifts, above the snowline of the Australian Alps, and in the wet tropical areas of Northern Queensland. Their distribution is quite uneven: 209 species are in New South Wales, 170 in Western Australia, 117 in Queensland, 76 in Victoria, 53 in the Northern Territory, 49 in South Australia and 31 in Tasmania.

As most of the species are very closely alike, it is rather difficult to identify them. A clue to their identification is the bark which makes it possible to classify them roughly into: bloodwoods (43 species), stringybarks (44), ironbarks (23), peppermints (29), boxes (60), gums (smooth barks) and blackbutts (120), mahoganies

(13), other scaly barks (33), and mallees (123). Along this classification, it becomes possible to identify them definitely by the smell and venation of their leaves, by the form and color of their juvenile leaves and by their fruits, buds and flowers.

The origin of the eucalypt is still not definitely known at present. A concept is that it possibly had its birthplace in the northwest of Australia and that some time before the land mass of the continent was separated from the Asiatic mainland, it spread to the western portion of Australia.

The genus *Eucalyptus* was first named in 1788 by L'Heretier after *Eucalyptus obliqua*, a specimen collected from Tasmania by Nelson and Anderson of Captain Cook's Third Expedition in 1777. The word *eucalyptus* is derived from the latin *eu* meaning well, and *kalypto* meaning cover; thus, describing the lid or operculum which covers the stamens in the young bud.

Although the eucalypts are known in the Philippines only as medicinal plants especially among the native herb doctors, they are pregnant with potentialities in Australia.

There are about 60 eucalypts being exploited commercially for timber which provide about 90 per cent of the Australian hardwood production. In 1947, the output of sawn hardwood timber was 1,050,000,000 board feet. Great Britain imports most of these timbers as English builders have recognized their toughness, strength weight, and beauty. It is said that much of London's traffic today rolls on Australian jarrah (*E. marginata*) blocks, while other eucalyptus have been used to build wharves in Canada and other countries. Karri (*E.*

*diversicolor*) and tuart (*E. gomphocephala*) are so strong that they have been used to replace steel in railroad works. Spotted gum (*E. maculata*) is famous for ax and tool handles and is slightly inferior to North America's hickory. Tannin producers such as wandoo (*E. redunca*) and brown mallet (*E. astringens*) are the best sources of myrton, a substance used in tanning. Sources of Australian pulp for paper manufacture and wall boards are silvertop ash (*E. sieberiana*), and mountain ash (*E. regnans*) which is the king of Australian eucalypts.

Most of the eucalypts are honey trees and they are the mainstay of Australia's flourishing honey industry. Some of the popular honey trees are: yellow box (*E. melliodora*), white box (*E. albens*), white sallee (*E. pauciflora*), bimbil box (*E. populifolia*) and coast grey box (*E. bosistoana*).

The Australian way of life is never complete without the eucalypts. The trees are beautiful especially when they are in bloom and fruiting, when shedding off their barks, and when dressing up with new foliage. Ornamental trees like the bimbil box (*E. populifolia*), salmon-white gum (*E. Lane-Pooli*), mealy stringybark (*E. cinerea*) and candle bark gum (*E. rubida*) are popular roadside and park trees. *E. ficifolia* and Red cap gum (*E. erythrocorys*) display amazing blossoms ranging from deep crimson to light pink, and deep yellow with scarlet cap respectively. In Canberra Sydney, Melbourne, Brisbane and the other cities the unsurpassed magnificence and beauty of these eucalypts are subjects of Australian art, song and poetry. Australian painters like Namajira and others glorify the eucalypts on canvas. Even the famous Australian song, *Waltzing Matilda*, mentions of the swagman who camped "under the shade of a coolibah tree," which is also a eucalypt.

Believe it or not, the tallest hardwood in the southern hemisphere and perhaps in the world so far, is a eucalypt. The giant mountain ash is overtopped by the *Sequoias* of North America by only about 24 (feet

(7.4 meters). The tallest known living mountain ash is in the Cumberland Valley in Victoria, and measures 301 feet and 6 inches (98.7 meters). There are claims in the past of giant mountain ash trees over 500 feet, although reliable records show 326 feet and 331 feet to the broken top. At Thorpdale, Victoria another giant is believed to have attained a height of 375 feet. "King Edward VII", a broken-topped giant had a girth of 112 feet (34.46 meters) at ground level, and it took fourteen men to link their hands around it.

There is money in the eucalyptus leaves. Valuable essential oils are extracted from the leaves by distillation and later refined in the factory. Since 1788 when a quarter gallon of eucalyptus oil was distilled from the leaves of Sydney peppermint (*E. piperita*), the eucalyptus oil industry has developed so tremendously that in 1942 there were exported 190,192 gallons worth P91,-269.00. Added to this is Australia's consumption of about 50,000 gallons annually.

Eucalyptus oil is in demand for industrial and medicinal uses. Pipertone, a medicinal product for synthetic thymol and menthol is extracted from *E. dives*, and *E. Lindleyana* (*numerosa*). For pharmaceutical preparation, confectionery and as a clothes cleaner, cineol is extracted from *E. dumosa*, *E. fruticetorum*, *E. viridis*, *E. leucoxydon*, *E. oneorifloia*, *E. salicifolia* and *E. radiata* var. *Australiana*. Rutin, a much sought medicinal product which is used for correcting high blood pressure is extracted from red stringybark (*E. macrorrhyncha*). For the perfume industry, lemon-scented gum (*E. citriodora*) contributes citronellal while *E. macarthurii* gives geraniol. Other eucalyptus oils which are used as disinfectants and mineral floatations are extracted from *E. dives* and *E. radiata*, as phillandrene. Penene, which is used to adulterate turpentine, is extracted from the bloodwoods.

The eucalyptus is said to be useful anywhere. In homes it makes an excellent firewood. On the highways, it furnishes fuel

for motor vehicles in the form of alcohol and charcoal especially during gasoline shortage. It is said that in 1938 there were served about 23,360 cars and 29,310 commercial vehicles. The railway system of Australia is likewise served as it is practically layed on ties of eucalyptus wood.

In the vast cattle and sheep ranches of Australia the eucalypt stands useful as shade trees, shelterwoods for creeks and as fences which extend to thousands of miles throughout the continent.

The eucalyptus has been admired most for its marvelous, seemingly magical reproductive power. There is the common saying in Australia "that if you protect the eucalyptus forest from fire it will do the rest by itself." At Derrier, Imbil, Queensland, a rough grass paddock for timber teams did not only produce sufficient grass but also generated a succeeding crop of fine straight ironbark and blue gum trees. Also, at Pomona, during the early pioneering days, homesteaders were persistently beaten down to desperation in their futile efforts to clear their land. It is said that flooded gum took over their homesteads faster than they could fell those trees.

A mute evidence of this regenerating power of eucalyptus is the success of the experiment conducted in the barren tract of land at the famous mining and formerly deforested town of Broken Hill, New South Wales. The area was enclosed with galvanized iron fence to prevent fires and to keep out animals. Years after, new growths of eucalypts appeared and took over the site. The success of this experiment encouraged the citizens of Broken Hill to reforest their farms and treeless pastures. Today, Broken Hill is proud of its green woodlands which have ameliorated its uncomfortable summer climate.

While the eucalypt has invaded the Philippines since 1911, perhaps only a few know of the hidden assets of this wonder tree. We have heard only that the eucalypt regenerates easily and readily by seeds and by cop-

pice thus, rendering it suitable as a reforestation tree.

Amazingly, Australian silviculture reveals that there is inherent in most eucalypts a rejuvenating potential stored almost above the root collar of the seedlings. This wonderful characteristic of the species generally appears as a minute paired structure in the axils of the cotyledons and is packed with food materials and provided with dormant buds. This is comparable to ordinary tubers such as the potato, but since it is essentially woody, Miss Leslie Kerr in 1924 proposed the term "lignotuber."

The lignotuber is of great importance in the first three or four years of the plant's life. Rodent attack is unlikely to occur owing to its more or less woody structure. As temporary reservoir of food materials, it enables the seedling to tide over and persist during long droughts with a few inches of soil on top of a rocky bed until its root system is well established. In the event of fire which may destroy the young plant, as long as the lignotuber is not badly burnt and the roots are intact, the lignotuber develops new shoots. Hence, almost anything can be done with a eucalyptus seedling except pull it off the ground.

The development of lignotuber is less in the gums, considerable in the boxes, and greatest of all in the mallees, where they persist throughout the life of the tree and attain a very large size. In the dry parts of Australia, the natives or aborigines obtain their water from this lignotuber or "bulge" whose roots run out for 40-80 feet from the stem and about 2-9 inches below the surface.

Eucalypts which are known to possess lignotubers are: *E. rudis*, *E. muelleriana*, *E. globulus*, *E. rostrata*, *E. blakelyi*, *E. saligna*, *E. hemiphloia*, *E. polyanthemus*, *E. melliodora*, *E. siderozylon*, *E. macrorrhyncha*, *E. obliqua*, *E. numorosa*, *E. capitellata*, *E. acmenoides*, and others.

The eucalypt is considered almost certainly as the greatest tree-traveller in the world. Most Eucalypts now growing today in New

Zealand, the Americas, the Pacific Islands, Italy, France, Africa, India, England, and Spain were of Australian parent stock. Recently, 40 millions were shipped to Georgia (U.S.R.R.) to be planted in a big reforestation scheme.

Probably the best known overseas emigrants are the blue gums (*E. globulus* and *E. bicostata*) often known as California gum because they are abundant in California. In India, however, these are called fever tree and are planted in swampy areas as malaria preventive because mosquitoes, it is claimed, are allergic to the strong eucalyptus oil. They are also known to grow well in Algeria and the Cape of Good Hope.

Australian eucalypts are growing well in the Philippines and are being used in landscape beautification and roadside planting particularly in Baguio. Some of them attain about 60-80 cm. diameter at breast height and about 40 meters total height. Species growing in Baguio are: *E. citriodora*, *E. robusta*, *E. saligna*, *E. teriticornis*, and others. Many more species are under observation in the arboretum of the Makiling National Park.

In recognizing the potentialities of the Australian eucalypt as a reforestation tree, the Philippines may find some inspiration for its reforestation program. Besides the desirability of using the eucalypt in our reforestation work, its example behooves us to explore the possibilities of our native tree resources inasmuch as any of our trees may turn out to be a surprise package like the eucalypt with hidden possibilities.

For instance, Mindanao gum or amamanit (*E. deglupta*) which is widely known as native to the Philippines since Blume discovered it in 1849, had been found abundant in Cotabato, up to the second decade of this century. However, because the wood is almost comparable in quality to red lauan, sawmillers relentlessly exploited it almost to extinction until it was felt that the reservation of the remaining stand was necessary. It is sad to note, though, that due to the

last world war and due to the damage done by squatters, this Amamanit forest reserve at Palembang may eventually be totally destroyed.

This native Philippine tree, as well as others, calls for an investigation of its possibilities as a reforestation tree. Who knows if, among the multitudinous tree species in our country, there is one or more that may rival the Australian eucalyptus in potentialities?

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old, many have died and many more will probably pass to the great beyond in the near future. As individuals sharing in the multifarious endeavors that make our country great they will, unlike old soldiers, not only die but also fade away. However, the work they have done in helping to conserve our forests for future generations will be the ever-lasting reward for a life well spent to the credit of their Alma Mater, the College of Forestry of the University of the Philippines.

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