

# Part 1. History of Eucalypts in California

## *Eucalyptus* Helped Solve a Timber Problem: 1853-1880<sup>1</sup>

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California was settled in an era before the full impact of the industrial revolution that was taking place in Great Britain was fully realized, a revolution that was to change the course of western culture more drastically than any previous time in history. Friedrich Engels wrote in 1845 of the industrial revolution as "a revolution which at the same time changed the whole of civil society, and the significance of which for the history of the world is only now beginning to be understood" (Tucker 1972). Society of today tends to forget the needs of the historic peoples before machinery, electricity and advanced technology changed the standards of living. It is only by reading the newspapers, including the advertisements, journals, and books of the previous era do we begin to understand the daily lives and needs of these people. It is through such research that the author has tried to piece together the eucalyptus story in California. In the following article, the impending timber crisis is described, laying the framework for the wholesale planting of eucalyptus in California. Why eucalyptus were chosen will be dealt with in the second part of the article including some of the history of the introduction of the genus to the state.

### THE TIMBER PROBLEM--THE BEGINNINGS

Let us consider for a moment the impact of the immigrant population on the environments of California in the early 1850's. Both Sacramento and San Francisco had been small settlements with few inhabitants in 1848. Many of the later boomtowns were located in the foothills in regions that had for centuries been populated with Native Americans with small populations, more or less in harmony with the environment. Within a year, 80,000 gold seekers had passed through or settled in these areas (Bancroft 1890). Tent cities were established to house the new settlers. Urban infrastructures were insufficient or totally lacking--there were no sewage systems, water lines, roads, mail service, transportation facilities [sic], nor fuel supplies (Taylor 1867).

San Francisco was an area of oak woodland and grass, and Sacramento was located in the tules at

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Abstract: Eucalyptus were introduced into California in 1853 as an ornamental by Capt. Robert Waterman. However, due to the destruction of the native woodlands and forests, people became concerned about future supplies of fuel and timber and began to experiment with different types of trees to plant. Eucalyptus became a favorite after 1870, because it was fast growing, was believed to be of great medicinal value, and was supposedly fireproof. By 1880, the eucalyptus were widely planted throughout the state and today many of these early plantings remain to remind Californians of the first energy crisis in California.

the confluence of the Sacramento and the American Rivers. Many of the new boomtowns were at first located in the scattered oaks and grasslands of the foothills. None were located in areas of extensive forests, and soon the oaks were gone (Taylor 1867).

As the Bay area and the valley became more and more settled, the need for timber and timber products grew. Lumber was needed for building more permanent structures, including sidewalks, fuel for heating, cooking, and steam production. Everything was built of wood: carriages, wagons, stages, sleds, farm implements, tools for mining timber for weirs and sluices for the gold recovery, and later timber for the mine shafts (Bancroft 1890; Taylor 1867). The list could go on and on.

Timber was abundant in some areas, too much so for the early settlers. Their first thought was of food production and how to clear the land cheaply and easily for crops. Fire was the great land clearer, and in the early 1850's great forests were fired to clear the land rapidly. Soon the timber receded, and the ox teams and skid roads came into being. The very size of the lumber, its location in rugged sites, and its distance from the greatest consuming centers was to bring about a destructiveness that would later motivate the movement by John Muir and others to try to enforce conservation practices (Bancroft 1890; Groenendaal 1983; Sparhawk 1949).

In California Life Illustrated, Reverend (later Bishop) William Taylor writes of the early days in San Francisco in 1849, where firewood was selling for \$40.00 a cord. He describes his neighborhood:

"The sand hills back of where I lived had been thickly covered with evergreen scrub oaks, but they had all been cut off, clean as a newly mown meadow."

The need for fuel was already felt in other parts of California by 1855, as witnessed by a notice to trespassers by John A. Sutter of Sacramento, published in the California Farmer on May 24th, warning that those who cut timber and

cordwood would be subject to punishment. As settlers spread out over the land, fuel became more precious and harder to obtain.

As early as 1858, colonel James L. L. Warren was running feature articles in the California Farmer on planting trees for the future needs of the people. He introduces one article as follows:

"The following excellent article we clip from the Germantown (Pa.) Telegraph. It contains many valuable hints worthy of notice, and those who look over our State, can see how many thousands of acres might be improved in the vicinity of farms, that would add to their beauty and value. The day is not far distant when firewood will be wanted, and such labor now 'will pay'".

The article that he was referring to is entitled Planting Trees and gave a description of the silviculture of European countries that were in the habit of setting out forest trees," to supply the places of those which have been consumed to supply material for fires, and artistic and mechanical purposes."

The California Culturist ran an article dated July, 1860 stating:

"Not the least in importance among the many subjects interesting to agriculturists, as also to many others of our population, is that of the question--where are we to obtain our supply of firewood in the future? Taking, for example, that portion of the country known as the Bay district, we find the supply already almost exhausted. The trees which formerly stood on the hills of contra Costa and Alameda, visible from the bay, are to be seen no more. The magnificent oak groves of Oakland and the Encinal have been so thinned and mutilated to furnish a supply of fuel, that the residents of those vicinities have awakened to the fact that in order to retain a shelter from the strong summer winds, they must abstain from destroying their trees.

Farmers cannot afford to pay the price which is demanded for coal; but as that will before long be as cheap as wood, or, as we should say, wood will be as expensive as coal, it is extremely desirable that we should 'take time by the forelock' and devise some plant for remedying the evil."

On May 4, 1860, Warren published an article in the California Farmer that had been written for the San Andreas Independent entitled, Destruction of the Forest. It read as follows:

"But two or three years ago, all the hills immediately surrounding our

mountain towns, were overgrown with magnificent oaks and ornamental manzanitas. Most of the once proud oaks have been wasted: the American with his span of mules, carried away the larger branches in cord-wood; then came the hyena pack-trains of Asia, cutting up the smallest branches, thinning the chaparral, and laying waste all that is ornamental. The huge trunks are generally left to decay where they fell. Our people have been sadly extravagant in this matter; and they may be sure that the day is not far distant, when this immense waste of timber will be unavailingly regretted. Wood is now six dollars a cord. In two years it will be eight dollars."

A paper by the Reverend Frederick Starr, in the report of the Department of Agriculture for 1865, predicted a timber famine within 30 years and advocated the immediate undertaking of carefully planned research on how to manage forest and how to establish plantations, especially of the hardwood trees. This paper was to play an important role in the nation. It became an impetus of the forest movement that would eventually see the founding of the U.S. Forest Service, it was also a prime force behind the development of the Eucalyptus Boom in California (Sparhawk 1949).

C. F. Reed, the President of the State Board of Agriculture in California, wrote in his report to the Board in 1869:

"The subject of a plentiful supply of lumber and wood, for the various purposes of life, is one that we cannot much longer neglect. Whoever takes the trouble to look this subject fully in the face, and reflects upon the future of California, must feel, as we do, that something should be done, and that immediately, looking to the substitution of new forest in the place of the old ones in our State, now so rapidly being consumed and destroyed..."

He continues in a later section, "It is now but about twenty years since the consumption of timber and lumber commenced in California, and yet we have the opinion of good judges, the best lumber dealers in the State, that at least one-third of all our accessible timber of value is already consumed and destroyed! If we were to continue the consumption and destruction at the same rate in the future as in the past, it would require only forty years, therefore, to exhaust our entire present supply..."

He goes on to say, "One of the worst features of the settlement of new countries by Americans is the useless

and criminal destruction of timber. In our State this reckless and improvident habit has been indulged in to an unprecedented extent.

Thousands upon thousands of the noblest and most valuable of our forest trees in the Sierra Nevada districts have been destroyed without scarcely an object or a purpose, certainly with no adequate benefit to the destroyer or to any one else. This practice cannot be condemned in too severe terms; it cannot be punished with too severe penalties."

The timber problem was not unique to California, it was a national problem. By 1868, the problem had become so acute as to cause a number of states to enact laws to encourage planting forest trees by offering bounties or by granting tax reductions or exemptions. Arbor Day was first declared and celebrated in Nebraska in 1872, at the instigation of J. Sterling Morton, later Secretary of Agriculture. Several railroad companies planted trees for ties and timber in the Great Plains and in California. But the biggest push towards planting forest trees came about when Congress passed The Timber Culture Act, in 1873. People who received free land for homesteading were required to plant forty acres of each 160-acre claim in trees. The forty acres were later reduced to ten (Sparhawk 1949).

On the Economic Value of Certain Australian Forest Trees and their Cultivation in California was published by the newly established California Academy of Sciences in San Francisco in 1871, and was the first of many papers to urge the planting of the Eucalyptus and Acacias as a solution to the growing timber famine.

Robert E. C. Stearns of the Academy wrote:

"When we consider the fact of the great number of farms in California that are nearly or wholly destitute of wood, and the great and continuous expense entailed by our system of fencing, the importance to the farmer of dedicating a portion of his land to the cultivation of forest trees, from which he can obtain fuel and fencing materials is too palpable to admit of debate..."

He continues, "Of the Eucalypti, E. globulus is very common in California, and easily cultivated: it is the Blue Gum of Victoria and Tasmania. This tree is of extremely rapid growth and attains a height of 400 feet, furnishing a first-class wood; shipbuilders get keels of this timber 120 feet long; besides this they use it extensively for planking and many other parts of the ship, and it is considered to be generally superior to American

Rock Elm."

Franklin B. Hough was the first to try to bring about a systematic effort to arouse public interest in the preservation and conservative use of the natural forest areas, distinct from planting of artificial forests, in his address to the American Association for the Advancement of Science in 1873. A memorial written by the Association as a result of Hough's address was sent to Congress (Sparhawk 1949). It said:

"The preservation and growth of timber is a subject of great practical importance to the people of the United States, and is becoming every year of more and more consequence, from the increasing demand for its use; and while this rapid exhaustion is taking place, there is no effectual provision against waste or for the renewal of supply..."

H. H. Bancroft tells the California timber story in his History of California published in 1890. He writes:

"The area covered by forests in California is very small in proportion to its size, 478,000 acres in total acreage of 11,400,000, according to the forestry statistics in U.S. Agriculture Report of 1875, which place it lowest among the 36 states there listed. This gives an average of only 4.0 per cent of forest land, San Diego and Alameda (counties) ranking lowest, with 0.1 and 1.2 per cent, and Nevada, Mariposa, and Santa Cruz (counties) highest, with 55.9, 53.2 and 52.8 per cent, respectively. The valuable timber belts are confined to the humid coast and mountain regions in central and northern parts, from 37° latitude to the Oregon border; and the interior valleys and the south are comparatively bare, relieved by clumps along the streams, and occasionally by a scanty vegetation on the less arid north side of the hills..."

Under all the inroads, favored by the small value of land in early days, there has been a great waste of forest resources, and in spots accessible for shipping and near settlements, as in Santa Cruz and San Mateo, and in the mining belt, there is little timber left, large districts being entirely denuded. Before the U.S. occupation, forest fires regularly devastated large sections owing to the custom, among Indians especially, of thus gathering insects and other articles of food. This is one of the evident checks to forests in the valleys. Subsequently shepherds and hunters were in the habit

of firing large tracts to promote the growth of pastures. Sheep in particular have kept down the renewal of forest by eating the shoots..."

After this description of waste, Bancroft goes on to contradict this evidence by saying,

"Yet, after all, the inroads upon timber do not affect more than one-fifth of the entire area, and most of this is renewing itself, so that the supply is practically inexhaustible. This is notably the case in the redwoods and partly in the mining belt, and it is believed that the Truckee region will also revive. Laws have been passed for the protection of forests, but with little effect... There is a further compensation in the artificial planting of trees, fostered by the state, and latterly by arbor-day festivals. This is extended not alone to roads and settlements, for shade, screen, and embellishment, but to entire groves of forest dimensions, for fuel and industrial purposes, notably for remedying the lack of hard wood sufficient to supply in due time the demand and to balance destruction elsewhere. The sycamore, willow, and cottonwood grow readily, for fences and fuel, also lombardy poplar, but the black locust and especially the eucalyptus are most widely planted, the latter promising to prove very desirable for elasticity and hardness."

Nelson Courtlandt Brown wrote as late as 1919,

" over one-half of our population live in wooden houses and two-thirds of the population use wood for fuel."

He gives the rates of consumption for 1880 as 18 billion board feet as compared to 40 billion board feet for 1919. He sums up the timber problem that was plaguing the nation in the following sentence.

"We are using our forests three times as fast as they grow."

After 1868, tree planting the United States had become a patriotic duty. Articles appeared urging the planting of trees to stave off the impending timber famine. California began to heed the call with the rest of the nation and commenced planting trees. the California State Agricultural Society offered a premium of \$50.00 to be awarded to the best timber plantings in the winter of 1870. The California Horticulturist commented on the situation in the following article in August of 1876.

"In California everything is done on

a large scale if at all. Grape vines are planted by the hundreds of thousands, and wheat fields extend to thousands of acres, and the groves of forest trees are what in the East would be called extensive forests.

Of late Californians have commenced the planting of forest trees, and this, too, upon the same extended scale which marks all their operations. The Blue Gum tree at present being a general favorite..."

Why were bluegums the present favorite? Why were they chosen over better timber trees and thousands planted over the countryside to such an extent that even today the horizon of California is dotted with the remnants of the 19th century plantings? The answer lies in the needs of the populace of the 1800's.

#### EUCALYPTUS--INTRODUCTION AND USAGE

Californians were not the only people who had become enchanted with the eucalyptus trees. A Frenchman, Prosper Ramel, traveled to Australia as a trader in 1854, where he visited the Botanical Gardens in Melbourne. He saw his first Tasmanian bluegum in the gardens and was so taken by the phenomenal vigour of this species of tree that he became determined to promote this tree in the old world. He saw it covering the mountains of Algeria, making marshes salubrious and chasing away fever. He was aided to this end by Ferdinand von Mueller, the most famous of all the early Australian botanists (the first to classify and systematize the genus Eucalyptus). Between 1855 and 1857, they pushed enthusiastically and perseveringly for culture of the bluegum on a forestal scale overseas (Zacharin 1978).

France was to play a very important role in the eucalyptus transfer story. (Although, they do not grow well there except along the Mediterranean coast from Cannes to Monaco and on the island of Corsica.) French botanists and gardeners were pioneers in studying the eucalyptus and it was through their efforts that France was to become the key distributing point for the secondary transfer of seeds and knowledge of the eucalyptus to southern Europe, Africa, and the United States (McClatchie 1902; Zacharin 1978).

It was due to the research done on the eucalyptus in France and the Mediterranean countries that gave rise to the fable that eucalyptus, especially Eucalyptus globulus (Labill.), could purify the air and eliminate malaria. Medicinal properties of all kinds were attributed to the oil, leaves and bark of the tree. Eucalyptus globulus became known as the fever or miracle tree (McClatchie 1902; Pacific Rural Press 1870-1880; Zacharin 1978).

Eucalyptus globulus is a fast growing hardwood tree, obtaining a growth of twenty feet per year.

The wood is dense and burns well. A plantation of globulus can be harvested every seven years for firewood without harm to the tree, as it coppices from the roots and can be harvested continuously without replanting. Globulus grows well in a variety of soils, including many poor soils, and can survive with a minimum of rainfall. One limiting factor is freezing weather, which it cannot tolerate for any length of time without killing the tree. These facts, taken together with the supposed medicinal uses, made the tree a very valuable tree. It is little wonder that the people, not only in California, but also in China, India, Portugal, Spain, South Africa and South America began to plant the tree by the thousands (Penfold and Willis 1969).

Eucalyptus were introduced into California as an ornamental by clipper ship Captain Robert H. Waterman in 1853. In a biography of Waterman, David A. Weir (1957) reports that Waterman had a dream when he retired from the sea and that dream was to plant a "heap o' trees." On retirement, Waterman set forth to accomplish that dream.

Waterman bought an undivided half interest in a twelve-mile square tract of land in Suisun Valley in 1850 with another sea captain, A. A. Ritchie, as his partner. The Captain laid out the cities of Fairfield and Cordelia, which he named for his wife, in Solano County. He hired Josiah Allison, a horticultural expert, to help him landscape his towns and his own ranch home. Waterman, accompanied by Allison and Ritchie traveled the immense Suisun Valley and surveyed the boundaries, staked out roads, and marked future tree locations (Weir 1957).

Waterman commissioned his ex-first mate, Jim Douglass, to bring him some eucalyptus seeds on his next voyage to Australia. In 1853, records Weir, Douglas brought the Captain a bag of bluegum seed, and from these seeds came the stands of eucalypts that are still growing around the Captain's home and along many of the roads of the Suisun Valley. Waterman reportedly gave seeds of the eucalyptus to the new settlers of Fairfield and to his friends in other areas (Weir 1957). This is the first record identifying the genus Eucalyptus with sailing vessels and tied them to the trade that must have brought them from the Australian continent to the California coast.

Two turn-of-the-century writers, Alfred J. McClatchie and C. H. Sellers, identified William C. Walker as introducing 14 species of eucalyptus in 1856. Abbott Kinney, another writer on eucalyptus credits C. L. Reimer as introducing 14 species in January of 1856. Other writers have claimed Bishop William Taylor introduced the genus. Based on the surviving records, Waterman introduced eucalyptus, while R. W. Washburn, owner of the Shell Mound Nursery of Alameda, was the first tradesman to list the genus for sale in his one page catalog for 1856 (Brown 1982). The late Charles Shinn, whose father, James Shinn, owned

the Shinn Nursery in Niles, California, and whose uncle, Charles Shinn, was the editor of The California Horticulturist, wrote to the Oakland Tribune in 1936 that Colonel James L. L. Warren, editor and owner of the California Farmer, "widely advertised and distributed seeds, especially E. globulus as early as 1856."

Very little is known of Washburn, and what is known has been gleaned from the California Farmer between the years 1858-1860. According to the Farmer, "R. W. Washburn of the Shell Mound, made a handsome display of fruit," at the State Horticultural Society meeting in 1858. Washburn's ad of March 23, 1860 stated that Shell Mound had been awarded the First Premium for the best nursery by the Alameda County Agricultural Society; that twelve Premiums were awarded by the California Horticultural Society in 1859; and that two diplomas by the Sonoma and Contra Costa Agricultural Societies had been awarded them. However, in the February 8, 1861 advertisement for Shell Mound, Mr. L. A. Gould, was listed as the proprietor. Neither the nursery nor Washburn is mentioned in later years in the California Horticulturist nor in the Pacific Rural Press (Groenendaal 1983).

William C. Walker, owner of the Golden Gate Nursery in San Francisco from 1849-1865, has been given the credit for the introduction of eucalyptus by most authorities. While he may not have introduced the genus, he was the first to list the different species that he had in stock in his nursery catalog dated 1858-59 (Brown 1982; Butterfield 1938; Butterfield and Eastwood Letters). Col. Warren of the California Farmer considered the Golden Gate Nursery in 1856 to have, "the largest and most choice collection of plants in the state... [and was] very liberal in introducing in the country many new and rare plants of great value." He first introduced the term Eucalyptus into his advertisements June 26, 1857, but no species were listed, only the genus name. He continued to advertise the nursery in the Farmer until the early 1860s.

Stephen Nolan, owner of the Bellevue Nursery established in 1860 in Oakland, was an active promoter of eucalyptus and had the most extensive offerings of different species. Nolan had imported seed from Australia in 1860 and planted them in 1861. By 1871, his nursery catalog listed 34 different species (Brown 1982; Butterfield 1935). His nursery was described in the January 23, 1875 issue of the Pacific Rural Press. The article describes many of the trees that were found in the nursery at that time, but of particular interest was the following passage:

"We were especially pleased with the great variety and fine specimens of Australian gums, and with one among them just suited for the crests of those apparently barren hills away in the distance. The eyes of our friend

lighted with enthusiasm of Nature's poet as he pictured the day when that landscape would be relieved and the whole country fertilized by these magnificent trees..."

Southward, near Alameda, another importer was busy. This was Annie Taylor, wife of Bishop William Taylor. Bishop Taylor left San Francisco in May of 1862 to do missionary work in Australia. In his autobiography, The Story of My Life, Taylor wrote:

"There were no Eucalyptus in California in 1849. I sent seed from Australia to my wife in California in 1863. Her seed sowing made such a marvelous growth that a horticulturist neighbor of ours wrote me to send him a pound of seed--the smallest of all seeds, and the nurseries, thus seeded, dotted the whole country with great forests of evergreens, the most prominent land marks [sic] of the Pacific Coast."

Many people have taken Bishop Taylor's statement in his autobiography to mean that he introduced the eucalyptus to California, but this was explained in a brochure that was written by his son, William, and distributed at the Bishop's funeral. According to the brochure, the eucalyptus trees were widespread in California when Bishop Taylor left for Australia, and it was their popularity that led him to send the seed to his wife (Oakland Tribune 1936).

Annie Taylor gave many of the seeds to James T. Stratton, the Surveyor-General of California. Stratton planted and propagated the bluegums to such an extent that by 1870, he had the largest commercial eucalyptus planting in the state (Transactions of the California State Agricultural Society 1870-71).

Up until this date the eucalyptus had been used mainly as ornamentals and, as such, many of the early pioneers of California had planted them to a limited extent. Only a few of these early plantings will be noted here. Captain Joseph A. Aram planted good sized groves of Eucalyptus globulus and Eucalyptus camaldulensis in the early 1860s. The first supply of seed to reach southern California was sent in 1863 by "an Australian missionary" (Reverend Taylor?), the seeds were divided among the large land holders of the area: Verdugo, Workman, Banning, Sanchez, and Wolf skill (Padilla 1961). General Henry M. Naglee planted about sixty acres of mixed eucalyptus trees in 1866, that were reported to be eighty feet tall with diameters of eighteen inches in 1876. There are records of more plantings during this period that are covered more extensively by Groenendaal (1983).

To promote commercial planting of forest trees, the California State Agricultural Society in 1870

offered a premium of \$50.00 for the largest quantity of useful trees to be planted during the year. James T. Stratton won the premium by demonstrating that he had planted fifty-three and one-half acres of Eucalyptus globulus and three thousand Eucalyptus camaldulensis (Dehnh.) trees (Transactions of the California State Agricultural Society 1870-71). This was the birth of a new era for the eucalyptus trees in California, from this date forward the trees would be planted mainly as a commercial venture instead of as an ornamental.

Throughout the pages of The California Horticulturist and The Pacific Rural Press, Stratton's premium winning forest can be followed over the years. The California Horticulturist carries this article in 1874.

"...When Gen. Stratton was setting out the trees, the neighboring farmers laughed at him and advised him to desist and attend to his surveying, as he would be dead long before the timber would amount to anything; but the laugh is now on the other side. Five years hence the available timber will be immensely valuable for manufacturing and for firewood ... No doubt General Stratton's foresight in planting these extensive and beautiful groves will produce not only cords of wood but cords of money; for, if cut down and sold now, at the age of only four years, the young forest would bring many thousands of dollars."

In the first volume of the California Horticulturist (1870), Professor Henry Nicholas Bolander of the California Academy of Sciences published a lengthy article on the eucalyptus, explaining that such a paper has become a necessity because eucalyptus are so extensively planted in California. He quoted Ferdinand von Mueller's work in which von Mueller envisions,

"Even the rugged escarpments of the desolate ranges of Tunis, Algiers and Morocco, might become wooded; even the Sahara itself, if it could not be conquered and rendered habitable, might have the extent of its oases vastly augmented. Fertility might be secured again to the Holy Land, and rain to the Asiatic plateau or the desert of Atacama, or timber and fuel be furnished to Natal and La Plata. An experiment instituted on a bare ridge near Melbourne demonstrates what may be done."

In 1870, a man settled in Santa Barbara who would do more to publicize the eucalyptus than any man of this era. This was the Honorable Ellwood Cooper, a wealthy gentleman who was retiring from diplomatic service. In 1872, he purchased a pocket ranch (2,000 acres) twelve miles west of Santa Barbara and named it Dos Pueblos Ranch,

where he began to experiment with eucalyptus. Cooper wrote to James McClatchie in 1900 about his interest in eucalyptus:

"There were Blue Gum trees growing in the state during my first visit in 1868. I saw a few specimens in private gardens from ten to twenty feet high; was attracted to their beauty; so that when I located in Santa Barbara in 1870, I at once conceived the idea of forest planting (McClatchie 1902)."

The ranch was a desolate spot when he bought it, covered with scrub and a few oaks, but within a few years, it became a show place, featuring many species of eucalyptus. Taking advantage of a previous acquaintance with Thomas Adamson, Jr., the United States Consul General at Melbourne, Australia, Cooper wrote to him asking for seeds of different species and asked for books or information on the eucalyptus. Adamson sent him seeds and informed Cooper that Ferdinand von Mueller, the government botanist, had delivered some lectures on the subject. The lectures had been printed, but all had been sent to London. However, von Mueller would send one of his originals, provided Cooper would have it printed in America and return to him fifty copies. Cooper, using von Mueller's propagation and culture notes, planted the seeds that Adamson had sent him (Warren 1962).

In 1876, Cooper was asked to give a lecture to the college of Santa Barbara, of which he was the president. He combined his interest in eucalyptus and the need to promote forestry in his lecture. The lecture was so well received that he was asked to publish it. This led to his book on the subject, Forest Culture and Eucalyptus Trees. Cooper's book makes an emotional appeal to forest the slopes of California with eucalyptus trees to counterbalance the destruction of the hardwood forests on the eastern seaboard. His speech was published along with Ferdinand von Mueller's lectures, keeping his promise to have the material published in America. In the book, Cooper writes of his own plantation:

"At my home I have growing about 50,000 trees. The oldest were transplanted three years ago. A tree three years and two months from the seed, transplanted two years and ten months ago is nine and one-half inches in diameter and forty feet and six inches high (Cooper 1876)."

The rapid growth of the eucalyptus trees began to excite farmers. It seemed practical after all to plant forest trees, that would mature in one's lifetime, and could be harvested in only seven years for firewood. Soon the Rural Press, The California Horticulturist and The California Culturist ran articles in nearly every edition describing the new plantings. One such article

published in the Pacific Rural Press in 1874 describes the growth:

"The rapid growth of the eucalyptus is wonderful. Anson Goodspeed has on his lot in north Healdsburg some trees which have grown 40 feet in two years, and others 22 feet in 18 months..."

However, it was not just the rapid growth of the trees that convinced the farmers to plant eucalyptus trees. Reports of the medicinal uses of eucalyptus trees were also reported in the press. Claims were made for the eucalyptus as an anti-malarial antidote; bronchial and pulmonary complaints could be cured by smoking the leaves; drinking eucalyptus tea would clean the system; and cholera epidemics were stemmed by planting eucalyptus around living quarters. The Pacific Rural Press ran several articles over the years on the subject, the most extensive one published on April 5, 1879.

The eucalyptus were also reported to be fireproof. On October 20, 1877, an article was published in the Pacific Rural Press called attention to a tree standing on the grounds of the old German hospital on Brannan street that had passed through the fire of August 1876 seemingly unharmed. This was reported at a meeting held at the Academy of Sciences. In that same meeting, Dr. Gibbon proposed that the planting of eucalyptus trees along public streets would be an important means of checking a conflagration, while Dr. Albert Kellogg stated that eucalyptus shingles were used on houses in Australia and added that it was impossible to fire a roof made of this material; he further suggested that Californians would be wise in following the Australian's example.

The attributes of the eucalyptus filled the pages of the early press reaching its zenith when the Central and Southern Pacific Railroads made public its intentions in January of 1877 to plant eucalyptus along the entire line of both roads. The railroad companies saw great advantages in these plantings: they would have a constant supply of timber suitable for repairing the roads; the fall of rain would be increased by the trees and the climate modified; and they would absorb malarial poisons along the lines (Pacific Rural Press 1877).

By the mid-1870s the planting of eucalyptus was so evident in California that visitors to the state remarked on their prominence. Mary Cone mentions in her book, Two Years in California, published in 1876 that the eucalyptus were a great favorite and were "much" cultivated. Ludwig Salvatore wrote in his book, Los Angeles in the Sunny Seventies: A Flower from the Golden Land,

"The largest forest is on the Anaheim branch of the Southern Pacific at a point where it crosses the San Gabriel

River, about twelve miles from Los Angeles, where 190,000 trees have been set out. This forest belongs to the Forest Grove Association of which Judge [R. M.] Widney is president. In December [1874] ten pounds of seed were brought down from San Francisco, and the seeds planted in a nursery. When two months old, the shoots were transplanted into a lot box and set two inches apart. By April [1875], the young plants had a height of 9 or 10 inches, and at that time they were set out in the ground ten feet apart. Within a year they were from 9 to 12 feet high (Padilla 1961)."

By 1880 over fifty groves had been planted in eucalyptus (mainly *E. globulus*) amounting to several thousand acres (Groenendaal 1983). The first Eucalyptus Boom was beginning to take place (the second boom would occur in the early 1900s). Farmers heeding the cry to plant fuelwood and timber could see the advantages (the disadvantages not being known at this time) in planting eucalyptus trees. Eucalyptus would give them fuel and timber, cure their ills, prevent conflagrations, and turn a profit in a very short time. It truly was considered the miracle tree.

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