

## JOHN MUIR AND THE TALL TREES OF AUSTRALIA



P. J. RYAN

In 1903, John Muir embarked on a 'round the world "tree hunting" expedition with one of his close friends, Professor Charles Sprague Sargent of Harvard University, perhaps the world's greatest authority on North American trees. This journey, endorsed and supported by the President of the United States through the U.S. Consular Service, and financially supported to a degree by another Muir colleague, the transportation magnate Edward Henry Harriman, was the culmination of a dream for Muir. Muir wanted to visit personally all the "tree friends" he had read about in scientific journals during his long and fruitful life. More specifically, Muir wanted to see the Baobabs, the true Cedars of the old world, the Kauri of New Zealand, the strange Araucarias that had so long fascinated him, but, most of all, he wanted to visit Australia and see if the rumors about the great *Eucalyptus* were true.

His good friend, Bailey Millard, city editor of the San Francisco *Examiner* tells of John Muir's quest: "One day, while in his 65th year, John Muir came into my office in San Francisco, where he was an occasional visitor, and told me he was tired of hearing it asserted that there were larger trees than our sequoias and that he was about to make a tour of all the countries of the world in which big trees of any species could be found. 'I am going to investigate the claims of those foreigners who have been doing so much bragging about their gigantic vegetation' he said, 'And find out if what they say is true.'"

Millard apparently thought this a splendid project and urged Muir to keep him informed of his progress. Accordingly, Muir wrote Bailey Millard from Tokyo, Mukden, "and other Asiatic places." "I haven't found any big trees yet," he wrote from a small town in Manchuria, "but I have seen some pretty tall *Cryptomerias* along these streams." Muir then went to India and measured "some of the noblest of the much vaunted Deodars. None was to be compared with some of our largest second growth Sequoias."

The next time Millard heard from Muir, the great naturalist was in Australia. "I wanted to see," he wrote, "if these wonderful old *Eucalyptus* trees down here were really the largest vegetation in the world. . . ." At 6 A.M., December 16, 1903, John Muir

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arrived at Fremantle, Western Australia. As a scientist, he dutifully took the local temperature. It was 66.5 degrees that morning, high summer in Australia. Muir took the train to Perth, the capital and largest city of Western Australia. John Muir's Perth had a population of around 60,000. Today, Perth has a population of 1,500,000. Fortunately or unfortunately, depending on one's viewpoint, the rest of Western Australia has not grown to match Perth and the city remains the most remote large city in the world, just as it was in Muir's time. Remoteness did not spell civic backwardness however. Among the priorities of the colonial British when setting up a new town was to establish a botanical garden and a "domain" which is a multi-use public park. Perth was no exception.

"First went to the city park," says Muir's journal. "All in good order." Muir was particularly impressed with the Australian "Christmas Tree (*Nuytsia florabunda*, which, true to its name, was in full bloom). "One grand, luxuriant mass of orange yellow blossoms," exulted Muir. ". . . An old fashioned tree about 30 or 40 feet high, 18 inches in diameter; endures all sorts of adversities, burning, etc., and blooms the better the more it is made to suffer like good martyr Christians." Muir made the acquaintance of the director of the gardens (undoubtedly Daniel Feakes). Director Feakes, showing the usual Australian hospitality, took Muir to lunch and on a long drive around Kings Park, an area that had been allowed to survive as native bush. Muir was impressed with this wild city park land, but he did note that the merchantable timber had been cut.

Muir had dinner with Feakes and his family and then went to the home of Professor Bernard Woodward, who showed him photos of some of the larger Australian trees. According to Muir, "Never were strangers more royally and kindly entertained. Wish I could spare a year here." Muir returned to his ship and left Fremantle the following day, December 17.

Muir noted the great forests of Jirrah and Karri Eucalyptus on the hills near Albany. It is quite possible that Feakes or Woodward mentioned to Muir that the Karri Eucalyptus are the tallest trees in Western Australia with the Jirrah Eucalyptus not far behind in height, or, unfortunately for them, in commercial value. Tall as they are (often 200 feet), the Karri are not the tallest trees in Australia. Muir was to meet up with them in the state of Victoria.

As the ship paused at Adelaide, capital of South Australia, Muir took time to visit the Adelaide botanical garden and gaze longingly at the *Eucalyptus* clad hills outside the town. "Wish I could have spent a week in them," he remarked. Muir was fast falling in love with the flora of Australia.

Muir's ship left Adelaide on December 22, bound for Melbourne, capital of the state of Victoria. This would be the moment of truth in the big trees controversy. The forests of the state of Victoria were believed to possess the tallest trees in Australia, and according to some, the tallest trees in the world. The candidate for this honor was the magnificent Mountain Ash (*Eucalyptus regnans*). The homesick English settlers had named the strange and eerie trees of Australia for the imagined resemblance of their wood to that of familiar English tress. Thus a number of *Eucalyptus* and Acacias became "Oaks" and "Ashes."

The Mountain Ash is a *Eucalyptus* (*E. regnans*) and, as its Latin name indicates, is king of the Eucalyptus. Like the *Sequoia sempervirens*, it is a very unique tree found in a very limited range in Victoria and the island state of Tasmania. Like the *sempervirens*, it is a water loving tree seldom present when annual precipitation is less than forty inches. Like the Redwood, the Mountain Ash occurs in almost pure stands. Like the Redwood, it was one of the most valuable lumber trees in its region. The Mountain Ash produces a strong, general purpose timber that can be stained to any color and used for everything

from structural beams to cabinet work. Unlike the California redwood, it is not durable in contact with the ground. It is Australia's number one *Eucalyptus* for pulp and paper.

John Muir was not interested in the Mountain Ash's economic potential but rather in the tree itself, and more particularly, the height of the Mountain Ash. There were persistent reports coming out of Australia of Mountain Ash five hundred feet tall, a hundred feet taller than that cited for the tallest Coast Redwood. If these reports came from credulous newspaper reporters who had gotten them from the tall tales of Australian loggers, Muir would have merely shrugged and smiled; he had heard this type of story many times before. However, Muir had reason for concern that his beloved Coast Redwoods were indeed not the tallest trees in the world.

The report of *Eucalyptus* five hundred feet high was made by none other than Baron Ferdinand Von Mueller, one of the great botanical explorers of the nineteenth century. He was appointed government botanist of the State of Victoria upon the suggestion of Sir Joseph Hooker, later director of the Melbourne Victoria Botanical Gardens, veteran of an epic four thousand mile botanical trek though largely unexplored territory in considerable danger from aborigines and bush rangers, and collector of some fifteen hundred specimens, many entirely new to science. His life collection of botanical specimens was estimated at 350,000 items. Von Mueller was the author of eight hundred books and articles on the flora of Australia in general and was regarded as particularly expert in the genus *Eucalyptus*, including *E. regnans*, the species which became known as *E. regnans* Von Mueller. Von Mueller actively sponsored the spread of *Eucalyptus* throughout the world's Mediterranean climatic region.

For this work and his scientific research he was made a hereditary baron by the King of Wurtemberg in 1869 and was knighted by Queen Victoria in 1879. He received honors from France, Spain, Portugal, Italy, Austria, Denmark, Holland and Sweden. He was a fellow of the Linnean and Royal Societies. Von Mueller died in Melbourne in 1896, and was given a full dress state funeral befitting one of his rank and stature. As a scientist, Baron Von Mueller was almost a stereotype of the plodding German; he was humorless, hard working, dedicated, and not given to exaggeration. Clearly, Muir was not dealing with the stories of a Blarney-stoned, Irish-Australian logger, but rather, the considered reports of a fellow scientist, one of the eminent botanists of the day.

John Muir, as always whenever in a strange city and he had the chance, went directly to the botanical garden and asked to see the director. It was the day before Christmas, and Australian civil servants like their American counterparts tend to wind down a bit the day before Christmas. At first, Director William Robert Guilfoyle refused to make an appointment, but Muir's enthusiasm, charm, and warm personality caused the director to relent and see the American tree hunter. Apparently, it was a delightful experience for both men and they got on famously. Muir put the question of the giant *Eucalyptus* to Director Guilfoyle, Baron Von Mueller's successor at the gardens. Guilfoyle was recognized as a good scientist and perhaps a better manager than Von Mueller, though not so renowned or expert as his famous predecessor.

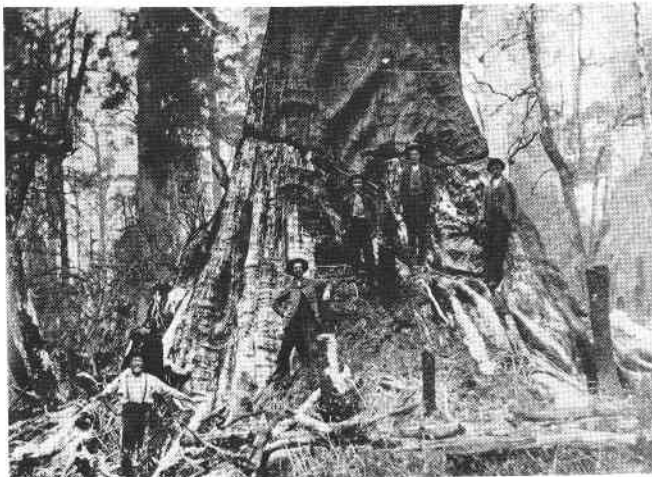
Guilfoyle was justly famous for turning the Melbourne Botanical Garden from a plant study area to the world renowned city park that Muir beheld in 1903. Paderewski, who visited the garden in 1904, remarked that "Guilfoyle did with trees what a pianist tried to do with his music." Sir Arthur Conan Doyle pronounced the Melbourne Gardens to be "absolutely the most beautiful he had ever seen." John Muir was a bit more restrained in his admiration. His journal laconically allowed that "With a zoo and the botanical gardens, the people of Melbourne are well off for rest and recreation places."

In his interview with Guilfoyle, Muir came directly to the point. "Were there any *Eucalyptus* over 300 feet tall?" Guilfoyle, who was a great landscape gardener and a good botanist, pondered the question. "No," he said, he had never seen a *Eucalyptus* over 300 feet . . . except, perhaps *bilurens* Lom (the Latin name for *E. regnans* at the turn of the century). It is possible that Muir's heart may have skipped a beat. Here was a tree mystery that must be solved. As a scientist, he required more information. "Mean to see Chief of Forests Department for education on this subject," Muir states in his journal.

The information officer apparently decided against passing judgment and, instead, sent Muir to a gentleman that Muir referred to as "Grand Photographer Caire." (John Muir had a delightful habit of bestowing personal knighthoods on persons who possessed



*Two views of Eucalyptus regnans near Bulga Park, Victoria, Australia. Circa 1900.*



great skill or kindness.) In the case of Nicholas Caire, Muir's admiration was quite justified. Caire was one of Australia's great pioneer nature photographers. What Carleton E. Watkins was to Yosemite, Nicholas Caire was to the mountains of Victoria. He was a perfectionist, often producing only one or two plates a day as he roamed the mountains and bush. His photographs were used as graphic evidence of the need for national parks in the state of Victoria. He frequently gave lantern slide talks urging people to share his delight in the bush. His photographs were used to decorate the interiors of the passenger coaches of the Victorian railway system. He was a romantic with a camera, and like Muir, something of a mystic. When his young daughter asked him if he saw any snakes in the mountains, Caire, who had hauled his large box camera by ropes to dizzy heights to capture the best views, replied, "No, no snakes, but I saw glory." His works showed such sensitive and artistic composition that they commanded high prices on the market.

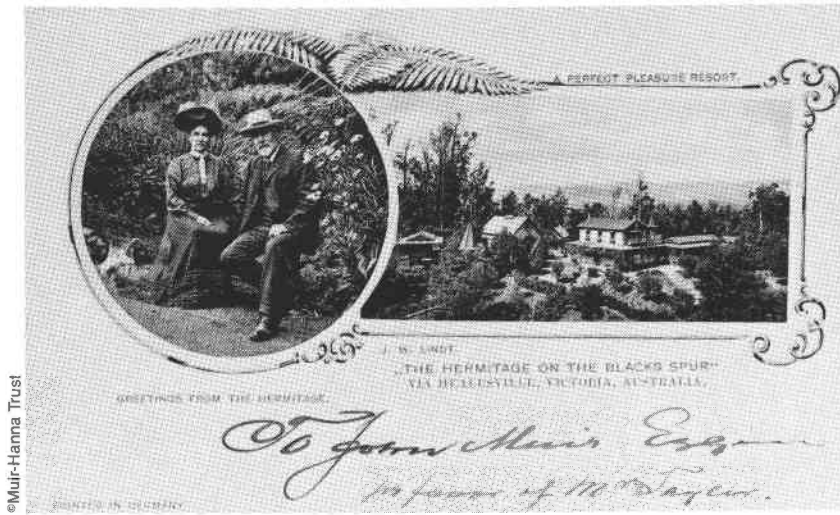
Caire was delighted to show his photographic collection to John Muir who stated that he: "Found a lot of good pictures and interesting scenery with *Eucalyptus* Forests and Fern Forests." Nearly as important as the photographs was the fact of Caire's years of experience in the Victorian bush. Evidently, Caire believed that a "gum tree 40 feet in circumference would be considered a giant." Muir was apparently relieved, though the journal does not state whether or not Muir put his 300 foot question to Caire.

One of the most important attributes of a successful researcher is the ability, innate or acquired, to be pleasant, interesting, and charming enough so that one informant will be willing to pass the researcher on to another source of information. John Muir possessed these attributes. It is quite likely that either Guilfoyle or (more likely) Caire, suggested that Muir visit another renowned Australian photographer and bush walker at his home in the heart of the Big Tree country of Australia: the area around Black's Spur, Healesville, and Marysville. The photographer in question was John William Lindt (1845-1926). Born in Germany, he went to sea and jumped ship at Brisbane, Australia, at age seventeen. He developed an interest in the new science and business of photography and soon began to produce marketable albums of nature photographs as well as the family portraits which were the bread and butter of the photography industry in the nineteenth century. He moved his studio to Melbourne but remained mobile enough to photograph the capture of the Ned Kelly gang after the desperate and dramatic gun battle at Glenrowan on June 29, 1880.

Like Caire, Lindt loved the mountains and forests of Victoria and spent as much time as possible in hiking and photographing them. In 1895, Lindt built "The Hermitage," a well known pleasure resort at Black's Spur. It had three New Guinea type tree houses in a garden designed by his friend and fellow German, Baron Ferdinand Von Mueller. John Lindt was the archtypical adventurer-explorer turned successful resort operator. Guests remember his bush walking treks, hospitality, story telling, and musical ability. Muir, of course, had to meet the legendary Lindt and see for himself the equally legendary big trees of Victoria.

On Christmas day, Muir started for "Lindtland," as he called it, at 6:50 in the morning. He probably went to Heavesville by train and then three hours by stagecoach to the Hermitage at Black's Spur. He arrived at 2 P.M. and found the resort to be "a charming place in the heart of the forest primeval." Muir spent the rest of the day happily making friends with "new treefaces" as he called them, "Magnificent Beeches 5 to 6 feet in diameter with small huckleberry like leaves, fine asphidicum-like fern, Blackwood, Acacia and many others." Muir had a good night's sleep and awoke to a:

... charming morning calm, cool, bright, glorious sunshine; hushed peaceful, vast woods. Last evening a thunderstorm and after, a heavy shower, the sun shone on the wet leaves . . . [and] cooled air full of fresh ozone. How the tree ferns enjoy it! After breakfast Mr. Lindt assembled a party and conducted us through the best of the great forest hereabouts. . . . The great trees Eucalyptus Amandoline(?) are about 200 feet high average, a few 250 feet and a very few 20 or 30 feet taller. Mr. Lindt says he has spent 40 years in the bush and does not believe a single tree on the continent exceeds 300 feet in height. The rings are very indistinct, the few I was able to count showed that not even the very large trees are not [sic] very old, say 200 or 300 years.



Post card from Muir's personal papers showing John William Lindt and the popular resort, "The Hermitage" at Black's Spur.

Muir returned to Melbourne to enjoy the zoo, buy a few books, and enjoy the sights with some shipboard friends. On December 29, Muir and his ship sailed for Sydney, and arrived at that port at 5 P.M., December 30. Muir duly noted the effects of glaciation on Sydney harbor, booked into the Australia Hotel and early the next morning made straight for the world renowned Sydney botanical garden.

As a botanist and "tree hunter," John Muir had a career-long fascination with the Araucarian "Pines." These strange and somewhat primordial looking conifers are, of course, not pines at all, but a single genus confined to the southern hemisphere. John Muir had a burning desire to see each species of genus *Araucaria* in its native setting, whether in Australia or South America. For the moment, Muir made do with observing the Araucarians (*cookii*, *bidwelli*, and *excelsa*) in the Sydney Botanical Garden. Apparently its illustrious director, Joseph Henry Maiden was not available (possibly because of the holidays). If anyone could answer the giant *Eucalyptus* question with any degree of finality, it would be Maiden. Muir resolved to meet with Professor Maiden at the earliest possible opportunity, which was January 8.

Muir, some of whose successful attributes as a researcher have already been cited, also had the important ability to use time and circumstances wisely, no matter what the interruptions. The reader is often struck by Muir's efficiency in traveling through a strange country, making exactly the right contacts and connection under severe time constraints. Muir resolved to put his time to good use by touring the magnificent Blue Mountain Country around Mount Victoria to see the trees and the famed Jenolan Caves

via train and private stage coach. Muir complained bitterly in his journal of the practice of girdling and killing trees for the "supposed improvement in pastureage." Calling it "A sad sight, especially the tens of thousands of dead, bleached tree ruins, prostrate, encumbering the ground, or great, gaunt, bleached stumps with a few stubs or main branches stretched to heaven as if for help." Where the forests were still intact, the "round headed" *Eucalyptus* and the low Australian "Mountains" reminded him of the Alleghennies. The Jenolan Caves were (and are) one of Australia's premier tourist attractions.

Discovered in 1838, the Jenolan Caves made conservation history by becoming the first cave in the world to be set aside by a government as a public park in the year 1866. By the time of Muir's visit the caves had long been electrified (1887) and a palatial limestone Queen Anne style hotel housed the cave guests who generally spent three or four days in the leisurely nineteenth century manner of cave "inspection." Since Muir's time, there have been discoveries of larger and more colorful caverns in Australia, but the entrance to this cave is still one of the most spectacular in the world. In Muir's time, it was awe inspiring. According to Muir: "The approach to the hotel cottages is perfectly magnificent. . . . The four horse teams dash through a noble cave arch. . . . I know of nothing like this in the world." (Today's arrival, by tour bus, while not nearly so dramatic is still impressive.)

Muir spent the day "Walking perhaps 8 or 10 miles through the heart of a gray, rough marble ridge . . . along many wide and narrow jewel alleys to many jeweled hills and nooks and secret chambers, decorated with stalagmites and stalagmites of every form and color." Muir found the scenery of the Blue Mountains "very fine" but found the 4,000 foot mountains to be "sadly in need of lofty white summits, real mountains for these foothills so gloriously forested. Drive and walk to falls. The falls would be thought nothing of in California but the forests are glorious." Actually, Muir's California chauvinism was a bit unkind; several falls are over 400 feet high, surely enough even to be noted in California.

Muir noted that *Pinus insignis* (now known as *P. radiata*) from California was almost the only pine planted here and it seemed to thrive better here than in the United States. This fact amounted to a very mixed blessing as the rapidly growing Monterey pine is regarded by many modern Australian environmentalists as a real threat to the environment as native Australian bush is clear cut to be planted with a monoculture of "The world's fastest growing pine tree."

Muir returned to Sydney on January 6 and spent the 7th touring Sydney's fiord-like harbor, again seeking signs of his beloved glaciation. Muir noted approvingly that *Arcaucaria* was the ornamental tree of choice. He found the famed Manly Beach to be a kind of Coney Island and was delighted to escape by ferry to a "fine, wild shaggy common. Most of the big *Melaleuca* and *Eucalyptus* have been slaughtered, but there is a fine, hopeful second growth and a lot of interesting bushes and small trees where one could wander happily for years."

On January 8, Muir went to the Sydney Botanical Garden to see J.H. Maiden and ask his familiar 300 foot question. Joseph Henry Maiden was born in England in 1859 and educated at the University of London. Like Baron Von Mueller, he went to Australia for his health, arriving in 1880. He developed an interest in Australian flora and published *Useful Native Plants of Australia*, in which he acknowledged his debt to Von Mueller with whom he had long corresponded. In 1890, he became consulting botanist to the New South Wales Department of Forestry and Agriculture. He was appointed director of the

Sydney Botanical Gardens in 1896. In 1903, he began to publish his seven volume *Critical Revision of the Genus Eucalyptus*, his most important work. He was to be awarded the Von Mueller medal by the Australian Association for the Advancement of Science in 1922. According to his biographers "Maiden was a kindly sincere man with a sense of humor, and a wealth of information that was always at the service of his fellow scientific workers. . . he was both methodical and enthusiastic and his name deservedly ranks high among the botanists of Australia." Here then was the moment of truth. Muir would hear from the lips of Australia's greatest living botanist if the stories of sky scraping 500 foot *Eucalyptus* were true.

The meeting could not have come at a more inauspicious time. According to Muir, "He (Maiden) was attending an inquiry into the origin of a fire in some of the gardens buildings and could spare me but little time. Directed me to the Queensland *Araucarius*, *bidwelli* and *cunninghami* and said there were no *Eucalyptus* much if any, over 300 feet in height. That all the stories of Baron Von Mueller were based on gross exaggeration." So there it was, bluntly and succinctly put: there were no gigantic *Eucalyptus*. *Sequoia sempervirens* was still king of the forest. If Muir breathed a sign of relief or jubilation, his journal does not indicate such an unscientific reaction. Maiden, true to his reputation of always being at the service of his fellow scientists, seems to have later provided Muir with an (apparently) unpublished monograph entitled "Where are the Largest Trees in the World?" As Muir makes no reference to this paper in his journal, it is quite possible that John Muir and J. H. Maiden continued to correspond with each other on the subject of the Big Trees of the world. At any rate the Maiden monograph turned up in John Muir's papers, indicating that Muir was quite familiar with Maiden's refutation of Baron Von Mueller's claim that the Mountain Ash, *E. regnans*, was the largest, i.e., tallest tree in the world.

Maiden was, as his biographers wrote, a methodical and humorous man who sought to track down the giant Von Mueller *Eucalyptus* legends in twelve short pages. According to Maiden, Mueller noted in the *Gardeners' Chronicle* for the year 1862 that several trees had been recently measured at the Upper Yarra and on the Dandenong, and "The highest known is ascertained to be 480 feet and therefore as high as the Great Pyramid and that a Mr. Klein measured a tree on the Black's Spur and found it to be 480 feet high." In 1889, the Honorable F. Stanley Dobson of Melbourne quoted Mueller as having stated in his *Botanic Teachings*, "that our gum trees attain a height of 500 feet." "But" as the laconic Mr. Maiden says, "we have not reached high water mark yet. Mr. David Boyle, who, for 27 years had been identified with big trees, wrote an 1889 letter to the Melbourne *Argus* giving 525 feet as the height of a tree known to him some years previously." Even Baron Von Mueller had not claimed such a tall tree. Understandably, there were some who doubted Boyle. Maiden went on to note that Boyle returned to the forest after ten years and rediscovered his tree. The top had blown off, but the tree was still a respectable 466 feet tall, a shrinkage of 59 feet, but still a world record, according to Boyle's account.

But the plot began to thicken. According to Maiden: "Visitors to the Melbourne International Exhibition of 1888 will remember the photograph of the large butted gum tree by N.J. Caire, "who stated that he had come across this monster in Gippsland, and that its height was 464 feet. He called it 'The Baron' after Von Mueller." Now here was something the press could sink its teeth into! The elusive Loch Ness Monster of tall trees had not only been sighted but actually photographed! It is an understatement to say that Australians are a very competitive people, and it is not surprising that they were delighted



to believe that they owned the tallest tree in the world. There remained only the small technicality of finding the tree and formally measuring it. There would be no problem as Nicholas Caire could lead them to the tree.

According to Maiden, Caire started to show a little hesitancy. Was money a problem? No matter! The trustees of the Melbourne library voted one hundred pounds to find "The Baron"! The trustees of the Melbourne Exhibition added another one hundred pounds to the prize. Finally, the Victorian Minister for Lands promised eight hundred pounds. "The Baron" must be found! Caire led an expedition into the Gippsland and rediscovered "The Baron," which had not changed a bit since last photographed. The Inspector of Forests and the Victorian Government Survey set up their instruments and measured it. "The Baron" proved to be 219 feet 9 inches tall. Professor Maiden dryly stated that, "... the 525 foot tree shrank over 300 feet." The Australians were disheartened but not defeated. The Honorable James Monroe, Premier of Victoria, offered one hundred pounds out of his own pocket for any Victorian tree four hundred feet in height. The money has never been claimed. It was probably a chastened, modest, and very conservative "Grand Photographer Caire" who showed John Muir his collection of photos of tall trees. Muir does not mention the photographer making any unusual claim for height.

Maiden dismissed Von Mueller's claim that the Karri that John Muir saw from ship-board constituted the second tallest species of tree in the world. (Von Mueller was a bit more modest with the Karri, allowing it to rise to only "approaching 440 feet.") Maiden's calm, scientific insistence that "if records are sought to be established, they must be confirmed by a surveyor, the tree should be standing and we should have at least two independent measurements" shrank most Australian tall tree stories down to manageable size. Maiden graciously concluded his paper by quoting John Muir's good friend, Charles Sprague Sargent. According to Sargent "The Redwood (*Sequoia sempervirens*) which is the tallest American tree probably occasionally attains the height of 400 feet and more. The tallest specimen I have measured was 340 feet." Maiden graciously accepts Sargent's statement. Curiously enough, Sargent, according to Maiden, apparently believed the reports that the *E. regnans* was the tallest tree in the world, perhaps basing his judgment on the erroneous reports of the famous botanist. It is quite possible that Sargent had passed along Von Mueller's stories about five hundred foot *Eucalyptus* to John Muir while the two Americans were traveling together. Such claims would have certainly fired Muir's scientific curiosity — and Redwood chauvinism. John Muir was pleased to write his friend Bailey Millard that there was absolutely no truth in the rumors of Giant *Eucalyptus*, and they did not exceed 300 feet.

His scientific curiosity satisfied, Muir immediately embarked on a ship to New Zealand to check out rumors of a giant geyser, larger than any geyser in Yellowstone, which turned out to be true, and the Giant Kauri trees that were rumored to be of greater volume than the *Sequoia gigantea*, which was false (now *Sequoiadendron gigantea*). But was Muir correct on the question of the big trees? Are the Sequoias really the big trees of the world? Are there no *Eucalyptus* over 300 feet? In this case, Muir was quite wrong. He did not go to the State of Tasmania which has some very tall trees, including the 325 foot Styx River Tree (which, in fairness to Maiden and John Muir, had not been discovered when the two men had their brief talk in 1904). Since we know that the Styx River tree and a number of other *E. regnans* have broken the magic 300 foot barrier and have been duly certified by modern surveyors, might it not be possible that some of the vanished Australian giants might have challenged the Coast Redwoods? The now accepted

view is that the maximum height recorded by a qualified surveyor was 375 feet for the Corthwaite Tree, *E. regnans*, in Thorpdale, Gippsland, Victoria, in 1880.

The 1985 Guinness Book of Records has grim news for Redwood chauvinists: "The tallest tree ever measured by any government forester was recently rediscovered in a report by William Ferguson, Inspector of Victoria State Forests. He reported in February, 1872, a fallen Mountain Ash, *E. regnans*, eighteen feet in diameter and 435 feet in height. This beats the (fallen) 385 foot Douglas Fir (believed to be a hoax) found in Washington State in 1930, the 375 foot Mountain Ash found in Victoria in 1880, and what was long believed to be the tallest tree (a California Redwood) at 367.8." Now it is entirely possible that the methodical, conservative Professor Maiden could have effectively refuted both the claims of the Corthwaite Tree and the Ferguson Tree; in the case of the former, Maiden's criterion of having the tree surveyed by an expert seems to have been followed as the tree was measured by the State Surveyor of Victoria himself. There is a monument marking the site of "The World's Tallest Tree" in Thorpedale. Muir would have been saddened; the forest has been completely cleared and the land is a sheep pasture.

There is little doubt that the tallest standing trees in the world are the *Sequoia sempervirens*; what little doubt there is centers in a remote valley of Tasmania, where 400 foot *E. regnans* are still said to hold out. On the other hand, under ideal conditions, what would be the species with the greatest height? Stephen Viel, a national park scientist assigned to Redwoods National Park, stated that if you were to build a glass box 500 feet tall and carefully monitor the microclimate and the nutrients, you could probably grow a 500 foot Redwood. "How about *E. regnans*?" I asked mischievously. "Possibly," he chuckled. Another possibility would be to have a "race" between the world's champion Redwood and the world's champion *Eucalyptus* by planting them side by side and seeing what happened.

At one time, this would have been impossible, but now, thanks to the wonders of modern genetics, we can have our tree race. In 1977, Dr. William Libby of the University of California cloned a seedling from the world's tallest conifer, the 367.8 ARC 154. An Australian scientist, Dr. Kenneth Eldridge cloned a shoot from the world's tallest hardwood, the 325 foot Styx River Tree. The two scientists waited until both trees were approximately twenty centimeters tall, and then, with suitable ceremony, they planted the two great trees side by side in April, 1978, behind the forestry building at the University of California. The growth rate of both trees has been phenomenal, but *E. regnans* is far ahead, with an impressive twenty-two meters, while Sempervirin lags behind at only sixteen meters. "The race is not always to the swiftest" laughed Libby, "We expect ARC 154 to start closing the gap in about one hundred years; then it should be an interesting race."

It is a race that Muir would have found intriguing . . . and perhaps purposeless. Much of the ecology of the prime habitat of *E. regnans* has been altered, perhaps forever, for farming purposes. On the other hand, where there is a will there is a way. In the last decade Australians have perhaps become more ecologically aware of their continent's unique flora and fauna than their American cousins. As previously noted, the Australians are highly competitive. While John Muir and most scientists would correctly argue that every species should be preserved for its own unique qualities, it would not hurt the cause of preserving large areas of prime *E. regnans* habitat if there were a future world's champion competition, Libby said, with a twinkle in his eye, "The preservation of the species and the habitat rather than the individual is the critical factor in biology . . .



Dr. Kenneth Eldridge, Director of Forest Research at the Commonwealth Scientific and Industrial Research Organization of Australia, planting a clone of *Eucalyptus regnans* in 1977 behind the Forestry Department at the University of California.



Dr. William Libby from the Department of Forestry at the University of California with his clone of the world's tallest redwood planted next to the clone of the world's tallest eucalyptus.

but," he continued, expressing every bit as much competitive spirit as the Australians, "I think we should throw down the gauntlet to the Australians and have an annual race just like the America's Cup! We could have six sites, three in Australia and three in the U.S. At each site, a clone of the tallest *E. regnans* and tallest *S. sempervirens* would be planted side by side! Each year, the growth (total) of the six *E. regnans* and the six *S. sempervirens* would be compared and the year's winner declared. The cup, which could be called the Muir Cup, would move back and forth across the Pacific. Scientifically, it would be an experiment of dubious validity, but it would provide public interest in learning more about each of these two great trees, something I am sure that Muir would have applauded."

#### NOTE ON SOURCES:

Primary sources used for this article and from which quotations are taken are:

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