

CALIFORNIA TREES

Calendoid

Professor Jepson's Book Tells the Wonder Story of Our Woods from the Days When They Supplied the Indians With Their Food as Well as Shelter

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By Ben Blow

THE pleasure of going into the open finds enhancement when one has some definite object in view, and for the man who loves to be out of doors there is no more pleasing study than that of our native trees. In a book just published by Dr. Willis Linn Jepson on the trees of California there is so much of information put so pleasantly that the man who goes forth into the woods accompanied by it as a vacation hand book can find not only pleasure but profit in its use. Professor Jepson, who is a member of the faculty of the University of California, is an authority upon the subject and his vacations have largely been spent in the wooded places of the state. Scarcely a mining camp is there along the uplift of the Sierra with which he is not perfectly familiar, while the lumbering camps and towns along the upper coast are to him as an open book. Not only has he brought his own personal knowledge to bear upon the subject of which he writes the skill of the long trained observer, but also he has acquired the point of view of the man who goes out in the woods to find surplus from toll, to get away from the chains that bind him in the city.

California, as a place for studying the trees, is not excelled by any other state. The national forests lying within its boundaries number 20, with a total area of 27,968,510 acres, far in excess of any other state or territory. Alaska coming next with 26,761,628 acres set aside by the government. Among the most important of these national forests are the Sequoia forest with headquarters at Red Springs, which comprises an extent of 2,079,942 acres; the Cleveland forest near San Diego with 2,236,178 acres; the Klamath forest near Traska, with 2,094,467 acres; the Santa Barbara forest near Santa Barbara, with 2,027,180 acres; the Sierra forest near North Fork, with 1,925,680 acres; the Tahoe forest, with headquarters at Nevada City, which covers 1,921,842 acres; the Giant forest around Mount Shasta, which has 1,754,718 acres; the Trinity forest near Weaverville, with 1,831,833 acres, not to mention the Modoc, Lassen, Angeles, Plumas and Stanislaus forests, all reservations that comprise millions of acres more.

In addition to these national forests there are also the national parks to be considered. The Yosemite with 958,000 acres, which includes the incomparable Yosemite and Hetch Hetchy valleys, the main crest of the Sierra Nevada mountains and the Tuolumne, Merced and Mariposa groves of big trees. The Sequoia national park with 161,280 acres was within its bounds the North Creek, Wash Forest, Giant Forest, Cliff Creek Grove, Harmon Meadow Grove, Atwell Grove, Lake Canyon Grove, Mule Gulch Grove, Homer Park Forest and South Keweenaw Forest. Of the Giant forest is especially notable on account of the number and size of the big trees, the beauty of the cone bearing trees and the remarkable and imposing grandeur of the North Fork plateau and its surrounding jagged and lofty peaks. The last of these national parks and the least is the General Grant national park, with an area of only 2,500 acres, situated in Fresno and Tulare counties, which however, contains some splendid groups of big trees, notwithstanding its diminutive size.

Perks and Monuments

Aside from the national parks and forests, there are so called national monuments set aside by congress for the purpose of perpetuating objects of historical or scientific interest. The main difference between the national park and national monument being that the park is born through some specific act of congress, while the monument is established by executive action of the president of the United States and may be disestablished by him in the same informal way. The national monuments in California number four—the Pinnacles in Monterey county, 2,000 acres; Lassen Peak, Shasta county, 1,280 acres; Cinder Cone in Lassen county, 5,120 acres; Muir Woods in Marin county, 295 acres. By far the most important of these monuments is Muir Woods, the gift of William Kent to the nation. It includes Redwood canyon on the south side of Mount Tamalpais and is of enormous value educationally because of its proximity to thickly settled centers and its ease of access, to say nothing of national grandeur, which is almost indescribable.

In so far as the Calaveras grove of big trees is concerned, it is interesting to note that it was never a national park nor a monument, but in 1909 an act of congress provided for the exchange of lands of equal value for it and providing that it shall be known as the Calaveras national forest. This grove is famous all over the world and too much credit can not be accorded to those who have kept the matter of preserving it to future generations in mind until success crowned their efforts. Since 1852, when it was discovered by thousands of people from every part of the world have visited it and no little part of the lure that California has for travelers is to be credited to this wonderful group of gigantic trees. Aside from the grove that have been parked by the government and held secure from molestation in California there is one state park, the California redwood park, which includes the Big basin of the Santa Cruz mountains, with an area of 2,800 acres, purchased in 1901. This park is truly a splendid acquisition, being a mixed woodland of redwood, Douglas fir, tan oak, black oak and madrona, and, together with Muir Woods, it forms the only place where the redwood is preserved in its primeval sanctity, to be forever undisturbed.

In so far as the food value of our native trees is concerned, their worth is a retrospective rather than a present day one, few of them being regarded as of any economic importance in these luxurious days, but in the times long past, when the native tribes owned all of California, they were the main staple, pushing them into oblivion, the main existence of a whole tribe was not in-

REDWOOD (SEQUOIA SEMPERVIRENS) MAKING THE "UNDERCUT" WHICH DETERMINES DIRECTION OF WINDS.

frequently dependent on the harvest from the trees. Probably the first in value were the oaks, which provided their acorns in abundance, susceptible of being easily harvested. The acorns of the white oak trees were easily the most desired for food purposes, being less bitter than those of any other kind. And of the white oaks no other species had such wide distribution or bore so abundantly as the valley oaks, which were regarded by the Indians so highly that their villages were usually situated in some such grove, and even particular trees became the subject of property rights in certain families. The acorns of the valley oak are large, but long and narrow, and the kernel is sweet and palatable when roasted. The usual method employed by the Indians in utilizing them for food purposes was to gather and dry them, then store them for the winter supply. These kernels, ground into a sort of coarse flour, were made into a soup or baked into a rough but nourishing bread. The live oak and the California black oak also furnished acorns that made an acceptable flour, although leeching was required to rid them of their bitterness. Tan oak acorns were also bitter, but they existed in such quantities in northwest-ern California that the Klamath and Eel river tribes depended on them largely for a winter food supply, and even today squaws of the Trinity and New River Indians can be seen grinding the acorns into flour and leeching them to take the bitter taste away.

The pines native to California that bore large nuts also furnish food to the Indians, a better food by far than that supplied by the oaks and of very important variety being the Digger pine, which bore the largest nuts, although they were not so palatable as those yielded by the one leaf pine, which exists upon the desert ranges and in desert slopes both of the Sierra Nevada and the mountains of southern California. The Torrey pine also, the Parry pine, the big cone pine, the sugar pine, the silver pine and the white bark pines supplied nuts that were and are today a source of food and revenue for the Indian tribes, and when the time for gathering the nuts came around it was regarded and celebrated as an event. In addition to the oaks and pines were other trees that formed a food supply for the Indian tribes. The large seeds of the buckeye being made up into flour and eaten, while to the south they might be of its undoubted stinging properties, but which after treatment formed a fairly satisfactory article of food. Among the desert tribes the pods of the honey mesquite, palo verde, acorn bean and lesser ironwood formed an important harvest, while the berries of the blue elderberry and madrona were acceptable as food wherever found. The California nutmeg also was regarded as a delicacy by the Indians and eaten, after being roasted, more as a relish than an article of daily food.

The Giant Rearguards

By far the most interesting of all California trees is the redwood family, the big tree (Sequoia gigantea) and the redwood proper (Sequoia sempervirens). The big tree has its habitat along the western slope of the Sierra Nevada from Placer county southward to Tulare county, a distance of 250 miles. It occurs only in groves that are more or less disconnected, seeming to be the rear guard of a vanishing race, as it undoubtedly is. North of Kings river the groves are widely separated, while to the south they might be said to form a continuous belt, for there are scattered individuals that bind the different clumps together almost into a chain. Commonly growing on slopes, ridges or depressions where there is ample moisture, it may be found existing upon almost barren rock as in the Giant forest on the Keweenaw river, where there are 800 trees spread over 500 acres that is almost solid rock. Commonly associated with it in the groves are the white fir, incense cedar, yellow pine and sugar pine, and its reproduction, while fairly satisfactory in the southern groves, is at a standstill north of Kings river. The extreme age of the Sequoia big trees, so far as is certainly known, is about 2,500 years, a century more or less making little difference in the face of ages upon ages that have passed since first the seeds sent forth their shoots.

This statement as to age is far from being guesswork, inasmuch as it is derived from trees longed for commercial purposes. Free from branches for nearly 200 feet sometimes these trees stand up like monuments to unnumbered ages that have gone, dating back 500 years before the Christian era and giving food for much thought on the

changes that have taken place beneath the vast spread of their plume like crowns. The wood, pink when freshly sawn, turns dark red and is light and reasonably strong. For durability, however, it is equaled by hardly any other wood, as logs buried naturally show scarcely any decay after hundreds of years.

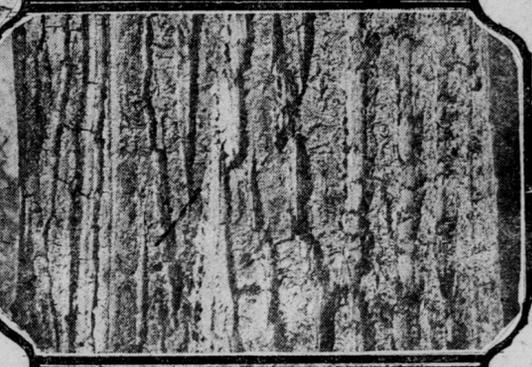
The redwood proper, Sequoia sempervirens, is found along the coast rather than inland, and while far from being as massive a tree as its brother big trees it reaches farther up into the heavens, attaining to an altitude of about 350 feet, while the big trees tower no farther than 250. The trunk of the redwood is from 2 to 16 feet in diameter, which is hardly worth considering when compared to the diameter of the Sequoia gigantea, which is from 5 to 25 feet in diameter at some distance above the ground.

In geographical distribution the redwood reaches from southern Oregon down to the Laguna mountains, covering a strip 450 miles long and from one to 40 miles wide, the main body occurring in a well defined belt which begins in Del Norte county and extends to southern Sonoma county. Below Sonoma county the redwood occurs more or less locally around Ukiah, Willits, Cloverdale and on the east side of Howell mountain in the Napa range, which is its farthest invasion toward the Sierras. On the south fork of the Eel river, the main stream of the Eel river, Van Duzen river, Mad river, Redwood creek, lower Klamath and Smith rivers there are magnificent groves as yet untouched by the ax and existing as they have stood for more than a thousand years, giving the man who cares to wander from the beaten track a chance to see the forest primeval as it was growing only a few hundred years after the birth of Christ.

Most Delightful Grove

Commercially little need be said of it, for the great lumbering industries that have sprung up and called for the investment of millions of dollars are evidence enough of its utilitarian value. In his discourse on the trees of California Professor Jepson declares that the most delightful grove met with by him in all his travels is situated between the Sierras and Cottonwood creek on the Mendocino hills that overlook the ocean. In almost perfect preservation they stand on little knolls and in small swales arranged so openly that all their grandeur and their beauty is for him who would behold. And from an outing standpoint the redwood groves of Marin and Sonoma have become most popular, thousands of persons going there for their brief respite from work to pitch tents beneath the branches and live out in the open in the shadow of the ages that the old trees testify to with their vast reaching trunks and spreading, plummy tops.

The pines of California form an interesting group of trees and a valuable one as well, contributing much to the state's wealth, perhaps the rarest of them all being the silver pine, which



BLACK COTTONWOOD POPULUS TRICHOCARPA CHARACTERISTIC TRUNK BARK. LONG VALLEY, MENDOCINO COUNTY. THIS TREE 80 FEET HIGH, THE TRUNK 50 FEET IN DIAMETER AT 1/2 FEET ABOVE THE GROUND.



SIERRA JUNIPER (JUNIPERUS OCCIDENTALIS) TREE ON NORTH YOLLO BOBBY RANGES



REDWOOD CHARACTERISTIC GROVE IN SONOMA COUNTY.

is found mainly in the Sierra Nevada mountains at altitudes which range from 5,500 to 8,000 feet in the north to 11,000 feet in the southern stretches of the mountains. Reaching a height of 125 feet sometimes with a diameter of four feet at the base, it is a striking tree with slender branches and somewhat drooping foliage and thin, very smooth bark, sometimes checked into small squares. From a commercial standpoint, however, the sugar pine is the most important of its family, being a splendid forest tree which reaches to a height of 180 feet, clear from branches for almost the entire length of its trunk and surmounted by a flat topped crown. In the main timber belt of the Sierra it is a striking feature of the landscape with its brown or reddish colored bark, and while it is found in the coast range it is very scarce there, its range in altitude being between 3,500 and 5,500 feet.

Very similar to the sugar pine and almost indistinguishable from it in certain individual trees is the yellow pine, which is normally more resinous. Growing, as it does, at a lower altitude than the sugar pine, it is found associated with black oak, incense cedar and white fir. The "apple" pine, so called, which has a very fragrant smell grade yellow pine and can hardly be distinguished from the best grades of sugar pine. Perhaps the most abundant tree in California, the yellow pine, is particularly characteristic of the Sierra Nevada, attaining its finest development along the ridges, where it carpets the ground with its needles, making a soft and pleasant path for one who cares to wander amid mountain scenery. So many pines there are in California, 17 distinct species in all, that it is no wonder that the average individual can hardly distinguish one from the other. The most peculiar of all the pines is undoubtedly the Digger pine. It grows in the dry, hot foothills and sometimes in gravelly valleys



RED FIR, THE FORM CALLED "SHASTA FIR" WITH EXSERTED BRACTS.

per belong to this family, the wood being hard and durable and of much value to the settlers for fence posts and fuel. The lily and the rose family both find representation among the California trees, the former being represented by the Joshua tree and the Mojave yucca, which are well known to those who have passed through the desert places of California, while the rose family appears in the mountain mahogany, the Trask mahogany, the plum, the bitter cherry, the western choke cherry, the Sierra plum, the islay, a hollylike shrub and the Oregon crabapple. The willow family finds creditable representation among the California trees, there being the yellow willow, the red willow, the black willow, the arroyo willow, the nuttall willow, the velvet willow, all of them unmistakable and well known trees, while the poplars are existent in the common cottonwood, the black cottonwood and the aspen.

Few people not familiar with tree lore would suppose that the blue and red elderberry bushes belong to the honeysuckle family, but such is nevertheless the case, while so called desert willow is not a willow at all, being comprised in the bigonia family of the cactus order. The California fan palm, which is so well known that it need scarcely be dwelt on. The pea family is also a familiar part of California's landscape, its most widely known variety being the mesquite, that valuable desert shrub, which is closely related to the acacia, the well known tree and the desert ironwood, the last of which is much used by Indians in the making of their arrows. Horticulturally the California walnut is a valuable tree, although it grows sparingly to be valuable as a timber of commercial importance. Used as it is for a stock graft for the English walnut it contributes no little to the wealth of California and so assumes importance. The California laurel, which while being an imposing and magnificent shade tree.

15 Varieties of Oak

The oak family is, of course, of such importance that there is hardly any need to mention its many uses aside from that to which the Indians put it as a producer of food. There are 15 different varieties of oak, the best known being the coast and interior live oaks, which are called indiscriminately live oak. These are splendid trees and form a noble and scenic landscape, looking at a distance like great balls spread upon the plains or hills. In addition to the live oaks there are the valley oak, the mesa oak, the Oregon oak, the blue oak, the island oak, the maul oak, the scrub oak, the lea oak, the deer oak, the huckleberry oak, the Palmer oak, the California black oak and the tan oak. The most remarkable among the California oaks is the maul oak, which supplies a wood of undoubted commercial value that is used for mauls, whence it gets its name, wagon parts, tool handles, ship's knees, furniture and floors. The wood is remarkably close grained and is extremely tough and strong. Purely from an artistic standpoint, however, the valley oak, sometimes called the weeping oak, is most noteworthy of all, growing as it does in the deep alluvial soil of the valleys and being practically the only break in the monotony of the far stretching flats. The valley oak attains its finest development in the deep, moist loam of the valleys and grows to be of a diameter of 8 to 10 feet, forming a splendid shade tree that is distinctive, standing as it generally does alone. The tan oak, so called because its bark is valuable and much used by the leather tanneries of California, which consume about 25,000 cords annually. In the use of the bark, however, there is much of waste, about 35,000 trees of different sizes being left to rot each year, save for a very small number that are used for firewood.

The cypress family, including the redwoods, the cypresses and the junipers, makes up an interesting group of trees more or less valuable commercially, the incense cedar being one of the most abundant trees in the main timber belt of the Sierra, growing to a height of 125 feet and being of great value for telephone poles, as it is extremely durable. The canoe cedar also is remarkably durable, being used in the manufacture of shingles and was highly regarded by the Indians who made their huge war canoes from a single log; they utilized the fibrous bark in weaving their clothing and the wood in making household implements. Of the cypresses the Monterey cypress is particularly noteworthy from the local nature of its habitat, being found only along the coast, where the rough ocean winds form it into peculiar shapes. These trees, while forming the basis for a widespread belief that they are the same as the biblical cedars of Lebanon because of their resemblance, are in no way related, being a cypress proper, while the cedars of Lebanon are gentianaceae. But notwithstanding this fact the guides at Monterey are persistent in spreading the popular story which is received with so much interest by the tourists. The California juniper, the desert juniper and the Sierra juniper

The Unique Madrona

Representing the arbutus family as it does, the madrona is one of the most unique of our native trees, its gnarled and twisted body, that seems to writhe along the ground, suggesting almost irresistibly a cripple maimed by some tremendous accident. Rarely symmetrical, the older the madrona grows the more deformed it seems to become. No other California tree has figured quite so much in literature as the madrona and many a master painter's brush has traced the sinuous outlines of the crawling trees, Bret Harte with all his wealth of imagery has sung the madrona in verse. With its crown of flowers and its mass of crimson berries, its burnished foliage and its terra cotta bark it casts its charms on all. Scarcely a man who has some forth into the woods returns without being impressed and bettered by his outing in the places where it grows, and irregular in outline as it is, it adds a piquant touch to the unfolding landscape, gives new beauties at every turn and vista of the woods.

So ideal is the California climate that to touch upon each tree that flourishes beneath its wooing sun would score be possible. Long spreads of lemon and orange groves, stretches of olive and almond, vistas of English walnut trees are everywhere. The valleys with their old gnarled oaks, the mountains with their forests of sky touching trees, the foothills in between each has its lure, each spreads before the one who loves the open its beauties for him to make his own, and any one who casts his chains aside and goes forth to find rest and respite can do no better than to make a little intimate study of the trees of California and wander on beneath the avenues they make into oblivion of toil.