THE COLORADO MAGAZINE

Published by

The State Historical and Natural History Society of Colorado

Devoted to the Interests of the Society, Colorado, and the West

VOL. 2 Denver, Colorado, January, 1925 NO. 1

The Conifers or "Evergreens" of Colorado

By Ellsworth Bethel

The forests of Colorado consist principally of conifers (cone-bearing trees) commonly called Evergreens. The native conifers of this state all have evergreen leaves which persist for several years, that is, they fall gradually and not all at one time as in deciduous trees. All but the Cedars or Junipers have the well recognized cones; in these the cones are modified into berry-like fruits.

The coniferous forests of Colorado lie chiefly within 17 National Forests with an acreage of 113,277,038 acres. There are also 120,000 acres of state forest lands and 29,630 acres of municipal and county lands. In addition to the above there are extensive forests in each of the two National Parks—the Rocky Mountain National Park and the Mesa Verde National Park. Colorado ranks fourth in acreage of forests, being exceeded only by California, Idaho, and Montana. Oregon, however, though having slightly less acreage than Colorado, produces a far greater amount of lumber, as does also Washington and the other states named above.

Perhaps the chief value of our forests is not in the lumber resources but as great conservators of rain and snowfall necessary for the irrigation of more than 3,000,000 acres of farm lands. The rich, deep humus of the forest cover holds the water and allows it to run off gradually, thus serving the purpose of irrigation throughout the summer when it is most needed. Of scarcely less importance is the aesthetic value of forests as they add greatly to the scenic beauty of our rugged mountains, and being open and accessible afford summer home sites for our citizens and camping places for the tourists.

Our forest-covered mountains are exceedingly attractive, and in beauty and accessibility are not surpassed by any in the country. Unlike the great forests of the Pacific Coast which are often almost impenetrable, and with dense chaparral covering the lower hills permitting access only by roads and trails, the Colorado mountains,

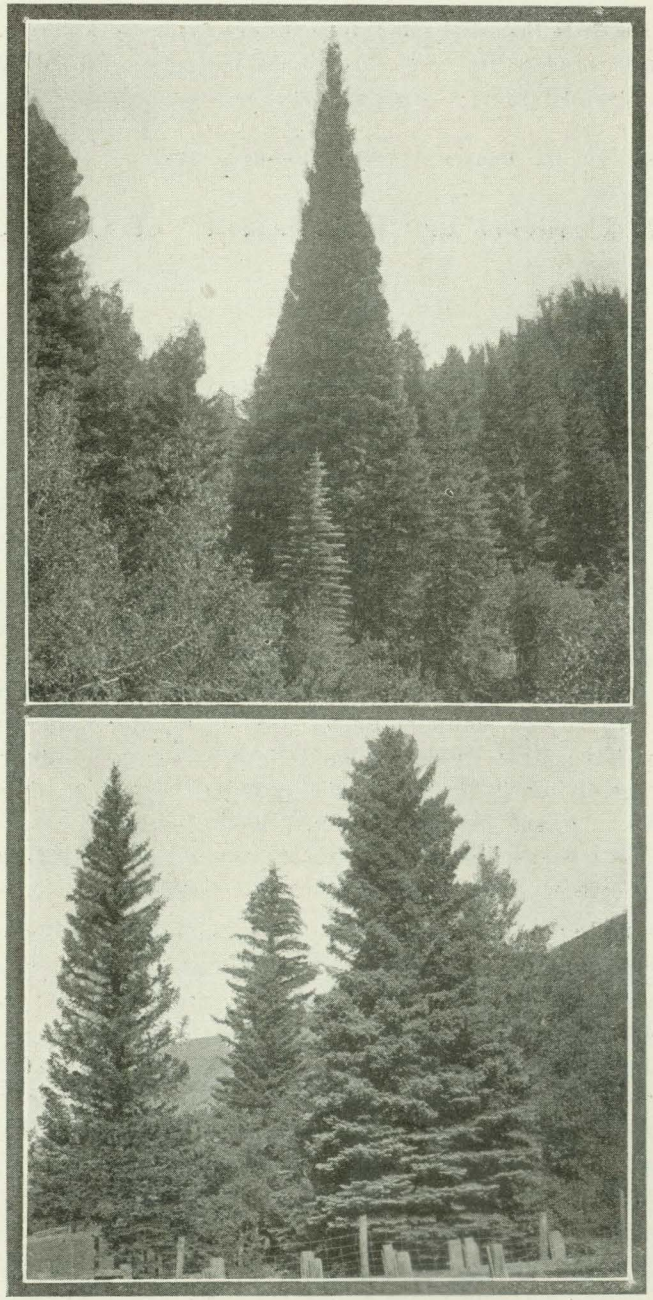


Plate I—

1. **Upper, Engelmann Spruce. Picea Engelmanni with a Colorado Blue Spruce in front.**
2. **Lower, Colorado Blue Spruce, Picea pungens.**

though often steep and rugged, may be climbed anywhere, and so we are independent of the trails so necessary in the western coast ranges. On account of their open character they afford much pasturage for stock and permit the growth of a beautiful flora consisting of columbine and many other flowers of great beauty. Forests have many other advantages. They prevent floods, and soil erosion, and afford homes for the birds. They also probably contribute in no small way to humidifying the atmosphere, and in a measure lessen the effect of violent winds.

Colorado lies between meridians 102 and 109 west. The 105th meridian, which runs through or near many principal cities, such as Fort Collins, Denver, Colorado Springs, Pueblo, and Trinidad, roughly marks the boundary between the plains and the mountains. The part of the state east of this meridian, that is, three-sevenths of Colorado, is a treeless plain. The remainder of the state is chiefly mountainous. The forests occupy the mountain regions chiefly above 7,000 feet elevation; however, the semi-arid mesas, 4,000 to 6,000 feet elevation, of southwest Colorado, belonging to the Upper Sonoran zone, are also covered by scattered open forests. These consist chiefly of three species of cedars and one species of pinon pine, none of which are of very great commercial value.

It may be remarked that Colorado is the mountain state of the Union, having 46 of the 59 peaks which exceed 14,000 feet elevation, and it has more than 300 peaks above 13,000 feet elevation. The treeless area above timberline (average elevation 11,500 feet) is quite extensive and is many times that of all other states combined. The rugged treeless area above timberline, however, is not without value since it holds great banks of snow and ice throughout the summer, thus furnishing a perpetual supply of water for the forests below and for irrigation and for the water supply of cities.

The 17 National Forests are at comparatively high elevations, at least above all agricultural areas. Splendid roads are being built by the Government so that the beautiful recreation grounds are now everywhere accessible by auto. Every school should have a state map showing the location and extent of the National Forests since they comprise four-fifths of the timbered lands of the state. The following are the names: Arapaho, Cochetopa, Grand Mesa, Gunnison, Hayden, Holy Cross, La Sal, Leadville, Medicine Bow, Montezuma, Pike, Rio Grande, Routt, San Isabel, San Juan, Uncompaghre, White River. The La Sal Forest is partly in Utah, and the Hayden partly in Wyoming.

The deciduous trees found in the forests of Colorado are the aspen, hackberry, box elder, pin cherry, five or six species of cottonwood and poplar, alder, two kinds of birch, one large oak, and

many kinds of scrub oak. Only one of the many species of willow may be called a tree, though it seldom ascends into the mountains. The oaks form extensive chaparrel, and there are extensive forests of aspen, especially on burned-over areas. The aspen thrives unusually well in this state, and the forests of this species perhaps aggregate more than the total for all other western states.

The conifers indigenous to the state are five pines, two spruces, three true firs, one false fir (the Douglas fir), three cedars, and one juniper (a small shrub). These are the western yellow pine of the foothills and lower mountains, the limber pine and bristle cone pine of the subalpine zone, the lodgepole pine of the higher mountains, the pinon or nut pine of the mesas and low mountains of southwestern Colorado; Engelmann spruce of the high mountains, the Colorado blue spruce or state tree along mountain streams; the subalpine or balsam fir of the high mountains of northern Colorado, and the cork bark fir of the high mountains of southern Colorado, and the long-leaved fir along mountain streams of southern Colorado; the Douglas fir of the lower mountains; the Rocky Mountain red cedar, lower mountains chiefly, the one-seed white cedar, lower hills and mesas, east of the mountains of southern Colorado; the Utah white cedar on mesas west and southwest of the Continental Divide; the trailing juniper, a low shrub, scattered through forests at all elevations throughout the state.

The part of the state east of the 105th meridian is mostly below 6,000 feet elevation and without conifers except the Arkansas-Platte Divide, which projects east from Palmer Lake thirty or forty miles and is covered by a dense forest of yellow pine. This is the well known "black forest." Also there are a few limber pines, yellow pines, and red cedars in northern Weld County at an elevation of 5,000 feet and less, and a pinon-cedar area in the Upper Sonoran of the southeastern part of the state. Otherwise the eastern three-sevenths of the state is treeless except for a few cottonwoods, box elders, hackberry, and willows along the streams.

The following keys to the conifers of Colorado are a reprint from Nature-study outlines prepared by the writer for the public schools of Denver, 1910-17. They have also been used by several thousands of Boy Scouts. The keys have been made to include as many distinguishing characters as possible, so as to make determinations easy.

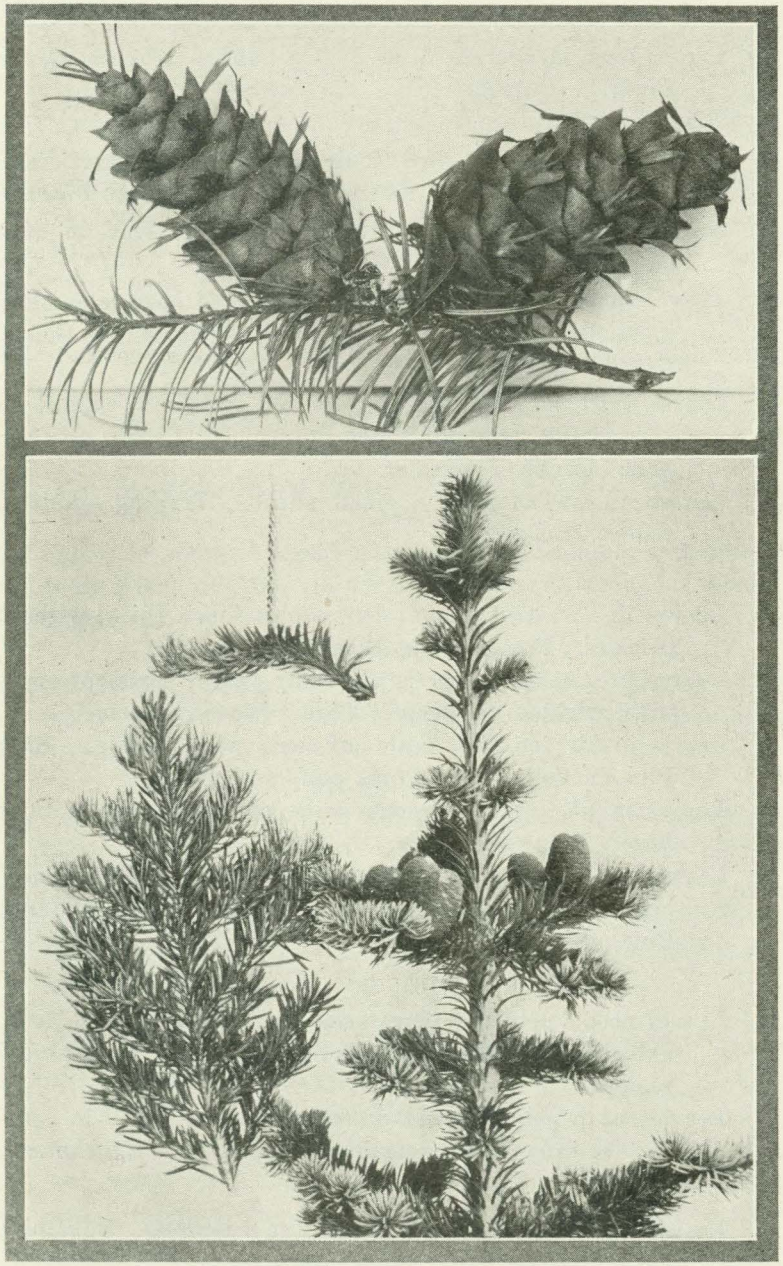


Plate II—
1. **Upper, Douglas Fir, Pseudotsuga mucronata.**
2. **Lower, Long-leaved Fir, Abies concolor.**

KEYS TO THE CONIFERS OF COLORADO

*Leaves in bundles.

(a) Leaves long, slender, 2, 3, or 5 in a bundle. Pines. Genus *Pinus.*

**Leaves single.

(b) Leaves short, sharp-pointed, four-sided; borne on short stalk-like projections from the bark. Spruces, Genus *Picea.*

(c) Leaves short, flat, blunt-pointed, sessile; leaf scar on bark elliptical. True Firs. Genus *Abies.*

(d) Leaves short, flat, sessile, with a constricted base resembling a petiole; leaf scar on bark circular. Douglas Fir. Genus, *Pseudotsuga.*

(e) Leaves short, flat, and scale-like on old trees; awl-shaped on very young trees and young branchlets. Cedars or Junipers. Genus, *Juniperus.*

(f) Leaves all awl-shaped; a small shrub. Trailing Juniper. Genus, *Juniperus.*

Pines

(a) Leaves in 2's; seed a nut; cone scales short, thick, without prickles. Pinon or Nut Pine. *Pinus edulis.*

(b) Leaves in 2's; cones persisting many years; scales of cones with prickles. Lodgepole Pine. *Pinus contorta.*

(c) Leaves in 3's (or 2's); scales of cones with prickles. Rock Pine, Yellow Pine. *Pinus ponderosa.*

(d) Leaves in 5's; scales of cones with prickles. Bristle Cone Pine. *Pinus aristata.*

(e) Leaves in 5's; seed, a nut with deciduous wing; scale of cones, broad, thick and shiny without prickles. Limber or Range Pine. *Pinus flexilis.*

Spruces

(a) Leaves needle-pointed; twigs smooth; cones 2 to 3 in. long, light brown. Colorado Blue Spruce. State Tree. *Picea pungens.*

(b) Leaves sharp pointed, *twigs pubescent;* cones 1 to 2 in. long, reddish brown. Englemann Spruce. *Picea Engelmanni.*

True Firs

(a) Leaves 1 to 2 in. long; cones black 2 to 4 in. long. Subalpine Fir or Balsam Fir. *Abies lasiocarpa.*

(b) Leaves 2 to 3 in. long; cones 3 to 7 in. long, green or purple. Long-leaved Fir. *Abies concolor.*

(c) Leaves 1 to 2 in. long; cones 2 to 4 in. long, black; bark corky. Cork-bark Fir. *Abies arizonica.*

Douglas Fir (Not a true Fir)

(a) Leaves single, short, and flat, base narrowed into a petiole; scales of cone with exserted three-pronged bracts. Douglas Fir. *Pseudotsuga mucronata.*

Cedars (Also called Junipers)

(a) Leaves usually in 3's; dioecious; fruit maturing second year. Rocky Mountain Red Cedar. *Juniperus scopulorum.*

(b) Leaves usually opposite; dioecious; cone maturing first year. One-seed Juniper, White Cedar. *Juniperus monosperma.*

(c) Leaves usually opposite; moecious; cone maturing second year. Utah White Cedar. *Juniperus Utahensis.*

Trailing Juniper

(a) Leaves awl-shaped; a prostrate shrub; dioecious fruit maturing the second year. Trailing Juniper. *Juniperus sibirica.*

ECOLOGICAL NOTES AND ECONOMIC USES

Pinon or Nut Pine

Habitat—Dry mesas. *Range*—Manitou and south and westward, from 6,000 to 8,000 feet. *Use*—Fence posts and firewood. Edible nuts.

Lodgepole Pine

Habitat—Dry, gravelly mountain sides. *Range*—Entire state, 8,000 to 11,000 feet. *Use*—Lumber, mine timbers and kindling wood.

Rock Pine or Yellow Pine

Habitat—Foot-hills and lower mountains on rocky, sunny slopes. *Range*—Entire state, from 5,000 to 8,000 feet. *Use*—Lumber.

Bristle Cone Pine

Habitat—Rocky Points, near timber line. *Range*—From James Peak southward, 10,500 to 12,000 feet. *Use*—Mine timbers and firewood.

Limber Pine

Habitat—Rocky slopes. *Range*—Entire state, from 7,000 to 11,000 feet. *Use*—Mine timbers and firewood.

Colorado Blue Spruce

Habitat—Moist places and along streams. *Range*—Entire state from 6,000 to 8,000 feet. *Use*—Ornamental tree in parks and lawns. Foliage often silvery. The finest ornamental evergreen in cultivation.

Engelmann Spruce

Habitat—Moist north slopes. *Range*—Entire state from 8,000 feet to timberline. *Use*—Lumber. This tree is the great conservator of snow. Sometimes planted as an ornamental tree.

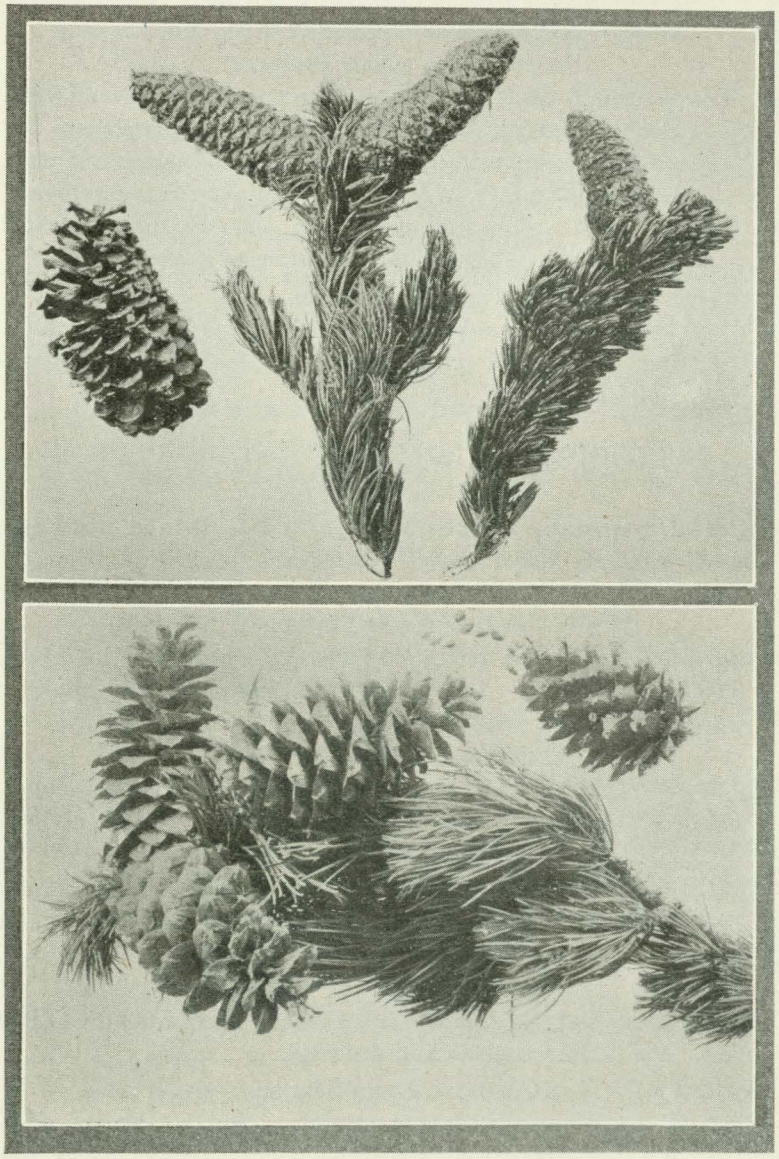


Plate III—
Upper, Bristle Cone Pine, Pinus aristata.
Lower, Limber Pine, Pinus flexilis.

SUBALPINE FIR

Habitat—Moist north slopes of high mountains. *Range*—8,000 feet to timberline. *Use*—Lumber of poor quality.

CORK FIR

Habitat—High mountains of southern Colorado. *Range*—8,000 to 11,000 feet from Saguache southward into New Mexico. *Use*—Lumber of poor quality.

LONG-LEAVED FIR

Habitat—Mountain canyons. *Range*—Palmer Lake and southward, 7,000 to 9,000 feet. *Use*—Planted as an ornamental tree. Lumber of poor quality.

DOUGLAS FIR

Habitat—Lower mountains. *Range*—Entire state from 6,000 to 8,000 feet. *Use*—A most valuable lumber tree, though most of it of commercial size has been cut. Much planted as an ornamental tree. This is the common "Christmas Tree."

ROCKY MOUNTAIN RED CEDAR, OR JUNIPER

Habitat—Throughout the mountains on exposed slopes. *Range*—Entire state, from 6,000 to 9,000 feet. *Use*—A fine ornamental tree on account of conical shape and silvery foliage in young trees. Also used for fence posts and firewood.

WHITE CEDAR OR ONE-SEED JUNIPER

Habitat—In the Upper Sonoran zone. *Range*—5,000 to 7,000 feet from Manitou southward along east front of the mountains and on mesas, also occasional west of the range. *Use*—Firewood and fence posts.

UTAH WHITE CEDAR

Habitat—Upper Sonoran of the Western Slope. *Range*—4,000 to 8,000 feet. Common at these elevations everywhere west of the Continental Divide. *Use*—Firewood and fence posts.

Note—Both white cedars are now extensively used as stubs for re-enforcing telephone poles.

TRAILING JUNIPER

A rather handsome, trailing shrub with blue berries. Found at all altitudes in the mountains up to timberline and above.

FRUITS OF CONIFERS

All the conifers of Colorado have their seeds borne in cones except junipers, whose cones are modified into berry-like fruits. Two seeds are borne on each scale of the cone.
(See pl. VII, Figs. 1 and 3.)

Pines, spruces, firs, and the false fir have cones which remain intact for many years; those of the true firs fall to pieces on maturing the first season, hence no cones will be found beneath the trees

as in other conifers; however, the axis of the cone remains on the branch and may be evident for a year or two (See Pl. II, Fig. 2.)

Spruces, firs, and the false fir mature their fruits in the autumn of the first season, and the cones fall during the following winter. The pines mature their fruit the second autumn, and drop their cones soon after maturity, with the exception of the Lodgepole pine, whose cones remain on the tree for many years. (See Pl. VII, Fig. 2.) The cones of the latter pine often do not open until a fire has swept the forest, the heat opening the cones, thus allowing the seeds to be released.

Junipers or cedars mature their seeds in one to three years. The one-seed juniper (as well as the introduced Virginia cedar planted in city parks) matures its seed the first year. The Rocky Mountain red cedar, Utah white cedar, and trailing juniper, mature their seeds in two years.

All the pines of Colorado have winged seeds except the pinon or nut pine, and the limber pine (often called false pinon). These two have edible nuts.

The seed-producing organs of conifers are borne in spikes (aments). The pistillate spikes have two naked ovules on the scale (except in junipers), and the staminate spikes have pollen sacs on the scales. The pollen grains have two membranous wings which allows them to be carried long distances by the wind.

All the conifers of Colorado are monoecious, that is, with staminate and pistillate spikes on the same plant, with the exception of three junipers. The Rocky Mountain red cedar, one-seed juniper, and the trailing juniper are dioecious, that is, with staminate and pistillate spikes on separate plants.

SPRUCES

The "perfect tree" in Boulder Canon is famous as being one of the most beautiful trees of the state, and has attracted much attention since it is near the roadside and is seen by many tourists. Many specimens quite as beautiful may be seen near Lizard Head Mountain in the San Miguel Mountains. The writer photographed the "perfect tree" in the early 90's and it was adopted as the emblem of the Colorado State Forestry Association and was used on all its literature during the many years he was secretary. This is a typical Engelmann spruce, but unfortunately it has been referred to as the Colorado blue spruce—the State Tree—in some manuals. These two spruces are often confused. There are many differences which will enable anyone to distinguish the two. The following diagnoses give the salient features of each:

Engleman spruce

Bark of old trees scaly, sloughing off in orbicular scales of a brownish red color; branchlets slender; branches in young trees often ascending, branchlets widely divergent giving a closed aspect to the

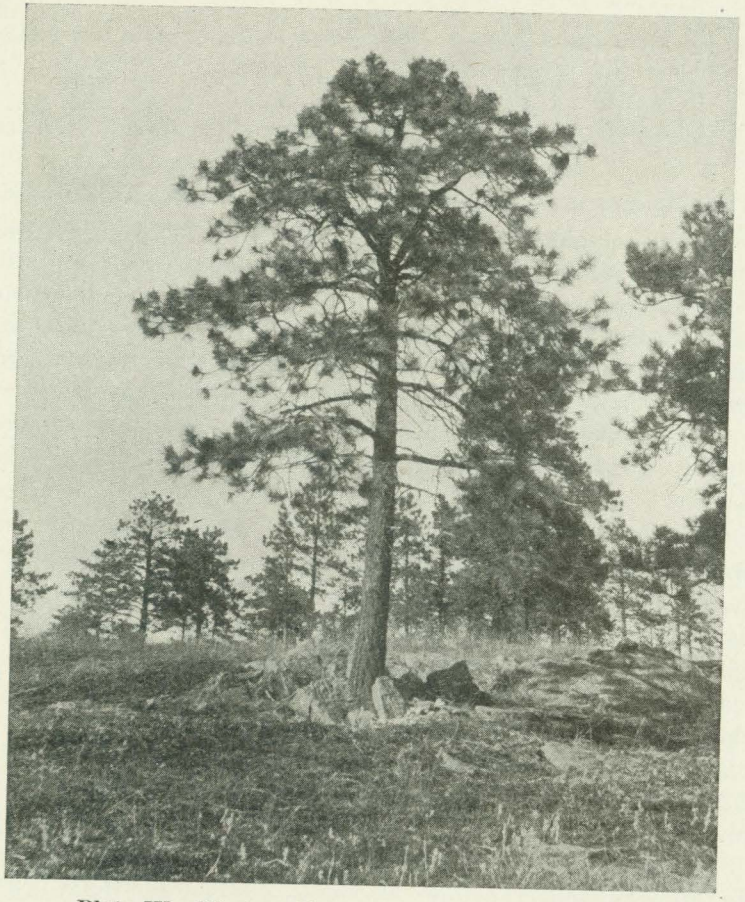


Plate IV—Western Yellow Pine, Pinus ponderosa.

tree; needles slender, sharp-pointed; cones short, oval, reddish brown, occurring in large, dense, divergent clusters over one-third to one-half of the tree; habitat cold, damp locations, 8,000 ft. to timberline.

This spruce is regarded as the most valuable conifer of the state, not only for its lumber but because it is the greatest conservator of snow and rain. Wood white, valuable for lumber and poles. Called "white spruce" by lumbermen. (See Pl. I, fig. 1.)

Colorado blue spruce

Bark of old trees gray, with shallow, longitudinal furrows; branchlets stout, smooth; branches usually horizontal; terminal branchlets horizontally divaricate, thus giving an open aspect to the tree; needles very stout, needle-pointed; cones long, cylindrical, light-colored, few and pendant and usually borne only on the topmost branches; habitat near mountain streams, 5,000 to 8,500 ft.

The trees are often glaucous, and it was originally called the "silver spruce." It was selected by vote of the school children, Arbor Day, April 15, 1892, as the State Tree. The wood is soft and white throughout, and of no value for lumber. It is called "water spruce" by lumbermen. This spruce is extensively grown as an ornamental in America, and to a far greater extent in Europe. It is regarded as the handsomest spruce in cultivation; however, trees grown from seed often fail to have the beautiful silvery or blue-green color. This defect

is overcome by grafting. The grafted Koster's blue spruce and the Bismarck blue, which are quite expensive, are the only ones satisfactory for ornamental plantings. (See Pl. I, fig. 2. Also note that the tree in front of the "perfect tree," Pl. I, fig. 1, is a Colorado blue spruce.)

TIMBERLINE AND FACTORS AFFECTING TREE GROWTH AT HIGH ALTITUDES

Timberline is the limit of tree growth. It varies from sea level in the arctic regions to 12,000 feet altitude or more in Colorado. In this state it is variable, depending upon soil, exposure, influence of winds, and other environmental conditions. On south side of Blanca peak, timberline is 10,200 feet, and on the high peaks surrounding South Park exceeds 12,000 feet. Of more than forty timberline elevations in Colorado determined by the Hayden Survey by the use of the barometer at various exposures, the average is 11,660 feet. However, the altitude almost universally used is 11,500 feet.

Timberline is a very irregular line, since quite often tree growth extends in long tongues up protected draws a distance of several hundred feet above the main forest. Usually timberline on the north and west slopes of mountains is several hundred feet higher than on slopes having a south and east exposure. This is due to the colder, moister condition of the north and west sides, which condition favors tree growth; the conditions on the east and south sides are unfavorable since they are usually dry, precipitous and rocky, especially about the circques which have been left by former glaciers.

At timberline the trees become stunted, twisted, and sprawling, and are called "Elfinwood." The German name is "Krumholz." The Engelmann spruce and subalpine fir are the commonest timberline trees, though the bristle cone pine, limber pine, and lodgepole pine are also timberline trees in regions where they grow. The trailing juniper, a low shrub, often grows a thousand feet or more above timberline.

The trees are often decorticated on the windward side, due to the impact of pebbles. The fierce winds, often 60 to 75 miles per hour or sometimes much greater, break off the branches on the windward side, and also carry pebbles of large size with tremendous velocity so that large wounds are made in the bark, or the bark is entirely destroyed on the windward side. Some very interesting forms of bark wounds from high altitudes may be seen at the State Museum.

The trunks of trees often lie prostrate on the ground and instead of the usual large branches, have many ascending branches, and these do not have the normal aspect of branches but resemble little trees, giving the appearance of a small grove of young trees

of the particular species of the parent tree. In very exposed locations the tops of the branches of this miniature grove will be killed on the windward side, due partly to the impact of pebbles, but more especially because of the reflection of sunlight from the snow, since the strong winds blow much of the snow from this side, leaving the tops uncovered; those of the east side are buried in huge snowdrifts so that these dwarfed trees are protected throughout the winter.

Many other anomalous aspects may be seen. The terminal bud of the conifers is often killed, in which case several branches develop, however, not sidewise but vertically, producing a peculiar bushy aspect to the tree tops. Another even more unusual aspect is seen in the occasional growth of a branch through the cone and beyond. It seems very strange that a branch should be found growing from the cone. These and many other peculiar phases of conifers are almost unbelievable, were it not that there are actual specimens at hand for verification, as there are at the State Museum.

The growth of conifers, also of aspen, at timberline is very slow, often only a quarter of an inch or less per annum. The annual increment of the trunk diameter is also phenomenally slow. A lodgepole pine with a trunk diameter at the base of two inches may have an age of fifty years or more.

Trees at timberline seldom bear seed, so that it was a matter of speculation by Dr. Parry, the eminent botanist, who explored the Gray's peak region 1860-3, and other early scientists, as to how reproduction is maintained. However, the writer has found that once in a great number of years these trees do produce seed. Seed are also brought up from regions far below by the strong ascending currents of air. The writer once found on the top of Arapahoe peak, far above timberline, seeds of conifers, a dragon fly, and other insects, which had been carried by the winds from the forests 2,000 feet below. This explains reforestation at high altitudes irrespective of any seed production.

Nowhere in this state is there such picturesque timberline areas as in the high mountains west of Denver, particularly at Empire, Berthoud Pass, and on the north side of Mt. Evans. The superiority of this region is due to a composite of many conifers, which includes spruces and firs and three species of pine. Two of these pines, the limber pine and the rare bristle cone pine, assume unusually grotesque forms at high altitudes.

The opening of the highway to the top of Mt. Evans (altitude 14,260 feet) will make timberline accessible. Every pupil should see this wonderland at timberline which in fantastic beauty far transcends any other attraction of the mountains. The gnarled

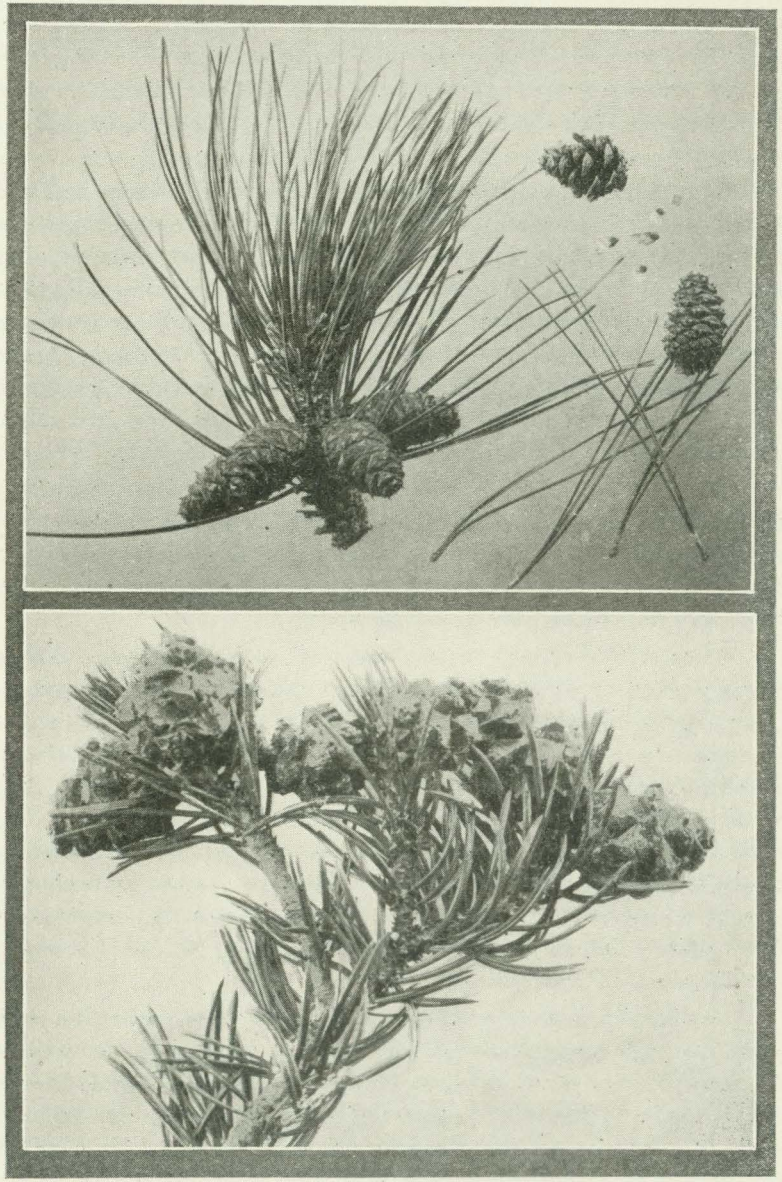


Plate V—

1. **Upper, Cones of Western Yellow Pine, Pinus ponderosa.**
2. **Lower, Pinon Pine, Pinus edulis.**

and twisted trees, the dwarfed groves of evergreens (5 to 15 feet high) scattered through meadows of arctic flowers of most brilliant coloring, make a scene never to be forgotten. Timberline in Colorado far exceeds in beauty that of the Pacific Coast or the Canadian Rockies or any other region so far as has been seen by the writer, because of the particular species of conifers and the large number of kinds which constitute timberline.

In many trees of high altitude the growth of the trunk is more or less on one side, due to the fact that the wind has blown the branches off of the windward side, thus restricting growth on that side, since the growth of wood is dependent upon the leaves which manufacture it. Leaves are called the laboratory of the plant, since it is they that manufacture the various kinds of tissue which make up the plant. The leaves take the crude sap, change it into various products, which are returned to the different parts of the plant.

Perhaps more than ninety per cent of lodgepole pines at high altitudes have this one-sided growth which may readily be seen on the stump or at the end of logs. The center of growth is not at the center of the tree, but at one side, and such trees are said to be off-centered. The center of growth in this pine is usually on one side at a point one-third to two-fifths of the diameter of the trunk.

If one will notice dead, decorticated trees he will find an occasional one which has the wood twisted. This twist or spiral turning is usually not easily detected in living trees. It is uncommon in heavy forests; however, near timberline it is well nigh universal, and perhaps ninety-nine per cent of the trees have a very great twisting of the wood in the forest at or near timberline. Those in which the grain of the wood turns to the right are said to be dextral, and those which turn to the left are sinistral. It is an erroneous belief that trees in the northern hemisphere have the spiral turning in one direction only, due to the influence of the rotation of the earth from west to east. The writer counted many trees on Rollins Pass from an altitude of ten thousand feet to timberline and found 232 trees were dextral and 41 sinistral.

Excessive spiral growth renders the trees unfit for use as lumber. It also diminishes their value for use for telegraph and telephone poles. Telephone companies in this state do not accept trees for poles which have a turn greater than once in sixteen feet.

There are many parks or open treeless spaces in the mountains, particularly in glaciated areas. Scientists have been puzzled as to why the forests do not invade these areas. Some of these produced by glaciation doubtless have been treeless since the ice age. Attempts to grow trees in these spaces have usually resulted in failure. It has been assumed that the soil condition of these parks is inimical

to tree growth, but this is probably untrue. With the exception of the great San Luis Valley, where the soil of the old lake bed is nearly pure sand to a depth of many feet, the soil is not unfavorable to the growth of conifers. In fact, in most of the so-called parks the soil is a coarse gravel mixed with sand, which is unexcelled for the growing of conifers. The writer believes that the failure of conifers to invade these barren areas is due to the reflection of sunlight from snow, which almost invariably kills young trees. Experiments made by the writer on the very cold and treeless mesas of Middle Park show that planted evergreens were always killed just above the level of the snowdrifts. When the trees were protected a number of years by board enclosures they survived and grew quite as well as on the mountain sides.

It will be observed that in many places the forests are extending far out on the mesas and there is a dense growth of pines five to twenty years of age. It has been erroneously assumed that the climate is changing and that ere long there will be quite an enlargement of the forested area. However, this is only a temporary growth, since every few years there is a season of drought, or a severe winter which kills all this new growth. These adverse seasons occur in cycles of ten to thirty years but they are certain to kill the conifers on these areas ultimately. The writer has seen many such cases in Colorado, California, and Nevada during the past thirty years. It will be noted that there are no stumps of old trees on these mesas, showing that there probably never has been a growth of large trees on these areas. It is probable that the forested area is nearly constant and that it will continue to remain about the same as it has been for ages.

Trees grown in the dense forest are usually free from knots, since the lower limbs die early from a lack of light, and so do not form knots in the wood, hence these make good, clear lumber. Trees grown in the open have large limbs low down, and so have many large knots and are not fit for lumber. Yellow pine grown in the open is very resinous, has many knots, and is called "Jack" pine or "Black Jack" by lumbermen, though it is not a distinct species or even a variety, as many suppose.

HABITATS AND ZONES

Habitats. Habitat means the locality where a plant thrives, and is sometimes used as the equivalent of geographical range. Thus some plants grow only in moist places, others in dry regions only; some grow at low altitudes and others only in the higher and colder regions. Ecology deals partly with habitats, and for terms used, the student is referred to any textbook in botany.

Zones. The geographical distribution of plants according to habitat is classified into zones. Latitude affects the flora in a way

Plate VI—Trees at Timberline.

quite similar to altitude. The limit of this article requires that the part dealing with zones be omitted. This subject will be fully discussed in a later paper. However, we will here give the names of the various zones.

The Upper Sonoran applies to only a part of the state, namely, the dry, semi-desert mesa region of southern and western Colorado (elevation 4,000 to 7,000 feet), which is covered by scattered, open forests of pinon pine and three species of cedar. The zones for northern Colorado are: Plains, below 5,800 feet, Foothills, 5,800 to 8,000 feet. Montane (mountain), 8,000 to 10,000 feet. Subalpine, 10,000 to timberline. Alpine (or Arctic-alpine), timberline and above.

Zoologists use the Merriam system of zones, which is Upper Sonoran, Transition, Canadian, Hudsonian, and Alpine.

GEOGRAPHIC DISTRIBUTION

The following geographic distribution may be of interest: The northern limit of bristle cone pine is James Peak; of the long-leaved fir, Palmer Lake or possibly South Platte canon; the cork bark fir reaches northward to Saguache and is very abundant in the San Juans; the one-seed juniper or white cedar is abundant on mesas and foothills east of the mountains as far north as Manitou, and is rare west of the mountains, where it is supplanted by the Utah

white cedar, which has for its northern limit a line from Wolcott and Radium to northwestern Colorado.

Pinon pine occurs south of a line drawn from Manitou through Radium to the northwest corner of Colorado, crossing into Wyoming at only one place, namely, for three miles along the Green River. There is an isolated grove of fifty miles length and two miles width extending from near La Porte, Colorado, nearly to the Wyoming state line. The lodgepole pine has not been found south of the north part of the Culebra range south of La Veta. There are no endemic conifers in Colorado, since all range into other states.

WHITE PINES

White pines have five needles in a cluster and are the most valuable lumber trees in the United States. There are several species, but those of Colorado—the limber pine and the bristle cone pine—have little commercial value since they are for the most part timberline trees and are gnarled and twisted, and have a short trunk with many branches and are not suitable for lumber. However, in the early days of mining in this state they were used extensively as mine props on account of their almost indestructible character. The supply about mining towns has been exhausted and lodgepole pine treated with some preservative is now used.

The white pines of the East have been attacked by a very destructive disease imported from Europe. It is called the White Pine Blister Rust and has its alternate stage on currants and gooseberries. In Colorado there is a very similar disease, though harmless, which attacks pinon pines. It is known as the Pinon Blister Rust and has its alternate stage on currants and gooseberries, and on these is scarcely distinguishable from the pernicious White Pine Blister Rust.

MISCELLANEOUS NOTES

The bristle cone pine is characterized by a conspicuous white resin exudate near the center of the leaves. The physiology of this anomalous aspect has never been satisfactorily determined. This phase presents an interesting problem for some student.

The cones of lodgepole pine have unusually strong peduncles, and remain attached to the tree for many years. Sometimes the wood grows out over the cones, and these are not infrequently found embedded in the wood. Good specimens of this aspect may be seen in the exhibit cases at the State Museum, and remarkably beautiful examples may be seen in the boards of a cabin at Long's Peak Inn. The wood of lodgepole pine is white and soft, and lumbermen call it "white pine," though it has no relation to the true white pines which have five needles in a cluster and are the most valuable lumber trees of the country. The lodgepole pine, formerly considered

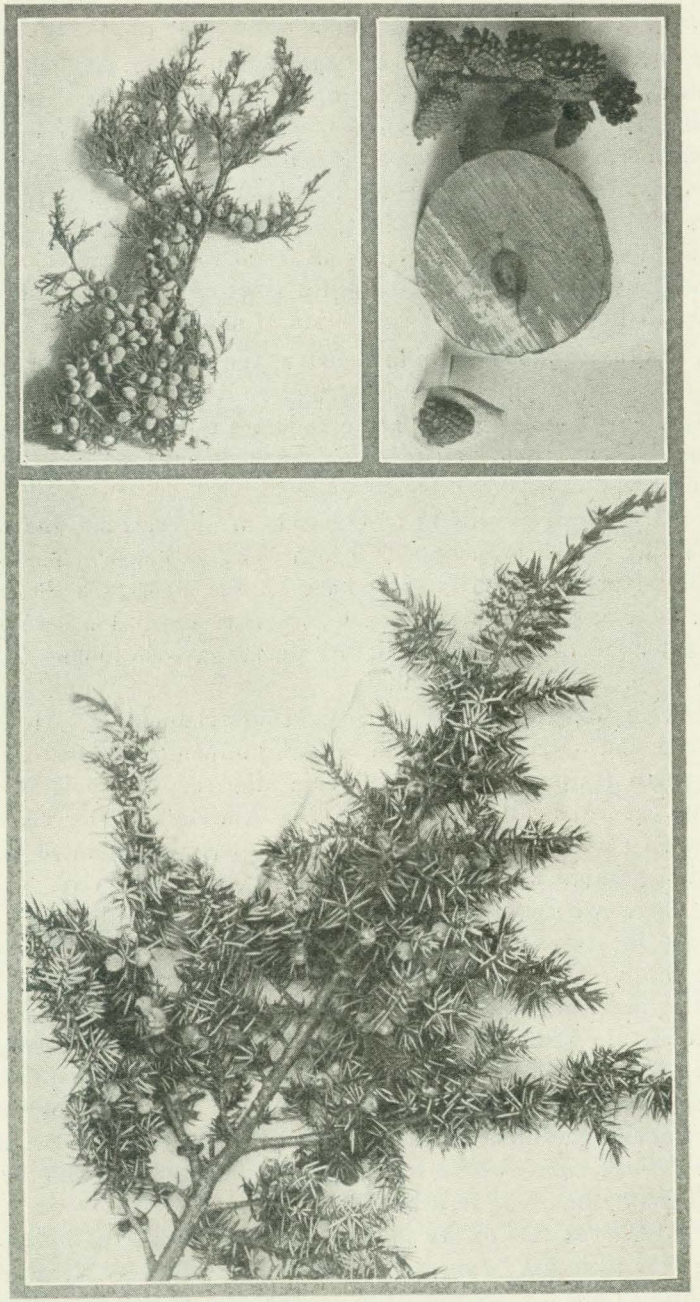


Plate VII—

1. **Upper Left, Utah White Cedar, Juniperus utahensis.**
2. **Upper Right, Lodgepole Pine Cones and Cones in Wood.**
3. **Lower, Trailing Juniper, Juniperus sibirica.**

of little value, is now extensively used for railroad ties and telephone poles, but must first be treated with some preservative.

Altitudes cited are the average and not the maximum and minimum elevations. For example, the limber pine has a subalpine habitat, but is found occasionally on chalk bluffs of the plains region of northern Colorado as low as 5,000 feet. This, however, is an exceptional case. It is probably a relic endemic and has persisted since geologic times. Also the pinon pines, which belong to the Upper Sonoran Zone, ranging from 5,000 to 8,000 feet elevation, occasionally ascend far up the south sides of the mountains. On Marshall Pass they reach an elevation of almost 10,000 feet.

The insect galls resembling cones at the ends of twigs of spruce are caused by a plant-louse (*Chermes sp.*). These are sometimes mistaken for young cones. These galls are especially abundant on spruces in city parks and often do much damage, as they kill the young twigs.

All the native conifers of Colorado are evergreens, the leaves remaining on the branches for 3 to 5 years or longer. The oldest needles (that is, those farthest back on the stem) are shed first, then those of other years fall each successive year. Larches, which are not infrequently planted in city parks, have deciduous needles, that is, they fall in the autumn.

Cedar and juniper are often used interchangeably. However, the common usage in Colorado is that juniper be applied only to the small trailing species, *Juniperus sibirica.* There is no true cedar (genus Cedrus) native to the Americas. The cedar of Lebanon *(Cedrus Lebani),* a true cedar, has been planted on the Capitol grounds at Denver, but it is not likely to survive.

There are four species of pinon or nut pine, but only one species, the two-needled form (*Pinus edulis*) occurs in Colorado. (See Pl. V, Fig. 2.) The nuts are used largely as an article of food by Mexicans and Indians, and since the invention of a shelling machine, are being used extensively in confections. These pines bear a crop only once in five to seven years. In 1921 more than a million pounds of pinon nuts were shipped from New Mexico to Los Angeles and other cities to be used in confections. One pinon pine *(Pinus monophylla)* has single needles, and another *(Pinus quadrifolia)* has four in a bundle.

All the conifers of the state which we recognize as indigenous have been included. *Juniperus Knightii,* described by Nelson from northwest Colorado, we regard as *J. utahensis,* at any rate all specimens sent us from that region belong to the latter species. The writer has collected *J. sabinioides* just south of the Colorado state line in New Mexico, and *J. communis* just across the state line in

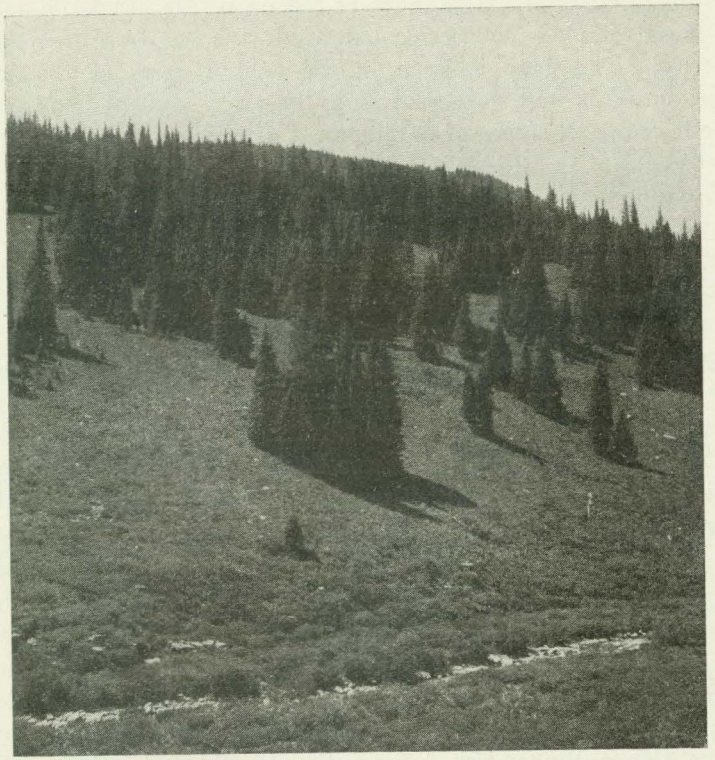


Plate VIII—
Young Forest of Engelmann Spruce in the San Miguel Forest

Wyoming, *J. horizontalis* at Buffalo, Wyo., and *J. virginiana* in the Black Hills of Nebraska, and it is possible that some of these species may yet appear within our borders. However, authentic records are lacking. The Department of Natural History will be grateful for specimens of rare conifers from any place in the state.

Each leaf bundle of pines is wrapped at its base by a sheath. This sheath is the base of the bud scales which once enveloped the leaf bundle. The long green needle-like leaves are known as foliage leaves, technically secondary leaves. Primary leaves, which are brown, thin, and paper-like, are evident among the foliage leaves only in young growth, but are best seen among the cotyledons, where they sometimes have a greenish color due to the presence of chlorophyll.

These miscellaneous notes on the conifers of Colorado are the result of observations made by the writer from 1890 to 1917 while studying forest tree diseases of the state. Since 1917 he has been Forest Pathologist of the U. S. Department of Agriculture and has

been absent from the state much of the time. He has made one of the most complete collections extant of the conifers of western America. This may be seen in the exhibit cases at the State Museum and is well worthy of study by every student of forestry, since it shows all stages of development of each species.

This brief treatise of the conifers of Colorado must omit many important phases of our forests and forestry. It is intended principally to answer the many inquiries that are received by the Department of Natural History at the Colorado State Museum. The notes have been made as simple and non-technical as possible, for use by teachers in our mountain districts, for the amateur, the nature-lover, and especially for use by the Boy Scouts. Two thousand Boy Scouts received instruction on how to recognize our evergreens, in a course given by our Curator, Miss Hazel M. Schmoll, last winter. It is hoped that these keys and notes may also be of service to high schools which conduct courses in elementary forestry.

For more detailed descriptions one should consult Longyear's "Evergreens of Colorado," published by the Colorado Agricultural College. This handsomely illustrated work contains much valuable data on our conifers. Sudworth's publications on the conifers of the Rocky Mountains, issued by the U. S. Department of Agriculture, are indispensable for taxonomic work. Shaw's monograph of the Genus Pinus, issued from the Arnold Arboretum, is an exhaustive treatise of the pines of the world, and is especially valuable to university students. The most complete description of the forests of Colorado is contained in the first report of Col. E. T. Ensign, the first State Forester of Colorado. This was published more than a quarter of a century ago. It is out of print and the Society does not own a copy of this first report, but has two copies each of the second and third reports. Anyone having a copy which he will donate to the Society will please communicate with the Secretary.

REFERENCE DATA

The National Forests of Colorado belong to the Rocky Mountain District, or District 2, which includes Colorado, Michigan, Minnesota, Nebraska, and most of Wyoming and South Dakota. The district headquarters are in the Post Office Building, Denver, Colo. A. S. Peck is the District Forester.

The office of the State Forester is with the State Agricultural College at Fort Collins. Prof. W. J. Morrill is the State Forester, and head of the School of Forestry of the College. Colorado College also maintains a School of Forestry, of which Prof. Gordon Parker is Dean. The headquarters of the Colorado State Forestry Association are at Denver. Lou D. Sweet is President, and Perry L. Clarke, Secretary of this association.

For a more complete description of the conifers of this state, consult the following references:

New Manual of Rocky Mountain Botany, Coulter and Nelson.

Trees and Shrubs of Colorado, Bethel, Colorado School Journal, April, 1912.

Trees and Flowers of Colorado, Ramaley.

The Conifers of Colorado, Longyear.

Flora of the Rocky Mountains and Adjacent Plains, Rydberg. U. S. Dept. Agric., Bulletins Nos. 207, 327, 460, 680, by Sudworth; also Primer of Forestry by Pinchot—Farmers' Bulletins Nos. 175 and 358.

(Reprints of the above article may be obtained for use by schools at 25 cents each by addressing the Secretary of the Society.)

Early Mail Service to Colorado, 1858-60

L. R. Hafen

No sooner had the '58ers pitched their tents at the mouth of Cherry Creek than there arose a demand for means of communication with their relatives and friends in "the States." The little embryo towns of Auraria and Denver on the South Platte were in the no-man's-land triangle between the two famous highways to the west—the Santa Fe and the Oregon trails.

Eight years prior to the discovery of placer gold on the South Platte by W. Green Russell, monthly mail lines had been established from Independence, Missouri, to Salt Lake City[1] and to Santa Fe[2], respectively. This trans-Mississippi mail service of the fifties was very meager and unreliable. There were no stage stations nor relays of horses. A single team was used the entire distance upon both of these pioneer lines. Four and six hour periods of travel alternated with equal periods of rest, when the animals were turned out to forage. Thirty days was the scheduled time from Independence to Salt Lake City and to Santa Fe.[3]

Such were the western mail facilities until 1858, when the "Pike's Peakers" began their settlements on the banks of Cherry Creek. But, meagre as were these facilities, the embryo Denver was not so located as to enjoy them. Two hundred miles of waste land

[1] Root and Connelley, *The Overland Stage to California,* p. 1. Little, *Mail Service Across the Plains,* p. 1. (Bancroft Mss.)

[2] The postal route was established to Santa Fe in 1847. (*U. S. Statutes at Large,* IX: 194.) Service was not begun on the route until 1850. (Inman, *The Santa Fe Trail,* p. 145, quotes the *Missouri Commonwealth.)*

[3] An extended description of these routes is given in Hafen, *The Overland Mail to the Pacific Coast, 1849-69,* Chap 5. (Phd. thesis, mss.)

separated these Colorado pioneers from their nearest post office at Fort Laramie on the North Platte. This stretch must be spanned and a link created to connect them with home and friends.

Jim Saunders, a trader who like John Smith and Jack Jones, had been in the country years before the miners came for gold, agreed to establish an express line to Fort Laramie.[4] He was to receive fifty cents for letters and twenty-five cents for newspapers. William H. H. Larimer, one of the pioneers of 1858, writes of this first express:

> He [Saunders] got his list and on November 23, 1858, started with his squaw in a little wagon drawn by four Indian ponies for his two hundred mile journey. * * * No mail has ever arrived in Denver that was more anxiously awaited than that which he brought on his first trip. * * * Saunders returned on January 8th, but with nothing for father or me.[5]

In the second number (May 7, 1859) of the pioneer newspaper of Colorado we read:

> Occasionally an express is sent for what mail matter may be there [at Fort Laramie] but it is attended with heavy cost and long delay. * * * Three days ago the Laramie mail came in, bringing, we learn, 1,500 letters and a great number of papers which were delivered to their proper owners upon payment of fifty cents for each letter and ten cents for each paper. This is a heavy tax, yet we were glad to get them at any price.[6]

The Saunders Express was short lived. It was replaced in the early spring of 1859 by one of the most remarkable institutions established in early Colorado—the "Leavenworth and Pike's Peak Express Company."

During the winter of 1858-9 William H. Russell and John S. Jones were in Washington, D. C. They conceived the daring scheme of running a stage coach express to the Pike's Peak region. Alexander Majors, the experienced western freighter, refused to join in the enterprise. Reports were yet rather vague and indefinite. The value of the discoveries had not been proved. It was rather certain that there would be a heavy emigration to the Rocky Mountains in the spring of 1859, but the resources of the country and the permanency of the settlement were problematical indeed. Despite these facts Russell and his associates launched into the enterprise as though no doubt was entertained as to the ultimate realization of their highest hopes. Kentucky mules and Concord

[4] *Reminiscences of General William Larimer and of his son William H. H. Larimer, two of the founders of Denver City*, p. 136. Saunders was a native of Pennsylvania and was with the Indians on the North Platte when the gold excitement occurred.
[5] Ibid, p. 135.
[6] *Rocky Mountain News*, May 7, 1859.

coaches sufficient to stock the line were quickly purchased with notes payable in ninety days. When the notes became due Jones and Russell were unable to redeem them and the great freighting firm of "Russell, Majors and Waddell" came to the rescue and took over the line.[7] Of this great firm Horace Greeley wrote while on his way to Denver in 1859:

> Russell, Majors and Waddell's transportation establishment is the great feature of Leavenworth. Such acres of wagons! such pyramids of extra axletrees! such herds of oxen! such regiments of drivers and other employes! No one who does not see can realize how vast a business this is, nor how immense are its outlays as well as its income. I presume this great firm has at this hour two millions of dollars invested in stock, mainly oxen, mules and wagons. (They last year employed six thousand teamsters, and worked 45,000 oxen.)[8]

The first coaches left in pairs for security and mutual aid. Among the pioneer express party were Beverly D. Williams, superintendent of the line, and Dr. J. M. Fox, agent for Denver.[9] Stations were located and stock distributed along the line.

The first arrival at Denver of the "L. & P. P. Ex. Co." coaches occurred on May 7, 1859. These coaches had taken nineteen days in transit, but the time would soon be reduced to six or seven days. Great was the delight of the pioneers of "Pike's Peak." Instead of news from one to three months old, brought at monthly intervals, they could now enjoy weekly communication and feast on news fresh from the States—but seven days old! The arrival of this first express was the occasion for the publication of the first "Extra" (two columns) ever published by a newspaper in Colorado.[10]

This "Extra" gives the following information obtained from Mr. Williams, relative to the route:

> Stations are established at intervals of 25 miles after leaving Junction City, 172 miles out, to this place. * * * The road after passing Ft. Riley follows an entirely new route, all the way, keeping along the divide between the Republican and Solomon's forks of the Kansas River, crossing the heads of the tributaries of the latter fork for some distance, then bearing a little northward, crossing the heads of Prairie Dog, Sappa and Cranmer creeks, tributaries of the Republican, and striking the river near the mouth of Rock Creek, between longitude 101 and 102 degrees; it then follows the south side of the Republican to a point near the source, thence striking due west it crosses the heads of Beaver, Bijon and Kiowa creeks, tributaries of the Platte, passing through a beautiful pine country for sixty miles, and striking Cherry Creek twenty miles above its mouth.

[7] Majors, *Seventy Years on the Frontier*, p. 165.
[8] Greeley, *An Overland Journey*, p. 47.
[9] Larimer, *Reminiscences*, p. 172.
[10] *Rocky Mountain News*, "Extra," May 9, 1859.

The whole length of the road is 687 miles by odometer measurement, but it will probably be shortened 75 miles by cut-offs in various places—one very considerable one at this end, terminating the road directly at the mouth of Cherry Creek. The road throughout its whole length is good when broken and traveled, but the coaches that have just arrived made the first track over it.

Map Published in 1860 by Burt & Berthoud, Showing the Four Principal Routes to the Gold Region

Horace Greeley writes from Station 18 on June 2, 1859:

> Off the five weeks old track to Pike's Peak, all is dreary solitude and silence.

On the next day the editor wrote:

> The road from Leavenworth to Denver had to be taken some 50 miles north of its due course to obtain even such a passage [described as bad] through the American Desert.[11]

The first return coach from Denver reached Leavenworth on May 20, having been ten days upon the prairie. The Leavenworth *Tribune* reported: "It brings $700 in shot and scale gold and four passengers." The issue of the following day records: "There was a celebration here today in honor of the arrival of the first Overland Express. It passed off with great eclat. The procession was composed of military, firemen, and civilians. * * * A thousand persons participated in the affair."[12] Frank Root, for years an express messenger, writes of the return of the first coach to Leavenworth: "A large and anxious crowd gathered in front of the Planter's Hotel, eager to learn everything. The express vehicle bore a decoration which read: 'The gold mountains of Kansas send greetings to her commercial metropolis.' A coach dispatched a short distance out to escort it into the city bore a banner labeled 'Leavenworth hears the echo from her mineral mountains and sends it on the wings of lightning to a listening world.' "[13]

[11] Greeley, *An Overland Journey*, p. 103.
[12] Quoted in Larimer, *Reminiscences*, p. 173.
[13] Root and Connelley, *The Overland Stage*, p. 153.

The coaches now began to arrive at weekly intervals. But the express route was hardly established before a transfer was affected which led to an abandonment of the Republican River route in favor of the one along the emigrant trail up the Platte. The last coach over this pioneer route (reaching Denver June 6) carried a very distinguished passenger in the person of the famous editor of the New York Tribune. Horace Greeley's report upon the newly discovered gold fields of the Rocky Mountains was to have a very important affect in stabilizing affairs. It did much to counteract the decided reaction that had already set in against the country and that was carrying all before it with the condemning cry of "Pike's Peak Humbug."[14]

In May, 1859, Jones, Russell and Company purchased from Hockaday and Liggett the contract for mail transportation from Missouri to Salt Lake City. A bonus of $50,000 was paid for the Utah mail contract, and $94,000 was given for the equipment and supplies upon the line.[15] Since the Utah mail was to be carried on the Platte route the new contractors found it profitable to transfer their express line from the Republican to the Platte route in order that the two lines might be run jointly.

The transfer of stock and supplies to the Platte route was effected in June[16] and by August the coaches were running semi-weekly on a seven-day schedule.[17] This service was maintained during the summer, but as winter approached it was reduced to a weekly schedule, and was conducted on that basis throughout the winter.[18]

During the year 1859 the "L. & P. P. Ex." was one of the most important and influential institutions of Colorado. Its weekly or semi-weekly budget of news was eagerly awaited not only by the pioneers of Colorado but also by their fellow citizens in "the States." Passenger transportation was one of its chief sources of revenue. This service was especially appreciated by business men who could now cross "the Plains" in one week instead of consuming four to six, as was required by other means of conveyance. During the spring and summer heavy passenger and express traffic was carried to Denver. The returning coaches ran with lighter loads but usually a consignment of the shining dust was carried by the eastbound coach.

The location of the terminus of the express line had a very significant influence in determining the fate of town companies at the mouth of Cherry Creek. In the spring of 1859 Auraria and Denver

[14] Greeley, *An Overland Journey*, p. 146.
[15] *Congressional Globe*, 56 Cong. 2 sess., p. 573.
[16] *Rocky Mountain News*, June 11, 18, 1859.
[17] Ibid, August 20, 27, 1859.
[18] Ibid, Sept. 3, 1859.

were the chief competitors. Auraria, on the west bank of the creek, had been founded first, and was larger than the town on the opposite bank. However, the newer town company had advantages to offset its drawbacks. William Larimer, the chief leader in the Denver Town Company, was an experienced town promoter. Before leaving Leavenworth he had discussed with his neighbor, William H. Russell, the question of town companies and stage lines, and the interdependence of these two institutions. When the Denver Town Company was organized, Russell was given an original share in it.[19] Two days after the arrival of the first express Larimer writes to his son John:

> Russell's train changes the whole face of matters here. They are locating in Denver City. Denver is all O. K. Since writing the above the Denver City Company met and donated nine original interests to the Leavenworth and Pike's Peak Express Company. That company consists of ten persons. William H. Russell now holds one original share in Denver City, so you see we are now all right, if not before. * * * This is fine; their monied influence will make this *now the certain point*. Will and I are delighted with this move. Judge Smith only wanted to give 1,000 shares but we preferred the way we passed it as we have them now fully committed to help along the town, procure capital and hasten the railroad. I shall sleep soundly tonight.[20]

The regular advertisement run in the *Rocky Mountain News* of 1859 gives the following information:

> Each stage is capable of carrying eight passengers with comfort and ease. Passage through to Leavenworth $100, board included. * * * Special attention is given to the comfort of ladies traveling in the coaches. * * * Our drivers are sober, discreet and experienced men. The teams are the choice of 800 mules.[21]

The Concord coach—that famous institution of the West—was employed as a carrier. These substantial vehicles were built by the Abbott-Downing Company of Concord, New Hampshire. The bodies of the coaches were swung on heavy leather throughbraces which absorbed much of the jarring occasioned by rough roads. The front and rear boots and frequently the upper deck were employed for carrying the mail and express matter. Mark Twain writes of his western journey: "Our coach was a great swinging and swaying stage of the most sumptuous description—an imposing cradle on wheels."[22]

The driver, established upon the high seat projecting over the front boot, was a monarch in his realm. Common stage hands came

[19] Larimer, *Reminiscences*, p. 106.
[20] Ibid, p. 174.
[21] *Rocky Mountain News*, Aug. 20th and subsequently.
[22] Mark Twain, *Roughing It*, p. 21.

at his beck and call and with adoring glances watched him crack his long whip and career away.[23] Stations were established at intervals of ten or fifteen miles along the route, and fresh teams were ever ready to keep the coach going both night and day. Passengers took rest and sleep as best they could to the accompaniment of the swaying and creeking of the coach and the chuckling of the wheels.

William N. Byers, who made a trip to the States and back in the summer of 1859, has this to say:

> A tribute of praise is due the Leavenworth and Pike's Peak Express Company for the very superior accommodations they offer to travelers over their route.
>
> On our recent journey from the States, we found their stations along the South Platte fitted up in the best style possible. Several new stations have also been made below the crossing, in addition to the old Salt Lake mail company's stations. Houses have been erected, wells dug, and the conveniences of life are rapidly being gathered around points along a distance of hundreds of miles, where two months ago there was not a fixed habitation. Passengers by this line get their regular meals, on a table and smoking hot.[24]

Mark Twain's description of the stations along the Platte was different:

> The station buildings were long, low huts made of sun dried, mud-colored brick, laid up without mortar. * * * There was no flooring, but the ground was packed hard. There was no stove, but the fireplace served all needful purposes. There were no shelves, no cupboards, no closets. In the corner stood an open sack of flour, and nestling against it's base were a couple of black and venerable tin coffee pots, a tin teapot, a little bag of salt, and a side of bacon. * * * The table was a greasy board on stilts, and the tablecloth and napkins had not come—and they were not looking for them either.[25]

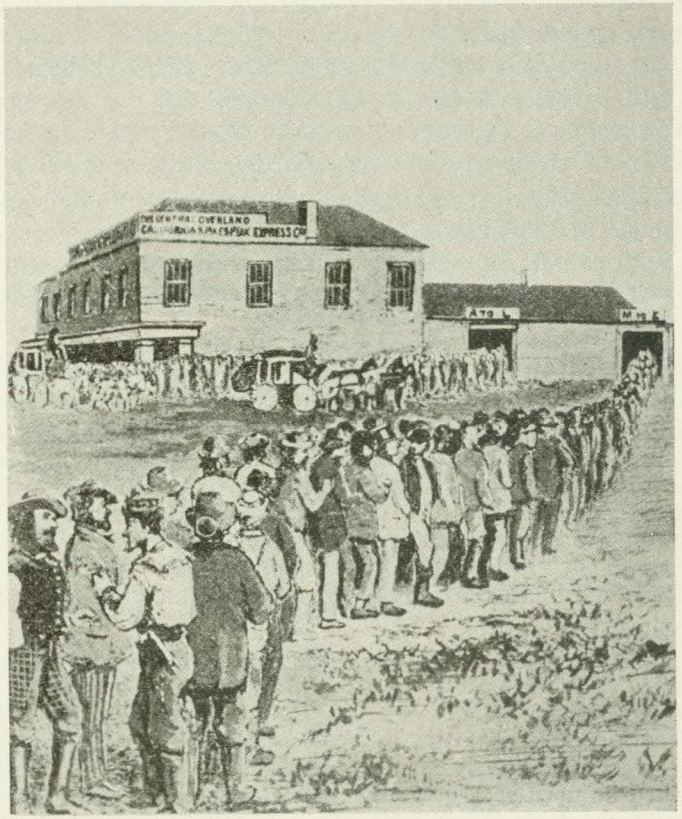
The arrival and the departure of the coach were occasions of importance. The departure of the Express was compared to that of a steamer from San Francisco:

> The four-mule coach is driven up to Bradford's corner, and the crowd assembles; packages are stored away by the careful employees of the company and lastly parting drinks are taken by the passengers and their friends, hands shaken, seats taken and the coach is off, to make the passage of the prairie ocean in seven days. The crowd now disperse feeling that an event has occurred.[26]

The arrival of the express was an even greater event. The schedule was maintained with remarkable regularity. S. T. Sopris writes:

> When the hour of its arrival approached a crowd would

[23] An extremely interesting and amusing picture of the driver and his position is given by Mark Twain in *Roughing It*, p. 38.
[24] *Rocky Mountain News*, Aug. 13, 1859.
[25] Mark Twain, *Roughing It*, p. 40.
[26] *Rocky Mountain News*, April 11, 1860.



Depot and Office of the "C. O. C. & P. P. Ex. Co.," Built 1860. The Waiting Line.

assemble at the office, corner of "F" and McGaa streets (Fifteenth and Market) and it was seldom there was a wait of more than a few minutes before the four "spanking bays" would appear in sight, coming down from Larimer street, and with screeching of the brakes pull up in front of the company office.[27]

An hour or more were now consumed while the mail was being changed. In the meantime the expectant crowd grew larger and the waiting line was often extended around the block. Much time was consumed in delivering the mail since the carriage charge was usually paid in dust, which had to be carefully weighed out. Men with money would often buy a front position in the line from some person whose time had a smaller commercial equivalent. The long line of expectant faces, the drawn-out agony of suspense, the strong demonstrations of joy or of sorrow upon receipt of delayed news from loved ones—these are little scenes from the pioneer drama.

[27] Sopris, *First Stage Coach*, p. 2 (mss.).

The express charge for carriage of letters was twenty-five cents, and ten cents was collected upon newspapers. This was in addition to the regular United States postage, which was three cents on half ounce letters. The Government was very slow in providing Colorado with mail facilities. For a time during the summer of 1859 it was thought that the government service had been established, but the people were doomed to disappointment. The express company failed to receive the anticipated mail contract and were forced to continue private charges for the services performed.[28] This unsatisfactory condition continued until August of 1860, when the first regular United States mail was received.[29]

Postage was not necessarily prepaid upon the letters sent in 1859. This situation tempted some patrons to take letters that they had received and read, mark them "opened by mistake," and demand a refund of postage at the window of the express office. William H. H. Larimer, who was a clerk in the office in 1859, says that these "mistakes" became too common and that they were sometimes forced to question applicants as to whom they expected mail from. In case of doubt the letter would be opened at the customer's request and a few lines read to make sure. Young Larimer cites one instance:

"I started reading. The letter commenced: 'Your wife has been raising hell ever since you left——' The man interrupted: 'Hold on, I think that is my letter.' He took it, paid for it, and disappeared."[30]

The rate on express matter other than letters was correspondingly high. The *Rocky Mountain News* once complained that they were compelled to pay $30.10 on a bundle of paper weighing 43 pounds. In 1861 the express rates to Denver ranged from 20c to 40c per pound, depending upon the size of the shipment.[31]

In February, 1860, the legislature of Kansas granted a charter to the "Central Overland California and Pike's Peak Express Company." This newly formed corporation absorbed the "L. & P. P. Ex.," which had been operating its line to Denver during the preceding year. It also had the United States mail contract for service to Utah and soon replaced the Chorpenning line upon the route from Salt Lake City to Placerville, California.[32]

The directors of the "C. O. C. & P. P. Ex. Co." were A. Majors, John S. Jones, Wm. B. Waddell, B. C. Card, W. S. Grant, J. B. Simpson, and W. H. Russell. Russell was chosen president, and

[28] *Rocky Mountain News*, July 9, 1859.
[29] Ibid, Aug. 22, 1860.
[30] Larimer, *Reminiscences*, p. 177.
[31] *Rocky Mountain News*, Jan. 2, 1861.
[32] Hafen, *The Overland Mail to the Pacific Coast, 1849-69.*

B. F. Ficklin, general road agent. The *Leavenworth Times* of February 13, 1860, speaks thus of the directors of this organization:

> These great mariners of the plains represent an executive ability, a comprehensive knowledge of the wants and necessities incident to overland trade and travel, a fearless independence, a profuse liberality, a faith in western resources and capabilities which will make their names conspicuous in the growth and progress of an almost illimitable region of which it may be truly said—
>
> "The elements of Empire here are plastic yet and warm,
> The chaos of a mighty world is rounding into form."[33]

This is the company that launched the famous Pony Express on April 3, 1860. Their coach service was also improved to a tri-weekly basis in 1860 and became a daily in 1861. The story of the interesting development of these enterprises must be reserved for subsequent treatment.

Primitive Coloradoans

J. A. Jeancon

To the uninitiated the archaeology of Colorado appears to consist of the remains found in the Mesa Verde National Park and possibly here and there some sort of a curious find which would seem to show that man's residence in this state was of remote antiquity. However, this is not the case. The survey, made during the last two years, by the State Historical and Natural History Society, has developed the fact that there are a tremendous number of ruins in the southwestern part of Colorado which have only been known locally, and sometimes not even those in the immediate neighborhood are aware of their existence. This was brought out very prominently when the writer made his first visit to the ruins in the Pagosa-Piedra region. One man, who had lived in the neighborhood for more than thirty-five years, said that he had ridden over a large mound many times and had never suspected that there were ruins under its surface.

In other cases our research developed that people know of areas where there were many potsherds scattered about, but had no idea that one usually finds the remains of buildings in connection with such things.

The survey made shows that Colorado contains such vast numbers of ruins that it will be many years before we can hope to have the slightest idea of their position in the chronology of the culture, their contents, and importance in the study of archaeology. There is work enough for many men for many years, and our state should do its own development work, not only for the benefit to be derived from a cultural and educational standpoint, but also from the commercial side, as every ruin opened up and cared for, in the proper way, will be an added tourist attraction. It is not intended that every ruin should be explored, excavated and repaired, but there are enough large buildings and interesting places to make the southwestern part of our state one of the most wonderful places in the United States. Leaving out the cultural, sentimental and educational factors, the matter resolves itself into one of excellent business judgment to develop these assets of ours.

The area containing ruins covers approximately 7,000 square miles, reaching from the Pagosa-Piedra region on the east to the Utah border on the west, and from the New Mexico border on the south to within about sixty miles of Grand Junction. There are also some ruins of an undetermined type in Moffat County in the northwestern corner of the state.

The amount of ignorance still in existence concerning the prehistoric peoples who inhabited our state in the past is amazing. Even those who should know better still cling to the belief that they were a white race; the lost tribes of Israel; Scandinavians; Welsh; Aztecs; or to other ideas and beliefs equally absurd. They contend that the people lived there fifty to one hundred and fifty thousand years ago. They argue, with great heat, that the people were destroyed by noxious gases, volcanic eruptions, earthquakes and other cataclysms of a like nature, and that not a trace of them, other than the ruined buildings, pottery and other objects, exist today. During the past twenty years such men as Dr. J. Walter Fewkes, Chief of the Bureau of American Ethnology; Mr. F. W. Hodge, of the Museum of the American Indian; Dr. A. V. Kidder of Harvard; Mr. Neil M. Judd, of the United States National Museum; Dean Byron Cummings, of the University of Arizona, and many others have devoted their time, minds and energies to the unraveling of the puzzle that at one time seemed beyond solution, and the results of their labors have brought order out of chaos, and we now have an array of facts that cannot be refuted or denied. The following is a brief review of these facts:

First: The people who inhabited the prehistoric southwest were American Indians, probably of Asiatic origin.

Second: The best authorities are agreed that the final abandonment of the country occurred within a period not exceeding 600 years ago. This does not mean that the beginning of the culture does not go back further than that, but there is every reason to believe that the whole period of occupation from the beginning to the end occurred within the Christian era. A few indications place the start of it a short time before the above named date, but there is absolutely nothing to indicate such a remote antiquity as has been ascribed to it by people who have not carefully studied the matter.

Third: They were not destroyed by any great cataclysm of nature, but gradually abandoned the country, moving in several directions. There is nothing to indicate that there was one great exodus from southwestern Colorado. It was a gradual going out in large or smaller groups.

Then comes the question: why did they abandon their homes in the cliffs and other places? There are several factors which played an important part in this, probably the greatest of which was internecine strife. The aggrandizement of one clan to the detriment of the smaller ones would cause such strife. Within the historic period we have many examples where this occurred. The larger clan, and its related ones, would control the village

council and thus favor their own people in the matter of distributing agricultural areas, building sites and in every other way. This inevitably caused discontent and strife, which sometimes culminated in civil war and the expulsion of the weaker clans. Again, these might have left peacefully. It is surprising how few skeletal remains have been found that bear marks of a violent death. The large majority show a real burial.

The failure of a favorite spring, a drouth, a flood or some other phenomena, which to us is a simple thing, meant to these people that the Gods were displeased and therefore it would be better to move. The seeking of better locations for agriculture, house sites and hunting regions all played their part in the abandonment, and so we see that there were natural causes not of a cataclysmic nature that caused them to move.

Labor meant nothing. They had no money, as we understand the term, barter or exchange being the means of securing articles that they did not have and desired. Not having beasts of burden, it was necessary to leave all of the heavy articles that could not be carried on their backs.

The use of metal being unknown to them, they were forced to substitute wood, bone and stone for the making of their tools and other implements. The men were expert in the art of chipping arrow-heads, spear-heads and other chipped articles. They were also agriculturists of no mean caliber. The irrigation ditches, many of them miles in length; the reservoirs and other water projects show that they understood much of the subject of conservation and use of streams, draws containing dams, and other receptacles for taking care of this precious fluid, and its use in the raising of their crops. The principal articles of food which they raised were beans, corn, squash of several varieties, and there is no doubt that they used all of the edible seeds and roots, tubers and fruits that grew about them in a wild state. They also raised some short staple cotton, which was afterwards woven into garments. The yucca gave them food, in the form of the fruit, and the fiber for making ropes, baskets, mats, and many other textiles. Whether the men or the women were the weavers we have no way of telling at the present time, but we do know that the women made the pottery, and they were excellent potters. Near almost every ruin one finds a clay-bed suitable for making the beautiful ceramics in which these women excelled.

There are many types of ruins in southwestern Colorado. According to our best authorities the whole culture had its birthplace, cradle, and reached its highest development in that region. In many parts of the area named we have the first attempt at house-

building in the form of pithouses, which run in a good sequence through the various stages of development to the great community dwelling capable of housing several hundred persons. In the cliffs we see the evolution from the corn cache of small dimensions to the huge groups such as the Cliff Palace and Spruce Tree House. On the mesa tops and in the valleys are remains of buildings that would do credit to our modern builders. A typical group of this kind is the Yucca House of the lower Montezuma Valley. This house covers many acres of ground and is still standing several stories high in a number of places. It has been said that the people who inhabited these houses were dwarfs, but this is not true. From the examination of many skeletons it is safe to say that they averaged somewhat above the stature of the present Japanese people, and that the male would run from 5 feet 6 inches to 5 feet 9 inches, and the female about an inch shorter. Then why the small rooms? In the first place they had no home life such as we know. All of the land was held as a community and the most of their life was spent out of doors in a communal life. There was little privacy, the openings into the house having only a hide or blanket for a door and sometimes a slab of stone which did not seal the opening as our modern doors do. Most of the cooking was done out of doors, and the rooms were used for storage purposes, burials, and probably were rarely slept in, and then only in time of inclement weather as a protection against the elements.

Furniture was most primitive. Mats and possibly stone benches built against the walls probably comprised their all in this line. When they wanted to sit down they sat on the floor. Chairs, tables, bedsteads and such articles were unknown to them.

That they had a highly developed, natural, artistic sense is shown in the forms and decorations of their pottery, the exquisite patterns and fine weaving of the yucca, cotton and other textile fabrics into sandals, baskets, head and breast bands and other articles. While some have endeavored to interpret the designs on the southwestern Colorado pottery, yet it is to some extent only surmise based upon similar design elements found on modern vessels of Pueblo manufacture.

One interesting expression of their minds is the petroglyphs which are found carved upon the surfaces of rocks and canon walls. While the figures are grotesque, to our notions, yet they are full of action, and do not suffer very much by comparison with some of the expressions of the cubist and modernist artists of today. The Indian did not sit down and carve these figures just to pass the time away. They were not idle fancies such as one sees in the whittling of the loafer around the country stores of our day. They

were a record of some kind, probably idiographic in character, and if we could read them today we would be nearer to knowing more about these primitive Coloradoans. That some of them have a ceremonial or religious meaning is not to be doubted, as we find them duplicated, to some extent, in the modern paintings and carvings of the Pueblo Indians of today. In the New Fire Temple in the Mesa Verde National Park are to be seen, painted with red ocre upon the walls of one of the rooms, a figure which is still used by the Hopi of Arizona. It is ceremonial in character.

One other question still remains to be answered. If these people were not destroyed by some overwhelming catastrophe what became of them? The answer is that their descendants are living, in a modified form, in the present day Pueblo Indian villages. While too much dependence cannot be put in the migration myths of these people, yet there is some basis for believing a portion of their tales. In the early days of his contact with the Tewas of Santa Clara, the writer was told stories of the coming of these people from a great village in southwestern Colorado in the dim past. The accounts were so graphic and exact that he copied a map made by his informant of the village, which must have been ruins at that time, and located in a part of the country in which the man had never been, and only knew from traditions, and a few years later visited a ruin which in situation and surrounding corresponded with the description given him, and was able to identify the place as the one from which the Tewa claimed that they came. While the ruin is a great mound at present, there is enough of outline left to positively identify it with the map and as a result of information given by the writer and from other sources, the name of the ruin was changed from the one by which it had been known to that by which it is known to the Tewa. The site here referred to was formerly known as the Aztec Springs ruins, but is now known as the Yucca House, which is the name that the Tewa call it.

In this case we were able to verify tradition, but more often this cannot be done. The Hopi have many traditions that they lived in southwestern Colorado, and these have been verified in part, but still much of their tales remain to be proven as truth. The Zunis also gave Mr. Frank Hamilton Cushing many tales of a former period of residence in southern Colorado.

When the writer states that the descendants of the prehistoric people still live in the puebloes in a modified form, he means that practically all of the modern Pueblos have intermarried with Utes, Apaches, Navajoes and other alien Indians and we have a strong infusion of foreign blood in the modern clans, but some of them

have kept themselves free until very recently from such intermarriage, and in such cases we have practically the pure blood of the former people.

There are so many articles, especially of a ceremonial character, found in the old ruins that still have their modern counterparts that the matter cannot be overlooked. In the writer's own experience he has exhumed objects that were recognized by his Indian workmen and their purpose explained, although they were no longer used in the same way. Here again ceremonial traditions are of some value.

And so let us leave the subject with this injunction, that the State of Colorado is a vast storehouse of prehistoric material still to be developed, that it is the duty of our own people to develop these treasures with our own money and other resources and to preserve, as far as we can, these things for posterity and for the edification of the whole world.

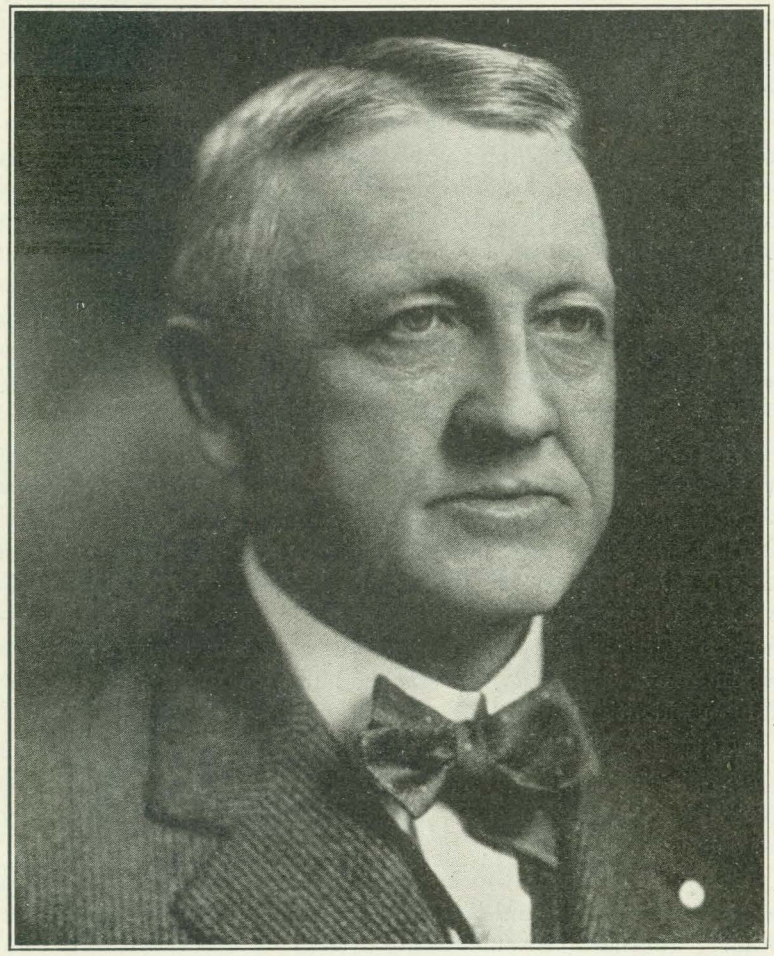
An Appreciation of William G. Evans

A. J. Fynn

"What's in a name?" wrote the immortal Shakespeare, and the interrogation has served its purpose on millions of occasions during the three hundred years since it was thrown out to the world.

Upon American history, groups of honored names have been stamped, here and there, from time to time, with remarkable permanence. The Beechers, Adamses, Shermans, and scores of other familiar cognomens, have established themselves in connection with some localities or some notable events, and passed on as household words from generation to generation.

The report of newly discovered gold in the Rocky Mountain region had hardly been wafted across the Mississippi River before a great heterogenious throng of restless fortune-seeking human beings began a hurried march over prairies and plains. Many, like Horace Greeley, A. D. Richardson, and Henry Villard, moved by curiosity or desire for accurate information, came overland upon the first express coaches that began to roll over the lonely and dangerous trails. Reports were carried by newspapers to all the hamlets of the country between the Atlantic and the Mississippi. Swarms of individuals of every caste and color, from the honest peasant to the wildest desperado, poured into the settlements in the vicinity of the Platte and Cherry Creek junction. Cabins began to be built and business began to be established, in the midst of



W. G. Evans

thousands of flying picks and shovels, along the river beds of mountain and plain. The sober and sensible saw their opportunities, measured the difficulties, and resolutely faced the situation. The easily discouraged and the professional stragglers came, saw, and vanished. The optimist and the pessimist each shouted from the housetops his opinions regarding the whole region—its possibilities and its prospects. In the midst of these thousands of adventurers coming in from the east with highest hopes, or going back with disappointment and disgust, during those stirring days of '58, '59, and '60, an ominous cloud gathered, and the whole country was torn by the great Civil War. Men, who were beginning to feel the friendliness and companionship, among one another, which isola-

tion from ordinary social communities naturally creates, suddenly became estranged, engaged in bitter controversies, and many of the scattered people of the Rocky Mountain region left to take part in the sectional struggle on the battle fields.

Just before the expiration of his presidential term, the congressional bill establishing the territory of Colorado was signed by Buchanan, and in a few days afterward, the incoming president, Abraham Lincoln, appointed William Gilpin as governor of the newly created organism. Gilpin arrived on May 29, 1861, and at once took up the reins of government, raised a regiment of soldiers for the Union army, but, on account of the long distance from the National Capital, a serious misunderstanding arose with the authorities there regarding the payment of his soldiers, and, after nearly a year's service he was dismissed from office.

To meet the crisis it was necessary to fill, as soon as possible, the place made vacant by the retirement of Gilpin, and a man from Illinois, the adopted state of President Lincoln, was selected. This man had practiced medicine in the east, had held a chair in the Rush Medical College in Chicago, had been a contributing editor to eastern medical journals, had donated a large sum of money to the struggling Northwestern University and had given valuable aid, in many ways, to society and the newly established institutions of his residential state.

This man, John Evans, arrived in Denver on April 19, 1862, to assume the office of governor. In the fall of the same year other members of the family came, and with them a seven-year-old boy, the subject of this sketch.

The period during which John Evans was governor was active, stormy, and critical; and the son at a very early age was a witness to many unusual and soul-stirring events.

The growing child, with open-eyed wonder, heard from the lips of the actors themselves those stories which today form such an important part of the modern historian's volume. It was that transitional unsettled period which was marked by the conflict between law and lawlessness, sobriety and violence. On the one hand was the honorable, industrious and devout commonwealth builders; on the other, the dregs and scum of trans-Mississippian frontier life. Fortunate it was that sturdy, heroic, and high-minded John Evans was at the helm of state, and that William G. Evans saw constantly before him illustrious examples of noble citizenship, patriotism, and philanthropy, such as were exemplified in the father. For three and one-half years the elder Evans held the governorship in the midst of floods, fires, Indian troubles, and Civil War excitement.

The careers of prominent men, equally successful and equally honorable, may differ very greatly in matters of intentions and accomplishments. Many pursue a single well marked course in life, undisturbed by the happenings in other fields about them. Others are alive to many activities, into which they are accidentally or voluntarily drawn. It was the nature of the members of the Evans family to share with their fellow citizens the many responsibilities of the times. No sooner was the father freed from the care and burdens of office than he became the active and honored citizen, throwing his influence into this or that enterprise with telling results. The son was sent to the east to acquire a higher education, and then returned to participate with the father in the great work of state-building. Each were broad, optimistic and creative. When the first rails of the Union Pacific were thrown across the boundary of the territory and fate pointed to the probability that a trans-continental railroad would cut through the northern portion without connecting with Denver, it was John Evans that successfully fought to bring a branch of it to the city which he loved. Respecting this incident Stone says: "The Union Pacific directors had given it a body blow from which, without genius and pluck of its citizens, it might never recover. In 1867, Denver had about four hundred inhabitants, and even this remnant was threatening to go to Cheyenne and to other more prosperous fields. * * *To the keenness and to the genius of John Evans, Denver owes its escape from the tangle which outsiders were creating." Few if any incidents of early Colorado history had so wholesome effect upon the metropolitan town as did the celebration which followed the completion of this branch road in June, 1870.

In all these various state enterprises, father and son worked hand in hand through the years of restlessness and discouragement. The gradual transfer of responsibility from the shoulders of the older to the younger man took place without any noticeable change of policy. William G. Evans took the same sort of interest in the economic, political, religious, educational, and philanthropic life of his city and state as did his father before him. Financial depression, bank failures, panics, grasshopper scourges, or fluctuations in mining markets never destroyed his optimism or bedimmed his vision. He never lost sight of those agencies which give to a commonwealth its higher and nobler life. A state to him must be not only a habitat of banks and shops, but of churches and schools. The elder Evans in the midst of uncertainty and discouragement in financial circles, with the persistency which was characteristic of the man, resolved to establish a university in this western wilderness. A charter was granted in 1864. From a humble beginning

in those pioneer days, the University of Denver has grown, at times amid great embarrassment, into one of the greater collegiate institutions of the west. With this place of learning the younger Evans has been closely identified for a very large part of his life, as trustee and benefactor.

He was deeply interested in the religious life of the community in which he lived. Grace Church today is the outgrowth of Evans Chapel, founded by the father and aided by the son.

The development of Colorado and of the whole Rocky Mountain region was a never-ceasing ambition with him. Unostentatiously he lent his influence to all the agencies connected with the betterment of the affairs of state.

If the streets and buildings of Denver could speak, they would relate many incidents confirming the identification of this man with the beginnings of great and beneficent projects on the one hand and valuable assistance to needful lesser enterprises on the other, of which his fellow citizens in general knew little or nothing. His advice was sought after and kindly given in many different fields.

Public utilitarian ventures seemed especially to appeal to the Evans family. The name of the Governor had been connected with railroad enterprises before he came to Colorado, and his interest was still more greatly heightened after his arrival, and continued to increase till the day of his death. The son inherited the same predisposition toward the problem of transportation in the Rocky Mountain country. For ten years he was the efficient head of the city Tramway Company, which, as the Denver Electric and Cable Company, he had helped to organize back in the eighties.

He was a close friend of David Moffat and Walter Cheesman, and was especially interested in the construction of the Moffat railroad. He, if not the originator of the idea, was at least one of the first to see the necessity of a tunnel under James Peak, and above any other of his contemporaries he labored for the success of that venture. One cannot help but regret that his life could not have been spared for a few months longer that he might witness the completion of this great passageway through the base of the Great Divide. This accomplishment had been to him the wish of half a lifetime, and no undertaking in recent times in the whole Rocky Mountain region had so taken possession of him.

Realizing that the semi-centennial birthday of the state was near at hand, and being himself a devoted student of Colorado history, a large part of which he had witnessed, he was greatly in hopes that the younger generation would take the time and opportunity to hold a great and fitting celebration in commemoration of what the Colorado men and women had accomplished in the course

of fifty years. He wished to see an exposition comparable with the noted ones of other states, during the last half century, and his prompt and direct method of doing things rebelled against indifference, vacillation, and procrastination.

Since improved methods of transportation had always been a matter of unusual interest to him, the coming of the automobile and the development of air machines received his careful attention. When an aviation field was proposed for Denver, he not only gave it his loyal support, but made the proposition exceedingly attractive by his liberal offers from the financial side.

Mr. Evans was a Knights Templar Mason, a communient of the Methodist Church, and a member of several miscellaneous clubs and societies.

At the time of his death he had been for several years one of the directors of the State Historical and Natural History Society. Those who have had the privilege of sitting with him in council can testify to his sound opinions, his high-mindedness, and his unabated interest in every phase of work connected with that organization. He was a deep and conscientious student of state and national history, archaeology, ethnology, and physiographical influences in connection with human life and achievement. His geniality, optimism, and keen intellectuality will live on in the memory of that Board for many years to come.

Joseph W. Bowles

One of Colorado's Successful Farmers and Cattlemen. A Pioneer of Gregory Gulch, 1859.

By Albert B. Sanford

Among the many who crossed the plains in '59, cleaned up a small fortune in Gregory Gulch and cast their lot in the west instead of going back to the "States," few are more prominent than Joseph W. Bowles, miner, farmer, cattleman, irrigationist and financier. Others there were who amassed greater wealth, but it is doubtful if there were any who so quickly adapted themselves to changing economic conditions and brought to a successful finish what they began of different business ventures.

Born in Rockford, N. C., July 17, 1836, at an early age his parents moved to Indiana and finally into the then wilderness of Marshall County, Iowa, in 1847, where young Bowles lived at home, a constant help to his family until his twenty-second year.

About this time reports of discovery of gold in the Rocky Mountains were current. While tales of Indian massacres and civil strife in Kansas chilled the enthusiasm of many, Mr. Bowles left home willing to take chances in reaching the gold fields. His first stop at Riley, Kansas, offered an opportunity to increase the amount of his slender capital by taking a contract to put up hay for the government and incidentally to line up for a Kansas free state and for this cause cast his first vote.

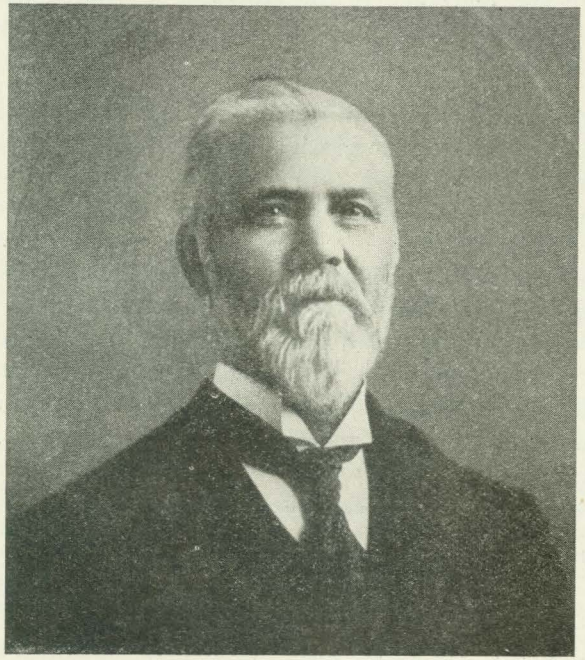
Early in '59 the Pike's Peak excitement was rampant, and among the first passengers of a wagon train outward bound was Mr. Bowles. The experiences of such caravans are familiar in picture and story. Danger and hardships tested the qualities of men and women. Many turned back on hearing of Indian depredations or reports of the mines being unfavorable.

On May 25, 1859, his party camped in the grove of cottonwood at the mouth of Cherry Creek. A few days later he reached Gregory Diggings, now Black Hawk, Gilpin County, beginning almost at once on what proved to be a rich claim which, with other operations in the neighborhood, resulted in a small fortune in gold dust.

This covered about three years. Twice he was elected sheriff of the miners' organization, serving in this capacity for two years and demonstrating his fitness as a head of the law and order element. The methods and time in dealing with the bad men of those days in another story.

In 1862 with his savings in buckskin bags he left the mountains for the "Valley," as the adjoining plains country began to be called. Ten miles up the Platte from Denver and opposite the present town of Littleton he bought a claim of 160 acres and settled down to a farmer's life. He gradually added to his holdings here and in the immediate neighborhood until he owned about 2,000 acres, nearly all of which lay above the ditch supplying the original homestead on the river bottom.

Satisfied that with irrigation the "up land" would prove equally as productive as the "bottom" he associated himself with George W. Harriman and commenced the survey of a ditch heading in Bear Creek near Morrison, to furnish direct flow during crop season and to store waters at other times in a system of reservoirs, the lands to be served lying south of Bear Creek and west of the Platte River. The first basin to be utilized being "Harriman Lake," Mr. Bowles closely following by constructing three on his own lands west of Littleton and south of Marston Lake. The ditch they constructed is now one of the feeders of Marston, a part of the present Denver water system.



Joseph W. Bowles

Mr. Bowles was one of the original company building the Rough and Ready Flour Mills on the river near his place. The brand "Rough and Ready" was soon famous at home and abroad. Indeed a Boston firm placed an order for one hundred barrels before the railroad reached Denver and shipped the hoops and staves overland to make barrels for the consignment.

On December 16, 1867, Mr. Bowles' bachelor arrangements on the ranch went out of commission, for on that day he was married to Cynthia R. Miller of Pettes County, Missouri, a woman of most lovable character and a devoted helpmate. Together they lived their lives on the old homestead. Here five children were born, Charles W., Edward V., Walter and Harry, and one daughter, Josie. Harry died in infancy, the daughter living to the age of eleven years.

Late in the '60s the vast plains area began to attract attention of cattlemen. Buffalo were disappearing and domestic stock raising was to come. Mr. Bowles' first venture was on Box Elder Creek, east of Denver, but he later moved into the San Luis Valley, south of Saguache, where he remained until 1876, and accumulated a herd of 1,400. In May of that year he drove all over the Mosca

Pass, down the Huerfano to the Arkansas and on northward to the North Fork of the Republican River in eastern Colorado, reaching there in September with little or no material loss.

He was a man of rare judgment in selecting land, whether it be for mining, farming, or grazing. While he had no particular spot in view, he kept going until he found one best suited to his plans. And so as they camped one day where all conditions favored, he said to his men: "Here is where we stop." And here in time he acquired by purchase 4,000 acres along the Republican and Chief Creek, so located as to cover nearly twenty miles of "water-front." With many miles of fence, commodious living quarters, corrals and other improvements, and with the active co-operation of his two sons, Charley and Ed, the "Bar Eleven" ranch became one of the famous places of the western plains—famed for its hospitality as well as the great number and character of cattle shipped to the eastern markets.

When he chose this place that autumn day and began work of building, cutting hay and otherwise preparing for winter, his activities had not escaped the notice of a roving band of the Ute tribe of Indians. No other settlement had so far been attempted here and in a sense he felt he "was monarch of all he surveyed." Indians had been seen at a distance, but little thought had been given the subject of possible trouble.

One day soon after getting well started a small band of Indians, headed by Chief Colorow and his sub-chief and interpreter Washington, appeared at headquarters saying they wanted to have a talk with the white chief. Bowles came out with a Ballard rifle in hand and told Washington to speak. The address was as follows:

"Colorow owns this country. Buffalo are Indians' cattle; white man's cattle eat all grass, buffalo all die, no food; no hunting for Indians, no meat, no robes. White man must go damn quick. Colorow no big fool. No more talk."

Bowles had stood with his gun resting on his arm, and without moving, addressed Washington:

"Washington, you know English words I say. Tell Colorow if he does not behave himself I will shoot a hole in him a dog can crawl in. Now all of you git!"

Colorow may not have understood the size of the possible cavity mentioned, but he understood enough and turned with his escort and disappeared over the sand hills. Immediate preparations were made for defense. A square pit was dug on a knoll near at hand,

and a trench connecting with the house and a corral for horses was made. Twice Indians appeared but did not venture attack, for they evidently understood a fight would not be one-sided, and soon after withdrew from the country.

In 1885-6 "dry farming" attracted settlers west of the Kansas-Nebraska "rain area." Indeed, the possibilities of raising oats and corn had been proven by the cattle men in small patches on home ranches. Here and there more venturesome farmers had planted tracts of several hundred acres, and, with two or three successful seasons, the whole expanse of what geographers had marked "The Great American Desert" gave promise of becoming a material factor in the nation's production of foodstuff. The cattle range of old days was dotted with hundreds of claim shanties. The cowman gave way to the granger.

In February, 1899, Mr. Bowles sold his land and cattle holdings on the Republican River to his son, Edward V. Bowles, and yielding to the wishes of his family retired from active work. His days were full of activity in his business affairs, yet with time seemingly unlimited in service to the public. He was a member of the legislature, but probably more prominent as Commissioner of Arapahoe County, then including the City of Denver. He was conservative in action, yet with a vision of the future. His position in selecting the site of the present Court House on Tremont Street was assailed for the reason "it was too far out of town."

Earliest efforts to establish churches, schools, and charitable institutions had his special and personal attention. Father Dyer, the itinerant Methodist preacher, was a frequent and welcome visitor at the old home. Mr. Bowles was one of the first to help build a church in Littleton. He later assisted with another, and finally was largely helpful in the construction of St. Mary's Church in the same place. He served many terms on the public school board and in many ways contributed time and money to deserving objects.

He grew and matured with the advancement of his adopted state. His earthly resting place, by the side of his two children and devoted wife, is one of the prominent spots in Littleton Cemetery overlooking the old homestead in the beautiful valley of the Platte, and westward through the purple haze, peaks of distant mountains rise from the golden gulches of his days of '59.

The Story of a Colorado Pioneer

(MRS. CHARLES A. FINDING)

Evelyn Bradley, Breckenridge High School

(This essay won first prize in our 1924 Essay Contest. It is written in the first person as though told by Mrs. Finding.)

Early in the year 1859 my father, Marshall Silverthorn, decided to come to Colorado for his health, arriving in Denver May 17, 1859. Improving rapidly in health, he came back to Pennsylvania for his family. With his wife and three children he started for Denver early in March, 1860. We came by train to St. Louis, then by boat to Omaha. We were two weeks on the boat, as we did not travel at night. After a short visit in Council Bluffs we outfitted for the trip. We were six weeks on the plains. We did not travel on Sundays, but devoted this day to washing, cooking, and baking for the following week.

Twice during the trip the Indians were determined that my father should trade my mother for some of their ponies. The last time they were inclined to be rather ugly and father had quite a time with them.

We arrived in Denver May 18, 1860, just a year and a day after my father's first arrival. We rented a house or four rooms situated at Fourteenth and Lawrence. This house was built of rough boards with no paint and with most of the windows covered with white muslin. It was called the Denver House, after General Denver. The house was owned by Sam Dolman, who went back to Kansas with his family. We paid $85 a month rent.

Soon some friends of father wanted to board with us—George Clark of Clark and Grubers, Major Filmore, Judge Hallett and others. With so many, mother had more than she could do and hired a daughter of Old Left Hand, an Indian chief of the Arapahoes.

I remember one day a number of Indians were around the house and mother wanted a small pair of moccasins for my little brother, who had stepped on some prickly pears near the house, hurting his feet very badly. We could not get all the needles picked out. Mother went with the Indians into the dining room, asking me to watch that the Indians outside did not enter and steal anything. I was afraid, so as soon as she had gone, I crawled under the bed and from there watched the open door. Very soon a squaw peeped through the crack in the door and, seeing something handy there, stepped in and put it under her blanket. It was my new sunbonnet, made with casings and pasteboard run in, called slats.

After the trade of sugar and moccasins had taken place and

Mrs. Charles A. Finding

the Indians had gone, I crawled out from my hiding place and said, "Mother, one of the squaws took my sunbonnet."

Catching me by the hand, she replied, "Come out and show me which one." I was frightened but had to go. Mother asked them if they had the bonnet but they denied having it. I pointed out the one who took it; she denied having it; so mother took hold of her elbows, raised them, and the sunbonnet fell out of the folds of her blanket. Mother folded up the slats and boxed the squaw's ears. They all began to cry out. In a few minutes many whites and Indians were gathered there. Our friends cried out, "Oh, don't, Mrs. Silverthorne, we will all be killed." However, the Indians soon quieted down and walked away. They were always stealing everything they could, but their specialties were soap, blueing, and sugar.

In the fall of 1860 I went to school in Denver in a little log, one-room school building which stood on McGaa Street, on the banks of Cherry Creek. Miss Helen Ring was my teacher.

One day a man came down riding on a white horse and tied the horse to a large cottonwood tree just in front of the school house. Miss Ring said, "Children, I am afraid there is going to be trouble, so I will open the window and you crawl out and run home just as quickly as you can."

The man was George Steele, a notorious character, and had ridden to town to make William N. Byers, the editor of the Rocky Mountain News, retract some statements regarding this man Steele's career. This Mr. Byers refused to do. Mother wrapped sister, brother and myself in buffalo robes and put us in the attic so that no stray bullets could touch us, since friends of Steele had gathered close to our home, prepared to fight for him. Afterwards Steele was shot and killed at Bradford's Corner, now known as Larimer and Sixteenth Streets.

About the same time a young man, named Jim Gordan, who, when under the influence of liquor, was very quarrelsome, had killed a young German. After several trials he was acquitted under the flimsy excuse of "No Jurisdiction." This angered the Germans and they took it into their own hands and hung Gordan on a Saturday in July, 1860. I witnessed this hanging.

Nine years later, 1869, I saw Musgrove hung under the Larimer Street bridge. He was a stock thief, a general outlaw.

In the latter part of May, 1861, we started for Georgia Gulch, but stopped at Breckenridge. Here we rented a house that had been a store, owned by O. A. Wittemore and C. P. Elder. There was one very large front room and a smaller room in the back which we used as a bedroom and kitchen. The floor of the kitchen was made of very old sluice boxes that had been worn until the knots stood out, caused by constant washing of water and gravel. As a rule these boxes were burned and the ashes panned for the gold that would collect in the knots and crevices. The front room had a dirt floor with shelves and a counter running along one side. Father took a team and hauled sawdust from an old sawmill above town and covered this dirt floor to the depth of six inches. Mother sewed burlap sacks together and made a carpet. Then father made pins such as are used for fastening tents down and then nailed the burlap down with these. All dust sifted through, so they were easy to keep clean. In this room we made three beds, end to end, on the floor, by placing two logs, one on top of the other. The enclosure was filled with hay, then feather beds that had been brought from Pennsylvania were placed on this. This room was a dining room during the day to accommodate those who came to Breckenridge and had no place to go. The postoffice was in the front part of this room and a pigeon-holed box about three by five feet held all the mail.

Saturday was the general eastern mail day and the miners all came down to get their mail. There were two other arrivals of mail during the week, but Saturday's mail was the principal one. The letters were distributed by calling out the names, the men answered "Here," and the letters were tossed to them. In a few months mother was asked to bake pies to sell the day the men came down for the mail, and on Saturday morning she would bake between forty and fifty pies. There were sold with a quart of milk and paid for in gold dust, which I weighed out. I would take in between thirty and forty dollars.

One summer I was sent down to the Placer Mine to take father's lunch to him. I walked slowly along, picking strawberries and wild flowers, and had been home only a few minutes when one of the men came running up and asked mother if I was home. A large buffalo had come along very angry and had torn up all the sluice boxes and followed my trail up, crossing the river just before he reached town, which was all that saved me.

In the spring of 1862 we bought another house and moved into it. Here I helped father build a fireplace and a cellar. I carried all the stone for the fireplace and brought up the dirt from the cellar in a bucket. We then papered the walls of the house with newspapers.

In the fall of 1863 we went to Denver, that my sister and I might enter school. We bought a home on Arapahoe Street, just where the Tramway cars now come out of the loop. This property we sold to the Tramway Company in 1892.

We attended a private school in the Rectory of old St. John's Church on Fourteenth and Arapahoe Streets, taught by Miss Irene Sopris, who later married Mr. J. S. Brown of Brown Brothers Mercantile Company.

Each year early in June we would drive to Breckenridge, taking about four days for the trip. All provisions had to be hauled from Denver. We would leave for the mountains early in May and would drive to Hamilton. Father returned next day to Denver for more provisions, while we would continue our journey over Boreas Pass, leaving Hamilton about eleven or twelve o'clock at night when it was very frosty in order to walk on the crust of the snow.

In January, 1873, I was married to Chas. A. Finding, and the next year was the last we were compelled to walk over the range. I carried our little baby in my arms, a distance of fifteen miles.

In 1879 my sister married J. C. Wilson, a well known resident of Colorado. Going back in our story to the year 1867, we made a trip east. We took with us an Indian chief's jacket that had a

fringe of two hundred and four human scalps. This was to show the Easterners what the Indians were doing out here. No wonder they thought this the "Wild and Wooley West."

At that time the Union Pacific Railroad came only as far as North Platte. Finding the stage coach reservations all engaged, we decided to buy a team of horses. One of the party had a light wagon which we rode in and we had another for provisions and baggage. The Indians were then getting very troublesome. The authorities at North Platte refused to let us start out unless we promised to drive fast enough to catch up with a company of infantry. There were eight teams in our party.

We left the road after a while and drove down near the river where a company of soldiers were camped, but two of the wagon loads decided to stay on the road near the bluffs. While eating lunch we heard them cry out "Indians, Indians," and then saw the Indians swoop down and circling around ride away with their horses. We came to the rescue of these people and then all together we hurried on, arriving at Beauvias's Crossing, and camped all night. After supper two soldiers came up and asked mother if she and Miss McCune would go and see two soldiers who had deserted and had been found wounded badly in the bluffs. The searching party had found them and brought them to camp. They were dying and kept calling for their mothers. The boys died at daybreak, happy in the thought that their mothers were with them.

We were taken across North Platte on a ferry, and then we hurried on to catch the soldiers who were camped that night near the river so the Indians could not surround them.

Just before reaching Wisconsin Ranch we saw a stage coming from Denver. On the stage was a young man who had come out to repair some telegraph wires that the Indians had cut. While talking to the driver and this young man, we saw the coach going to Denver coming, and since the road was very narrow, we had to hurry on. We soon heard shots, and, turning around, saw the coach coming down the hill just as fast as the horses could travel. The other coach turned around and followed. The young telegraph operator had been killed. They said it seemed as though the Indians came right out of the bluffs. Following this, there was no more trouble with the Indians until after we left the soldiers at Fort Morgan. We camped that night at Stevens Ranch, sixty-five miles from Denver. We put our horses in the barn, thinking they would be safe there, and we slept in the house. About twelve o'clock we heard a shot and saw a light in the barn. There was much excitement in camp. Our captain had given orders that anything moving should be shot. The man on guard crawled along and told the

captain something was moving. The captain raised on his elbow and fired. Something jumped into the air; they found it to be an Indian. Upon investigation we found our horses had been stolen. We could see the Indians all along the horizon. A few minutes after this Indian had been killed, we heard the coach from Denver coming. We told them our horses had been stolen and that one Indian had been killed and that we expected an attack at daybreak. Father wrote a telegram asking for help and gave it to the driver to send from the first telegraph station along the way.

When the word reached Fort Morgan the next morning a few soldiers hurried out. Among them was a young brother of General Phillip Sheridan who had just graduated from West Point.

We traveled along and reached Living Springs before sundown. A sad company we were, expecting never to see the rising sun again. We had been there hardly an hour when we saw in the distance people on horseback and in wagons. They proved to be friends coming from Denver to help us out. Our sadness soon turned to joy. Father broke down and cried brokenly, "I did not know I had so many friends."

We reached Denver safely and had a joyous welcome.

The telegram father had sent is now in the Museum in Denver and may be seen at any time.

The Sand Creek Battle, the Massacre of the Hungate family and the Denver flood, together with the Indian scare in Denver, were outstanding events of 1864 to 1867 which all pioneers well remember.

Old Chief Colorow at one time threatened to kill mother and burn Breckenridge down because she would not cook extra meals for him and his squaws.

One day a team of runaway horses ran over my father, wounding him badly. The Indians heard he had been killed. An Indian chief who was our friend called his tribe together and held their burial services for father. This one old Indian chief would often say to us, "If the Indians go to make war on you, I tell you, I tell you." Most of the Indians were able to speak in English fairly well.

There are countless more incidents I could tell, but words are limited.

"We all shed a tear for those who were here,
But have gone to the unknown to explore;
But we trust they are blest, and their souls have found rest,
'Neath the shades on the Evergreen Shore."