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KINGSHIP OF MT.
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THE KINGSHIP OF MT. LASSEN

At Present the Only Active Volcano on the Mainland
of the United States

In the Past California's Greatest Benefactor

By MRS. FREDERICK H. COLBURN
(Frona Eunice Wait)

Author of "Yermah, the Dorado"

THE KINGSHIP OF MT. LASSEN
BY MRS. FREDERICK H. COLBURN
(FRONA EUNICE WAIT)

Oh! Mighty force! Oh! cosmic King!
With fiery breath and molten heart,
By heaving breast and vibrant swing,
'Twas thus thou rent a world apart.

F. E. W. C.

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San Francisco, California, November, 1922



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LASSEN PEAK, FROM ALPINE GLADE.

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Lassen group is a brotherhood of mountains forming a temple of the winds. The place of their resort is a royal court where this conclave of imperial heights receives embassies from the four elements, and homage from the sun, moon and stars.

Rev. J. H. C. Bonte.

FOREWORD



THE geology of California reads like a Rider Haggard romance. Scientific minds find themselves obliged to use superlatives to convey an adequate meaning in any line of discovery. But for all that, the average person knows nothing about the puzzling distributions of minerals, the creation of our superb watersheds, our priceless timber stands, the enrichment of valleys, or the outpourings of cements and clays which are largely due to the volcanic activities of Mt. Lassen and its associated craters.

Many have climbed Vesuvius, and have peered into the molten lava crater of Kilauea but have never seen Lassen Peak. This fact is neither creditable nor profitable. Mr. A. B. C. Dohrmann has aptly said that Northern California has mountain ranges which in the possession of any country in Europe would be made to support the entire population. Not only is this statement true, but the immediate vicinity of Mt. Lassen is the greatest scenic asset of the entire state.

A visit to the locality can be made with safety and ease. There an intimate close-up may be had of how the universe was created. The distance from San Francisco is about two hundred and ten miles in a northeasterly direction.

In writing of Lassen's wonders I have purposely avoided using technical terms, and have drawn freely upon the records of experts in special lines. To the State Mining Bureau, United States Forest Service Commission, Official Army Reports, Lassen Peak Portfolio, Weather Bureau data and Lassen Volcanic National Park Association field notes, am I much indebted. The observations of specialists in irrigation and power sites confirm much first-hand information obtained by my visits to various points in the volcanic area.

The photographs used in illustrations were secured from H. S. Lawton, official photographer Western Pacific Railroad, the Fifteenth Aerial Photographic Section, United States Army, for airplane snapshots, from M. E. Dittmar, Secretary-Manager, Lassen Volcanic National Park Association, R. E. Stinson, G. E. Milford of the Pacific Gas and Electric Company, Chester Mullen and B. F. Loomis.

Although my work is confined to the limits of California I am not unmindful of the great changes wrought in Oregon and Nevada by the volcanic disturbances centering in the original mountain. Much of the lava found in the Cascade and Sierra Nevada Ranges was erupted by local peaks and craters, but all responded to the fiery impulse of Lassen—the *beneficent*. I have treated the Lassen volcanic area as a whole in order that the reader may have a comprehensive background in which to visualize the glories of peak and mountain.

Instead of having the last word it is my privilege to speak the first. Those who write after me will find a blazed trail only. Mine has been a lonesome quest since there is no other layman's work for me to dispute or question.

MRS. FREDERICK H. COLBURN.

November, 1922.



VULCAN'S HEAD, SMOKE FORMATION, LASSEN PEAK.

CORRECTIONS

On page 8 the illustration used is from a photograph of a copyrighted photograph by R. E. Stinson.

The eruption which caused the devastation shown on page 16 occurred on the evening of May 19, 1915, when a great flood of mud and water rushed down Lost and Hat Creeks and washed away four ranches. The photograph was made by Mr. B. F. Loomis.

Both photographs on page 23 were made by Mr. B. F. Loomis.

The photograph at the top of page 33 was made by Mr. B. F. Loomis on May 22, 1915, a few hours preceding the great eruption of that day. Only a portion of the original photograph is shown. It has been cut in half and the copyright mark omitted. The illustration at the bottom of page 33 is from Number 2 of the famous continuity series of five photographs made by Mr. B. F. Loomis on June 11, 1911. This photograph has also been cut and the copyright mark omitted. The author and publisher disclaim any responsibility for the condition of the photographs as reproduced.


The photograph used on page 57 was made by Mr. B. F. Loomis. It shows a flashlight view of one of several caves or lava tubes in the Devil's Half Acre on Hat Creek.

On page 66 is shown another photograph made by Mr. B. F. Loomis on October 20, 1911.

On page 50 the fourth paragraph should begin: "After Peter Lassen lost his great ranch its name was changed and a portion of it was planted to the largest vineyard in the world," etc.

It is a yellow pine tree that stands at the head of Peter Lassen's grave. It is said to be the largest yellow pine tree in Northern California.

On page 57 the name H. L. Conrad should be A. L. Conrad.



The Kingship of Mt. Lassen

Aloof, unshadowed, close to God it stands,
And works the wonders of the Master's will,
Triumphant in its mighty power to fill
The wasting places of earth's leveling lands.

—Mary Gordon Holway.



LASSEN is a mountain with a past—and a bad enough one to be interesting, but Lassen Peak is only a part of the original volcano. Although wrecked, broken and much reduced in height, this master mountain dominates two hundred thousand square miles of territory—an area almost as large as Great Britain and France combined. In the morning of time there stretched a semi-circle of flaming mountains from Mt. Baker to Mt. Lassen. These were beacon lights in a vast volcanic region which includes much of Northern California, Nevada, Oregon, Washington, Idaho and Montana. One by one these lights winked out, until finally only Lassen Peak flares up occasionally, and sputters feebly, in comparison to its former titanic efforts. The wonders of the Yellowstone and the weird depressions of Death Valley are in the radius, and so are Santa Catalina and other islands near the coast. On a stupendous scale within this magnificent domain is found every known volcanic phenomenon.

Mt. Lassen occupies a key position. It sits in the apex of a colossal letter "Y" formed by the terminals of the adjoining mountain ranges. Some time in the remote past the original mountain filled a great depression between the northern end of the Sierra Nevadas, the southern end of the Klamath ridge of the Cascades, and the Siskiyou spur of the Coast Range. Being volcanic in character, Lassen erupted its own laterals and literally joined itself to the other elevations. The mountain proper consists of Broke-off Mountain, six unnamed pinnacles and Lassen Peak. Along the base of this huge serrated skyline the old crater walls are clearly outlined.

Glacial action is everywhere in evidence on each slope of this high divide. Formed by the older flows of lava which center in Broke-off Mountain are terraced glens once filled with glacial ice. Below the walls of lava are deeply scoured canyons marked and scarified by ice erosion. Heat and cold—ice and molten lava—have struggled for supremacy while the old mountain labored and fought for existence.

Eons of time have passed since Broke-off Mountain was the central vent, and many isolated eruptions have occurred in the vast area dominated by the master mountain.

While everything east of the Rocky Mountains lay under an ice sheet one mile in thickness, Mt. Lassen in simultaneous eruption with hundreds of crater peaks in the immediate vicinity poured out the lavas which cap the Sierra Nevada and Cascade Ranges. Geologically considered, Northeastern California is an extension of the Sacramento Valley before the Cascade Range was erupted to the north fork of the Feather River. When this occurred, the gap between the Sierra Nevada Mountains and the Coast Range was closed by a series of colossal lava dams. The Sierras are primarily of an older granite uplift while the Cascades were erupted in a more recent period and are composed principally of lava. In the watershed area these formations react upon each other in a curious manner. The lavas act as sponges, and absorb the moisture which brims over or seeps through the granite cups or containers.

LASSEN THE MASTER MOUNTAIN

Between the two sentinel peaks, Mt. Lassen and Mt. Shasta, was fashioned one of the largest and most unique underground, natural water storage plateaus in the world. This area of five thousand square miles in the Pit River Basin includes Fall River and the mysterious Rising River, Crystal Lake and Burney Creek. The latter stream presents a dry bed one-quarter of a mile above Burney Falls, over which one hundred and sixty second-feet of water falls to a depth of one hundred and twenty-five feet! The full volume of water bursts out of an apparently solid lava terrace. Ten millions of people could use one hundred gallons of water per person daily from the supply at the junction of Fall and Pit Rivers, and this regardless of climatic conditions or extra storage. The Modoc Lava Beds and the great watersheds of the Feather River country sustain Northern California's claim to leadership in power sites and irrigation possibilities.

Here where the fires of hell burst forth
And the mountains rocked from south to north,
Here in the heart of a wonderland
To the god of Power a temple is planned.

—H. S. Furlong.

In the uncanny Lost River regions on both sides of Lassen Peak there are huge underground tunnels cut by the displaced waters through acres of volcanic matter and glacial ice. One spring in the Hat Creek country perpetually carries enough water to supply New York City. At least 80 per cent of the upper Sacramento flow comes from these hidden sources. Numerous streams empty into the Fall and Pit Rivers above the junction of the Sacramento while an enormous volume of subterranean waters find exit by way of the Willamette and Columbia Rivers in Oregon. These empty into the Pacific Ocean at quite an opposite angle after draining a watershed of vast potential power.

The Northern Sierras contacting Lassen Peak on the east presents a titanic jumble of broken bedrock slates mixed with a hodge-podge of other rocks everywhere burdened with a heavy over-topping of andesitic lava. On the western slope of this much disturbed area are found the sources of the ancient and modern rivers which have washed down the sands and gravels containing the surface deposits of precious metals. Deeper down are the veins and fissures packed in tightly between the intruding granites when the earth rocked with the mighty heavings of innumerable craters responding to the impulse of the original volcano.

On the eastern side of the range are the dry catchment basins of the desert reaching from the Columbia River plateau to the Salton Sea. In the Great Basin lying between the Rockies and the Sierras and extending from the Snake River to the Colorado there is said to be enough borax to cleanse the entire earth, salt enough to preserve it and soda enough to sweeten it. Extinct Bonneville and Lahontan Lakes divide interest with Mono, Owens and Searles Lakes, the latter three being utilized for water supplies or valued for potash or other utilitarian mineral contents.

Unmistakable evidence indicates volcanic origin for the desert conditions in Imperial Valley, the Salton Sink, and the Mojave Desert. Here the flows were basaltic and of intermittent character. First there was the torrential overflow of thin, watery lava corresponding to the conditions found in the ancient and modern river areas, across the divide, and undoubtedly traceable to the action of Broke-off Mountain in earlier times. A long period of quiescence followed in each case. The later andesitic lavas topped the Sierras but did not descend to the lowered desert levels. Today huge black basaltic buttes thickly dot the grayish lime, clay, cement and alkali coverings of the Great Basin area. Instead of gold and silver deposits the High Sierras are rich in building materials such as granite, brown and sand stone, various kinds of marbles beautifully marked, and vast beds of exquisite onyx. In Inyo and San Bernardino Counties there is said to be sufficient onyx and fine marble to build several large cities.

Untold wealth is still hidden in the fantastic deposits of precious metals, abundantly scattered by long-continued and violent earth shakings. In the immediate vicinity of Lassen Peak, seventy known minerals abound. Many are of great utility and value commercially, besides the mines of gold and silver which have already made California rich and famous.

The far-off approaches to this greatest wonderland of the Northwest makes an irresistible appeal to the imagination. Lofty, snow-capped pinnacles reach miles into the air on the Cascade Mountain outskirts of Lassen Peak, while on the eastern slopes of the Sierras depressions far below sea level present a parched and desolate contrast. On the one hand is the transcendant beauty of countless frozen heights outlined by eternal verdure. On the other hand, fantastic and weird imagery of heat waves tamper with the senses and lure to mirage illusions and destruction.

On the west and north the mean elevations and climatic conditions provide moisture and sustenance for millions yet unborn. On the east

and south denuded and desiccated sands have blown over and buried the habitations of a lost race. Over it all, written in letters of fire, is the magical impress of a rare phase of creative energy. Here the Master plans for a civilization higher than all that has gone before it. Here, too, is the urge to herculean deeds of worth-while achievement. Here is the obligation to live up to California's opportunity for supreme leadership.

Connecting this magic land with the long ago are the giant sequoia trees. Many in the Mariposa grove are known to be thousands of years old. These grand old monarchs not only stood under the Star of Bethlehem, but were flourishing when the glories of Egypt departed. They have been actual witnesses of much that has happened in the Lassen country. A sequoia blossoms once in four years, and it requires another four years for the small, hard cone to mature. None of the white race has witnessed the process of a sequoia seedling sprouting from the wind-scattered seeds winged to earth and rooted by moisture and sunshine.

The redwoods are Tertiary trees, and are said to have composed the first general forests after plant life became well established. At one period stands of redwoods covered much of Scandinavia and parts of Europe as well as sections of the United States. Now the only surviving remnants are found in the fog belts of Northern California. Once extinct it would be hard to reforest them, as these trees propagate principally by offshoots from the upturned roots of a fallen monarch. For a century or so the young saplings cling to the rim of the circle formed by the mass of exposed roots. Finally the strongest crowd out the weaklings and a group of redwoods still struggle for supremacy in the upper air spaces.

The heaviest and most valuable timber covers in the United States flourish among the extinct craters, or stand like sentinels to guard the thin, light-weight soils over-topping a stratum of lavas said to average two thousand feet in depth. But for the moisture, altitude and sunlight of the rugged surfaces, the matchless redwood and other forests could not exist.

VARIOUS NAMES OF THE VOLCANO

The padres accompanying the Arguello exploring expedition in 1820 bestowed the name of St. Joseph's Mountain on Lassen Peak. If not the first white men to see the peak, they were the first to make a record and give the eminence a name. Passing trappers must have seen it during the next twenty years, but it was not until the late forties that American settlers called the entire mountain Lassen Buttes. In writing of the locality at a later period, Professor Whitney strongly objected to the word "buttes," because he declared the French used such a designation when referring to mere knolls.

As settlement increased on all sides the name varied. Older inhabitants continued to use the term Lassen Buttes. Later by common consent this was changed to Mt. Lassen—the name generally used throughout the country at present. In 1902, the United States Government estab-



LASSEN PEAK, FROM THE NORTH; MANZANITA LAKE IN FOREGROUND.

lished a Forest Service patrol through that region, and after a preliminary survey issued a map, with a text compiled by Dr. J. S. Diller, entitled, "Lassen Peak Portfolio." This gave the peak an official title. In 1907, President Roosevelt set aside the peak and Cinder Cone as national monuments. On August 9, 1916, President Wilson signed the bill which created the Lassen Volcanic National Park—an area of eighty-one thousand acres, which includes the mountain and peak in its western extremity.

The pronunciation of the name Lassen has been a subject for considerable controversy. Old settlers give the "a" the broad sound as in "Lawson." Those of Scandinavian extraction make the word more like "Larsen," while the surviving family use the "a" as in "ah." It will be safe to follow the family tradition, which is also the popular pronunciation.

Lassen Peak at present has four craters, varying in elevation and diameter, but not all have been active lately. On May 30, 1914, a new vent was formed in one of the craters by a series of explosive eruptions which have continued at irregular intervals since. The new opening is funnel-shaped and is estimated to be one thousand feet in diameter. It extends downward about eight hundred feet below the highest ridges of the older crater rim. The most violent eruption of the present time occurred on May 22, 1915. A column of steam and volcanic ash rose in a cauliflower shape to the immense height of thirty-six thousand feet. So terrific was the force of the explosion that a great vent was torn in the side of the peak below the active crater. The superheated mud and scoria cut a wide path down the western slope and devastated an area of several square miles near Manzanita Creek.

HOW OLD IS LASSEN PEAK?

Latest discoveries raise the question of the age of Lassen Peak. It appears that this last vent of the ancient pile was erupted in a recent geological period—say, ten thousand years ago! If so, it was the greatest outstanding feature of the last universal overflow of Mt. Lassen and all of its satellites. The unutilated mountain once towered from three thousand to five thousand feet higher in the air. Its head has been blown off and the heart torn out and scattered hundreds of miles over the surrounding country. Showers of volcanic bombs still lie as thick as hail seventy-five miles away, and in many directions. These bear mute testimony to the terrific activity which wrecked this giant mass and left Lassen Peak the sole surviving firebrand among the multitude of extinct craters.

As if unmindful of the old volcano's unruly conduct in the past, Lassen Ridge rides in rough fashion across the middle of the letter "Y" in a general northeasterly and southwesterly direction. This belt of lava peaks averaging ten thousand feet elevation and having many craters a mile in diameter extends from the north fork of the Feather River to the big bend of Pit River, fifty miles away. Holding Lassen and the three mountain ranges in a grip of eternity in the Lassen Ridge

are Butt Mountain, Lookout, Magee and Crater Peaks, Burney Batters and Hat Mountain, besides a nameless and uncounted nest of lesser vents.

A PRINCELY DOMAIN

A bird's-eye view from the top of Lassen Peak reveals the majesty of God's handiwork, when the planet was being made ready for man's uses. The peak itself is ten thousand four hundred and sixty-five feet high, Broke-off Mountain has an elevation of eight thousand six hundred feet, while the six pinnacles and domes in between have an average elevation of nine thousand feet. The Indians say that Prospect Peak, nine thousand two hundred feet high and in the near vicinity, was once a part of the older mountain. If this proves true, then Mt. Lassen proper was one of the largest mountains in the world. Indian oral history usually has a foundation in facts, no matter how obscured by child-like imagery or allegory. It is also well to bear in mind that comparatively little is known of the actual development of this still active volcano.

Completely encircling Lassen Peak is an indescribable nest of unnamed craters which add much to the impressive grandeur of this incomparable region. They thickly dot the landscape for a distance of a hundred and fifty miles, and can be seen from every direction.

Only a short distance north of Lassen Peak are the spectacular Chaos Crags which form an impressive skyline of a beautiful pearl gray. This chaotic mass is not many centuries old and was erupted by Lassen Peak about the time Cinder Cone was thrown out by Prospect Peak. Like Lassen Peak itself, these crags are composed of dacite lava piled in successive layers high above older volcanic vents. They rise from three to four thousand feet above the old crater rim of the original mountain, and are more than a mile wide and about three miles long. They are among the unique features of this locality and can be seen for hundreds of miles along the roadways of the Sacramento Valley. Nestling close in and under the shadow of Chaos Crags is Lake Reflection—clear as crystal and smooth as glass. Its surface beautifully mirrors the towering crags in minutest detail, and it is a much larger and more picturesque body of water than the famous Mirror Lake of Yosemite Valley.

Still further to the north the giants of the Cascade Range and the rugged Siskiyou carry the vision to far-off Oregon. On the west the lofty Salmon River Range, with its snow-clad crests, rises high above the steep canyons cut toward the Pacific Ocean, dimly outlined in the distance. In still another direction, the South Fork Mountains shut off the ocean. Midway between and fringing the narrowed Sacramento Valley the Yolla Bolly, the Bully Choop, round-topped and eternally snow-capped, form a silhouette with the Trinity Mountains against the dark forests of the hinterland. To the south and the southwest the broad acres of the Sacramento Valley, with its ribbon-like river, fade into a hazy distance. The meeting of the mountains at the southerly base of the peak, and the crest of the Sierras, carry the vista into the heart of California. East and northeast the ragged high-colored lava

beds slope toward Eagle Lake and Honey Lake Valleys. In the intervening plateaus many peaks, lakes and ancient volcanic vents break the evergreen forest colorings and add much to the beauty of the surrounding country.

WHAT THE MASTER MOUNTAIN HAS DONE FOR CALIFORNIA

The first amazing fact to beat in upon the senses is the existence of a titanic fault or uplifted fold in the earth's crust, which separates the Sierra Nevada Range from the Big Bend. This undulating wall begins in Long Valley, Lassen County, and literally drops the Nevada country downward from one to three thousand feet. The fault is clearly defined for three hundred and fifty miles, losing itself at Tehachapi Pass, after an up-and-down career at Owens Lake which varies from four thousand to eleven thousand feet elevation in a short distance.

The next surprising discovery is that there is a sharp tilt in the ground surfaces in a general northern direction. The very steep dip to the northeast of the highly tilted slates forming the bedrock running parallel with the axis of the Sierra Nevadas accounts for the excessive flow of lavas toward the Columbia River plateau.

The Sacramento Valley and the Coast Range are almost bare of lava, while the Cascade Mountains—a continuation of the Coast Range—are heavily capped with volcanic matter. The Sierras, running at a sharp angle to the Cascades, carry thousands of feet of thick, viscous deposit. Geologists say that between the Tertiary period and the Quaternary, which comes down to the present time, the lavas were erupted in the great northwestern area.

Turning toward Broke-off Mountain, the lowest of Mt. Lassen's peaks, one sees that here was where the first eruption of magnitude took place. It was from this center that the thin, fluid-like mass was sent in a deluge over almost the entire volcanic region. It is found on the Columbia River and along the course of the Des Chutes and Snake Rivers. In California it turned the ancient rivers out of their original channels and left for the miner the untold riches of the auriferous gravel beds that have been and are being mined with varying degrees of profit. This basaltic, watery overflow cooled and hardened into the cement-like covering which securely sealed the golden sands and gravel for ages.

Was it this flood of boiling fluid which caused the Pit River Indians to designate Lassen Peak "Kome Yermani"—the water mountain? Underneath the present top soil will be found ample evidence of how this overflow passed the Klamath Mountains and spread far and wide over the surrounding country.

The next awe-inspiring thought is that the upheavals of Lassen and its contemporary volcanoes have given Northern California its splendid river courses—ancient and modern—while dooming the southern countries to desert and drought conditions. The high scarp wall of the great fault took up the slack in the earth's crust and left the depressions of Death Valley, of the Salton Sea and of Imperial Valley. On the California side is the Mojave Desert, while over in Nevada is Tonopah, bare of verdure, scant of moisture, but heavily laden with precious metals.

LASSEN PEAK, FULL FORCE ERUPTION, MAY 22, 1915. FROM RED BLUFF, CALIFORNIA, FORTY MILES AWAY.



Another miracle wrought by the volcanic activity of which Mt. Lassen was the center was the great fissure known as the Mother Lode, continuous and well defined for more than two hundred and fifty miles. The high scarp wall of the great fault is on the crest of the Sierras; the Mother Lode fissure is in the foothills but follows the same general trend. Not only did the earth's crust fold but it also cracked under the terrific pressure of subterranean forces.

From the top of Lassen Peak several fault cliffs can be seen about the head waters of Butte Creek and on the road between Big and Mountain Meadows. An untrained eye will have no difficulty in tracing the lava uplifted ridges radiating in a fan shape with Mono Lake as a center and terminating near Quincy, in Plumas County. This system of faults is like huge waves of solid rock shaken apart and scattered broadcast in a hopeless and wholly indescribable tangle.

Long-continued earthquake produces the most freakish results imaginable. All laws of normal continent-building seem to be ignored or defied in the piling up and mixing of the country rock. Only the granite masses have been able to withstand the violent oscillations. Solid beds of slate have been heated and blown up into giant bubbles. Then they were shattered into bits, which were set on end like jagged teeth on innumerable steep declivities in Mt. Lassen's strange laboratory.

A notable example of broken slates is found in the Merced Canyon, between El Portal and Yosemite Valley, while The Devil's Post Pile in the Minarettes of Madera County bears testimony to the power of volcanic energy when opposed by an immovable mass of granite.

The wizardry of the mountain in concealing gold nuggets in the auriferous gravels is matched by the cunning with which the grains of gold have been vaporized and cooled in the quartz veins. Cracks and crevices are filled with flour of gold which has sifted in. The extraordinary methods of California's mineral deposits are only possible where there is intense internal heat and protracted volcanic action.

Long continued oscillation caused the formation of the famous ribbon rock which contains the richest gold veins. This beautiful rock is characteristic of the Mother Lode and of many lesser and isolated gold-bearing fissures extending from below Mariposa County to the base of Mt. Lassen. This treasure trove is two hundred and fifty miles long and from twenty to seventy miles wide. In this section has been produced two-thirds of California's mineral wealth. Here a criss-cross network of ancient river channels, heavy with auriferous gravels, precious nuggets and sands dispute honors with the fissure veins. The formation of the Mother Lode was the last event in the rock history of the Sierra Nevadas, and is of recent period, geologically.

On the opposite side of the great scarp wall are the immensely rich mineral deposits of Nevada. The famous Comstock Lode, with its wealth of silver ores, disputes honors with the gold fields on the western slopes of the Sierras and both are closely connected with the beneficent results of volcanic action.

The mysterious so-called "blue lead channel" of the Forest Hill Divide, in Placer County, has long been a puzzle to the mining geologist. It pre-supposed the existence of a mighty, ancient river flowing from the northeast to the southwest, parallel to the crest of the Sierras. The name was derived from the bluish color of the very rich gravel filling the river channel. A tormenting feature was the irregular and baffling course of the alleged stream. It seemed to spread far and wide, and to disappear frequently, making for a spotty condition in various mineralized sections. In some places the streak of blue gravel was covered by a deposit of cement eighty feet deep. It almost invariably lay on bed-rock, showing that it belonged to the torrential overflow of the old original volcano with Broke-off Mountain as its center.

The first scientific mining men accepted the ancient river theory as to the origin of the blue lead. Then came a school of geologists who denied the possibility of any one body of water presenting the phenomena found in the blue lead district. They said it was too varied and too widely distributed to have a common source. Now comes the certainty that an ancient river of wide dimensions and great length had its rise in Meadow Lake, Nevada County, and flowed along the base of the Northern Sierras. Geologists call it the Jura River and under direction of Government specialists its length is being traced and mapped. Copious field notes are being taken as to its history and functions, not only in the mineralized zone, but as an ancestor of one or more of our modern river courses. Nothing in Mt. Lassen's long volcanic career is more amazing than the effects of displaced waters and the intrusion of lavas, cement, gravels and sands laden with gold into the old channels and river beds. The curious manner in which these treasure troves are hidden is almost beyond belief. As a general rule ancient submerged river channels are broader and more shallow than their modern successors. The old streams present a labyrinthian distribution where drift mining is being done. It is found that the grades differ greatly and that there were falls, rapids and whirlpools and other river phenomena, similar to the surface waters of today. In a few ancient river beds gold deposits have been uncovered more than six hundred feet below the top soil.

ANCIENT AND MODERN RIVER COURSES

An unanswered question which puzzles the geologist, baffles the mining engineer and exasperates the irrigationist is, Why does not the modern river follow its ancient bed? Professor Joseph Le Conte was of opinion that the new channels are cut below the level of the old because of a considerable elevation of the whole Sierra Range in the northern part of the State. This proves that the earth's crust was tilted in the last big upheaval of Mt. Lassen and its minions. This also accounts for the splendid watershed of the locality and for the desert conditions of the Great Basin and Southern California. Here many rivers start bravely for the sea, but the waters seep through the parched sands. The streams finally splay out into numerous winding rivulets which become insignificant, dry runways flushed by an occasional spring freshet.

Up in the Sierra foothills is a well-known instance where the bed of an ancient river runs along the ridge of a hill, dips through the flank of a mountain, climbs over a steep incline, and ends by bumping into a granite spur. Of course, no well-mannered watercourse ever flung itself about in this promiscuous fashion without the intervention of some freakish volcanic action such as Lassen affords. This badly-twisted, ancient river was discovered by some scientific miners who washed the top of the hill from the bed, then hydraulicked the bed for its gold content. The process sent millions of tons of waste down through flume, tunnel and canyon into the Sacramento Valley where it did much to aggravate the "Slickens" question, once such a bone of contention between farmer and miner.

An observer standing at Banner Hill, near Nevada City, or on an elevation near Auburn, in Placer County, has only to look toward the east to discover many of the ancient river head-waters in the deep canyons in this picturesque region.

An outlandish characteristic of lava is that it runs uphill, and that its velocity does not depend upon the incline. Lava makes as good time going uphill as down! The Sierra Nevada Mountains attest this peculiarity to a remarkable degree. The piling up of the thick, viscous, andesite lava cap over this section left the table mountains when the action of the elements cut through the porous and less adhesive mass of scoria and ash mixed with the erupted matter.

The cement layers, the lava caps and table mountains are the despair of the nomadic miner with pick and shovel. The chickens could easily have found much of the gold picked up by the forty-niner! When the gulches, canyons, river bars, benches, rilles and beds no longer yielded a fortune in a few days and in a deposit concentrated into a dozen yards, the typical prospector sought other fields. That the rush of the early fifties only scratched the surface is evidenced by the fact that in Placer County alone there are two hundred miles of ancient river channels still unworked.

In olden times the American River reached to English Mountain, and the Tuolumne to Mt. Dana, but the most startling change of all overtook Lost River which disappeared near Hat Mountain. Here Lassen in an ugly mood swallowed up this venturesome stream and covered its place with a tortuous maze of crisped rocks, cinders and scorias. There is also another Lost River near Tule Lake, on the other side of the mountain close to the Lava Beds. It, too, has a ghastly geologic history and bears the indelible marks of a gigantic struggle with pent-up volcanic energy.

A fascinating speculation concerns the ancient Jura River, with its dry bed and broken banks. Was this old river the original Sacramento? Indian legend says that the waters of the Sacramento were, by a big shaking, hurled through Carquinez Straits, thus cutting off San Francisco peninsula from the mainland, and plowing out the Golden Gate entrance to the bay. Recently the Jura River has been traced almost to the Mexican line, making it a worthy ancestor to the Sacramento, which



HUGE CALLIFLOWER-SHAPED ERUPTION, MAY 22, 1915, FROM ANDERSON.

has its beginnings in quite an opposite direction near the base of Mt. Shasta.

MOUNT LASSEN AND ITS SATELLITES

One of the oldest bits of land on the North American Continent is the crest of the Sierra Nevadas which begins in the Grizzly Spur Range in Plumas County and terminates in Pyramid Peak in El Dorado County. This ridge is older than the Rocky Mountains, and to it has been added by volcanic action all of the labyrinthian succession of elevations which form the present seventy-mile thick mountain chain. Here and there these high crests are braced and held together by intersecting lava peaks whose tops contain extinct craters. Curiously enough, few of these volcanic flows originated at the places where they are now found. Many of the beds are sixty miles or more from their craters! Time and erosion have slipped them down the mountain sides.

It must also be borne in mind that there were two universal overflows when all of the craters in the entire system emptied simultaneously. Ages elapsed between the two epochs, but there was much individual and isolated action by the various centers. Often these occurrences were in widely separated localities. That Mt. Lassen was a factor in many of them is proven by the various kinds of lava composing the base of the mountain. The first was basaltic, then there was a considerable eruption of rhyolite stone. The last big blow-up was of andecite, while the present ash and cinder deposits are of dacite. It is the latter which gives the mountain its beautiful, pearl-gray color, and is undisputed evidence that the present fires are deep in the bowels of the earth. Dacite lava belongs to the Tertiary period, and is an old formation.

Are the theorists right in the assumption that Mt. Lassen and Kilauea's liquid fire are on the same strata? Does not the phenomena of the vicinity give unmistakable evidence that Lassen Peak is never really quiescent? Does anyone believe that its present activity is caused by surface conditions? Is it not foolish to fear that a great catastrophe is possible now? Mt. Lassen today is a hollow shell—a spent force—and all that it has been doing lately is to blow out and clean up its old vents! Strictly speaking, it is Lassen Peak that has been clearing its throat.

In accounting for the ocean of andecite lava in the last general overflow, it is necessary to consider the innumerable centers within the radius of Mt. Lassen's activity. In the high Sierras near Colfax, Pinoli Peak, English Mountain, Grouse Ridge and Signal Peak did their full share. From Truckee are seen the lava craters of Snow Mountain, McKinstry and Pyramid Peaks which rise from the same granite plateau as Yosemite Valley where ice erosion and heavy shakings gouged out this matchless gem of creation. Southwest of Reno is a scarified mass of lava which extends from Truckee River Canyon to Washoe Valley. Mt. Pluto and its ridge of lesser vents were the source of the formations in that section. The conditions in Placer County are due to the presence of Canada Hill, Bald Mountain and Duncan Peak. The lavas here make the life of the miner miserable but put heart into the man looking for

power sites. The scenery of this rugged region is superb in its lofty grandeur.

But it is west of Lake Tahoe, beginning at Webber Lake and including Mt. Lola, Castle Peak, Mt. Lincoln, Timber Knob, Mt. Mildred and Twin Peaks, that the sublime and beautiful overcome one's awe of the titanic forces that have shaped this eerie region. Here at elevations of ten thousand feet or more are piles of the viscous, slow-moving andecite lava fully two thousand feet thick! Round Top, over in Alpine County, has a large group of lesser vents which were a part of the great movement, while Mt. Robb, in El Dorado County, poured lava over miles of that section.

Another gigantic center culminates in Highland and Raymond Peaks near Markleville where the deposits are known to be four thousand feet thick, and are piled in such fantastic forms as beggar description.

A picturesque spot is the gold-laden district close to the Dardanelles Bluffs. The counties adjacent to Mt. Lassen are filled with nests of crater peaks and vents which form a part of the three hundred and sixty-five craters visible from Lassen Peak.

In the remote past, a steaming, desolate expanse of volcanic tufa, mud and scoria covered all of the intervening spaces between these high crater centers. Then countless rills of storm waters flowed down the slopes. Gullies, ravines and new master streams were formed. After the shakings ceased and a normal temperature was established, the canyon cutting began, with the bewildering results seen today.

For several thousand years the topography of the mountain country has not changed. It still has its groves of oaks in the foothills, its giant pines on the middle slopes, and a thin fringe of storm-scarred hemlocks on the summits. Held fast in this rigid sea of partly submerged lavas are three of the scenic wonders of North America. These are Mt. Whitney, the highest mountain in the United States, fourteen thousand five hundred and two feet, Mt. Lassen with its active volcanic peak, and the Yosemite Valley.

PRESENT WONDERS OF MT. LASSEN DISTRICT

It was the poetic imagination of Washington Irving which immortalized the story of Bonneville Lake. This peripatetic body of water anciently occupied Honey Lake Valley and was the progenitor of Eagle, Pyramid and Honey Lakes in the basin northeast of Mt. Lassen and of Great Salt Lake in Utah! Bonneville Lake was supposed to occupy seventeen thousand square miles of territory and to have been fresh water. The Indian tradition is that when the mountains were all "spitting" at once a big water rushed in and stayed a long time! Did the water come from Lost River, down whose empty course the eruption of Lassen Peak, May 22, 1915, came like an avalanche of mud, hot rocks and ashes?

What is now left of Honey Lake lies like an exquisite fire opal edged by a lacy formation of volcanic matter. Its shallow depths reflect each passing mood of cloud and sky, and by moonlight holds the senses spell-

bound by its silvery shadows and glades of light. Its name is given because of the manna from Heaven in the form of a heavy, sweetish dew that falls upon its grass blades each night.

In striking contrast to the daintiness of Honey Lake are Lake Tahoe and Crater Lake, both cups of sapphire set in the ragged lips of an old crater. Lying so near the open vent of Lassen Peak as to be always in danger of extinction, is Lake Helen. Its waters are glacial, its surface usually blanketed with ice, and it is seldom other than snowbound. Of a totally different character is Lake Tartarus, the boiling lake of Warner Valley, seven miles south of the base of Lassen Peak. Here the strangely saturated mineral waters boil and gurgle in ceaseless fury, while a



DEVASTATED AREA, MAY 22, 1915.

chain of sputtering mud pots completely encircle its steaming banks. No two of the mud pots are alike, either in coloring, activity or smell. It would be easy to believe that the unruly fire spirits of this uncanny region mess here perpetually and that their stews were continually in the process of cooking.

The Devil's Kitchen, quite appropriately named, gives a continuous performance of steaming crevices, roaring geysers spouting hot water to varying heights up to one hundred and fifty feet. There are innumerable waterfalls bursting through the steep walls of the narrow canyon, and every known kind of mineral spring, hissing and steaming alongside of others of ice-cold water. Perpendicular walls of broken lava

LASSEN PEAK, AFTER THE GREAT ERUPTION, MAY 27, 1915; NORTHEAST.



surround the entire Kitchen, while through it flows a turgid stream, the Little Styx, which in the level places forms green, slimy pools where trolls might find a congenial habitation.

GEYSERS AND HOT SPRINGS

On the south and southwest slopes of Lassen Peak there is an area of about thirty acres where one should pick their way carefully. This space contains about eight hundred volcanic vents. And they hiss and steam and gurgle all the time! It is an uncanny region, and one feels that there is boiling water underneath the huge lava shell he is walking over. The fact that there is a top soil and verdure covering the area does not change this impression.

Here the voices of Lassen are heard, and they are guttural and sinister. Some movements of water soothe and pacify; some sing merrily, or chatter foolishly. Lassen growls and grumbles, snaps and snarls, and one is made aware that here latent but tempestuous fury sleeps fitfully after centuries of unbridled and wilful self-indulgence. Unruly Lassen has always been a law unto itself. Man and his puny works dwarf into insignificance in the presence of such stupendous cosmic forces.

It is quite evident that the geyser activity of this region has been accelerated by the latest explosive eruptions of the re-awakened peak. The water seems hotter and it is flung higher than it was before the events of 1914 and later. The Little Styx continues to be muddy, and there are trees and other debris cluttering its tortuous banks, which bear convincing evidence of a subterranean connection between the new craters and the Devil's Kitchen.

VIRGIN FORESTS

Within a thirty-mile radius, and at elevations ranging from two thousand to forty-five hundred feet are splendid forests of sugar pine with horizontal boughs tipped with long pendant cones like dark rustic lanterns. Mingled with them are great columned trunks of yellow pine whose russet bark forms a sharp contrast of color to the majestic evergreen firs with their fairy banners of lacy yellow moss, to say nothing of the varied lesser growths scattered everywhere.

A curious feature of the Lassen forest is the sudden falling of the matured trees, often when there is not a breath of air stirring. Without any apparent cause, down comes a hoary giant with a crash. None of the stands of timber is well rooted. Those at the higher altitudes are sparse and stunted in growth. At the snow-line only tamaracks survive the rigors of cold, bleak winds and eternal ice. Should fire or other misfortune wipe out the forests of the mountain regions, the whole climatic condition of Northern California would change. There would be less rainfall and much severer cold.

LAVA CAVES AND CAVERNS

The Modoc Lava Beds extend over one hundred square miles of territory north of Lassen Peak and between Modoc and Siskiyou Coun-

ties. Language fails to convey a correct idea of this amazingly distorted mass, incredibly rough in surface and of every imaginable twist and contortion. The entire field is studded with caves and caverns, gorges and perpendicular walls, but there is a bizarre beauty about it all because of the rich coloring of the sharp crests where the wind has left titanic ripples, hard as flint and oxydized into gorgeous green, red, yellow and brown patches. Fancy easily groups these into a huge Indian sand picture, grotesque, symbolic and full of mystery. A gruesome tinge to the awe-inspiring spectacle is the grim use made of this inaccessible region during the Modoc Indian War of the early seventies. A rude cross marks the spot where the gallant Canby met a treacherous death, and Captain Jack's Stronghold, a concealed cavern near Tule Lake, is still an object of mournful interest to both red and white men. It was by the cunning use of the caves and caverns that a band of fifty-two Indian braves successfully withstood the attack of more than a thousand white soldiers.

Marking the subterranean lava flows of various periods around the base of Lassen Peak are a number of caves indicated by huge natural tubes having arched roofs and multicolored, heavily-encrusted walls. In some places these caverns are filled to the brim with glacial ice. Others still have beautiful crystal columns reaching from floor to roof. In quite a number the walls are overflowed with frozen cataracts whose rough surfaces reflect the light and glitter like immense uncut diamonds. No matter how hard the summer heat beats down on these lava ice chambers no change in temperature occurs, and the hiker and tourist will find refreshingly cool water always on tap or easily procured in case of need.

AN EL DORADO LEGEND

Belief in the existence of a will-o'-the-wisp lake lined with gold and said to be near the base of Lassen Peak caused some American adventures which rivalled in foolhardiness any of the other quests for El Dorado. A typical gold-seeker named Stoddard, with a companion, lost his way in Big Meadows in the fall of 1849. They left the Peter Lassen Emigrant Trail and wandered hopelessly for weeks over hills and valleys until one day they came upon a tiny lake set in a coronet of serried lava bluffs. In a fissure in the side of the cliff they found several large nuggets of gold. Finally, separated from his companion, Stoddard cut his way through dense thickets and stumbled over an incredibly rough country until he reached the north fork of the Yuba, in Sierra County, where some diggings were in full blast. He was famished and half-crazed, but had the precious nuggets with him. The horrors of the fate of the Donner party were too fresh in mind to induce anyone to venture into the High Sierras in midwinter. Many scoffed at Stoddard's description of the golden lake, but in the spring of 1850 a company of twenty-five worked its way up over the divide between North Yuba and Middle Feather Rivers. They were followed by a motley host of other treasure-hunters. Then began a mad search for a mythical lake which entailed unspeakable hardships and drove at least a dozen men to death. Every ridge from Downieville to Mt. Lassen and as far east as the Nevada desert was carefully explored, but without results.

When Stoddard's party arrived at Humbug Valley he thought he had found the spot. By this time many of his followers declared that the golden lake was a figment of Stoddard's befuddled brain, and in disgust gave the valley the name it bears today.

For ten days longer the grumbling, dissatisfied crowd searched the mountains thoroughly, but were always doomed to disappointment. Finally their sufferings grew so intense that the party halted in a stretch of meadow land and decided to give Stoddard a last chance to locate the treasure-laden lake. His companions informed him that if he failed they intended to hang him. Stoddard utilized this opportunity by faking to his heels. He gave such good leg bail that none of his indignant pursuers were able to overtake him. It is said that Stoddard never stopped running until he was in sight of the Golden Gate.

The rumors of fabulous hidden wealth in the rocky convolutions at the base of Lassen Peak were not easily quieted. The marvelous colorings of the lavas, the unmistakable indications of mineral deposits in the ash and scoria emitted keep alive the thought that there may be untold wealth yet to be found in that vicinity. Peter Lassen was long suspected of replenishing his store of gold dust from such a secret place. When in need he disappeared from his usual haunts, and in a short time returned liberally supplied with nuggets. But to no one did he ever confide where they came from.

In the eruption of May 22, 1915, on the slope of the Peak toward Manzanita Creek there was a quarter of a mile of basaltic lava which contained small particles of gold quartz.

THE REAL GOLD LAKE

Because of the superb chain of crater lakes topping a ridge for fifty miles, the Mohawk Valley district has been called the American Highlands. The middle fork of the Feather River winds like a silver thread through the valley. High above begin the limpid pools which string along from Eureka Lake in Plumas County to Upper and Lower Sardine Lakes in Sierra County. The lakes included are Long, Bear, Grass, Gold, Silver, Wade, Jamison, Squaw, Parker, Saronal, Upper and Lower Sardine Lakes and Upper and Lower Salmon Lakes.

This is the crudest, wildest and most magnificent stretch of scenery imaginable. The slopes break away into spacious canyons or lead up to granite walls overrun with moss and lichens after being split asunder by giant pines and cedars. There are bits of treeless mountain ground covered with branchy thickets of chaparral and manzanita which, seen from above, are as huge green billows in a sea of summits. The road winds through shady groves where tiny streams scatter verdure in their wake and where the exotic tiger lily stalks in the tangled copses.

Before reaching the lakes there is a series of pretty little pools set in tiny meadows on the side of the road. Here the deer come down from the chaparral in the cool of the evening to drink. Just before Gold Lake is reached, the saw-teeth peaks of the Sierra Buttes appear above the skyline. Looking back over Frazier Canyon there is an imposing view



LASSEN PEAK, IN CHARACTERISTIC EREPTION; WEST SIDE, 1911.

of mountain heights and chasms, embracing in its scope the snowy crests of Lassen Peak.

All of this country was famous in early history. Each and every one of these lakes were vainly sought as the fabulous Gold Lake. At the extreme end of the chain towards the northwestern boundary of Sierra County are "Whiskey Diggings" and "Poker Flat," the setting for several of Bret Harte's most interesting tales. Downieville and Sierra City are also towns of Sierra County that are vibrant with the spirit of forty-nine. Johnsville is an old village set far above Mohawk Valley where there are mines that date back to the early fifties. There is probably no mining town in the State that has kept its local color as has this one. The Plumas-Eureka, the Jamison and the Four Hills Mines produced abundantly for sixty years.

A HUNTER'S PARADISE

Before California became a name to conjure with, the Hudson Bay and American Fur Companies sent trappers to take pelts over all the territory between Southwestern Canada and the junction of the Sacramento and American Rivers. These were undoubtedly the first white men ever seen in this section. They laid the foundation for the boundary disputes which at later date came near to involving us in war over the "Fifty-four Forty or Fight" slogan. Rival claims to seacoast led to long and bitter discussions before the fisheries claims of the Northwest were finally settled. As fur hunters they found plenty of silver and gray foxes, beaver and mink.

The first settlers in this region were those solitary giants who have blazed civilization's way in every wilderness. Here the beasts fought back. It was no uncommon thing for the emigrant to see an outraged grizzly rise on hind legs and block the way of the ox-team. The hostile Indians were not so much to be feared as a pair of mountain lions, a pack of gray or timber wolves, or the sudden leap of the stealthy panther.

The toot of the mountain-climbing engine, the creaks and groans of heavily-laden freight trains, or the screech of the Overland Limited have sent big game back into the remote fastnesses, but it is still possible to pot a caribou, an elk, a brown or black bear and several species of deer within easy reach of railway lines.

Away from the settlements and farms may be found an occasional sear along the ground where the men who walked across the continent spent their days in search of gold. With few exceptions the miners destroyed little of Nature's beauty, and the lesser game is left in undisputed possession of this magic realm. Here man begins to lift the veil and venture toward the heart of things. Soon he can see the rabbits hopping, and he will spy the quail before he hears the whirr of vibrant wings. When he hears a distant drumming he will sense that a lordly cock grouse is near. The slightest movement on his part will cause the grouse to stretch itself along the limb of a tree. He will need to be an experienced and sharp-eyed woodsman to distinguish feathers from bark after the grouse has cunningly concealed itself.

BEFORE.



UNITED STATES FOREST SERVICE
LOOKOUT HOUSE.
SEPTEMBER 29, 1914; EVENING.

It will not be necessary for the fisherman to tell "whoppers" about his prowess. He, in turn, will find much to astonish him in the pools and ripples. Here are rainbow trout—truly a gift of the gods—almost as big as salmon. There are several other varieties of trout which all but leap out of the water and chase the fly-caster for a chance to bite. The gamey salmon often makes the run up the larger streams whose banks are lined with waterfowl which are easily bagged. There is no exaggerating the sensation that comes from following the swirl of a silken line. The reflection of sky and cloud are such as the lowlands never knew. While disentangling the tiny hook from a mischievous bough the eyes open to the sublimity of the peaks above. Presently the startling discovery is made that the stream itself is nothing less than silver

and turquoise turned liquid and running its merry way.

It was early in 1820 that Don Luis Arguello, the first Mexican Governor of California, with a company of Spaniards, went on an exploring expedition from the Sacramento Valley to the Feather River above Marysville, and followed up the stream for about sixty miles. He named the river Rio de Las Plumas, because of its myriad feathery ripples where the waters dash over uneven formations. Its north fork rises on the southern side of Lassen Peak and has an extremely winding and twisting descent all the way through to and including the Feather River Canyon. Los Molinos Creek still keeps its Spanish name, while only Plumas County retains the original title of the sprightly and beautiful Feather River with its zig-zag forks and tributaries.

AFTER.



UNITED STATES FOREST SERVICE
LOOKOUT HOUSE.
SEPTEMBER 30, 1914; MORNING

The Mission-building Spaniards left an indelible imprint upon Southern and Central California, but only a few of their musical names are attached to anything in the Lassen country. Instead of Santas and Sans we have "villes" terminating the name of every hamlet and village built by the Argonauts who crept across the plains and found their way over the mountains of Oregon into Honey Lake Valley and Big Meadows. The old emigrant trails of Applegate, Noble and Peter Lassen came to an end in these grassy plains. Here man and animal rested and refreshed themselves before a future line of activity was mapped out. Sometimes the groups separated and headed for the mining camps along the Mother Lode or some ancient river channel.

A few stayed in Susanville and formed the nucleus of the defenders of California's claims in the famous Sage Brush War when the "Never Sweats" tried to include Long Valley and Honey Lake Basin in the newly organized territory of Nevada. Peter Lassen was mixed up in this affair which was finally settled in 1863.

The essence and flavor of pioneer days still hangs over the counties radiating from Lassen Peak. The rush and hurry of modern civilization have passed these communities by and left something very well worth preserving. Some of the old settlers still feel crowded if there is more than one inhabitant to the square mile. There are plenty of Jim Smiley types in out-of-the-way places, and, presumably, numbers of jumping frogs, such as Mark Twain found in Calaveras County, that do not "have any pints about 'em different from any other frogs." The woman who put Susan into Susanville would have made a perfect model for a typical pioneer mother, and there are scores like her who make any community better by living in it.

Years have elapsed since emigrant trains of ox-teams wound their way slowly through the foothills of Northern California. Modern through traffic has left little impress save in favored spots where farms or hamlets flourish. Mining industry has languished, but stock-raising has held its own. The summer months find herds of cattle and sheep scattered over the remote fastnesses. The tinkle of bells greets the ear of the camper or prospector, and the early fall sees many flocks of sheep and herds of cattle en route to lower altitudes. The intelligent shepherd dog and the equally knowing cowboy pony are frequently encountered following the herds.

"THE LONG, HIGH MOUNTAIN THAT WAS BROKEN"

The Maidu Indians have a tradition concerning the vast universal eruption of the Lassen volcanoes. They say that long ago all of the mountains spit at once for six days and nights. A little old woman came from Nevada way and sang all night. Then the mountains did not spit any more. A big water poured into Honey Lake Valley, and a god came and brought two fishes. He sat all night on Hat Mountain, leaving the top creased into the form from which it takes its name. The Pit River, Modoc, Maidu and Klamath Indians use the word "Yermani" for mountain. The Maidus say "La Lapham Yermani Y'aidum"—meaning the long, high mountain that was broken. They also claim that the old mountain used to be much higher than it is now.



ACTIVE CRATER, LASSEN PEAK, AFTER FIRST ERUPTION, 1914.

From time immemorial, all of the Indians of Northern California have held Mt. Lassen sacred. It was commonly referred to by them as "The Sweat House of the Gods." The Maidus believe that the present eruptions will end when the old empty shell of the mountain blows itself to pieces. They say that bye and bye Lassen Peak will be no higher than the rest of the range. That all of its fire and water will run away. Then the god will come back and the Indians will be given all that their hearts desire.

Is it true, thou must leave thy place,
In the mountain range where thy matchless grace
And stately presence, serene, apart,
Guards untold treasures in thy fiery heart?
Ah! no; ah, no! It can not be,
Thou must endure through Eternity.

—Rev. Mother Berchmans.

ANIMAL AND HUMAN LIFE OF THE OLDEN TIME

It gives one an odd feeling to realize that in the San Joaquin and Sacramento Valleys once roamed the Imperial, Columbian and hairy mammoth elephants—all of them larger than any known species of today. With them were mastodons, camels, lions, sabre-toothed tigers, cave bears, the great wolf and the giant sloth. Several species of horses also inhabited these wide plains. Among them were a doll pony with five toes, a forest horse about the size of a colt, another with three toes, and one with a tiny hoof and big head but in shape and size like the domestic animal of the present time. Stranger still is the fact that the horses of all sizes had passed so completely out of existence that none of the red race remembered anything about them when the white man came. Specimens of all of these animals, except the smaller horses, have been recovered from the asphalt deposits in the La Brea pits located within the city limits of Los Angeles. The contents of these pits prove that these animals were widely distributed and that they came to a sudden end about the beginning of the present geological period. It is an axiom of animal life that the power of a species to adapt itself to changing conditions depends entirely upon climate.

Trees and other forms of plant life indicate little change in temperature or moisture in the past ten thousand years. A case in point is the size and species of trees found imbedded in the cement overlay in the Weske Channel near Forest Hill, Placer County. This cement covering is fully one hundred feet deep, and in it are a number of oak trees standing on the banks of the channel with their roots intact in the gravelly soil and bed rock. One cedar tree nearly one hundred feet high has a base four feet in diameter. It stands upright, and is in a very good state of preservation. A fair-sized stump of a Monterey cypress was found in one of the pits at La Brea, and is now exhibited with the fossil animal remains.

A study of the ancient river courses furnishes a plausible solution of the extinction of the prehistoric animals. The universal overflow of waters which cut out the new river channels inundated the lowlands to

a sufficient depth to destroy all forms of life. In fact all of the animal and much of the plant life did perish. The big trees remained. Our sequoias belong to the Mammoth age! The General Sherman tree was two thousand years old when Christ was born. Its ancestors undoubtedly lived through the terrible scourge which fell upon contemporaneous life when Mt. Lassen led the hosts of volcanoes ushering in a new era about ten thousand years ago.

Oh, fateful day that ushered in
A cycle new of life for man!
Oh, cosmic force that helped to win
A treasure trove from elfin clan.

Professor John C. Merriman asserts that human life existed in California between ten thousand and twenty thousand years ago. His opinion is based on finds of human bones in the Pioneer and Hawver Caves of El Dorado County. Then, too, there is the Calaveras skull, which seems to sustain Professor Whitney's claim of finding human remains in the auriferous gravel beds which are closely associated with Lassen volcanic activities. The skull and arm bones of a woman taken from La Brea pit, Number Ten, may admittedly be reckoned as thousands of years old. Down in the third chamber of the mysterious "Moaning Cave of Villecita," in Calaveras County, was recently discovered a pile of human skeletons of a race larger than the average man. The third chamber is one hundred and fifty feet below the second, which in turn is several hundred feet below the surface. The question is: How did these bones reach the spot where they were found? They must have passed over two cliffs of considerable height and a great distance apart.

Last of all comes the skull found a few weeks ago in a cliff on San Francisquito Creek, near Stanford University. This skull, like that of Calaveras, is dated back ten thousand years ago! Professor Bailey Willis, in discussing this latest testimony to man's life in prehistoric California, says: "I believe that if you were to meet this man today, he would not look so very different from other men."

EARLY INDIAN RECORDS

The Indians living about the base of Mt. Lassen preserve an oral history of the old mountain's "spittings" and shakings which has been handed down for generations. None in the living tribes know who wrote the pictographic records of an exodus to the south in ancient days. The elders agree that terrible things happened when the mountains all spit at once. Hot and cold water ran over everything, and all the Indians who did not die went on a long journey. It was a long, long time before they came back again. They also have a tradition concerning the big animals that perished at the same time.

Near Eagle Lake and in Honey Lake Valley there are continuous rows of petroglyphs traced on the lava bombs scattered as thick as hail over the level spaces or piled in fantastic wreaths against the skyline. These ancient records of Indian migrations follow old paths cut through



BROKE-OFF MOUNTAIN, OLDEST CRATER OF MT. LASSEN.

the High Sierras to Penryn and along the summit to Kings River Canyon. At Penryn quite an elaborate story is written, and in Kings River Canyon days would be required to decipher the annals left in the rocks. The same system of writing connects with the Cliff Dwellers of Colorado and New Mexico and is found as far south as the Sierra Madre Mountains in the States of Sonora and Sinaloa, Mexico. The Indian scribes picked out crude figures in sharp outlines with some harder implement on the smooth or sheltered rock surfaces. They often added a touch of realism by using ochre and cinnabar to give color to the object treated.

It was my good fortune to find at Belfast, fifteen miles from Susanville, an unmistakable hieroglyph of Quetzalcoatl—the Mexican fair god. The figure was colored and showed the serpent messenger of the god departing. The hieroglyph was outlined on a basalt lava block



PIT RIVER FALLS.



BURNEY FALLS, 125 FEET HIGH.

which had another block lying over it in such a way as to protect the figures. I much regret being unable to secure a photograph of my find. It will be necessary to use a flashlight because of the heavy shadows produced by the overhanging mass of lava. It is my earnest hope that all tourists, mining men, engineers and road builders will protect the pictographs wherever found. They contain precious data concerning the beginnings of things for mankind which are invaluable to historians in this part of the world.

HOW TO SEE MT. LASSEN

Begin to look for the wonders wrought by the far-reaching activities of Lassen as soon as you leave home. Invite your soul,

and let the inner vision recognize the beneficence which has made California not a State but an empire. Realize that in the vast changes caused by the wreckage of the mountain entity you are seeing the actual processes of world building; that in this locality might have been Vulcan's forge; and that these mighty forces are still at work.

With the open mind of a Dr. Diller, sense the supreme mastery of volcanic action everywhere about you. Appreciate and understand the fascination and interest with which this painstaking geologist has spent a lifetime in research and study. Note rock and mineral formations as carefully as did Professor Whitney, who classified and named them all. See with John Muir a grasshopper sitting on the face of Half Dome and contentedly striking its cymbals, or with his love of Nature trace the delicate markings of a fern leaf. Visualize the maddening mix-up in the underworld, where gnomes keep watch and ward. Then with the comprehensive knowledge of a John Hayes Hammond



HAT CREEK FALLS.

re the veins, pockets and ore beds lavishly poured over thinly disguised surfaces, or cunningly hidden deep down in the earth.

Resign yourself to the ministrations of the pestiferous, pilfering bluejay, for as soon as you reach the woods this little feathered policeman will take you in hand. At your first stop he will order you to "Hike! Hike!" and if you do not move fast enough he will call all of the neighbors, and with their assistance will abuse you scandalously. Incidentally, you may see the descendants of the little chap who, according to Mark Twain, found a miner's cabin with a hole in the roof and tried hard to fill it with acorns. You will also observe that the descendants have not learned anything from that experience. But with all his noise and chatter, his pugnacity and curiosity, what would a touring, camping or hiking trip in the mountains be without a bluejay guide?

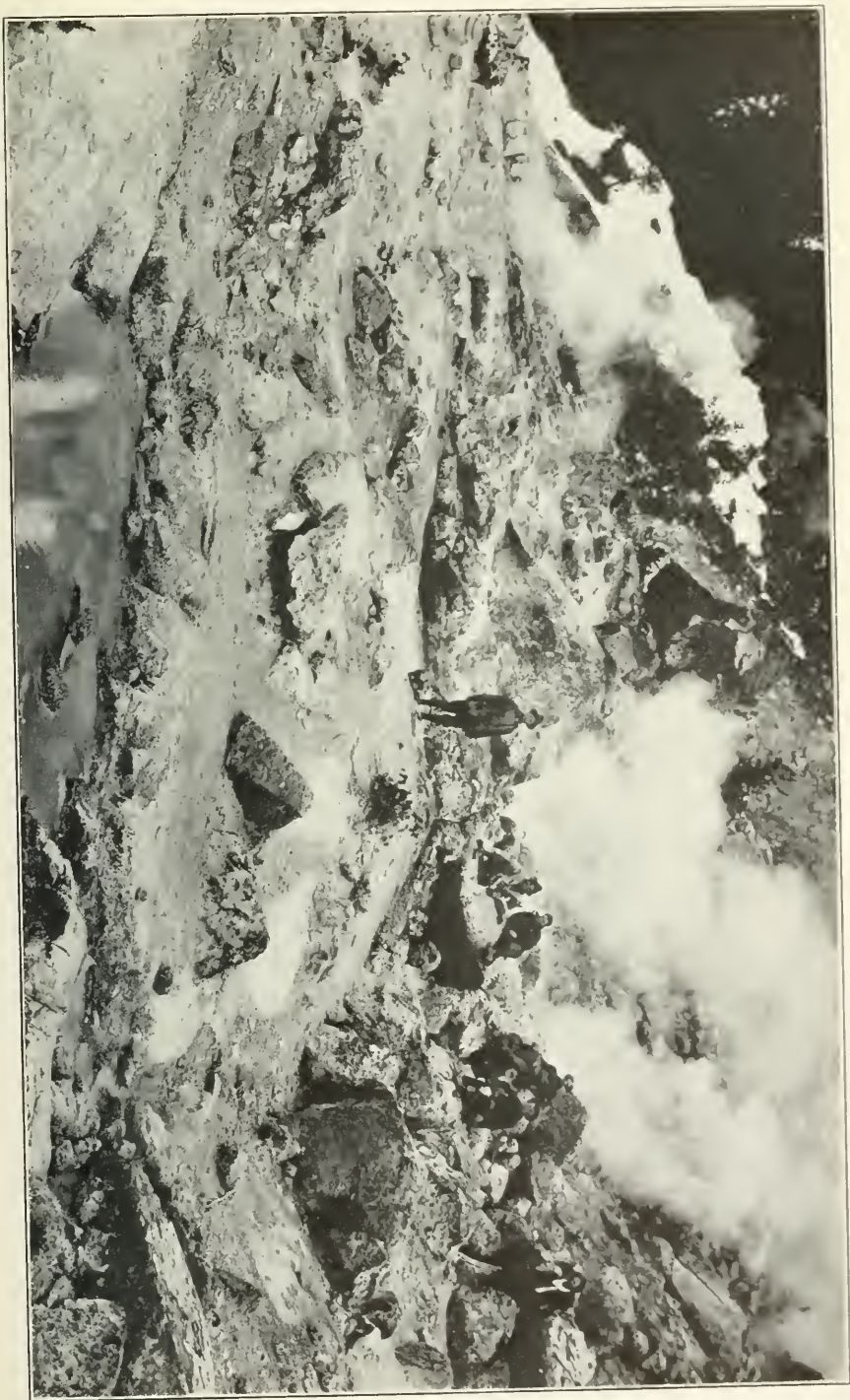
At the five thousand foot level one sees the last of bird life, and vegetation shows the effect of high altitude, nipping air and short-lived sunlight. With the wild things absent, how silent and desolate it all seems!

With your first glimpse of Lassen Volcano, do not wail because the peak no longer impresses with dizzy height. Look at it as an object that has been rent asunder by the too passionate wooing of two powerful, elemental giants—heat and cold. These turbulent spirits of fire and frost have wrecked the mountain ruthlessly, only that man may benefit. See the burnt-out and spent conditions of Nature's prodigal and be glad of the object lesson. In the distance Shasta inspires by its noble proportions and sublime calm; by its peaceful silence and profound stillness; and by its superlative beauty. The message of Lassen is that of ever restless, pitiless, ungovernable force. God in the Heavens uses both to convey His imperishable truths to the soul of man!

THE ACTIVE VOLCANO

Lassen Peak is a massive, sugar-loaf shaped mountain, easy of access on three sides, and not hard to climb because of its broken and dismembered condition. The lowest peak—Broke-off Mountain—is but little higher than the crest of the Sierras, and does not attract particular attention in the general southwest perspective where it lies. The entire cone of Lassen Peak is two thousand feet above the gentle, sloping lava plateau which forms its false base. The peak has four distinct summits, three of them prominent, which rise several hundred feet above the depression of the crater rim. These summits mark the ravages of former dacite eruptions. Because of the extreme cold at the top of the peak, a certain amount of the liquid mass has congealed and built up these ugly lips of the crater rim. Broke-off Mountain had no such experience. Its thin, watery lavas left practically no trace beyond covering a wide area with cement, chalk, kaolin and clays, which will prove of immense value to the potter and builder.

In approaching the mountain from any direction, one finds abundant evidence of widespread internal heat and subterranean commotion. In many places the earth's crust has stubbornly refused to cool off and



DEVIL'S KITCHEN, NEAR DRAGSBAD, SOUTH BASE, LASSEN PEAK.

there are guttural warning sounds and infernal smells. A snorting sulphur spring, a gurgling mud pot, a spouting geyser, a vent of hissing steam, or an ice cavern keep the senses on the alert. The mind soon comprehends that Meadow, Indian, American and numberless smaller valleys as well as the tiny lakes are nothing more than huge pockets of lava that have backed up and solidified against the older mountain side.

Wherever possible, vegetation has crept over the scarred rock surfaces, and the impudent little grasses are so close to the edge of the boiling springs as to turn a sickly yellow because of the heat. It is not uncommon to find the roots of a fallen tree holding in a death-grip boulders of erupted rock and slowly forcing their disintegration. Here one sees striking instances of the ceaseless warfare between the mineral and vegetable kingdoms. Rocks and plants have it out with each other for supremacy and leadership in the upward spiral of evolution.

High up on the southwestern flank of the fire mountain is a glacial crevice which has scarified the surface and left a deep gash when its frozen matter finally yielded to internal heat. Sunk in five hundred feet is Bumpass Inferno at the head of Los Molinos Creek Canyon. Here the melted snow waters below Lake Helen tumble into a steaming bowl of geysers, sulphur vents and lakes of many colored boiling waters. Masses of distorted lava ring the rugged edges. Hemlocks cling to the surface, which is banked by eternal snows. The entire bottom and sides of the pit are studded with enormous steaming mud pots. The principal geyser spouts every ten minutes, throwing a stream of ill-smelling hot water fully fifty feet high. The lakes surrounding the geysers and mud pots are purple, green, red and indigo, while the overhanging cliffs are red and yellow with phantom-like snow bridges arching above them. The crevice beginning at Bumpass Inferno is twenty-five miles long and ends at the cliffs four miles east of the town of Red Bluff, where the stream of lava abruptly disappears underground.

The Lost River on the west side of Lassen Peak is a fearsome reminder of latent force and of present possibilities, while Iron Creek Canyon presents another enigma of the earth's agony. The fantastic and queer are seen in the Devil's Half-Acre on Hat Creek, where the wind ripples in the cooling mass of this lava are eternally fixed. A curious phenomena is the enveloping shower of gray rock powder which is so light that it flies in all directions if disturbed. This fine ash has slipped in everywhere and is in striking contrast to the crisp rock walls upon which no living thing may ever find a home.

On a still day may be heard the roar of innumerable waterfalls that beat themselves into a white spray against the rough, charred banks of the river courses. When no obscuring haze intervenes, or the clouds do not envelop the crags of Mt. Lassen's kingly domain, a scene of surpassing grandeur blends into the horizon in every direction.

Prospect Peak near the northern rim of the old crater contains an almost perfect cone in itself. This peak in unison of action with twenty-seven other volcanoes is held responsible for the wonderful Modoc Lava Beds which spread over miles of territory. The flow cooled in undulating waves which have oxidized at the crest and now show



FIRST SHOWING OF SMOKE, LASSEN PEAK, MAY 22 1915
22 1915
20, 1914.



THE FINAL ERUPTION OF ~~MAY~~ JUNE 17, 1914
June 17, 1914
MAY 22, 1914.

all of the rich coloring of a Persian carpet. One thinks of lava as something black and ugly. Because of the blended and fused mineral contents, the lavas of the Lassen district are beautifully colored.

Cinder Cone, the newest and strangest formation of any of the erupted matter, is credited to a terrific disturbance centering in Prospect Peak. A fiery hail of clinker rocks and red-hot bombs was hurled into the northern skies. This was followed by showers of cinders, sand and pumice, which at the end of a long period built up Cinder Cone. Time has covered this giant ash-heap, six thousand four hundred feet high, with a softened coloring of purple and brown, while the lava beds surrounding it are red and yellow. Cinder Cone stands almost on the line between Shasta and Lassen Counties and overlooks the two forest gems of Butte and Snag Lakes. The Cinder Cone's flat top is in reality a double ring of fire-scorched pumice and volcanic glass enclosing a deep and precipitous crater.

In the building of Cinder Cone a monstrous stream of thick, viscous lava rolled out into Snag Lake. This intrusive mass cut the lake in half and backed its steaming waters high over the old forest. Hundreds of these gaunt, parboiled tree trunks are still visible at varying depths under the water, which gives Snag Lake its characteristic name. The trees escaping destruction now form a scorched and shrunken fringe on the farther shores of this impish body of water.

The lava stream passed through the bed of the lake and divided its waters by a wall of rock one hundred feet high and two miles across. Some of the trees killed at the time are still standing scarred and spectral in a bed of lava which hampers and prevents the expansion of Butte Lake. Trees that have sprouted and grown to maturity since, reveal an age of two hundred years in their telltale rings. Over on the eastern shore the scorched trees, partly pushed over, stick out of the debris and are still living, but no young vegetation has secured a foothold in this sea of desolation. The lavas here are remarkably clean and new looking. In contrast to the hardened erupted matter is a volcanic substance, soft and white as flour, which is piled up here and there to a depth of ten feet.

A SAFE VOLCANO

The even tenor of mountain dignity and repose was rudely shaken when, after a silence of centuries, Lassen Peak suddenly flared up on Decoration Day, 1914. During the first week a small boy breathlessly informed his teacher that the mountain was "interrupting again," and the whole school rushed out of doors to see the spectacle. Since then, adjacent communities have accepted Lassen's antics as a part of the day's doings, but are keenly interested in each performance. Now one is quite sure that these affairs are entirely harmless. Lassen Peak is an empty shell and there are no habitations near enough to be in danger from an eruption even if lava did run down its slopes. There is no real risk in climbing the peak unless curiosity leads the unthinking too far down into the craters or too near a fissure. On the evening of September 29, 1914, a particularly severe explosive eruption demolished the

lookout house maintained by the Forest Service Commission high up on Lassen Peak and very near the edge of the newly-opened crater. The board shack was literally shot to pieces by the red-hot rocks hitting it on all sides. The house was also knocked off its foundation and left standing at an impossible angle and wholly unfit for use. On this occasion large luminous bodies were hurled into the air, making a spectacular and lurid night illumination of the entire crater.

Although there is an official record of one hundred and thirty-two eruptions of Lassen Peak for the years 1914-15, there are many misleading apparitions over the jagged tops of the craters which closely resemble an eruption but which are the drifting clouds sucked into the open spaces and taking on all the changing colors of a rainbow. This illusion is indescribably beautiful when it occurs at sunrise, and the prismatic colorings of the passing dawn clouds make the peak a mountain of moods and mistiness. In the early springtime, when the Sacramento Valley is a mass of pink almond blossoms, the blue haze hanging over the distant peak and the fleecy white clouds overhead complete a picture of sheer loveliness. At sunset, when the mantle of snow glows a soft, warm red, the peak is not unlike a huge ice-cream cone.

Seen at a distance, the volcano lures and intrigues the imagination. Nearby it frowns and threatens by its gray coldness and its crisped and seared walls. Even then it does not inspire fear. In eruption there is no motion, no noise, except on rare occasions. Usually the gas, steam and ashes go up like a shot, hang motionless like a photographer's flashlight, then slowly disintegrate. The steam and gas convolute and mingle with the cold upper air strata, while the ash drops back into the crater or is blown about by the wind. If the current is strong, the ash is deposited miles away, as it is very light and of very fine texture.

HUMAN INTEREST FEATURES

There is no story of Indian fighting more compelling than that of the Modoc War of 1872-3. For ages the Modocs, an intelligent and warlike tribe, had made their home around the shores of Tule Lake. Their hereditary enemies, the Klamaths, lived nearby. Both tribes resented the intrusion of the miner and homesteader. What happened is the old story of white treachery when one Ben Wright attempted to poison forty Modoc braves at a feast given to talk over their opposing interests. After that, it was a blood feud. Indians exact an eye for an eye, and soon the settlers were in trouble. In the great treaty of 1864, an amicable agreement was reached with all the Indians far and near, but Congress delayed ratification for five years, and then the Modocs claimed that their portion of it had been changed.

They unwillingly went to live on the Klamath Reservation. Shortness of rations entailed considerable hardships and finally Captain Jack, a young Modoc chief, left the reservation with about one hundred and fifty followers, who secreted themselves within the lava beds and began depredations against the whites. All efforts to induce them to return to the reservation failed. Troops were sent against them and on January 17, 1873, a sanguinary battle was fought. Lieutenant-Colonel



GENERAL VIEW, BOILING LAKE.

Frank Wheaton commanded four hundred men, while Captain Jack had fifty-two braves. In his report to the War Department, Colonel Wheaton said:

“The enemy’s position was an inaccessible ridge flanked east and west by deep ravines, fissures and boulder mass, eight miles wide by twenty-two miles long. The boulders ranged in size from a matchbox to a church. Captain Jack’s stronghold was in the center of miles of rocks, fissures, caves, crevices, gorges and ravines—some fully one hundred feet deep. In my twenty-three years of service, mostly fighting Indians, I have never before encountered an enemy, civilized or savage, occupying a position of such natural strength as the Modoc stronghold. Nor have I ever seen troops engage a better armed or more skillful foe.”

Our men were moving at 4:00 a. m. The fight began at 8:00 a. m. and continued until 10:30 p. m., when the troops were ordered to camp fifteen miles away. They had fought all day without seeing an Indian! Little puffs of smoke through a hole in the lava was all they had to guide their attack. Added to the difficulties was a fog so dense that the men east, south and west could not communicate. It was bitter cold, and they were without rations, overcoats or blankets. Because of the incredibly rough lava surfaces the men were obliged to advance crawling on their hands and knees. It was utterly impossible to recover the dead, and they had great difficulty in removing the wounded.

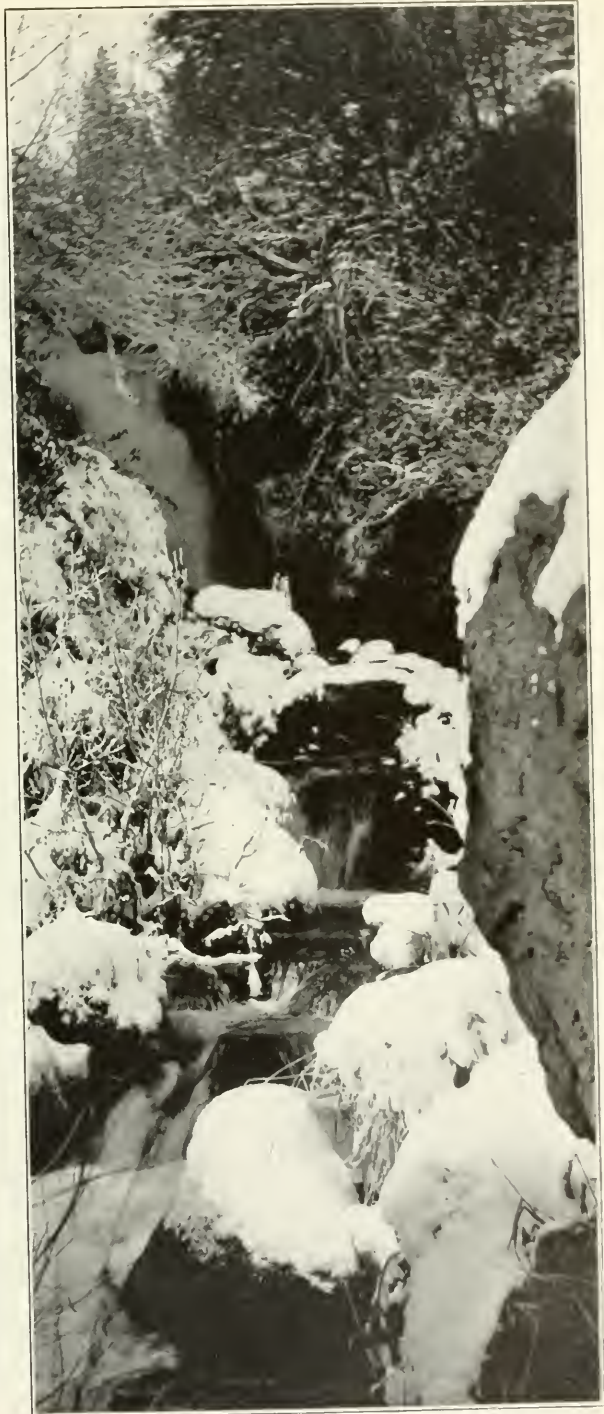
In the face of this complete rout, the authorities in Washington



A SPUTTERING MUD POT, NEAR BOILING LAKE.

ordered a peace parley. For this purpose Brigadier-General Edward R. S. Canby, commanding the Department of Columbia, was ordered from Portland, Oregon, to go in person with A. B. Meacham, Superintendent Indian Affairs in Oregon, and the Rev. E. Thomas, as peace commissioners to try to induce the rebellious Modocs to go back to the reservation at Klamath. Unmindful of the warnings of the Indian interpreters, who had arranged the meeting, the commissioners met Captain Jack and his sub-chiefs at an agreed spot. Suddenly in the midst of the parley Captain Jack stepped up in front of Brigadier-General Canby and shot him dead. The Rev. Thomas was killed also. Mr. Meacham was badly wounded.

Desultory fighting continued until Captain Jack was captured, June 1, 1873. Standing trial for his life at Fort Klamath, July 1, 1873, he declared that he had been



SNOW ON THE LITTLE STYX, DEVIL'S KITCHEN.



HOT AND COLD WATER;
DEVIL'S KITCHEN.

done to death by the treachery of his own men. He was not and could not have been captured by the white soldiers. Captain Jack and other implicated Indians were hanged at Fort Klamath, October 3, 1873. All that was left of his outlaw band was removed to Quapaw, Oklahoma, where they were kept on a reservation.

The cavern in the lava beds, known as "Captain Jack's Stronghold," still has a bad name. Neither whites nor Indians ventured near it for a long time after the Modoc War. It is interesting to recall that both President U. S. Grant and General Sherman, then Secretary of War, had fought Indians in the West. Both knew by experience the hardships entailed upon brave officers and men by the rascally conduct of white men who

preyed upon unoffending settlers and Indians alike.

FARMERS AND MINERS WAR

The same generation that fought the Indians found themselves lined up in opposition to each other when the miners in the Sierras began hydraulic operations. The floods of the water used in washing out the ancient river beds poured into the Sacramento Valley and River immense quantities of sand, gravel and rocks. This debris was run through flumes down over fields, vineyards and orchards, leaving white sandy wastes which often reached the tops of full-grown trees. Where vines or grain had grown there was nothing to indicate that under the artificial desert there was land capable of yielding rich harvests. A wilderness of desolation lay broadcast, whenever mountain sides had been swept down by the mighty



CORNER OF BOILING LAKE.



INSIDE CRATER, CINDER CONE; BASALTIC GLASS FORMATION.

hydraulic nozzle of placer gold mining. All of the debris did not settle on the land. Much of it ran into the Sacramento River, turning it into a muddy stream, filling up its channels and causing it to overflow its shallow banks and inundate a wide area of cultivated land. So thick and turgid were its waters that it was a common saying that after drinking a full glass one needed to be dredged.

For years the valley men stormed, threatened and petitioned for relief. But mining interests were backed by the early traditions and romance of an industry that had made the State rich and famous. Finally, an amicable agreement was reached through the good offices of a Debris Commission composed of disinterested parties, and now the mines and farms in the outskirts of the Lassen country flourish side by side—each fully protected in its own rights.

APPROACHES TO LASSEN PEAK

From the car windows of the Southern Pacific Railroad's Shasta Route, Lassen Peak may be seen at a distance of some forty miles east-



CINDER CONE; AN ASH HEAP 6,100 FEET HIGH.

ward from the towns of Red Bluff, Cottonwood, Anderson and Redding. There is an automobile service from Red Bluff to Morgan Springs, and from Redding to Manzanita Lake. There is also an automobile stage from Susanville to Drakesbad, seven miles from the southern base of the volcano. A shorter auto trip is from Westwood, twenty-five miles from Drakesbad. Westwood is a terminal of the California-Nevada line of the Southern Pacific. Excellent accommodations can be had all along these lines and in many other places known to the automobile associations and private individuals. The Western Pacific Railroad goes through the picturesque Feather River Canyon, and from Keddie or Doyle it is possible to motor to the base of Lassen Peak.

Because of the extraordinary lava-contorted land surfaces over which it must run, the Red Bluff-Susanville lateral highway is being built with convict labor. This road will pass close to Lassen Peak through a depression in the Sierras which makes the elevation only about five thousand feet. When completed, this pass will be open at all times, and it will be possible to see the volcano in its winter mantle of snow. During the summer months the crater is often quite bare because of the intense internal heat.

A late project is the Mt. Lassen-Columbia River Highway, which will lead from San Francisco to Red Bluff, thence over the State Highway lateral to Susanville and Lassen Peak; north to Alturas, continuing via Goose Lake to The Dalles on the upper scenic reaches of the Columbia River. From there the road goes over into Washington, comes back through Oregon, touching at Crater Lake, on down through the Sacramento Canyon to Castle Crags and Mt. Shasta. Alternative routes will be from Susanville to Reno or to Yreka over the Klamath Road to the Redwood Forests or through Weaverville to the Coast.

All of the projected lateral highways from Oregon and Nevada center at Susanville, over on the east side of Lassen Peak, and fifty-five miles away. Four laterals lead out from Red Bluff and the southwest while still other short-cuts converge from various California angles, thus providing many approaches to this matchless Switzerland of America. Even now it is not difficult to reach the mountain from any direction, whether by footpaths with pack animals and camping outfits, or by vehicle over the fairly good wagon roads. The question of personal comfort need not deter the Nature lover from an incursion into the realm of Mt. Lassen's volcanic kingship.

ROADWAYS AND TRAILS

Development of the Lassen Volcanic National Park, so far as the Government is concerned, will consist of road construction within the park, fire protection measures, signal roads and trails and safety warnings. The Lassen Volcanic National Park Association is urging Congress to appropriate sums aggregating seven hundred and fifty thousand dollars to be used in building a seventy-mile belt line of roads around the base of Lassen Peak. This loop highway will circle the inside of the park and connect all points of interest, so that a traveler may see them at his ease. Once the belt line is complete the area accessible will be



THE LAVA FLOWS FROM CINDER CONE.



LAKE ENCHANTMENT, WITH TERRACE OF CINDER CONE LAVAS ON LEFT.

greater than the Yosemite Park region, and will be the novelty scenic feature of the State.

Lateral highways connecting with the loop line on all sides are of State and county construction, the plan being to make it possible for the sightseer to visit Lake Tahoe, Yosemite Valley and Lassen Peak on well-built automobile roads. Where the elevation and topography makes an auto road an impossibility, well-defined trails will be found. Some of these have been opened and maintained by the Forest Service Fire Patrol, while others are being built because of their picturesque views or easy access to the volcanic peak.

These various trails from the Red Bluff-Susanville lateral approaches and from the Redding approach to the Manzanita portal of the park will converge for the final climb on the southerly and southeasterly base of the peak. This trail leads on easy grade up a crystal mountain stream, with open glades and meadows fringed with aspen and the lodge-pole pine, while the mountain sides are forested with yellow pine and fir until the snow line is reached.

Los Molinos Creek is most easily accessible from Battle Creek Meadows or Morgan Springs on the Red Bluff-Susanville Highway lateral. About one mile within the boundaries of the park, and near the Mineral Forest Trail to the peak, the old sulphur works marks an interesting region. Thermal sulphur springs are present here, and in the immediate vicinity one of the largest soda springs of the park may be visited. At a point about half a mile north of the old sulphur works, and at a higher elevation, a geyser of considerable force is active, with evidences that its play at one period must have been very great. Boiling water is forced to a height of several feet above the vent, and the hissing of escaping steam that is carried to a height of seventy-five feet or more can be heard for a quarter of a mile.

Near Mineral, the summer headquarters of Lassen Forest Fire Patrol, eight miles of approach road toward the southern boundary of the park has been constructed. This approach reaches the boundary of the park proper in the vicinity of the old sulphur works on Los Molinos Creek. From this point the old forest trail is used in negotiating the ascent to the summit—a total distance from the State Highway of approximately seventeen miles.

On this trail there are many points of interest, particularly the area of Los Molinos Creek, and the weird Bumpass Inferno, on a bypath about a mile and a half from the main trail. The trail itself skirts Lake Helen, situated at an elevation of about eight thousand feet above sea level and covered with ice until late in the summer, but when once revealed it is the color gem of the park. This lake occupies an extinct crater, the remains of the ancient rim forming a crescent around its shores. Its deep azure hue, as viewed from the surrounding cliffs, suggests a replica in color of the famous Crater Lake of Oregon. From this point the final climb begins, an additional half-mile of altitude to the crater and its highest peak.

THE MANZANITA PORTAL

From the Southern Pacific Railroad and the Pacific Highway at Redding the old pioneer road over the Shingletown Forest Plateau to Manzanita Lake is being developed into a beautiful drive.

Starting with the mountain in full view, flanked on the right by the skyline range to Broke-off Mountain and on the left by the rugged Chaos Crags, the wonderful horizon of the Lassen region makes its appeal. For a short distance the view is screened by the terraced lavas of the foothills which mark the edge of the flow and the forest area growing denser and more varied as moderate altitude is attained. The gradual climb to the higher elevations over an easy grade is frequently enlivened by the magnificent vistas of the objective mountain scenery.

Manzanita Lake is at an elevation of fifty-seven hundred feet above sea level and only three and three-quarters miles in air line from the summit. Nearby, Lake Reflection, nestling at the base of Chaos Crags, offers a magnificent starting point for many side trips into the park. For the final climb there is an inspiring panorama of Lassen Peak, flanked by majestic lesser peaks and crags always in view.

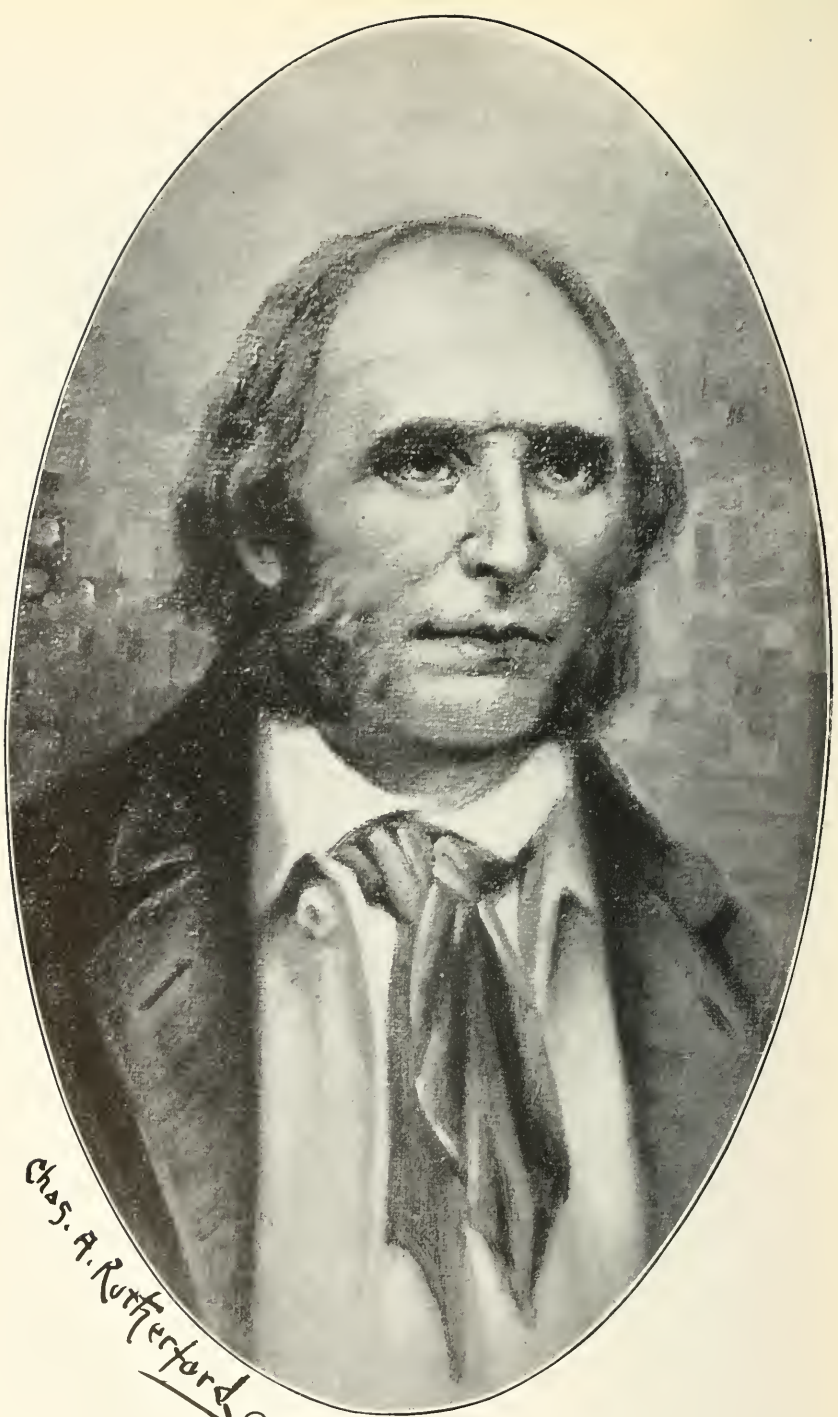
An easy grade will make it possible to extend the present automobile road from the lakes to a glacial terrace at the head of Manzanita Creek, a distance of five miles. From this point, a mountain stream gushes out from the base of a lava cliff rising in terraced grandeur like a great wall to a height of a quarter of a mile and more. A bridle trail is to be constructed which will make it possible to attain a point only one-third of a mile below the peak on its southeasterly exposure. In connection with the approach development from the city of Redding and the Pacific Highway to the Manzanita portal of the park, a rustic camp with excellent accommodations and sanitary conditions will be built at Manzanita Lake and Lake Reflection, at the base of Chaos Crags and Lassen Peak.

THE FEATHER RIVER APPROACH

From Chester, on the State Highway lateral situated near the northerly shore line of Lake Almanor, eighteen miles of approach road by way of Warner Valley has its terminus for auto travel at Drakesbad, near the southeasterly extremity of the park.

In Warner Valley and from Drakesbad mounts may be secured to negotiate the final eight miles of trail leading to the summit. From here, too, the geyser area of the Devil's Kitchen and the marvelous Boiling Lake are readily accessible, and because of these points of natural interest, this approach has long enjoyed great popularity.

At Chester, near Lake Almanor, and at Forest Camp, near Greenville, in the upper Feather River country, visitors may find accommodations within easy access of the park, and the same is true of Warner Valley, at Lee's and Kelley's, near the boundary of the park, and at Drakesbad, within the park confines.



Chas. A. Rutherford ©

PETER LASSEN

Portrait in Oils, Masonic Temple, San Francisco.
Property of Grand Lodge. Original reproduction.

LIFE OF PETER LASSEN

A Pioneer of 1841

The Cecil Rhodes of Upper California



PETER LASSEN, after whom California's volcano, peak and mountain were named, was born August 7, 1791, in Copenhagen, Denmark. The Lassen family were of Danish origin, ranking high in the olden days of Denmark. An uncle of Peter Lassen was over-auditor to one of the kings of Denmark, lived in his own castle and was the father of a large family. This relative came to the United States in the early fifties, settling in St. Louis, Missouri, where many of his descendants have become prosperous American citizens. He brought over with him from Denmark huge chests containing gold and silver coins, amounting to half a million dollars, so he was probably at that time possessed of a greater sum of actual coin than was any other person in this country.

Peter Lassen came to the United States at the age of twenty-nine, going direct to Boston, Massachusetts. Later he went to Katesville, Missouri, temporarily engaging in farming. The fever of exploration possessed him. He formed a military company in 1838 and in the spring of 1839 left Katesville with twelve others to cross the plains to Oregon. Enroute they met and joined a party of trappers operating for the American Fur Company. This increased their number to twenty-seven, who traveled together until they reached Oregon City, where they disbanded.

Lassen's company, reduced to seven men, concluded to go to California, taking passage on a vessel, the "Lespana," which had arrived from England. The voyage proved a stormy one. Twice they faced being shipwrecked, but finally arrived at Yerba Buena, now San Francisco.

Peter Lassen went to San Jose in the spring of 1841. Later he went to Santa Cruz, purchased some land in that section, built and successfully operated a sawmill, the first one there. After cutting fifty thousand feet of lumber he sold his ranch and mill to Captain Graham, taking one hundred mules in payment. In 1842 he drove the mules up to Sutter's Fort, now Sacramento, and ranched them, remaining with General Sutter. Later he and John Bidwell pursued a party of emigrants on their way to Oregon, overtaking them at Red Bluff and regaining many stolen animals.

At that time the upper part of the Sacramento Valley was wild and unsettled. Peter Lassen became greatly enamored with the country, finding it both beautiful and productive. All kinds of vegetation were prolific. Elk, antelope and wild game of various kinds were plentiful.

Being a man of great vision and possessing high aspirations, he saw before him an ideal spot to found a huge colony, and forthwith selected a tract of land, applying to Governor Micheltorena for a grant of it, which was awarded him.

In those times this was Mexican territory and the grant issued was

under the seal of Mexico, signed by Micheltorena, then the Governor of California, which grant was subsequently confirmed by the Supreme Court of the United States. Peter Lassen called this grant "Bosquejo," which means "a wooded place." Micheltorena was a man of refined tastes, and somewhat of a sentimentalist. He had a sympathetic appreciation of Peter Lassen's love of the mountains, and was pleased with the name selected because it distinguished that grant from those in the unwooded valleys. The land was situated on Deer Creek and comprised the greater part of Tehama County.

In 1843 Peter Lassen moved to Deer Creek, taking a white man with him, but on account of the lonely life his companion deserted. For some time thereafter Peter Lassen lived in perfect safety among hundreds of Indians. Although possessing several hundred head of stock, he was never molested by any of the Indians. All the labor, the building of his house and cultivation of his land was done by the natives.

On the south side of Deer Creek, in 1845, he laid out a townsite, calling it "Benton City," in honor of his friend Thomas Benton, Senator from Missouri, whose daughter, Jessie Benton, married General John C. Fremont. The town of Benton was also known as "Lassen's Ranch" and it became the most important trading station in Northern California. By an unlucky set of circumstances the little town failed to succeed and finally the land on which it stood slipped into the Sacramento River!

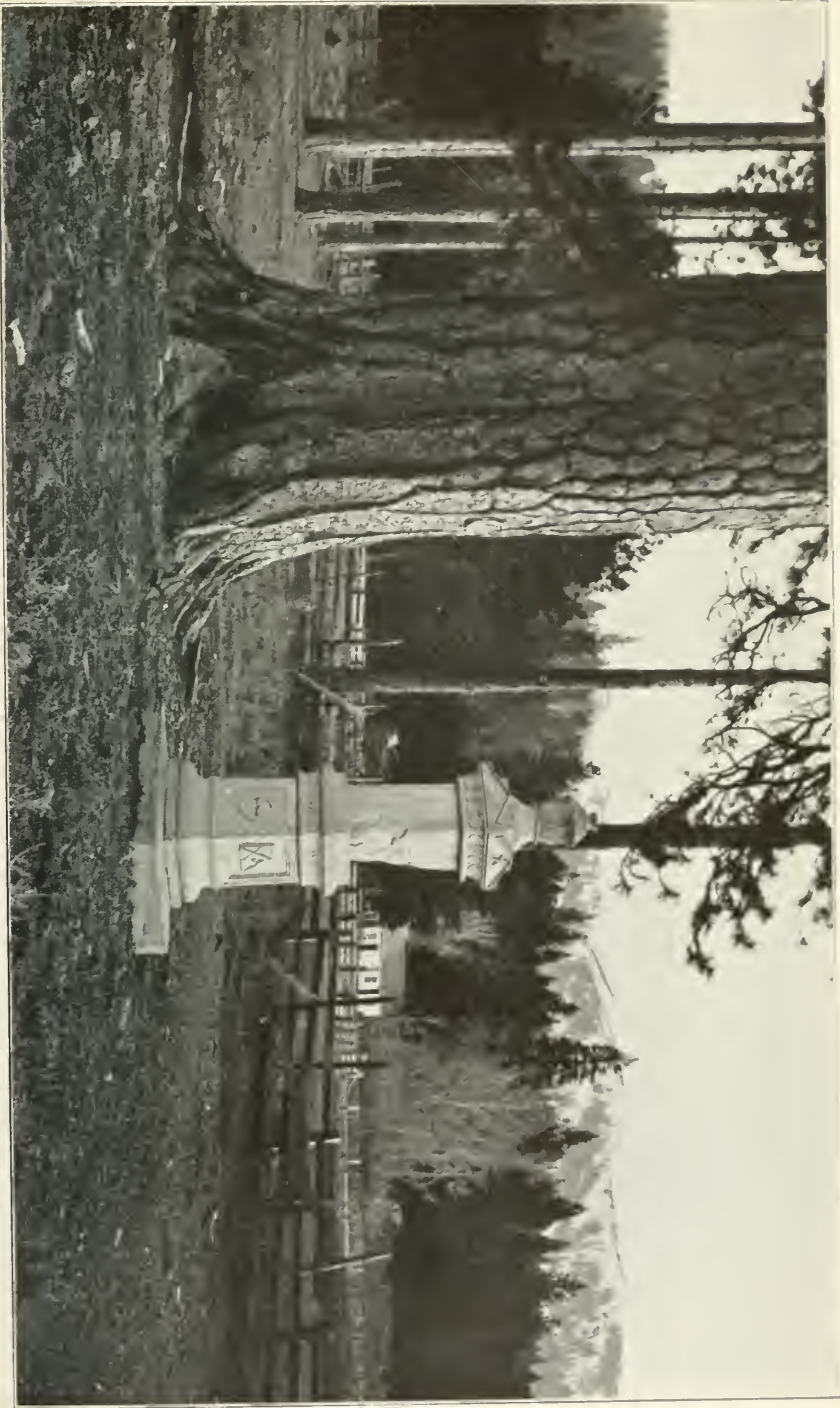
In the spring of 1846 General Fremont, with fifty of his men, remained there for three weeks. A week after his departure, Lieutenant Gillespie, U. S. N., arrived at Lassen's Ranch with dispatches for Fremont. Our pioneer, with five other men and Gillespie, started to overtake Fremont. Two of Lassen's men had been sent on ahead to inform the General that an officer was on his trail with dispatches from the Government and unless he received immediate assistance would be killed by the Indians. Fremont and his men started back at once, riding sixty miles that day. At sundown Gillespie rode into their camp near Klamath Lake. That night the Indians attacked them but were repulsed.

The Indians without doubt would have killed Gillespie and his party had he not found Fremont that night. The General would have gone on to Oregon, and the history of the United States might have been changed. After this a stronger tie cemented the friendship of General Fremont and Peter Lassen.

Early in 1846 Fremont went over to Old Sonoma and hoisted the Bear Flag, thus formally announcing secession from Mexico and making California a republic.

In 1847 we find our rugged wanderer crossing the plains with Commodore Stockton to Missouri purposely to get emigrants to come out with him and settle on his land, and to obtain a charter for a Masonic lodge to be established at Benton City. He returned with the emigrants over the Lassen Trail, bringing with him the first Masonic charter into California. This charter hangs in the lodge room at Shasta

GRAVE AND OLD MONTICENT, PETER LASSER, NEAR SEASAVILLE.



California. It was granted by the Grand Lodge of Missouri, May 10, 1848, making Peter Lassen junior warden, under which, in 1849, the "first Masonic Lodge in California" was organized at the Lassen Ranch, and was known as Western Star Lodge, No. 98.

In 1848 gold was discovered, bringing in 1849 such a tide of emigrants to California that Lassen saw a great demand for the necessities of life which could not then be obtained in that part of the country. A brilliant commercial idea possessed him. Nature's great artery of commerce caught his eye. The mines had yielded up their treasures to him most bountifully. He gathered up his gold, disposed of one-half of his great ranch, leaving the other half in the care of others, and started for San Francisco to purchase a stern-wheel steamboat. A small craft, the "Lady Washington," seduced Peter Lassen! He purchased her at an enormous price.

In the spring of 1850 she was loaded with goods and started upon her journey up the Sacramento River. The "Lady Washington" was the first steamer to make the trip from Sacramento City to Red Bluff. She was about five months reaching the mouth of Deer Creek and proved anything but a profitable enterprise. Her owner not only lost part of his splendid ranch, but most of his belongings were taken or stolen from him. Thus was his dream of an empire in that part of California rudely shattered by what we mortals call Fate.

Nevertheless his memory lives and will live forever in the pages of California history. He was the true, sturdy Viking who blazed a more secure trail (than did the unfortunate Donner party) for the traveler to "the land of gold." His crowning success is having his name immortalized by that lofty, stern and rugged peak which joins the Sierra Nevadas and Cascade mountain ranges. As the "Lady Washington" was the first steamer that ever sailed on the upper Sacramento River, its voyage is important as a matter of history.

The celebrated Lassen Trail was traveled over as early as 1843. Peter Lassen was on his ranch near the mouth of Deer Creek, on the Sacramento River, in 1843, thus indicating that he must have followed the Oregon Trail to some point in Wyoming or Idaho. Then he made a cut-off through Northern Nevada.

Mr. L. L. McCoy, a well-known pioneer of Tehama County, gives the following minute description of the Peter Lassen Trail, over which a considerable number of emigrants undertook to shorten their journey overland in 1850. Mr. McCoy says:

"The old Lassen Trail entered from Northwestern Nevada through Surprise Valley in Modoc County to the Lassen Ranch at Vina, Tehama County. The trail crossed Surprise Valley near Fort Bidwell, then bore south around the south end of Goose Lake, which is at the head of Pit River; then swung to west a few miles over lava beds; then south, and struck Pit River near what is called Stone Cole Valley, some ten miles below Alturas; followed down Pit River to upper end of Big Valley; finally crossed Pit River to the east side and to the east side of Big Valley at its lower end (this point being in Lassen County) and some four miles south of Bieber. The trail then took over the hill to Dixie Valley (Lassen County).

"It crossed Dixie Valley, then over a wooded hill for some five miles and came to what is known as Lassen Springs, in a little valley now owned by the Cole family and generally known as Cole's Headquarters, where they have run sheep for fifty years.

"From Lassen Springs or Cole's Headquarters the trail swung around to the west of a big mountain to Pine Creek, at what is known as the upper end of Pine Creek Meadows. (Pine Creek runs off to the end of Eagle Lake.) The trail crosses Pine Creek and turns to the west of Feather Lake and Norvall Flat and crosses Susan River, bearing a little southwest to Robbers Creek, which it crosses a few miles lower down. This crossing on Robbers Creek is some five miles to the north and west of the present lumber town of Westwood.

"Leaving Robbers Creek a few miles, the trail passes from Lassen County into Plumas County. Where the trail crossed Big Meadows is now covered by the waters of Lake Almanor, an artificial reservoir of great capacity. From Big Meadows, or Lake Almanor, the trail went nearly west to Deer Creek Meadows at the head of Deer Creek.

"Here the trail followed the west side of Deer Creek through the mountains and foothills to the Sacramento Valley, striking the valley at Toomes Creek at a point near the railroad, two miles below Los Molinos and some four miles above Vina, which was the last name given Lassen Ranch."

Our ambitious pioneer made two or more trips across the plains. He may have come the Carson or Placerville route first, looking later for a shorter passage to Northern California.

Fairfield, the historian of Lassen County, writes: "The road to California ran southwest from Fort Hall to the head waters of the Humboldt River, then followed the river to the sink. Las-



MONUMENT ERECTED BY NORTHERN CALIFORNIA COUNTIES ASSOCIATION, PETER LASSEN GRAVE, SEPTEMBER 20, 1917.

sen came this road until he reached the Big Bend of the Humboldt River, and there he turned into the Applegate road which went into Southern Oregon."

In 1850 California joined the Union. In 1855 Uncle Peter settled in what is known now as Lassen County. Prior to that he lived in the Sacramento Valley for ten years.

Lassen Peak and Mountain were known for more than fifty years as Lassen Buttes. The name originated from a peculiar experience of its namesake. This indefatigable and persevering frontiersman was of a roving and investigating disposition. Loving the world's out-of-the-way places, he trusted to others the safekeeping of his valuable ranch, and was never happier than when alone with his two pack horses in an unexplored wilderness.

On one occasion he was caught in a violent snowstorm on Lassen Peak. The snow came on so rapidly and fell so deeply that he could not get his horses out. Always full of expedients, he built shelter for them and for himself of fir boughs. The only feed he had for the horses was the long yellow moss hanging from the evergreen trees in that region. He was kept a prisoner by the storm for weeks; therefore, the name Lassen Buttes was well earned by him.

Peter Lassen not only owned the largest vineyard in the world, which is at present part of the Stanford University endowment at Vina, California, but also a mine said to be located in the vicinity of Lassen Peak. Once a year he was accustomed to take a trip to this mine, now lost to heredity but for which twenty thousand dollars has been offered recently to any person or persons who can re-locate it.

It was while on a prospecting excursion to the mountains north of Pyramid Lake that Peter Lassen was killed. With two white men he camped at Black Rock, in Stone Cole Valley, for the night. At dawn he and one other man were shot to death from ambush. The survivor declared the shots were fired by Indians, but as there was nothing to indicate a quarrel with the redmen, they are entitled to the Scotch verdict, "Not proven."

Like all who undertake big enterprises and are broad of vision, Peter Lassen had enemies among the small-minded. Whatever misfortune overtook his affairs was caused by the greed and selfishness of his associates, who did not hesitate to take advantage of his child-like confidence and generosity.

Those who were intimately acquainted with him knew he had been on the friendliest terms with the Indians. In fact, it was an aged Pit River Indian who told Peter Lassen in 1856 that Lassen Peak was an active volcano. Winnemucca, the venerable Piute chief, was an especially warm friend of our distinguished pioneer. The Indian agent, Major Dodge, requested Winnemucca to hold a council in regard to the death of Peter Lassen. The chief readily agreed and the same was held with two thousand of his nation at Pyramid Lake. Nothing could be proved against the Indians. The murder looked dubious as to the

real perpetrators. Major Dodge was not entirely satisfied that the Indians alone were implicated in the affair, nor did Winnemucca ever learn anything from the Indians regarding the murder.

Fairfield, the historian of Lassen County, claims to have met one or two men who believed that Peter Lassen was killed by white men.

Bancroft's History remarks: "There was some hard feeling toward him on the part of those who had suffered while going over the Lassen Trail, but apart from this there is absolutely nothing to show he had any enemies among the whites."

During a residence of nearly fifty years, Fairfield personally never heard any of the old settlers say anything detrimental regarding Peter Lassen or that he ever had trouble with anyone.

Because of the hypersensitive condition of public opinion following the dreadful fate of the Donner party, the sufferings of those who took the Lassen Trail and spent the winter of 1848-49 at Big Meadows caused the State to send a rescue party early in 1850. There was bitter feeling and severe criticism of Peter Lassen, and it was difficult to persuade other emigrants to take that route. Rival guides made much of this situation to divert travel over their own trails, and it is quite possible that a thorough sifting of evidence, such as modern detectives employ, would have found the motive as well as the dastard who took the life of Peter Lassen.

He enjoyed the confidence and friendship of such staunch citizens as General Fremont, General Sutter, Commodore Stockton and General Bidwell. Captain E. G. Beckwith, who in 1854 made the first Government survey for a railroad from the Atlantic to the Pacific, credits Peter Lassen with being the most active guide and noted character in Northern California. Professor J. D. Whitney says that in 1844 Peter Lassen built the first civilized habitation north of Marysville. He had an honorable and active part in the Mexican War, and was always lined up with the law and order forces before and after California came into the Union. He was appointed Indian Agent by the United States Government and was a powerful factor in keeping peace between the red and white races.

Peter Lassen was a true Norseman! Cool-headed and courageous in adversity, it was not like him to sit down and pine because his ambitious plans impoverished and ruined him financially. With the loss of Bosquejo, his big Tehama County grant of land, and the dispersion of his colony, he went to the untracked wilderness of Honey Lake Valley and built the first sawmill in Lassen County. There were too few white settlers to make the venture profitable, but he soon had a considerable trade with the powerful Washoe Indians of Nevada, then under the leadership of Chief Winnemucca.

Getting on in years, it was quite an undertaking for him to visit Red Bluff trading station for supplies. On these occasions he was always welcome to take from his old ranch at Vina anything he might wish to carry away.

That the old spirit of adventure still gripped him was evidenced by his last grandiose scheme. This was the founding of the short-lived "Territory of Nataqua," which included the unsurveyed lands now forming a part of Northeastern California and Nevada. On April 26, 1856, Peter Lassen and Isaac Roop had themselves elected president and secretary of Nataqua, and declared the new territory independent of California! The area involved included Honey Lake Valley and contained about fifty thousand square miles.

There was quite a bit of romance connected with this crack-brained enterprise which finally led to the famous Sagebrush War between the Never-Sweats and Squatters, before the boundary lines between California and Nevada were determined in 1863. The name Nataqua, an Indian word, was applied to a woman of exceptional qualities—literally a woman favored of the gods. Susan Roop, the sprightly and resourceful daughter of Isaac Roop, was idolized by her father. In appreciation of the sterling qualities of Susan Roop and in recognition of her public services, her name, Susan, was given to an important river, and to Susanville, the county seat of Lassen County. She lived a long and useful life, and retained her grace and charm to the end.

Peter Lassen, the confirmed and lonely old bachelor, had an exalted opinion of the entire Benton family. His profound admiration for General John C. Fremont, the Pathfinder, enlisted his strong sympathies when Congress disavowed Fremont's act and reduced him in rank. The heroic struggle against this injustice carried on by his wife, Jessie Benton Fremont, made a vivid impression on the chivalric imagination of Peter Lassen. The name Nataqua made a special appeal to the self-appointed president and secretary; hence its application to the uncharted, unknown and shadowy realm both sought to create.

Peter Lassen did not see the end of his last attempt at empire-building. Nor did he accumulate further riches, as he was killed February 26, 1859. News of his death spread rapidly, and was condemned and deplored by all classes. Members of his Masonic lodge hastened to the spot where he died. They recovered his body and, acting upon a previously expressed wish, buried him in his own field in the beautiful bowl-shaped Honey Lake Valley, surrounded by the snow-capped mountains he loved so well.

Over his grave Lassen lodge erected the first Masonic monument in the State of California, with the simple inscription: "Peter Lassen, a native of Denmark, age sixty-six; killed February 26, 1859."

As the old monument had been cut from the volcanic composite stone of that vicinity, the passing of years caused its disintegration. Therefore, a new and beautiful monument, towering, needle-pointed, of highly-polished grey and black marble, was erected in its place. The new shaft was dedicated with most impressive Masonic ceremonies September 20, 1917.

Mrs. May C. Lassen, wife of Alexander Charters Lassen of New York City, a lineal descendant of Peter Lassen, was invited by Masons of the northern counties to attend the ceremonies and unveil the monument,

which was draped in the United States Flag. By request she also placed an immense wreath of California laurel leaves upon the grave, sent from San Francisco by the Grand Parlor, Native Sons of the Golden West.

Susanville citizens presented a broken shaft of violet asters, an emblem of great significance, speaking louder than words could convey of their emotions.

Mrs. Frederick H. Colburn of San Francisco, who accompanied Mrs. Lassen, placed a wreath of large white French Immortelles tied with broad green and gold ribbons (California's own colors) upon the last resting place of the grand old Viking whose eventful life was so closely woven with the earlier history of California.

A large assemblage was present. The delegates to the Northern Counties Association Convention, Susanville, and the surrounding valley were well represented with their school children, who sang several songs, showing their undiminished respect for their brave-hearted and public-spirited citizen.

Mr. Jules Alexander of Susanville, vice-president of the Northern Counties Association, whose untiring and devoted activity was conducive to obtaining the funds for this noble and splendid gift, presided.

Mrs. Frederick H. Colburn spoke in behalf of the national honors bestowed upon Peter Lassen and Mr. J. A. Pardee in behalf of the Masons.

The services were a touching tribute to the memory of this well-beloved, generous-hearted and kindly soul. No one can doubt that there must have been something sweet and lovable in the nature of this remarkable man to have inspired posterity to render to his memory such signal honor. No other person in Pacific Coast history has received such distinction. Nation, State, county and community have joined in immortalizing the name of Peter Lassen.

With the opening up of the vast territory his name can not fail to become a household word and he will be visualized in the pageants of the "Days of Forty-nine," to be annually celebrated in the Capital City of Sacramento. Thus after half a century are brought forth and renewed the reverence and remembrance of a venerable pioneer.

Peter Lassen sleeps seven miles from Susanville, beneath the continual sighing of the largest sugar pine in Lassen County. This forest giant is nine feet in diameter and is blasted at the top. It is surrounded by a group of younger pines standing like sentinels to guard and lend their strength forever to this quiet and dignified spot. What could be more appropriate in its chaste simplicity than this group of trees joining in unison in a never-dying requiem over his solitary grave!

As Lassen Peak has become a National Park reserve, the locality best loved by California's old pioneer will be his lasting monument.

MAY C. LASSEN.

THE LASSEN TRAIL OF TODAY



PETER LASSEN has been dead many years, but the trail which bears his name still lives to those who are willing to follow it into the depths of the mountains. P. W. Snyder is a deer hunter by profession and relic hunting is his pastime. While Mr. Snyder and party were out deer hunting recently they camped for the night on the headwaters of Onion Creek, which flows into Deer Creek. Although they had four deer hanging by the campfire, Mr. Snyder's hunger for relics got the better of him and he wandered off to inspect the Lassen Trail that has been discarded for sixty years and has grown up with brush and trees.

After a diligent search Mr. Snyder was rewarded by finding relics of an emigrant party, eighteen in number, who are reported to have perished here in 1849 or 1850. More than a dozen pieces of irons from wagons and ox-bows were secured. One of the hub-bands was discovered on the limb of a tree eighteen feet from the ground. All the irons were forged by a blacksmith, as was the custom seventy years ago. Older people, who can remember the crotch-skein wagon, will be especially interested in closely examining these different pieces of iron. These relics speak in no uncertain terms of the very early days of California, and may be seen at the Los Molinos Hotel. Near where these relics were found is a small valley and a fine spring of water. George Mathews, who was one of the deer hunters, states that several graves were plainly discernible.

At this point the hunters wandered and wondered for two days. But the trail of the mountains means more than wonder; it means hard work. There is much of interest to be seen in a mountain mile, through the high country. For all the toll the mountains take of a man they give compensations—deep breath, deep sleep and the communion of the stars.

Down in the gulch they made camp. It had been the home of the miner. They told stories, smoked the pipe of peace, and, as the chill crept down from the eternal snows, prepared for bed. The soft woollen blankets, close about the chin, would insure a night's sleep, were it not for the coyote, that lean hobo of the hills, who sits on his haunches and howls and howls. High as the camp may be, so it is not above the timber line, it is not too high for the coyote, the bobcat or the wolf. Both the red fox and the coyote are free of the night hours, and both killers for the pure love of slaughter. The fox is no great talker, but the coyote goes garrulously through the dark, sounding twenty keys at once, gossip, warning and abuse.

In memory, the pleasures of a hunting trip strengthen with time, and the disagreeables weaken. Of such is the trail, of such its wonders, its pleasures, its little comforts, its annoyances, its dangers. Of such is the web and woof of their little trip. But through it ran the pattern of fantastic delight such as the West alone can offer. The trail of the mountains and the trail of life alike lead always on and on, into the higher country of responsibility, until at last it leaves us at the summit of the Great Divide.—*Red Bluff Sentinel*.

FLYING OVER MT. LASSEN



R. FREDERICK V. WILLIAMS, an observer with the Army aviator air patrol, serving with the United States forest ranger fire fighters stationed at Red Bluff, forty miles southwest of Lassen Peak, gives the following account of a recent flight over the crater of the volcano: "The pilot turned and called my attention to Lassen Peak. I looked back; Mt. Shasta was behind us. The crater of Lassen yawned below and just ahead of us. The big De Haviland dove downward. We were making a nose dive over the volcano! I leaned over and peered directly into the mouth of the crater. I saw a round, green lake of boiling slime, set like an emerald in gold-colored sand.

"The pilot had righted his plane and sent it into a long, slow sweep about the ridge of the crater. On the third turn I realized that we were less than one hundred feet above the crater, and that I was looking down at its boiling lava. The steep, slanting sides of the volcano raced beneath us to its earthward base more than ten thousand feet below. We were scarcely five hundred feet from the crater edge when the plane suddenly dropped one hundred and fifty feet. The air, everything, gave way beneath us, as the airplane fell in dead weight. Its propeller fanned—nothing! It slowed and the engine seemed to die! I felt the sensation of the sudden fall. The pilot worked his controls frantically. I thought the volcano's gases had destroyed all the air in our vicinity. My heart stood still. I sat there and prayed.

"Suddenly the pilot gained control, and we shot up two thousand feet. It was bitter cold. The wind cut and lashed our faces. Then we went down, down, down. The plane nosed homeward through nasty air pockets that rocked us like a ship at sea. I felt sick. The pilot looked back at me and laughed.

"'Good night!' I shouted, 'I'm through!'

"We circled around Red Bluff, picked out a nice soft spot to land and glided to the field. The boys of the Ninth Aero Corps gathered around.

"'How did you like it?' they grinned.

"'Fine!' I declared. But like the little boy in the story book, I lied."



SOUTHEAST SUMMIT LASSEN PEAK.



ROUGH COUNTRY, LASSEN VOLCANIC NATIONAL PARK.

LASSEN VOLCANIC NATIONAL PARK

THE park proper has a jagged boundary line which includes four counties. Nearly all of the eastern portion lies in Lassen County, while the northern boundary is about evenly divided between Shasta and Lassen. The western area is composed principally of Shasta County land. Only the southwestern corner belongs to Tehama. Plumas County claims a narrow strip almost the entire length of the southern outline, and also has the southeastern corner. Broke-off Mountain occupies the extreme southwestern corner of the park, while Lassen Peak is well within the national reserve.

The proposed plan of development is to open up the spectacular scenic places by building trails for side trips and ample accommodation for tourists who come by way of the county laterals or the State highways. The United States Government will eventually encircle the whole mountain with a loop boulevard seventy miles long. This will enable the visitor to make the entire circuit in a day, with ample time for sightseeing and without fatigue or hurry. Construction of this road will begin simultaneously from established camps and resorts accessible to tourists and will extend in each direction until finally joined. In the meantime, it will be possible to spend a vacation in each locality or to divide one's time by going back over the county lateral until the State highway is reached and a visit to the opposite side of the volcano can be made.

Several approach roads are in process of building and the National Forest Service trails are available to those who wish to climb the mountain. The Redding-Susanville Highway, the most rugged and picturesque of them all, is almost completed. This road is being constructed by convict labor, because of the extreme difficulties and expense attached. It has the lowest grade of all the routes passing near the base of the volcano. Its highest point is five thousand two hundred feet and the accommodations enroute are well established and allow of choice of location and price.

The present officers of the Lassen Volcanic National Park Association are men of exceptional ability who have been chosen for their enthusiasm and energetic prosecution of the development work entailed in pioneering. They are expected to open up a little-known section of

the State and to let the world know the great scenic possibilities of this new playground.

A particularly fitting selection is Mr. M. E. Dittmar, secretary-manager, who is an able engineer, a geologist, a writer and a speaker. Mr. Dittmar is an indefatigable worker and unselfishly uses all of his talents for the good of his association.

Mr. Jules Alexander of Susanville is probably the best known and best beloved man in Lassen County. He is a prosperous banker, and is identified with all that makes for the best interests of Northern California. He is the treasurer of the association and contributed liberally to the funds needed for preliminary exploitation and development.

The Hon. George C. Pardee of Oakland, once Governor of California, is the enterprising vice-president. Mr. Pardee has always been a great booster for the big things done for public welfare.

Mr. H. L. Conrad of Red Bluff is president and represents the active interests of Tehama County—a commonwealth intimately associated with Peter Lassen, and whose citizens are determined to make Lassen Volcanic National Park the greatest scenic asset of the Pacific Coast.

The headquarters of the Lassen Volcanic National Park Association is in the Crocker Building, San Francisco, California.



A TYPICAL ICE CAVERN: FOOTHILLS, LASSEN PEAK.

AMERICAN GANG LORE



THE politician sometimes goes up Salt River; the lumberjack retires to Red River, where all his earthly cares vanish into nothingness. It was knowledge of this which gave the name Red River Lumber Company to the big corporation operating at Westwood. An examination of their trademark shows that they cherish the traditions that have grown around Paul Bunyan, the only purely American epic hero produced in this country. Unlike the Cid, the fighting hero of chivalry, Paul Bunyan exalts and glorifies work—not the petty efforts of commonplace men, but the marvelous and incredible deeds of a logging camp hero. Many mighty deeds are accredited to the doughty Paul. Esther Shepherd gives this about his babyhood: “Paul Bunyan was born in Maine. When three weeks old he rolled around so much in his sleep that he destroyed four square miles of standing timber. Then they built a floating cradle for him and anchored it off Eastport. When Paul rocked in his cradle it caused a seventy-five-foot tide in the Bay of Fundy, and several villages were washed away. By stepping out of his cradle, Paul saved Nova Scotia from becoming an island, but the tides in the Bay of Fundy have not subsided yet.”

Professor Fenska of the University of Oregon says: “Where the tradition of this Davy Crockett of the axe, this superman of the logging camps originated no one knows. It is probable that the stories of his courage and impossible feats started on the St. Lawrence, then filtered into the woods of the Adirondacks, Michigan and Wisconsin. Although at times very human, Paul Bunyan in his bigger moments far surpasses any of the figures of classical Scandinavian or Celtic legend.”

Lee J. Smits says: “Only among the pioneers could Paul thrive. His deeds are inspired by such imagination as grows in the great outdoors. For hours at a time lumberjacks pile up the achievements of their mythical hero. His legends must be related and received seriously. Paul Bunyan has become a part of everyday life in the lumber camps. He serves a valuable purpose in giving every hardship and tough problem its whimsical turn.”

Paul Bunyan has become astonishingly versatile in the West. When the Walker brothers first talked of building Westwood, their old loggers looked at each other and said: “Better send for Paul Bunyan. It is a job for him and his Seven Axe Men of the Red River.” The axes carried by these heroic lumbermen were so big it required a week’s time to grind one. Each man was supplied with three axes, which were hung on long rope handles. Each axeman marched through the woods swinging his axe and at every step a quarter-section of timber was cut.

Snowshoes are useful in winter, but one trip on the webs cured Paul of depending on them for transcontinental hikes. He started from Minnesota for Westwood one spring morning. There was still snow in the woods, so Paul wore his snowshoes. He soon ran out of the snow belt, but kept on going without reducing speed. Crossing the desert the heat became oppressive. His mackinaws grew heavy, and the snowshoes dragged his feet. It was too late to turn back.



PAUL BUNYAN, A DROLL FELLOW WITH A ROGUSH EYE, WHO MAKES PLAY
OUT OF WORK. (With apologies to W. B. Laughead.)

When he arrived in California he discovered that the sun and hot sand had warped one of his shoes and pulled one foot out of line at each step. So instead of traveling on a bee line and arriving at Westwood, he came out at San Francisco. This made it necessary for him to travel an extra three hundred miles north. It was late that night when he reached Westwood. He had used up a whole day coming from Minnesota!

Big Joe, the cook, came to Westwood with Paul and the two of them started something. About that time the papers were full of what they said was an eruption of Lassen Peak, after centuries of quiescence. Of

course, this assumption was a mistake. What really happened was that Big Joe dug a bean hole in the side of the mountain. When the steam worked out of the kettle and up through the ground, everybody but the lumberjacks thought the old hill had turned volcano. Now when Joe drops a biscuit, people talk of earthquakes.

According to the best woodsmen authorities, Paul Bunyan is the man who logged off North Dakota. (If you doubt this, go there and look for trees.) It is certain he cut timber on the Big Onion the winter of the blue snow; that he dug the holes for the Great Lakes; that the Mississippi River is the result of an accident to his water tank and that the ten thousand lakes of Minnesota are the tracks of his big blue ox, Babe. After a short time on the California job, Paul declared that his previous experience seemed like a lazy man's vacation. Paul's viewpoint is probably correct, for the one and only strictly American Gang Lore epic is still in the making, with the primeval forests of the Lassen area the place for future heroic exploits.

PAUL BUNYAN AND LASSEN PEAK ERUPTION



DECORATION DAY, 1914, was the first holiday Paul Bunyan found time to enjoy after his arrival in California. He had established the Red River Lumber Company at Westwood and had gotten the town well started. Before sitting down to rest he filled his pipe, preparatory to a good smoke, but when he struck a match Lassen Peak blew up. Paul had considerable trouble in making his pipe draw. Every time he took a puff, everybody declared the old volcano was erupting again.

Paul threw down the burnt end of his match, hit the United States Forest Service lookout house, perched high up on the west side of the steaming crater, and knocked it all to pieces. Nobody ever accused Paul of being malicious or ill-tempered, but when he saw that the lookout house was not built of California white pine, he spunked up and said "he would be gosh-hanged if he would stand for it!" He was very decent about it even then. He did not knock the shack entirely down. He only mused it up so that the Government would have to move to a new spot and put up a better structure. This, of course, helped the lumber business—some.

Paul did not get a satisfactory smoke until May 22, 1915. Then his pipe was in perfect condition, and when he lit it, Lassen sent up a smoke cloud nearly eight miles high! This formation was in reality a huge cauliflower that the cook, Big Joe, wanted for dinner. The bean pot was in the lower part of the mountain and boiled over at the same time. The steam left a big hole, which has not cooled off yet.

The results of Paul's smokes are lying all over the place in the form of bread crust bombs, ashes and cinders, and the smouldering fire still sputters and fumes among the dying embers.

Paul has cleaned his pipe and laid it aside for the present. When he emptied the lower part of the bowl the goo ran down Hat Creek and Lost River way, leaving miles of devastated timber, muck and debris, which cut a wide swath through everything.

AN IMAGINARY OVERFLOW OF LASSEN PEAK TEN THOUSAND YEARS AGO

(From "Yermah, the Dorado," a romance, by Frona Eunice Wait Colburn, published in 1897 before the author had seen either the mountain or a photograph of it. An ancient city was supposed to exist in the little V-shaped valley nearby and to the east of Drakesbad, at the south base of the volcano.)



SHARP, swaying, rocking movement, sending the window panes to the ground with a crash and throwing the women against each other violently, blanched their faces and caused them to cling together for support. A deafening explosion followed, and the cry of her panic-stricken people aroused Keroccia.

"Run for thy lives!" shouted a voice in the street. "The mountains are smoking and spitting fire! Quick! Quick! Run!"

"The women barely escaped in time to miss the falling walls. In the streets an indescribable scene was being enacted.

"What is now known as Lassen Peak sent up a long, fiery column and the earth heaved and groaned under the exertion.

"Ashes, smoke and lava began pouring down the sides of the peak, and there was a mad rush of wild animals coming to man in their mute helplessness. The rocking mountains hemmed in the little valley.

"Suddenly the gloom was lighted by a meteoric shower which for hours made the heavens blaze in a magnificent electrical display. A terrific crash of thunder followed, then an ominous rumble, ending in a long guttural groan which seemed to rend the bosom of the trembling earth.

"Red-hot stones and burning cinders fell like a storm of fire upon the whole surrounding country. Land surfaces subsided and rose again like immense chests in regular and lusty breathing. The rubble walls and battlements of the pavilion fell as a pack of cards.

"A second shock leveled every house and brought trees and rocks crashing down the mountain sides, dealing death and destruction everywhere. The whole artillery of the heavens was in action, drowning the feeble cries of man, dying terror-stricken in the heaps of ruins.

"Lizards, snakes, rats, mice and moles raced madly in every direction, while the timid owls and other birds flew close to the ground and screeched in their fright and bewilderment. Larger animals huddled close together, while dogs howled dismally.

"A handful of men and women, surviving the first terrific shocks, attempted to escape over the lower range of hills, but to their horror a yawning gulf opened at their feet.

"Moving in sinister majesty and strangeness was a bottomless abyss, impassable in width and several miles long. Before their very eyes it swallowed up human beings, houses and trees, grinding and crushing them between its gigantic jaws. With another terrific wrench

it belched them up again and covered them in a deluge of steam, mud and hot water.

"The river lying below the city had deserted its natural bed, driven before the avalanche of lava, and the sea of mud, vapor, gas, black smoke and effluvia showed where it had forever disappeared through a gaping crevice.

"A thick shower of ashes filled the air. The earth surfaces undulated and quivered for a few seconds. Then a tempest of lightning and hail cleared the suffocating atmosphere.

"In the lurid flashes could be seen the oscillation forth and back as if the very heart of Lassen Peak were being torn out. Its gray vomit, streaked with red, trailed like a snake over the floor of the valley, setting fire to the combustible wreckage and stealing up the base of the peak as well.

"Keroecia lead her little band of devoted followers up the high mountain walling up the western side of the valley. The subterranean rumbling sounded in her ears like the drum-beating on stumps of trees done by the wings of male pheasants when calling to their females.

"I hear not the call of a mate. It is death—and thou art welcome!" she cried, turning a pale but composed face to the burning heights.

"Thou hast heard my prayer!" she continued, stretching out her arms in supplication. "Thou hast granted me the purification by fire! Thy spirit laughs and licks out long tongues of flame straight from thy fiery throat! Thy countenance is wreathed with smiles, for me, Oh, Death! But if consistent with thy will, spare these children of the forest."

"A hissing, howling hurricane stormed and raged around them. With a convulsive lurch the ground underneath shivered, and finally the elevation on which they stood was rent in twain from top to bottom.

"One half collapsed and fell in, while through the kettle-shaped opening in the valley swept a flood of mud, scoria and molten lava which completely submerged the burning ruins. Rain fell in a solid sheet, but now the hot air and steam tortured them with heat.

"Suddenly a dog, maddened with terror, leaped into the seething cauldron, and its cry was stifled by a sizzling, crackling sound as the poor creature was crisped to a cinder.

"Those who elung to life made frantic leaps over the frightful precipice to the other side, only to be dashed to pieces in the valley below. The whole district was overwhelmed with lava and hot water pouring out from the lesser peaks around the center of activity. Despite the gales of wind and a heavy downpour, sulphur and other noxious gases permeated the upper air so that long before the lava crept up and engulfed them, death by suffocation overtook the wretched remnant.

"In their extremity the people obeyed Keroecia implicitly, and many touching exhibitions of heroism marked their last moments. They huddled together at the root of a *sequoia gigantea* nearly wrenched out of the ground. Nor did they refuse shelter to a grizzly bear, a mountain lion, some wolves, some wild sheep, a colony of snakes, nor the birds

hovering in the air, screeching in abject terror or stupefied beyond resistance.

"The twisting, crackling swish of the trees, the thundering clatter of the rocks shaken loose and bounding downward with prodigious velocity, passed unnoticed by the martyrs looking at death, calmed and awed by the terribly destructive fury of animated Nature.

"Keroecia gathered her two faithful handmaidens in her arms protectingly and waited for the end. Up to the very last she sought to comfort and console her companions, so worn with fatigue and excitement that they made no further effort.

"Some had already crossed the dark waters: others were gasping their last, when Death touched her—and she slept."

(When "Yermah, the Dorado" first appeared, Mr. Edmund Gosse, in the London "Atheneum," pronounced this description of a catastrophe as equaling Bulwer Lytton's "Last Days of Pompeii," which he cited as one of the great classics in the English language. Edmund Gosse ranks as the greatest living literary critic in England.)



A WELL-FORMED BREAD CRUST BOMB.

A MADE-TO-ORDER TOWN



LIKE a trip on the magic carpet is the transformation wrought at Westwood, a model town in Plumas County, set in the heart of a virgin pine forest skirting the southern base of Lassen Peak. All about one is the clean, sweet smell of newly-cut pines, and the whole atmosphere is one of humming activity among an intelligent and contented populace. The five thousand inhabitants live in modern houses in a natural forest park. An eye for the beautiful has left the big white pines standing wherever possible, even along the graded streets, and the approach roadways leading into and out of the town.

It was the author's good fortune to arrive at Westwood at noon, hot, thirsty and covered with volcanic dust. Imagine the surprise and joy of finding an up-to-the-minute department store—large, airy and cool—where a delicious crushed pineapple ice cream soda all but saved one's life. And the price, fifteen cents! This drink was served with all the daintiness of a metropolitan soda fountain, by a chap in a white coat and apron spotlessly clean, and with manners to correspond.

Westwood has just "grewed up" in the heart of the woods, sixty miles from Nowhere, and is the last word in a logging camp. What gave it impetus? The constructive imagination of its founders.

It is the pride and glory of the Walker family to have as nearly a perfect plant as it is possible to create and this desire includes everything connected with the industry of lumbering. The whole atmosphere of Westwood is one of work. No loafers are permitted to stay long enough to breed dissensions. Every person bears his or her share of the work to be done, consequently there are no paupers and no destitution. Nor is there a shack in the town.

The Westwood baseball teams are not only natty in appearance but they can and do play ball. Like the neatly-uniformed band they are an inspiration to all the surrounding countryside. Westwood musicians are in demand wherever good music has an appreciative hearing. The men at the head of the Red River Lumber Company not only know how to live themselves, but are willing that others may share in benefits derived from an intelligent, constructive attitude toward a big problem—that of pioneering in an out-of-the-way neck of the woods. The situation at Westwood would have delighted the soul of Peter Lassen, who was something of a sawmill man himself, and had a true woodsman's love of trees.

The Red River Lumber Company gives the following as their attitude toward the industry:

"It is our hope, by forestry practice, to so conserve the trees that in spite of our cutting (the largest of its kind) the actual amount of timber will never grow less but will remain forever a permanent thing of beauty, a field of labor and a source of supply."

HON. JOHN E. RAKER, CONGRESSMAN SECOND DISTRICT, CALIFORNIA

Passage of the Raker Bill, H. R. 348, Created the Lassen Volcanic National Park in 1916



BEING a good Californian is a state of mind rather than an accident of birth. Such a Californian is the Hon. John Edward Raker, who is the "hvest wire" this commonwealth has in Washington. He has been in the House of Representatives since 1911 and has been doing something for Northern California all of the time. His birthplace is Knoxville, Illinois, but he came to San Jose, California, in early childhood. While in San Jose, he graduated from the State Normal School, then went with his parents to live in Susanville, Lassen County. Here he studied law, got married and was elected district attorney. Later he became judge of the Superior Court.

In 1886 Judge Raker became a resident of Alturas, Modoc's County seat, where he still makes his home. Early in his career Congressman Raker became prominent in Democratic affairs. He has served as grand sachem of the Iroquois Clubs of California, and is high in the councils of his party, but his strongest support comes from people who value his devotion to the public's best interests rather than party politics. He represents sixteen counties, namely, Siskiyou, Modoc, Trinity, Shasta, Lassen, Tehama, Plumas, Sierra, Placer, Nevada, El Dorado, Amador, Calaveras, Alpine, Tuolumne and Mariposa.

Congressman Raker is a prominent Mason, and is identified with a number of Northern California enterprises. He has been successful in all fields of activity and is never more zealous than when promoting some big undertaking of a public character. He worked long and well in securing the consent of Congress to set aside the wonders of Lassen volcanic area as a National Park. Having spent most of his life among the wonders of the region, his experience will be of inestimable value in future development of the park.



ASHES IN FOREGROUND; LASSEN PEAK SOUTH.

PRELIMINARY REPORT OF GEORGE E. GOODWIN

Chief Civil Engineer, National Park Service



LASSEN VOLCANIC NATIONAL PARK, established by Act of Congress, August 9, 1916, embraces one hundred and twenty-four square miles of area and contains within these boundaries many scenic attractions and phenomena; among which are Mt. Lassen, the last active volcano in the United States, the area of devastation resulting from Lassen's last volcanic eruption, interesting and spectacular cinder cones and lava flows, active hot springs and geysers and boiling lakes, rugged mountains, castellated crags and escarpments, picturesque valleys, beautiful lakes abounding in fish, and primeval forests interspersed by pretty meadows and glades and traversed by pleasant streams.

The administration of this park is vested in the National Park Service, a bureau of the Department of the Interior, which is especially charged by law with the administration, protection and development of all national parks and most of our national monuments. Owing to the lack of appropriated funds but little, if any, development has heretofore been possible, although a small amount has been expended during the past two or three years in connection with the United States Forest Service in constructing a passable road into the southwest corner of the park. This road leaves the county road about a mile and a half east of Mineral, its point of divergence from the Susanville-Red Bluff lateral of the California State Highway System.

During the past year the Lassen Volcanic National Park Association of California, and other friends of the park, have done much to acquaint the people of California, and of this country, with the attractions of this area, and as a consequence there is a well-founded and growing



AFTER A HAIL STORM OF HOT ROCKS AND CINDERS.



LASSEN PEAK, LOOKING SOUTHEAST FROM MANZANITA CREEK.

movement for the early development of the park. With the Congressional inhibition removed, which heretofore limited appropriations for the park to five thousand dollars, it is felt that the coming Congress will make substantial appropriations for the early development of Lassen Volcanic National Park.

The general, or basic, plan of development for Lassen Volcanic National Park has not been fully determined but is at present under consideration by the National Park Service. It is probable that this plan of development will include a complete road system connecting the areas of principal attraction in the park. This road system will be supplemented by footpaths and saddle horse trails to the points of detailed interest. The park system of roads will be served by the various approach roads to the park which connect with the California Highway System, so that it will be possible to enter the park by one approach road and leave by any other. Mt. Lassen is, of course, the paramount attraction in the park and this section will probably be among the first to be developed by roads and trails, but as rapidly as development funds are available the lake section and the cinder cone and lava flow areas will also be developed by roads and trails, as will the areas containing geysers, hot springs and other phenomena.

As travel to the park increases and makes it necessary, camps, hotels and other utilities will be established and operated under the direction of the National Park Service, so that the visitors to the park will be assured the same high standard hotel, camp and other service as is at present obtained in our other national parks.

Estimates have already been submitted covering the most urgent road, trail and building development and to provide for the expense of administering and protecting the park, and it is confidently hoped that next year will show real accomplishments on all of the most needed improvements.

TO MT. LASSEN

Majestic Lassen! Snow-crowned king!
A fiery force from Pluto's realm,
Thy right as ruler may assail.

Dark, fitful, fearsome vapors rise,
The firmament seems rent in twain!
Great clouds of ashes, cinders, smoke
Present an awesome spectacle.

Thy mighty form again at rest,
A study now in gray and white!
And thou, Oh, Lassen, still art king.

—MARTHA JANE GARVIN.



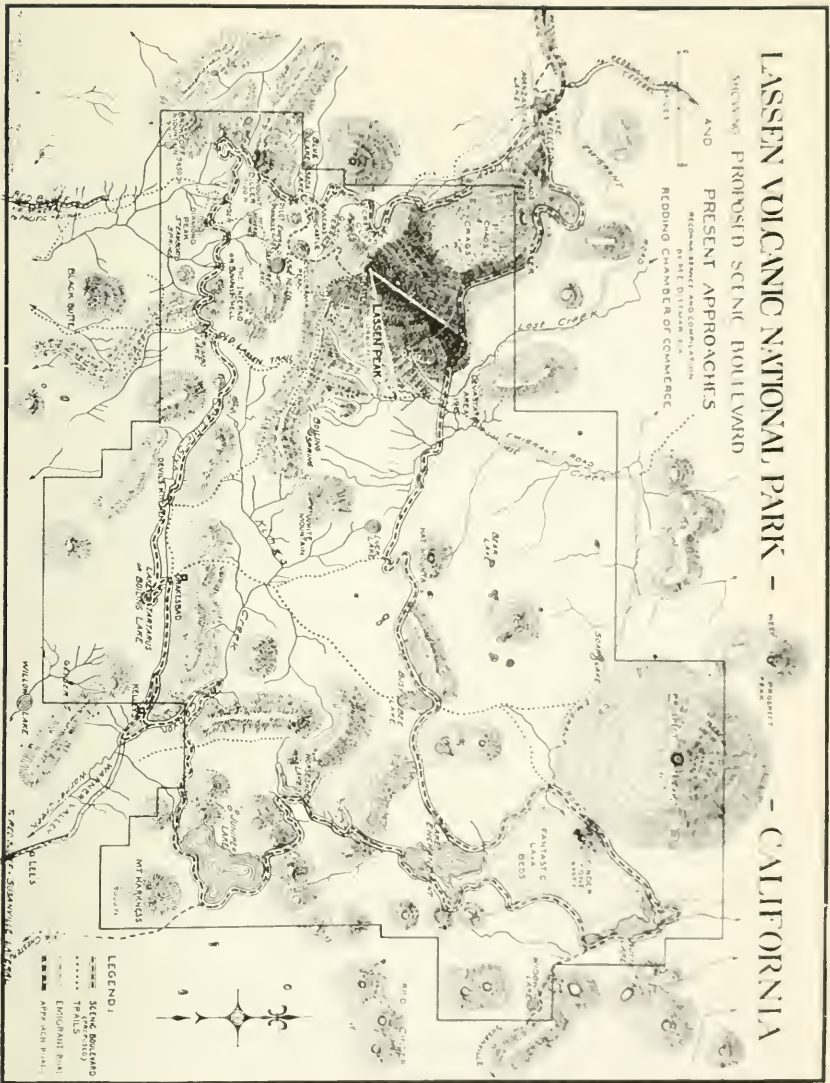
CALIFORNIA ALPINE CLUB MONUMENT, LASSEN PEAK SUMMIT, NORTH.

LASSEN VOLCANIC NATIONAL PARK - CALIFORNIA

SHOWING PROPOSED SCENIC BOULEVARD

AND PRESENT APPROACHES

RECOMMENDED AND CONSIDERED BY THE REDDING CHAPTER OF CONSERVATION



LEGEND:

- SCENIC BOULEVARD
- TRAILS
- APPROACHES





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