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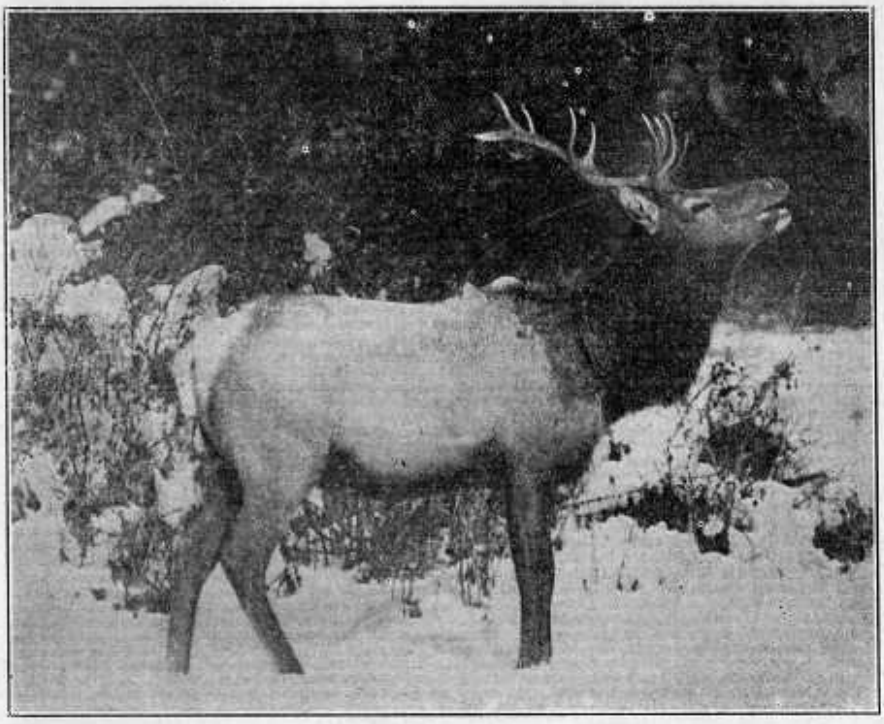
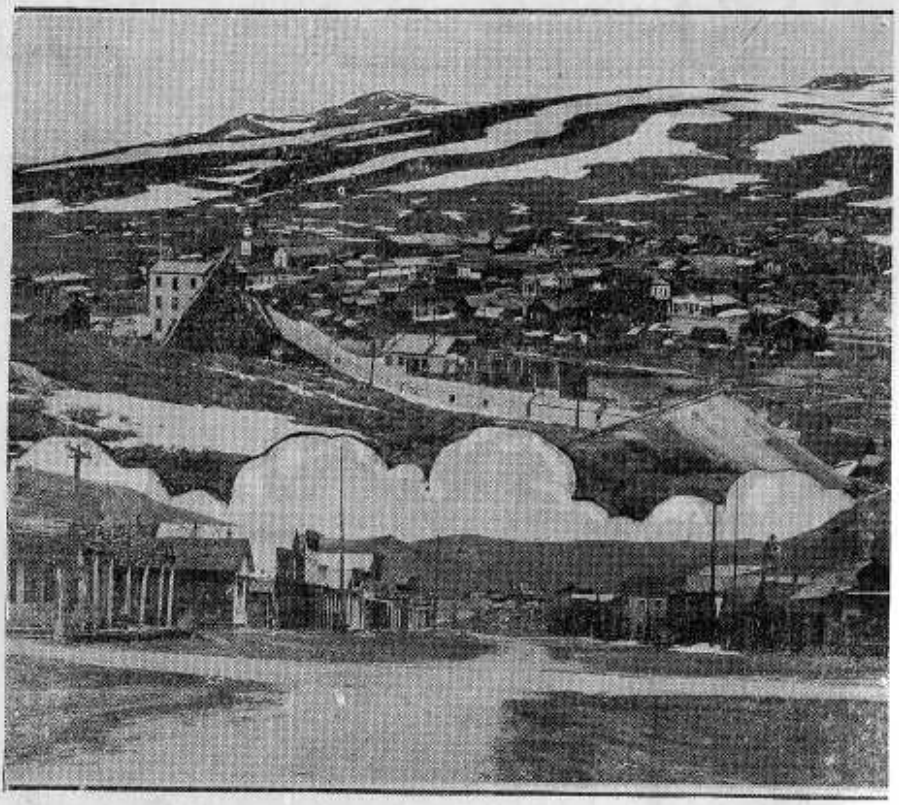
YOSEMITE NATURE NOTES





Bodie, Old Mining Town That Is Coming Back.

YOSEMITE NATURE NOTES

THE PUBLICATION OF
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SPECTACULAR VIEWS FROM DANA SUMMIT

The Geological Formations of Mountain: Weird Mono Craters

By ROBERT H. ROSE
Ranger Naturalist,

The summit of Mount Dana affords one of the finest views to be had from any mountain peak in North America. This is the general sentiment expressed by hundreds of nature lovers and hiking enthusiasts who have accompanied the High Sierra hikers' parties conducted by Yosemite nature guides to Dana's summit.

From Dana Meadows near Tioga Pass the three-mile trek to the top, 13,050 feet above sea, is over unmarked trail making an ascent of more than 3000 feet. The greater part of the journey is over rough surfaces of solid rock in places. The remaining part is over steeper rock slopes covered with detached rock fragments loosened by the tremendous prying and heaving action of water that collects and freezes in the joints and crevices.

ITS GEOLOGY

The rocks comprising Mount Dana are at once recognized as slates, marbles and schists with some extremely hard quartzites. These so-called metamorphic rocks are remnants of the ancient rock cover that one time covered the entire Sierra Nevada region. They were originally formed as sediments deposited layer upon layer as slimy muds, sands, silts and chalky shell remains in an ancient ocean basin. These were altered to slates, marbles, quartzites and schist by the great heat and pressure accompanying the uplift and folding of the ocean bottom sediments. The sediments were folded, highly altered and transformed into dry land.

The complex metamorphic rocks comprising Mount Dana, as well as many other peaks of the saw-tooth crest region, can be easily distinguished from the granite of the main mass of the Sierra. The granite came from deep within the earth and cooled and crystallized from a hot, molten condition upon arriving within a few thousand feet of the surface. It has become exposed to the surface only after millions of years of erosion that has worn away the several thousand feet of metamorphic rocks. In the High Sierra only these comparatively small and scattered rem

nants remain of the enormous mantle of intensely compressed and altered rocks that covered the Sierra region at an early stage in its history.

VIEW TO EAST

Arriving at the summit of Dana the great panorama to the east takes one by complete surprise. Dana is one of the culminating points along the crest of the great Sierra Nevada mountain block whose eastern slope descends quite abruptly to the Great Basin in contrast to the broad western slope that descends gently for some 80 miles to the great interior plain of California. The west-sloping Sierra Nevada mountain range occupies nearly all of Eastern California. The Great Basin begins at the foot of the steep eastern front of the Sierra and extends across Nevada and Utah. The Great Basin is by no means flat but consists essentially of mountain ranges separated by wide valleys trending in a roughly north-south direction.

MONO LAKE

At the foot of the steep eastern front of the Sierra range and within a few miles of the California-Nevada boundary line lies Mono Lake. Its surface usually appears so even and brilliant that it resembles a great sheet of burnished metal. Looking down upon this beautiful lake almost 7000 feet below and 12 miles distant one would never realize that it is truly a Dead Sea. A traveler would perish if he were unable to find other water with which to quench his thirst. The lake is fed by the sparkling pure waters from the snowy crest of the Sierra, yet its waters are so highly charged with alkali and mineral salts that no life inhabits its depths except myriads of little brine shrimp and the larvae of a fly. Evaporation from its surface is the only outlet, which accounts for its high alkali and salt content.

MARK TWAIN'S WASH DAY

If one accepts the possibility that Mark Twain might have exaggerated the truth in speaking of Mono lake there is still ample proof remaining in his story to impress one regarding the extreme alkalinity of its waters. It seems that Mark conceived the idea of reducing the labors of wash day about the camp by placing the week's washing in the briny waters to soak over night. Imagine his embarassment the next morning upon finding but a few gangling shreds remaining of the entire washing! He later discovered that the desired results could be obtained by placing the clothes in the water for only a short time, much to their betterment.

Mountains rise on either side of the lake more than a thousand feet above its surface, some reaching almost 3000 feet. But the mighty Sierra bulwark towering thousands of feet higher dwarfs the rugged and barren mountains about Mono into insignificance.

CRATERS ACTIVE SINCE ICE AGE

Immediately to the south of Mono lake lie Mono craters. Looking down into the craters of these beautifully symmetrical cones one half expects to see weird flashes of fire, clouds of vapor and black dust roll upward from their throats. Measured in years these volcanoes have been extinct for ages. But in the grand series of events in the geological formation of this vast region they were born only yesterday. Mono craters were active after the glaciers of the great ice age had sculptured the canyons and spires of the Sierra. In places volcanic material from these craters covers the moraines and polished surfaces fashioned by the glaciers that began their final retreat approximately 20,000 years

Continued on page 124

Another New Bird for Yosemite Valley

Ranger Naturalist Enid Michael

Ducks are certainly rare birds in Yosemite Valley ,and they are becoming more scarce each succeeding year. Five or six years ago mallard ducks were occasionally seen; in fact, two or three pairs of these birds nested each summer in the valley from 1920 until 1926. During 1927 a pair of mallards was occasionally seen, but there was no nesting record. Since 1927 mallard ducks have been seldom seen.

Every year since 1920 a small flock of ring-necked ducks have wintered in the valley—some years three birds some years so many as nine. The ringnecks arrive in December and usually leave during February, although twice during these years they stayed over until early March.

A lone male bufflehead duck was seen on April 3, 1922, and on March 5, 1928, a male and three females were seen on the River Pool.

During the months of March April and May a pair of harlequin ducks was seen daily on the river near the Sentinel bridge. There is no other record of these ducks until May, 1927, when a lone male was seen on Tenaya creek.

On August 28, 1928, a male cinnamon teal was seen on the river just below the old village.

On December 6, 1928, we have the first record of a ruddy duck in Yosemite valley. The next record of the ruddy duck was April 22, 1929.

And now, after 10 years in the Yosemite, we have a new record for the valley. On October 6, 1930, with a companion, I wandered down the valley to spend part of the day visiting with the bears at the feeding station. We spent several hours here, and during the stay there was a time when nine bears were in sight at once. Although wandering individuals were seen from time to time, we were inclined to believe that the entire population of the neighborhood would not include more than 12 bears. After waiting several hours, we managed to accomplish our aim, which was to get motion pictures of bear swimming the river.

Midafternoon we started for home, following close to the fringe of the river. We had not gone far

when down the river, flying toward us, came some sort of duck. Directly in front of us, and perhaps 100 feet away, the bird settled on the water, and as she settled she twice sounded a "quack, quack" Strange as it may seem, the female of the species is more garrulous than the male, and it was by the "quack, quack" that we knew the bird to be a female, rather than a young male. The duck was frightened, she held her head high and raised the feathers of her crown.

I said to my companion, "That is a female duck of one of the smaller species, but we will never know what species."

He responded: "You know ducks.

Sneak up on her. She hasn't seen us. Something up the river frightened her."

Complimented by his first remark, but not confident, I led the way. Crunching gravel underfoot seemed to fairly shout a warning to the duck, but fortunately tall grass growing along the water's edge screened our creeping figures from view. When as close to the water as we dared go, we slowly stood up. Over the tops of the grasses we could see the bird on the water. She still held her head high. She did not see us, however, as she was watching the opposite shore. Soon a fisherman appeared at the edge of the wood and our duck took to wing. As the duck rose from the water there was a flash of brilliant green scapulars, and then we knew the bird to be a green-winged teal, and a new record for Yosemite valley.

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AN ANIMATED AIR DRILL

C. C. PRESNALL Assistant Park Naturalist

The old saying, "There's nothing new under the sun," is often proved true by everyday occurrences in nature. Compressed air drills are regarded as a modern aid in road and trail construction in Yosemite, but this fall the men in one construction crew found an insect that had an "air drill" of its own which it used in drilling holes in solid pine wood.

Jack Wegner, who brought the insect from the Mariposa Grove to the museum on October 10, described the insect driller as follows. "His drill is inside this long tube that looks like a stinger. When he was drilling a hole he worked the drill up and down just like an air drill, and made good headway until the hole was almost completed. Then his drill got stuck and he couldn't pull it out of the hole, so we pulled him loose and killed him and here he is. Now what kind of creature is he?"

The creature, on examination, proved to be a female California horntail (Urocerus californicus), an insect which is related to the ichneumon flies and the wasps. It is found all over the Pacific Coast infesting pine and fir trees. The female uses this long drill, or ovipositor, to deposit eggs deep in the living tissues of the trees. The eggs hatch into white grubs which grow to be about one and one-half inches long which sometimes do considerable damage by boring tunnels through the sapwood.

Prof. J. H. Comstock says the ovipositor consists of "five long slender pieces; the two outer pieces are grouped on the inner surface, and when joined make a sheath containing the other three pieces, two of which are furnished at the tip with fine transverse ridges like the teeth of a file."

The horntail which was brought to the museum is one and one-fourth inches long, and the sheath of its ovipositor is half an inch long, so that the insect probably could have drilled holes three-eighths of an inch deep.

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We ask our Members to notify us of any change of address, that the mailing list may be correct. Many new members have joined the Association since the first of the year.

MUSEUM NOTES

GIFTS TO THE MUSEUM

By C. A. HARWELL, Park Naturalist

The Stockton Record contributed to the museum a bound copy of "The Out o' Doors Section" of the Stockton Record for the year 1929

The Yosemite Natural History Association, through the interest of Field Naturalist Carl Russell, presented three copies of Hutching's "California Magazine" for February and March, 1857, and February, 1859.

Mrs. M. C. Coles of 3511 Largo avenue, Los Angeles, Calif., loaned the Yosemite Library a copy of L. H. Bunnell's "Discovery of the Yosemite."

Charles Piper Smith of the Senior High School at San Jose, Calif. presented the museum many pressed specimens of our Yosemite lupin gathered by Mr. Smith here last summer, which will be placed in our Yosemite herbarium.

Professor Mason of the University of California, through the interests of Ansel Hall, chief naturalist, presented the museum an old wrought iron spoon which Mr. Mason found in the Old Tioga mine a few years ago.

M. Hall McAllister of the Academy of Sciences, San Francisco, presented the museum with specimens of mule shoes specially calked for iced trails.

The Southern Pacific Company, through the courtesy of Loyal Himes, chief photographer, and Mr. Patrishin, photographer, presented 17 8 by 10-inch photographs and one reel of new moving pictures on standard width film taken in Yosemite early this year.

The Yosemite Natural History Association presented two volumes of "Forests and Mankind" by Pack and Gill to the museum library

Tom Vint, chief landscape architect, presented nine early photographs which have been on file in the San Francisco office for a number of years. Most of them are early photographs by George Fiske.

A 44 Colt revolver, found by Sam Boggio hidden under a rock on the Big Oak Flat road, was presented to the museum. The revolver is of early make.

The following two books were presented to the library by the Yosemite Natural History Association: A copy of Bryant's "Outdoor Heritage" and Clements' "Flowers of Coast and Sierra."

One of the most worthwhile accessions during the year is a set of the New Encyclopedia Britannica, bound in half Morocco, which was presented to our museum library by James H. Schwabacher of San Francisco and the Yosemite Natural History Association. Mr. Schwabacher also presented two war bonnets, a rabbit skin blanket from Mono lake and a Flicker feather headband to enrich our Indian room exhibits.

Mrs. W. F. Low of Oakland presented our library with a copy of Arthur's Magazine of 1863

Virgilio Bruschi, who visited Yosemite in the early '70s, presented our library with a copy of the recent "History of San Diego" by Hopkins, and a half dollar of 1876 which he carried as a pocket piece on a trip from Coulterville to Bodie in 1876, and which he has carried continuousy in his pocket from that date untill its presentation to our museum.

Mrs. Maria Octavia Walkington of London, England, presented the museum with several hundred photographs and stereographs of early Yosemite and Sierra characters and scenes which formerly belonged to her father, J. M. Hutchings, who for so many years was known as "the father of Yosemite."

Miss Babe Katt of San Francisco collected and presented a beautiful set of mountain sheep horns. These horns were found at the 12,500-foot level on Mt Maclure.

The Yosemite Natural History Association presented a copy of Hutching's "California Magazine for August, 1858, and a "History of California," Arlington edition, written by John Frost.

TWO NEW PUBLICATIONS

Two books of unusual interest are now available at the Yosemite Museum and they would be a valuable addition to the library of any nature-lover. Address your orders to C. A. Harwell, Park Naturalist, Yosemite, California.

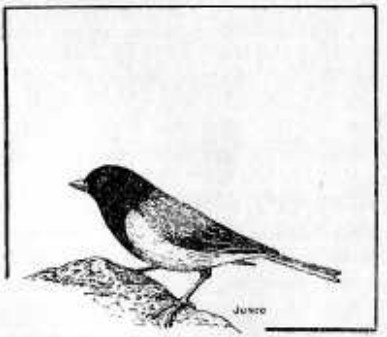
Geologic History of the Yosemite Valley - Geological Survey Professional Paper 160, by Francois E. Matthes Price $ 1.10.

This remarkable volume is the culmination of years of intensive field-work and study, on the part of Dr. Matthes and his associates. It is profusely illustrated with photographs, sketches, maps. The edition is limited in number and is in great demand by those interested in the Sierra Region, so send in your order at once.

Outdoor Heritage - by Harold C. Bryant, Assistant Director, National Park Service. Price $ 5.00.

Wild life of the mountains, valleys, shores and deserts of California. Intimate glimpses of the birds and beasts the traveler in California is likely to meet. Glimpses of the scenic wonders of California together with the habits of the wild. Big trees; lakes; game; fishes; climate.

THE BIRDS AND THE STORM



By ENID MICHAEL
Ranger-Naturalist

During the first 12 days of November the weather at Yosemite was delightful. Bright sunny days and nights that were not particularly cold. Much autumn color still remained. The oaks and cottonwoods were still in fair leaf and the willows along the river, and especially where they herded on the sand spits and gravel-bars, were in the height of their fall glory. During this 12-day period, however, a change in the personnel of the bird population of the valley became evident. Bird life was at a low ebb. The summer birds were gone, and except for the blue-fronted jays and the California woodpeckers, resident birds were scarce. Prominent among the newcomers were western bluebirds. These birds are winter visitants in the Yosemite and they come in to feast on the berries of the mistletoe. As the days went by the bluebirds increased in numbers and with them came audubon warblers. During the first week in the month audubons were probably more numerous in the valley than all other species of birds combined. As in other years the audubons were merely transient. And strangely enough, audubon warblers are the only species of bird that pass through the valley in a great migratory wave, albeit this wave is much more prominent in spring than in the fall.

THEN THE STORM

On November 13 came the first storm of the month. Rain fell all day long. The next morning the weather was cold and clear and during our morning walk we found that the storm had driven a number of birds into the valley. We estimated at least a thousand Sierra juncos were seen and among the new arrivals we managed to locate three slate-colored juncos. On this same morning my attention was attracted by the warning shout of the blue-fronted jay. Quickly as I turned and glanced up, my ear caught the terrified croak of the great blue heron at the same moment, and then, apparently falling, in a reckless plunge came the body of a great heron down through the screen of conifer branches. Swooping above the tree-tops was a golden eagle. Whether he had struck and lost his kill, or whether the heron had plunged just in time to save his skin, I could not be sure. But judging by the manner in which the heron went down through those branches he had been struck. In any event the heron, did manage to escape, for the eagle gave up pursuit, swerved and came to perch on the spike of a tall pine. The

eagle paused for a few moments on the tree-top and then flew off toward the cliff. As the eagle spread its wings to take flight it was noticed that he had the white wing markings of a youngster. High in the sky could be seen a second eagle, probably the parent bird.

THE SNOW KING

After one day of clear weather, the storm once more moved in, and on the morning of the 15th a mixture of rain and snow started falling. Soon the snow disappeared from the mixture and a steady rain set in. For the next 44 hours rain fell continuously, and then came snow. All day long on the 17th snow fell, but fell on warm, wet ground, and made but a scanty showing.

On the 16th our daily walk was taken in the rain. We walked up the valley a mile or so and followed back along the riverbank for a couple of miles. No ducks or water fowl were seen, but we did see the kingfisher and a great blue heron. Sixteen different species of birds were noted during the two-hour walk. The outstanding bird of the walk, in point of rarity, was the goshawk. The goshawk is rare enough in the valley, and big enough to cause a thrill whenever seen, and today we saw a pair of them.

Monday our daily walk was taken during a lull in the storm, when only a light snow was falling. We followed the trail along the base of the north cliffs. Twice during the walk we caught glimpses of Sentinel Rock as the clouds lifted, but at no time did other prominent points come into view above the clouds. Yosemite Fall showed a slight revival in volume. Evidently very little rain had fallen above the rim of the valley, else Yosemite Fall would have made a much more vigorous revival. On this day 21 species of birds were noted, among them mountain quail, bushtit, mountain bluebird and hermit thrush—all new birds for the November report.

WINDS ROUT THE BIRDS

From the 18th until the 26th the weather was clear. November 27 there was a brisk shower and then clear weather until the end of the month. There were very few freezing nights during the month; the few freezes were followed by warm weather, and in consequence there was not the usual November skating in the valley. The usual feature of the weather was the great winds that swept through the valley during the days and nights of November 21 and 22. Many trees were uprooted and many branches were thrown to the ground. Our birds did not like this sort of weather at all, and during the great blow they were most conspicuous by their absence. The California woodpeckers kept to their holes and scolded. The jays and bluebirds hid away in the thick foliage of the cedars.

After the wind storm was over the pines all looked fresh and clean. They had flung their brown needles to the ground. On the forest floor the brown rug of needles was flecked with bits of green torn from the cedars; a most delightful color scheme.

During the month, 55 species of birds were noted, which number is nine above the average of the last 11 years and the greatest number of species for November. All species of birds that are to be expected in Yosemite valley during November were noted, and besides these there were six unexpected species.

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BIRD REPORT FOR NOVEMBER

Horned Owl—A pair of these birds gave a serenade on the night of November 3.

Pigmy Owl—Noted frequently the first 10 days of the month, rare thereafter.

Belted Kingfisher—No change in the status. Always to be found along certain stretches of the river.

Hairy Woodpecker—Noted daily, but three was the greatest number noted in any one day.

Willow Woodpecker—Rare this month. Lone birds noted on three different occasions. Many times we went to the usual haunt of the woodpecker and failed to find a single bird.

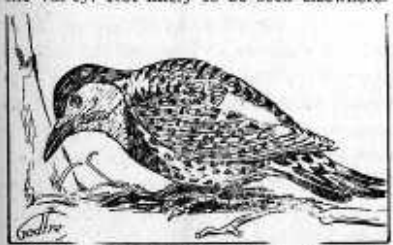
Nuttall Woodpecker—A handsome male bird was seen November 25.

White-Headed Woodpecker—Probably present daily, one or two birds, but many days there were when we failed to find one.

Williamson Sapsucker—A lone female was seen on the last day of the month.

Pileated Woodpecker—The lone male noted more often than usual this month.

California Woodpecker—Numerous in the Kellogg oak groves on the north side of the valley. Not likely to be seen elsewhere.



Red-Shafted Flicker—Present daily, but never more than three or four birds seen on a morning walk.

Black Phoebe—A lone bird noted on two different occasions. This is the first time the Phoebe was seen during November since 1924.

Blue-Fronted Jay—Likely to be seen in any section of the valley. The most common bird this month.

Meadowlark—A lone bird seen November 15.

Brewer Blackbird—A lone bird noted November 25. Never noted so late in the season before.

Evening Grosbeak—Three birds seen November 11. A late record.

California Purple Finch—Not common. Stray birds occasionally seen.

Green-Backed Gold Finch—Probably present throughout the month, as a little flock was always to be found in the primrose patch in the Ahwahnee grounds.

Pine Siskin—A little flock of six or seven birds noted November 24.

White-Crowned Sparrow—No flocks. Twice a group of three was seen. A lone individual was present in a certain ceanothus for about 10 days.

Golden-Crowned Sparrow—Lone individuals occasionally noted.

Slate-Colored Junco—Individuals are likely to be seen associating with the Sierra Juncos.

Sierra Junco—Two, or perhaps, three small flocks present throughout the month. On November 14, the day after the storm, a flock containing at least 1000 birds was present in the Ahwahnee grounds. And on this day large flocks were present in other sections of the valley.

Red-Tailed Hawk—In the early morning of November 20 and 21 one of these hawks was found roosting in a bare cottonwood.

Sparrow Hawk—Rare this month. A single bird noted occasionally.

Fox Sparrow—A lone bird was seen on two different dates.

Sacramento Towhee—The only towhees noted this month was a pair that was occasionally found in a ceanothus thicket near the zoo.

Hutton Vireo—Individuals occasionally seen about the mouth of Indian canyon.

Audubon Warbler—A great wave of these birds swept through the valley early in the month. At the end of the month an individual was frequently seen with a flock of western bluebirds.

American Pipit—A lone bird was seen in the Leidig meadow on the afternoon of November 23.

Water Ouzel—Not in the usual haunts along the main river. Occasionally noted at the mouth of Yosemite creek.

Canyon Wren—No doubt present daily in favored rock slides, but not so numerous as in other years.

Winter Wren—Just once noted during the month. Failed to find birds where they were to be expected.

Sierra Creeper—No change in status. Found in all sections of the valley.

Red-Breasted Nuthatch—Probably three or four pairs present throughout the month.

Mountain Chickadee — Never numerous during the month and there were days when we failed to find a single bird.

California Bushtit—A flock twice noted on the warm flat at the mouth of Indian canyon. The flock noted on November 24 contained 19 birds.

Ruby-Crowned Kinglet — Individuals or occasional pairs likely to be seen in any section of the valley.

Golden-Crowned Kinglet — Common. Flocks of 10 or 15 likely to be seen anywhere in the valley.

Townsend Solitaire—Lone birds noted a number of times during the month. We located no bird that appeared to be settled for the winter.

Hermit Thrush—A lone individual noted

Continued on Page 126

FROM MT. DANA

Continued from page 116

ago. Who knows but what these craters, now cold, located as they are near the stupendous fault system that delimits the eastern front of the Sierra Nevada, might not again blaze forth rivaling in activity their ancient fury!

AS GREAT AS VESUVIUS

This series of craters forms a range about 10 miles in length Each of the larger cones rises about 3000 feet above the surface of Mono lake. There are about 20 of them altogether, although four or five of them show up more prominently. Their main mass appears to be composed of lapilli, that is, fragmental material that has been ejected from the depths of the volcanoes and thrown into these conical heaps. Osodian, and pumice composed of frothy volcanic glass so light that it will float on water, also occur in considerable abundance. Enormous quantities of volcanic dust were blown out of the craters with tremendous force and spread over the surrounding mountains and valleys for many miles. It is the occurrence of this so-called volcanic tuff on gracially polished rock surfaces and moraines that reveals clearly that these volcanoes must have possessed considerable activity in post-glacial times. Each of the larger Mono craters rivaled Vesuvius in magnitude, yet from our position on the pinnacle of Mt Dana their tops are almost 4000 feet below!

BODIE REVIVES

Northeast of Mono lake lies Bodie, long known as the Dead City of Mono. In the late '70s Bodie was a turbulent mining camp of approximately 10,000 people. "Here," says C. P. Russell, chronicler of Bodie's wild history, "men mined, milled, played, fought and hundreds died. The economic depression of 1881 caused the bottom to drop out of the stock market. Large scale mining operations about Bodie were suspended. After a few futile gasps of breath in an effort to keep going that lasted almost 20 years longer, Bodie died completely. For nearly 50 years, except for one man, Jim Cain, Bodie has been deserted.

Bodie has recently taken on a new lease of life. Cheaper and more efficient mining methods, dependable geologic studies and good financing may contribute materially in reviving the soul of the old ghost city. To see people today walking the streets of the old city, which carries vivid reminders of its 50 years of desertion, makes one feel that the Day of Resurrection has come Perhaps this romantic old desert community will again be the bustling city she was in her heyday during the late '70s.

DANA GLACIER

Almost directly below us at the foot of a sheer thousand-foot precipice forming the north front of Dana is a small glacier. It has been named Dana Glacier by I. C. Russell of the United States Geological Survey, who described this region This glacier is a remnant of the vast glacial system that descended the steep stream valleys of the eastern slope of the Sierra. Deep crevasses transect the ice mass transverse to the direction of movement. Its surface is marked by concentric bands of fine rock material. On its lower end are boulders. Those will become a part of the terminal moraine at the foot of the glacier as the ice mass pushes forward and its front retreats by melting. A beautiful lakelet of opalescent water lies below the end of the glacier.

LYELL AND RITTER

To the southwest Mount Lyell, the highest peak in the Yosemite, and Mount Ritter rise like huge

bulks of bullion silver against the sky. Lyell is 13,090 feet above the sea and Ritter, which is outside the area of Yosemite, rises to 13,156 feet. On the trip to the summit of Dana some remarkable views are obtained of the large Mount Lyell Glacier. Looking upon the enormous bulk of the glacier lying in the amphitheater on Lyell's northeast slope one can imagine how, with the return of glacial climate, mighty tongues of ice might again advance far down the stream courses like the outstretching arms from some huge monster.

To the southward from Dana rise the White Mountains, one of the grandest of the Great Basin mountain ranges which, like the Sierra upon whose crest we now stand, owe their origin to the uplift and tilting of a great block of the earth's crust. These mountains are snow-capped throughout most of the year and loom skyward with exceeding boldness rivaling the Sierra Nevada in grandeur. The bold white spires rising clearly above the huge haze-veiled base give them the appearance of being suspended in mid air.

THE CALIFORNIA DIVIDE

The crest of the Sierra is near the dividing line between the **arid** Great Basin, where it seldom rains, and the well-watered crest and western slope of the Sierra Nevada range. Snow lies on the northeast facing slopes and in the great glacial amphitheaters the year round. Far to the west the green-clad ridges merge almost imperceptibly into the drab foothills and the great interior plain of California beyond. We were especially favored with a delightfully clear day and were able to see clearly the blue outlines of the California Coast Range, almost 250 miles away!

Between the glacial cirques of the crest region of the Sierra are a number of isolated plateaus. They are portions of the old land surface that were not consumed by excavation of glaciers during the great ice age. Piecing together these plateaus by imagining the intervening pre-glacial nature of the landscape as one would piece together mentally the pre-weather-beaten form of a crumbling statue, it is easy to infer the nature of the surface of the Sierra block before the glacial age. These remnants, joined together mentally, form a broad, rolling land surface with peaks like Dana, Gibbs, Lyell, Conness and McClure standing approximately 2000 feet higher. Looking to the Mono side of the crest one sees occasional remnants of the same old pre-glacial land surface (gently sloping divides between valleys) but in places several thousand feet lower. The tilting of the Sierra block that has occurred intermittently during the past millions of years has caused this discordance of several thousand feet. Suppose we could reverse the process and "untilt" the Sierra block so that the pre-glacial surfaces (plateaus and remnant surfaces) on both sides of the present eastern range front are again at the same level. Then we would have a vivid picture of the Sierra Nevada region before the block began to tilt. Of course the modifications due to glaciation would still be events of the geological future. We would see a vast region with shallow valleys and gently sloping divides between them. The present high peaks would stand only about 2000 feet above the general level of the rolling landscape and the steep eastern front caused by the breaks in the earth's crust would not exist.

THE STORY OF THE ROCKS

In fact, from the summit of Dana the geological history of the region passes through one's mind like the

successive scenes of a moving picture. We see the region as it was millions of years ago. The rolling topography of shallow valleys, with gently sloping divides between them and culminating mountain peaks some 2000 feet higher, is raised. These disturbances become more pronounced, causing the earth's crust to break into enormous blocks. The mighty Sierra block, about 400 miles long and 80 wide, is tilted westward and the broad, meandering river valleys have narrower gorges cut into them by rivers whose velocity, slope and cutting power are increased. Lastly we see mighty glaciers push down-valley, transforming the narrower V-shaped valleys into U-shaped troughs with hanging side troughs such as we find in the Yosemite. In the headlands of the stream valleys the large amphitheaters called cirques are formed. These are so extensively developed that only isolated remnant-plateaus, narrow round-topped ridges, sharp divides, or mere stubs of the round-shouldered pre-glacial crests and divides remain from which to write the history.

Thus Mt. Dana becomes one of the most interesting and spectacular spots in the Sierra. From its summit not only does one have an unparalleled view extending almost one-sixth of the east-west distance across the continent but also here we apparently find nature in a wonderfully striking manner trying to reveal with utmost clearness the chapters in her most fascinating history.

REFERENCES—C. P. Russell, "Bodie, Dead City of Mono," Yosemite Nature Notes, Vol. VI, No. 12, 1927; pp. 89-96. I. C. Russell, "Quaternary History of Mono Valley, California," U. S. Geol. Survey Annual Report No. 8, Part I, 1886-1887; pp. 263-394. (Esp. p. 276).

BIRD REPORT FOR NOVEMBER

Hooded Merganser—A lone bird that appeared to be a young male was seen on the river below the swinging bridge.

Mallard Duck—Only noted once during the month, when a female and two males were seen on the river below the swinging bridge.

Ruddy Duck—A lone bird was seen on Mirror lake November 24.

Great Blue Heron—Frequently seen. More numerous than ever. Probably three or four birds along six miles of river.

Mountain Quail—A flock of seven was seen at the base of the north wall, near the Lodge grounds.

Band-Tailed Pigeon—On November 10 a flock of 100 birds was seen flying down the valley. A little flock of five birds was seen the next day, the last probably for this year.

Sharp-Shinned Hawk—A lone bird was noted on three different occasions.

Cooper Hawk—Twice during the month a single bird was seen.

Goshawk—Four times during the month we had a look at this grand hawk, and on one occasion there was a pair. November 17.

Western Robin—A few individuals present except during the stormy weather. On November 27 we were surprised to see a flock of 18 birds and this flock was about equally divided, male and female.

Varied Thrush—The varied thrushes must have taken a different route this year, as only two birds were seen this month.

Western Bluebird—Common. Flocks of from 5 to 20 likely to be seen most any time.

Mountain Bluebird—Rare. On November 16 a single bird was seen, and on November 23 a pair.