



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
GRAND TETON NATIONAL PARK
MOOSE, WYOMING

GRAND TETON NATURE NOTES

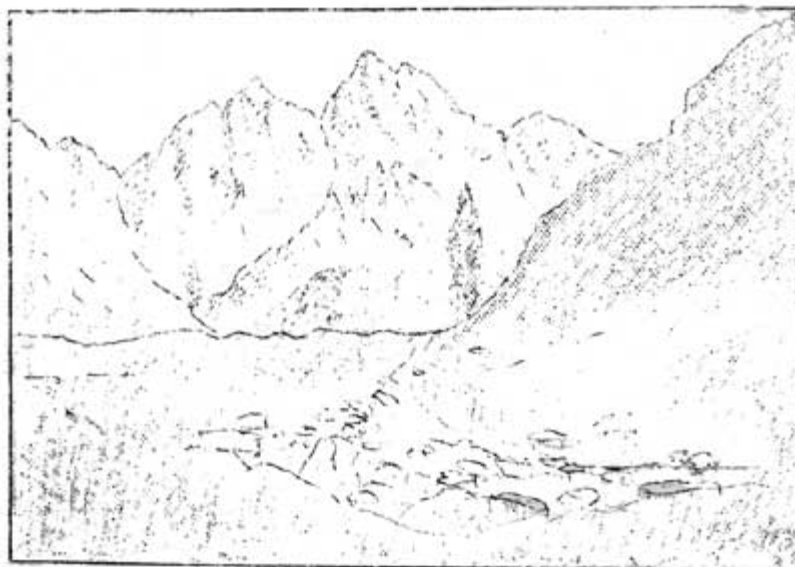
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Superintendent	Illustrator	Editor

Teton Geological Notes - No. 5	A Double Lunar Rainbow
New Teton Birds	Mountaineering, 1940
Bird Census	

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A view of the Grand from Lake Solitude

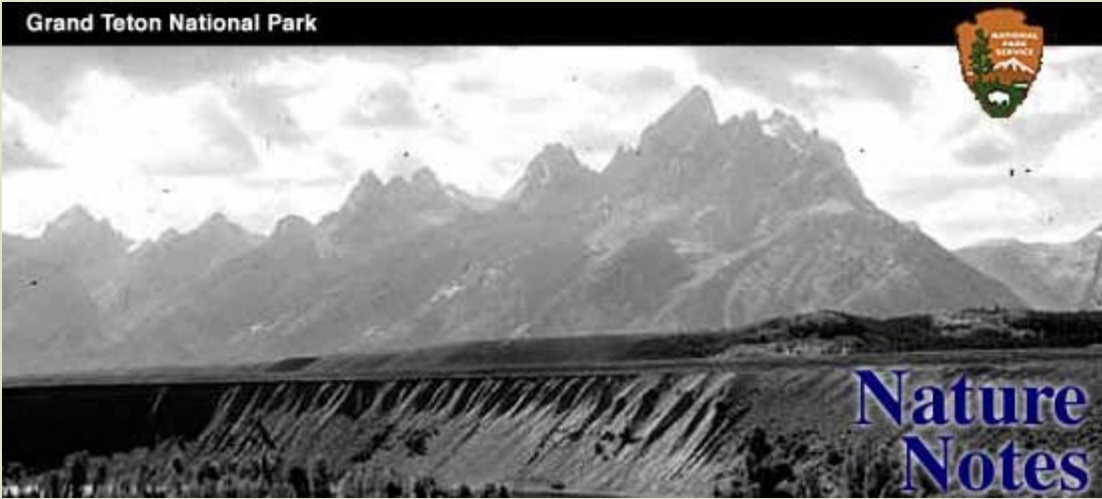
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A view of the Grand from Lake Solitude

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TETON GEOLOGICAL NOTES - No . 5 POSTGLACIAL FAULTING IN THE TETON RANGE

by
Dr. F. M. Fryxell

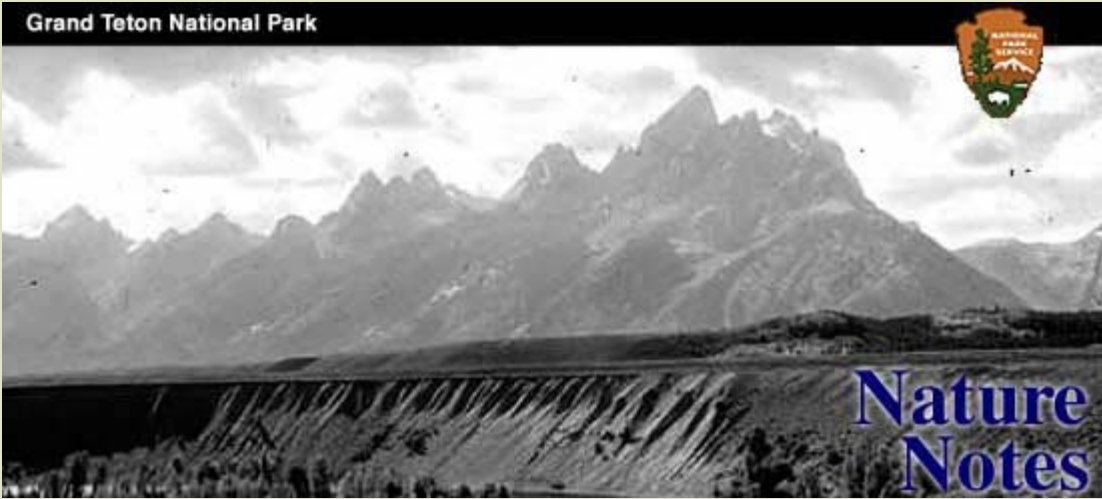
At the east base of the Teton Range, the upper slopes of several small treeless moraines (Pinedale stage) are crossed by straight, east-facing scarps 150 to 200 feet high. Such scarps occur below the two prominent gulches on Teewinot and are especially well displayed near the base of Rockchuck Peak. A lateral moraine immediately north of Laurel Lake is also interrupted by an offset, with apparent upthrow on the west. The several scarps are in line with each other; they strike North 10 to 20 degrees East parallel to the mountain front and dip eastward at 50 to 60 degrees. Beneath one scarp on Teewinot is an accumulation suggestive of slumping, but the other scarps exhibit no such features. The scarps are therefore attributed to post Pinedale movement on the main Teton fault. The interval of time since faulting has sufficed for streams to gully the scarps to a depth of 50 feet and to build subjacent alluvial fans.

Continuation of the scarps becomes uncertain at points where they enter the heavier, wooded moraines outside of Garnet, Cascade and Paintbrush Canyons.

Postglacial fault scarps support the concept of the Tetons as a first-cycle range, suggesting that the precipitous east slope is primarily an eroded fault scarp rather than a fault-line scarp; they indicate that at their mouths the east-slope canyons are hanging because of rejuvenation; and they suggest that local earthquakes may have originated in consequence of renewed movements on a Teton fault.

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NEW TETON BIRDS

by
Bennett T. Gale

The check list of birds of Grand Teton National Park was compiled in December, 1937. Since that time several new species have been added and further observation reveals many changes in relative abundance that should be made. It is the purpose of this article to bring together all the new information concerning the bird life of the park and thus make our check list more complete and useful.

Pelecanus erythrorhynchos (Gmelin). White Pelican.

This bird has been classified as rare. In the last few years, however, it has been observed in numbers during the spring migration. Observations have been made of the flight of this bird over or near the park throughout the summer months indicating nesting sites along the Snake River and Jackson Lake. One October observation has been made.

Phalacrocorax auritus auritus (Lesson). Double-crested Cormorant.
Rare; observed by Hanks and Gale over Jackson Lake Oct. 6, 1938.

Cygnus columbianus (Ord). Whistling Swan.
Rare; one flock of 40 observed by Hanks and Gale on November 2, 1940 on Jenny Lake.

Dafila acuta tzitzihua (Vieillot). American Pintail.
Not observed within the park but noted in numbers during migration periods in Jackson Hole.

Astur atricapillus ssp. undetermined. Goshawk.

The goshawk is commonly seen in the eastern piedmont section of the park with observations noted during the entire year. A nesting pair were noted just north of the Jenny Lake Campground during the early summer of 1940.

Accipiter cooperi (Bonaparte). Cooper's Hawk.

Uncommon; identified by McKean at Taggart Lake July 3, 1939.

Bonasa umbellus umbelloides (Douglas). Gray Ruffed Grouse.

Sprunt, in 1933, called this bird "fairly common." It certainly is one of the most abundant birds of the lower elevations, remaining in the park throughout the year.

Actitis macularia (Linnaeus). Spotted Sandpiper.

Few observations of this bird have been made in recent years and it is felt that the term "uncommon" should be used.

Megaceryle alcyon alcyon (Linnaeus). Eastern Belted Kingfisher.

Infrequent but persistent observations indicate the classification of uncommon for this species.

Sphyrapicus thyroideus nataliae (Malherbe). Natalie's Sapsucker.

Since only a few observations of this bird have been made in the past years we believe the designation of uncommon should apply.

Picoides tridactylus dorsalis (Baird). Alpine Three-toed Woodpecker.

Rare; one nesting pair noted in South Cascade Canyon July 9, 1940.

Sitta carolinensis nelsoni (Mearns). Rocky Mountain Nuthatch.

This bird did not appear on our check list, probably through error. It is a fairly common year-long resident.

Hylocichla ustulata swainsoni (Tschudi). Olive-backed Thrush.

The first record of this bird was made by Cameron in July, 1939. Later, that year a nesting pair were under observation on the shores of Jenny Lake. On May 10, 1940 an olive-backed thrush crashed into a window at the park naturalist's residence. During the summer of 1940 many of these birds were noted and it is now believed that they are as numerous as the Audubon's hermit thrush.

Sialia mexicana bairdi (Ridgway.) Chestnut-backed Bluebird.

Only two observations have been made of this bird and both occurred in October, 1938. A flock of 20 to 30 were seen in the piedmont zone between Snowshoe and Waterfall Canyons. A few days later a flock of approximately the same number were observed at park headquarters. We believe this bird is an uncommon migrant.

Myadestes townsendi (Audubon). Townsend's Solitaire.

Townsend's Solitaire is a bird seen in limited numbers in the piedmont section of the park.

Regulus satrapa olivaceus (Baird). Western Golden-crowned Kinglet.

This bird was first identified in October, 1940 by Hanks and Gale. Numerous other observations have been made and it is now believed that it is much more common in the park area than is the Ruby-crowned Kinglet.



Golden-Crowned Kinglet



Ruby-Crowned Kinglet

Corthylio calendula ssp. undetermined. Ruby-crowned Kinglet.
Further investigation is necessary before the relative numbers of this bird are known. It certainly is not abundant as carried on our check list.

Wilsonia pusilla pileolata (Pallas). Northern Pileolated Warbler.
Rare; the only authentic observation we have was made by McKean while conducting the summer bird census, July 27, 1940.

Piranga ludoviciana (Wilson). Western Tanager.
This is one of our common summer residents and was so found by Sprunt in 1933. In Recent years the number of tanagers seen in the park has been decreasing. We are unable to explain this loss, having noted but two deaths, both of which were caused by freezing.

Pinicola enucleator montana (Ridgway). Rocky Mountain Pine Grosbeak.
During the past two years this bird has been noted in several scattered localities and, apparently, is a year-long resident.

Acanthis linaria linaria (Linnaeus). Common Redpoll.
Uncommon; a flock of 25 were seen by Hanks on January 16, 1941, and the same flock or another of similar numbers were observed on the following day.

Loxia curvirostra ssp. undetermined. Crossbill.
Crossbills have been observed in increasing numbers during the past year.

Junco oreganus montanus (Ridgway). Montana Junco.
On May 10, 1940 this bird was closely observed and identification made possible. It has been seen occasionally since that time and should be classified as uncommon.

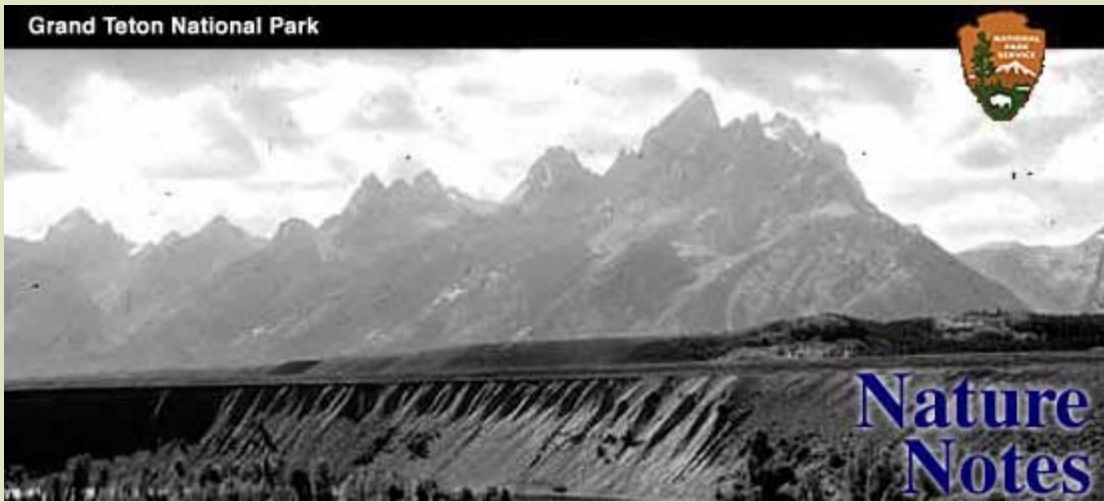
Plectrophenax nivalis nivalis (Linnaeus). Eastern Snow Bunting.
An uncommon migrant; one small flock was observed December 15, 1939 and another January 1, 1941.

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BIRD CENSUS

by
Bennett T. Gale

The Volume VI, Number 1 issue of Nature Notes contained a summary of the winter and spring bird censuses conducted in Grand Teton National Park during the past year. Additional counts were made in the summer and fall and it is felt that a tabulation of the results should be made to give a complete picture of our changing bird life.

The area chosen for the two additional censuses was the same as that used for the winter and spring counts. The route led from park headquarters to the Beaver Ponds, along the trail through forested areas to the Whitegrass Ranch, along the road following tributaries of the Snake River and return to headquarters through the sagebrush flats along the eastern park boundary. Ranger-Naturalist William T. McKean was responsible for the summer census and the writer made the autumn count.

The summer and autumn censuses follow:

SUMMER CENSUS, 1940

<u>Species</u>	<u>Individuals</u>
Troganza's Heron (<i>Ardea herodias treganzai</i>)	1
Common Mallard (<i>Anas platyrhynchos platyrhynchos</i>)	15
Barrow's Golden-eye (<i>Glaucionetta islandica</i>)	15
California Gull (<i>Larus californicus</i>)	1
Nighthawk (<i>Chordeiles minor</i> ssp.)	4

Hummingbird (Undetermined)	1
Eastern Belted Kingfisher (<i>Megaceryle alcyon alcyon</i>)	3
Red-naped Sapsucker (<i>Sphyrapicus varius nuchalis</i>)	2
Say's Phoebe (<i>Sayornis saya saya</i>)	2
Flycatchers (Undetermined)	11
Western Wood Peewe (<i>Myiochanes richardsoni richardsoni</i>)	3
Violet Green Swallow (<i>Tachycineta thalassina lepida</i>)	1
Tree Swallow (<i>Iridoprocne bicolor</i>)	2
Mountain Chickadee (<i>Penthestes gambeli gambeli</i>)	3
Western House Wren (<i>Troglodytes aedon parkmani</i>)	3
Catbird (<i>Dumetalla carolinsis</i>)	1
Western Robin (<i>Turdus migratorius propinquus</i>)	5
Audubon's Hermit Thrush (<i>Hylocichla guttata auduboni</i>)	1
Olive-backed Thrush (<i>Hylocichla ustulata swainsoni</i>)	3
Western Warbling Vireo (<i>Vireo gilvus swainsoni</i>)	3
Eastern Yellow Warbler (<i>Dendroica aestiva aestiva</i>)	3
Macgillivray's Warbler (<i>Oporornis tolmiei</i>)	3
Western Yellow Throat (<i>Geothlypis trichas occidentalis</i>)	2
Northern Pileolated Warbler (<i>Wilsonia pusilla pileolata</i>)	1
Western Tanager (<i>Piranga ludoviciana</i>)	7
Pink-sided Junco (<i>Junco mearnsi</i>)	20
Western Chipping Sparrow (<i>Spizella passerina arizonae</i>)	18
Song Sparrow (<i>Melospiza melodia ssp.</i>)	1
Sparrow (Undetermined)	7

Total: 29 species, 142 individuals.

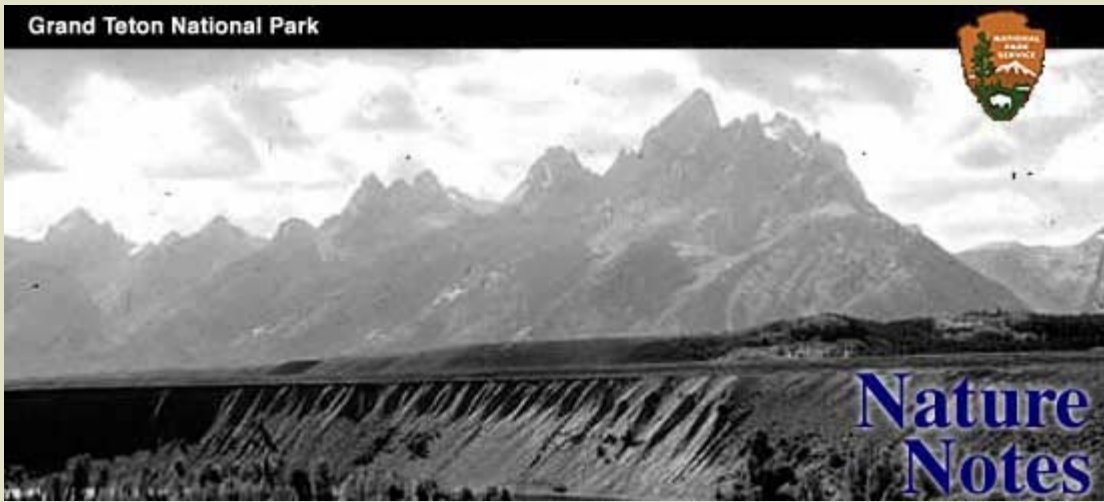
AUTUMN CENSUS, 1940

<u>Species</u>	<u>Individuals</u>
Common Mallard (<i>Anas platyrhynchos platyrhynchos</i>)	15
Barrow's Golden-eye (<i>Glaucionetta islandica</i>)	13
Goshawk (<i>Astur atricapillus ssp.</i>)	1
Western Red-tailed Hawk (<i>Buteo borealis calurus</i>)	1
Hawk (Undetermined)	3
Gray Ruffed Grouse (<i>Bonasa umbellus umbelloides</i>)	1
Eastern Belted Kingfisher (<i>Megaceryle alcyon alcyon</i>)	1
Rocky Mountain Hairy Woodpecker (<i>Dryobates villosus monticola</i>)	3
Rocky Mountain Jay (<i>Perisoreus canadensis capitalis</i>)	3
Black-headed Jay (<i>Cyanocitta stelleri annectens</i>)	3
American Magpie (<i>Pica pica hudsonia</i>)	5
American Raven (<i>Corvus corax sinuatus</i>)	6
Clark's Nutcracker (<i>Nucifraga columbiana</i>)	4
Long-tailed Chickadee (<i>Penthestes atricapillus septentrionalis</i>)	34
Mountain Chickadee (<i>Penthestes gambeli gambeli</i>)	86

Western Robin (<i>Turdus migratorius propinquus</i>)	26
Townsend's Solitaire (<i>Myadestes townsendi</i>)	1
Kinglet (Undetermined)	14
Pink-sided Junco (<i>Junco mearnsi</i>)	72
Junco (Undetermined but probably <i>Junco oreganus montanus</i>)	4
Sparrow (Undetermined)	15

Total: 21 species, 311 individuals.

Last winter's count totaled 11 species with 77 individuals observed and the spring figure was 10 species and 61 individuals. Making allowance for duplication of species we find that the total bird count in this area for four representative days in the year is 46 species with 591 individuals noted.



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A DOUBLE LUNAR RAINBOW

by
Dr. F. M. Fryxell

Lunar rainbows, popularly called "white rainbows", receive only passing mention in most discussion of atmospheric optics, since the principles they involve are practically the same as for solar rainbows. Such references as one can discover convey the impression that lunar rainbows there at best faint and indistinct phenomena. That there may be occasional and impressive exceptions to the rule was established by the occurrence of a nocturnal rainbow of extraordinary brilliance in Jackson Hole, Wyoming, on July 9, 1930, witnessed by Mr. Karl Kent and the writer.

Early in the evening a thunderstorm invaded Jackson Hole from the southwest, crossing the Teton Range in the vicinity of Teton Pass and then, changing direction slightly, moved north-northeast up the length of the basin and crossed Jackson Lake — a course often followed by summer thunderstorms. As the storm formation moved overhead at Jenny Lake no showers resulted, but when we set out from the lake about 8:45, shortly after dark, it was apparently raining in the north end of the basin, for our attention was attracted to a lunar rainbow forming against the dark sky to the north. The great arch bridged the basin and Jackson Lake, one end resting on the Tetons, the other on the mountains east of the Hole. Gradually it deepened in intensity, its outlines and colors becoming strikingly distinct. Meanwhile a secondary, outer bow came into existence, its colors much paler than those of the primary bow, brightest near the horizon and fading out towards the crest.

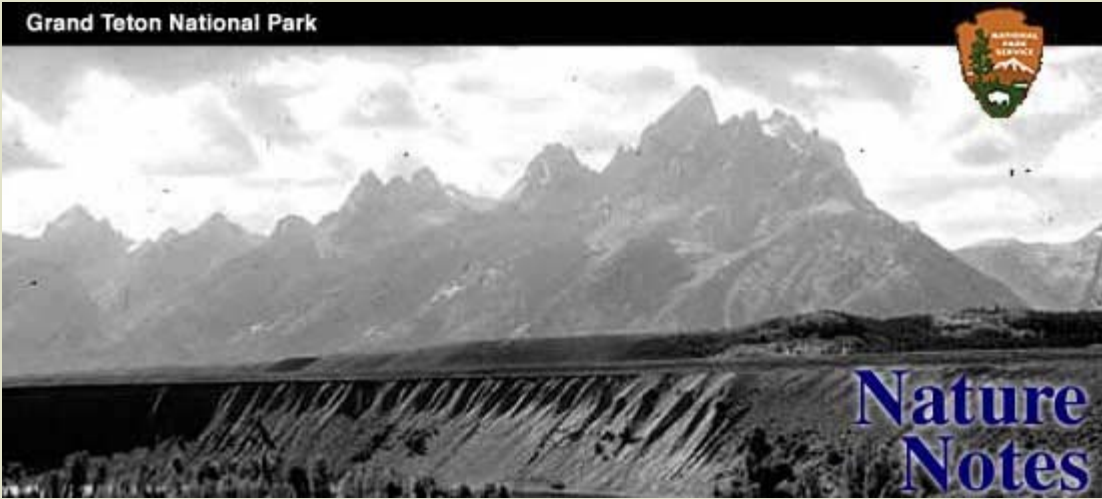
At the time of the maximum intensity the primary bow compared favorably in brilliancy and distinctness of coloration with the magnificent solar

rainbows we see so frequently in these mountains following afternoon thunderstorms. In its night setting the double lunar rainbow formed a scene of awesome splendor, impossible to describe satisfactorily, the most impressive nocturnal spectacle I have ever witnessed.

During this apparition to the north the moon was in the south-southeast, partially obscured by small clouds which alternately hid and disclosed it. The constantly changing light effects resulting from the illumination by the moon of these drifting clouds contrasted strangely with the steady radiance of the double rainbow silhouetted against the overcast sky to the north.

With the retreat of the storm the rainbow at last faded, and at the same time the scattered clouds of the south were dissipated. The lunar bow had been in sight from about nine o'clock to ten-fifteen.

Nothing in our past experience in the mountains had even remotely suggested to us the possibility of such a spectacle, nor have any accounts of similarly brilliant nocturnal rainbows come to our attention. Probably they are of exceptional occurrence, calling for a delicate adjustment rarely attained of those physical conditions requisite to the formation of rainbows.



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MOUNTAINEERING, 1940

by
Bennett T. Gale

Although the total ascents made in the Tetons during the 1940 climbing season were approximately 100 below that of the record year of 1959 it is felt that the season just past was very successful. Almost as many parties gained major summits this year as last, many new routes were established and one mountain, Cleaver Peak, was climbed for the first time.

In 1959 the Mountaineers, Inc., of Seattle spent their annual outing in Grand Teton National Park and were responsible for the large number of individuals making successful climbs. No such organized group visited the Tetons this year but throughout the summer much interest in climbing activities was noted among the experienced and inexperienced climbers.

Paul Petzoldt was the official mountaineering guide assisted during part of the season by Glen Exum. Guided parties made many difficult ascents this year indicating an acceptance of the idea that mountain climbing is a sport and not a mere method of gaining some high elevation.

It is worthy of note that four members of the two K2 expeditions of the American Alpine Club were climbing in the Tetons the past summer. They were William House, Robert Bates, Jack Durrance and Paul Petzoldt.

Brief accounts of the more interesting events of the 1940 season in Grand Teton National Park follows:

June 1 — The climbing season opened today with an ascent of the Grand Teton by way of the Owen Route. This was done by Paul Petzoldt and A.

Delmarsh and is the earliest ascent the climbing guide has made. He notes that "the crawl was filled with snow and there was some ice sheeting on the rocks. There were 'frost feathers' four feet in diameter on perpendicular faces near the top."

July 4 — Elizabeth Cowles and Paul Petzoldt established a new route on Middle Teton today. Mrs. Cowles led this ascent from the lower saddle up the north ridge of Middle Teton keeping well above the snow couloir to the north summit and then over the main summit. Return was made to the saddle between Middle and South Tetons.

July 4 and 5 — Several first ascents were accomplished by R. Bear and W. Plumley. These were on the pinnacles of Mount Saint John lying west of Symmetry Spire.

July 9 — Another pinnacle of Saint John, the last large one on the ridge east of the "keyhole" was climbed for the first time by E. Cowles, D. Cowles, A. Willamore and Paul Petzoldt.

July 11 — Interesting variations of the southwest ridge and the Exum Route on the Grand Teton were made today by Jack Durrance, Dr. B. Howorth, Margaret Smith, Charles Webb and Henry Coulter.

July 16 — The north face of Buck Mountain was climbed for the first time by Elizabeth Cowles and Paul Petzoldt.

July 19 — Additional variations of the Exum Route on the Grand Teton were made by Paul Petzoldt, Clermont DeSelvis, Bernard Nobel and John Farrar.

July 20 — Margaret Smith, Joseph Hawkes and Jack Durrance climbed the dike of the Middle Teton to the east summit.

July 24 — An east ridge climb of the Grand Teton was accomplished by Paul Petzoldt, H. Plumley, W. Plumley and J. Fralick. On this climb the first gendarme was traversed to the south and the summit rocks were gained from the east. The Owen Route was taken to the lower saddle and the dike route followed to Amphitheater Lake on the return.

July 30 — B. G. Ferris Jr., and W. Shand, Jr., climbed to the east summit of Middle Teton by a new route. They utilized the northeast ridge and face from the lower snow field and then traversed to the east ridge and along it to the east summit.

August 1 — A new route was established on Storm Point by Thomson Edwards and Grove McGown. Their route left Cascade Canyon and proceeded up the south face with a difficult traverse to the main south couloir and thence to the saddle and up the regular route. They state that this is a long, hard climb and not to be recommended.

August 9 — On their second attempt a first ascent of Nez Perce via the north face was made by Jack Durrance and Henry Coulter. Their route started at the center of the hourglass and continued straight up the north face. A new descent was also made by using the entire east ridge, climbing the second pinnacle and traversing the first pinnacle on the north flank.

August 9 — Cleaver Peak, 11,062 foot, was ascended for the first time by John McCown, Grove McCown, Edward McNeill and Thomson Edwards. They started in the left fork of Moran Canyon climbing the northwest couloir to the saddle then up the north ridge gaining the summit by chimneys in the north face. The descent was made by the same route to the saddle and thence to the northeast to Cirque Lake.

August 10 — The Underhill-Fryxell Route of the north ridge of the Grand Teton was climbed today by Paul Petzoldt, W. Shand, Jr., B. G. Ferris, Jr., and Victor Fritz. Twelve hours were taken for the ascent. The chock stone was gained by spread eagling facing in and thence onto a crack on the north.

August 10 — Henry Coulter and Jack Durrance climbed the south ridge of Middle Teton from the base of the lowest pinnacle to make a new route on this peak. All the pinnacles along this ridge were climbed. Durrance calls this "the most difficult climb yet encountered in the Tetons."

August 14 — The Durrance-Coulter Route on Nez Perce established August 9 was used as a start by Charles Webb, John McCown, Thomson Edwards, Edward McNeill and Tom Johnston in making an additional ascent of Nez Perce. This party left the previous route at the split rocks on the north face and took the couloir to the right. A traverse was made to the east and the summit gained by the north face.

August 14 — Another route on the Grand Teton was made by Jack Durrance and Henry Coulter. They climbed up the west face to the west chimney and thence directly to the summit. Fifteen and a half hours were consumed on this ascent.

August 22 — John B. and Elizabeth M. Buck climbed the east face of Storm Point today.

August 28 — Paul Petzoldt, Elizabeth Cowles, McAully Smith, William House, Robert Bates and Glen Exum climbed the Underhill-Fryxell Route of the north ridge of the Grand Teton. Mrs. Cowles is the first woman to make this difficult climb.

August 29 — Buck Mountain was climbed today by its namesakes John B. Buck and Elizabeth M. Buck. Their route from the Skyline Trail to the divide between Buck Mountain and Static Peak and up the narrow south couloir just east of the divide with a traverse to the east face appears to be a new one.

Undated — The third pinnacle north of Rock of Ages was first ascended by John Oberlin, Mr. Bonnie, Margaret Smith and Fred Ayres.

Undated — Mrs. Elizabeth Cowles led the entire north ridge climb of Mount Moran. Others in the party were Paul Petzoldt, Glen Exum, McAully Smith, William House and Robert Bates.

There follows a summary of the ascents in the Tetons during the 1940 season:

Peak Parties People

Buck Mountain	3	8
Cleaver Peak	1	4
Cloudveil Dome	1	4
Disappointment Peak	3	6
Grand Teton	47	156
Ice Point	3	10
Middle Teton	13	35
Moran	4	13
Nez Perce	6	19
Owen	11	27
Prospectors Peak	1	2
Rockchuck	3	7
Rock of Ages	1	5
Saint John	6	17
Saint John Pinnacles	9	28
South Teton	4	10
Storm Point	11	27
Symmetry Spire	8	21
Teewinot	16	45
Veiled Peak	2	7
Wister	1	2
Woodring	1	3
Total	155	456

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