403

FIELD NOTES

OF THE SURVEY OF THE

BOUNDARIES

OF

CRATER LAKE

NATIONAL PARK

IN

OREGON.

Of the ..... *Meridian,*

AS SURVEYED BY

Examiner of Surveys

CARL E. CAUDLE, *United States* ~~*Deputy Surveyor,*~~

Special Instructions

Under his ~~*Contract No.*~~ ....., *dated* June 1st, 1903, ~~*190*~~

Survey commenced July 13, 1903., ~~*190*~~

Survey completed September 25,1903., ~~*190*~~

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SURVEY OF CRATER LAKE NATIONAL PARK.

EAST BOUNDARY.

Survey commenced July 13, 1903 and executed with a Young and Sons light mountain transit, No 7060, with solar attachment. The horizontal limb is provided with two double verniers placed opposite to each other, reading to single minutes of arc; which is also the least count of the verniers of the latitude and declination arcs.

The instrument was examined, tested on the true meridian at Portland, oregon, and found correct, June 25. 1903.

I examine the adjustments of the transit and correct the level collimation errors; then to test the solar apparatus by comparing its indications, resulting from solar observations made during a.m. and p. m. hours, I proceed as follows:-

At camp, about ½ mile southeast of Mt. Scott, latitude 42°54'45" N.; Longitude 122°00'20" W. at 12h 05m a.m., l.m.t., I observe Polaris at eastern elongation in accordance with Manual of Instructions and mark the direction thus determined by a tack on a plug set firmly in the ground 5.00 chs N. of my station.

At 7h. a.m. I lay off the azimuth of Polaris 1°39'15" to the west, and mark the true meridian thus determined by a tack on a plug set firmly in the ground 5.00 chs N. of my station, and

At 7h 20m a.m.,l.m.t., I set off 21°58'N. on the decl. arc; 42°55'N. on the lat.arc; and mark the meridian thus determined by a tack on the plug already set 5.00 chs N. of my station,which point falls 0.1 ins. E. of the point determined by the Polaris observation.

At 4h. p.m.l.m.t. I set off 21° 50' N. on the decl. arc; 42°55'N. on the lat.arc; and mark the merid-

ian thus determined by a tack on the plug already set 5.00 chs N. of my station, which point falls 0.1 ins W. of the point determined by the Polaris observation.

The solar apparatus by a.m. and p.m. observations defines positions for true meridians, respectively about O'05"E. and O'05" W. of the meridian established by the polaris observations; therefore I conclude the adjustments of the instrument are satisfactory.

The magnetic bearing of the true meridian is N.20°16' W; the angle thus determined gives the mag. decl. 20° 16' E.

I proceed to the summit of Mt. Scott which is a high peak about two miles east of Crater Lake, nearly bare of timber, rising nearly 2000 ft.above the surrounding country, and locate the highest point, which is easily determined without levelling,on the north end of a sharp ridge, where I find a mound of stone about 6 ft. base, 4 ft.high, with a dwarfed pine set in the center . This is undoubtedly the station occupied by the Geological Survey, as their bulletin states that "in many cases the stations were marked by small cairns of rock". Therefore, at this point, latitude 42°55' 18".94; longitude 122 01' 00".22 W.; I set off 42° 55½ N. on the lat. arc; 21° 57' N. on the decl. arc; and at 9h.50m.a.m.,l.m.t., determine a true meridian with the solar; from which

Mt. Shasta bears		S. 5° 09' W.
Mt. Pitt	"	S.24°57'30" W.
Union Peak	"	S.59°03'30" W
Vidae Peak	"	S.70°35'30" W
Castle Crest	"	S.76°41' W
The Watchman	"	N.79°56' W

Wizard Island bears N.80° 21' W

Glacier Peak " N.75°26'30" W

Sharp Rock " N.75°09'30" W

Llao Rock " N.60°06' W

Old Bailey Mt. bears N 32°35'30"W

S.W.Cor.of Diamond Lake bears N.26°08'W

N.E. " " " " " N.19°23'W

Mt.Thielson " N.9°02' W

Mt.Washington " N.12°44' E

Note:- The connecting distance to the Initial Monument 67.86 chs.,and thence S. to the 7½ mile monument having been run by J. Frank Warner, in Sept. 1902, I retrace, to train my assistants,but more especially the chainmen, to the most precise and accurate methods of work. I place a large flag on summit Mt. Scott.

Thence I run

East,

Over mountainous land, (Var.20°17'E.)

Descend steep rocky E slope of Mt. Scott.

2.00 Large snow drift extends N. about ½ mile and south about 10 chs. Snow is perhaps 50 ft. deep in places.

42.00 Enter pine timber at foot of steepest slope, bears N. and S. Thence descend along N. side of Spur from Mtn. extending E. snowdrifts 4 to 8 ft. high.

67.84 Fall ½ lk. S. of Initial Monument, a small stone,so rough in texture that markings are scarcely distinguishable, therefore I set at the same point a lava stone 24x18x14 ins., 18 ins. in the ground for Initial Monument of survey, marked

I M)
) on W. face;
C L N P)

By 1st set 39.99 chs.

By 2nd set 40.001 chs; the mean of which is

40.00 Set a charred fir post 6 ins. sq., 3½ ft long,2 ft. in the ground for 2½ M monument, marked

P L on N.

2½ M on E.

C L N P on S. faces; from which

A pine 19 ins., diam., bears N27°57'W., 35 lks., dist., marked P L 2½ M B T.

A pine 14 ins., diam., bears S 76°17' W. 18 lks.dist. marked C L N P 2½ M B T.

July 30, 1903.

55.50 Enter small open glade of grass about 4 chs. wide

60.00 Leave glade and enter dense brush and heavy timber.

Diff. bet. measurements of 80.00 chs. by two sets of chainmen is 1½ lks; position of middle point

By 1st set 80.00 3/4 chs.

By 2nd set 79.99¼ chs.; the mean of which is

80.00 Set a lava stone 27x21x14 ins., 21 ins. in the ground for 3 M monument, marked

P L on N.

3 M on E.

C L N P on S. faces; from which

A fir 11 ins., diam., bears N.32°01'E 27 lks.dist., dist., marked P L 3 M B T.

A Balsam 13 ins., diam., bears S. 44° 06' E. 22 lks., dist., marked C L N P 3 M B T.

A Balsam 17 ins., diam., bears S. 45°37'W. 22 lks. dist., marked C L N P 3 M B T.

A fir 10 ins. diam., bears N. 32° 5'' W. 16 lks. dist., marked P L 3 M B T.

July 31; At 9h 25m a.m., l.m.t., I set off 18°28'N. on the decl. arc; 43°04'N on the lat arc; and determine a true meridian wit the solar at the 3 M monument.

Thence I run

West, on 4th Mile.

Over mountainous land through heavy pine, fir and Balsam timber.

Ascend E. slope

15.00 Dry ravine, course N.E.

34.00 Summit of highest Spur from Timber Crater, slopes N

Leave timber and enter open glade.

38.00 Dry ravine 50 ft. deep course N.

Diff. bet. measurements of 40.00 chs. by two sets of chainmen is 2½ lks; position of middle point

By 1st set 40.01½ chs.

By 2nd set 39.98½ chs.; the mean of which is

40.00 Set a charred pine post 6 ins. sq., 4 ft.long 2½ ft in the ground for 3½ M monument, marked.

P L on N.

3½ on E.

C L N P on S. faces; from which

A fir 9 ins. diam., bears S. 37° 47' E. 62 lks.dist. marked C L N P 3½ M B T.

A pine 6 ins., diam., bears N. 76° 29° W. 76 lks. dist., marked P L 3½ M B.T.

45.00 Spur from Timber Crater, slopes N.

Descend Enter scattering timber.

65.00 Dry ravine course N.

72.00 Dry ravine, course N.

78.03 Mt. Thielson bears N. 5° 53' E.

Diff. bet. measurements of 80.00 chs.by two sets of chainmen is 1½ lk; position of middle point.

By 1st set 80.00 3/4 chs.

By 2nd set 79.99¼ chs; the mean of which is

80.00 Set a lava stone 24x16x14 ins., 18 ins. in the ground for 4 M monument, marked.

P L on N.

4 M. on E.

C L N P on S. faces; from which

A pine 12 ins., diam., bears N.8°44'E. 41 lks.dist. marked P L 4 M B T.

A pine 12 ins., diam., bears S. 89°29' E. 92 lks.dist. marked C L N P 4 M B T.

A pine 6 ins. diam., bears S. 17°54'W 37 lks.dist., marked C L N P 4 M B T.

A pine 8 ins., diam., bears N. 5°43' W. 10 lks.dist. marked P L 4 M B.T.

Land, mountainous,

Soil, stony and pumice, 4th rate.

Timber, pine.

Mountainous land, 80.00 chs.

July 31; At this point I set off 18°36'N. on the decl. arc; and at 0h 06.2m p.m., l.m.t., observe the sun on the meridian; the resulting lat.is 43° 04'N; which is correct.

West, on 5th Mile.

Over mountainous land through scattering pine timber.

Descend gradually.

1.33 S.W.Cor. Diamond Lake, bears N. 40° 39' W.

21.00 Enter dense small pine timber, bears N. and S.

Diff. bet. measurements of 40.00 chs. by two sets of chainmen is 1 lk.; position of middle point

By 1st set 40.00½ chs.

By 2nd set 39.99½ chs. the mean of which is

40.00 Set a lava stone 37x18x16 ins., 27 ins. in the

ground for 4½ M monument, marked

P L on N.

4½ M on E.

C L N P on S.faces; from which

A pine 8 ins.,diam.,bears N.75°28'W. 21 lks.dist.,
marked P L 4½ M B T.

A pine 7 ins., diam., bears S.15°19'E. 16 lks.dist.
marked C L N P 4½ M B T.

July 31, 1903.

45.00 Foot descent of 600 ft.bears N. and S.

Thence over nearly level land.

Diff. bet. measurements of 80.00 chs by two sets of chainmen is 1 lk.;position of middle point

By 1st set 80.00½ chs.

By 2nd set 79.99½ chs.; the mean of which is

80.00 Set a charred pine post 7 ins. sq.,3½ ft.long, 2 ft in the ground for 5 M monument, marked

P L on N.

5 M on E.

C L N P on S.faces; from which

A pine 11 ins., diam., bears N.70°30'E. 43½ lks.dist.,
marked P L 5 M B T.

A pine 9 ins., diam., bears S. 48°04'E. 18 lks.dist.,
marked C L N P 5 M B T.

A pine 15 ins., diam., bears S.26°13'W. 33 lks.dist.,
marked C L N P 5 M B T.

A pine 9 ins. diam., bears N. 52°19'W. 17½ lks dist.,
marked P L 5 M B T.

Land, mountainous, and level.

Soil, rocky and pumice 4th rate.

Timber, small pine.

Mountainous or heavily timbered land. 80.00 chs.

Aug. 1st; at 9 h a.m., l.m.t., I set off 18°13.5'N.
on the decl. arc; 43°04' on the lat.arc; and de-

termine at true meridian with the solar at the 5 M monument.

Thence I run

West, on 6th Mile.

Over nearly level land, through very dense small pine timber.

20.00 At this point Aug 1st I set off 1°11.5'N. on the decl. arc; and at 0h 06.2m p.m., l.m.t., observe the sun on the meridian; the resulting lat. is 43° 04'; which is correct.

Var. 19° 42' E.

Diff. bet. measurements of 40.00 chs. by two sets of chainmen is 0.2 lk.; position of middle point

By 1st set 39.999 chs.

By 2nd set 40.001 chs.; the mean of which is

40.00 Set a charred pine post 6 ins. sq., 4 ft long, 2½ ft. in the ground, for 5½ M monument, marked

P L on N.

5½ M on E.

C L N P on S. faces; from which

A pine 9 ins. diam., bears N.18°07'W. 42 lks.dist., marked P L 5½ M B T.

A pine 18 ins., diam., bears S.10°06'E. 81 lks. dist., marked C L N P 5½ M B T.

August 1,1903.

Aug.3rd; at 9h a.m.,l.m.t., I set off 17°43'N.on the decl. arc; 43° 04' on the lat. arc; and determine a true meridian with the solar; thence continue west on 6th Mile.

62.86 Trail from Crater Lake to Diamond Lake, bears N and S. Ascend gradual E. slope.

Diff. bet. measurements of 80.00 chs. by two sets of chainmen is 0.2 lk; position of middle point

By 1st set 80.001 chs.

By 2nd set 79.999 chs., the mean of which is

80.00 Set a charred pine post 7 ins. sq., 4 ft long, 2½ ft in the ground for 6 M monument, marked

P L on N.

6 M on E.

C L N P on S. faces; from which

A pine 18 ins., diam., bears N.42°11'E 92½ lks.dist., marked P L 6 M B.T.

A pine 10 ins., diam., bears S. 43° 44' E. 38 lks. dist., marked C L N P 6 M B T.

A pine 14 ins., diam., bears S. 4°21'W. 46 lks.dist marked C L N P 6 M B T.

A fir 9 ins. diam., bears N. 52°58'W. 41½ lks.dist., marked P L 6 M B T

Land, mountainous and level.

Soil, stony and pumice, 4th rate.

Timber, dense small pine and fir, 80.00 chs.

Aug.3rd; At this point I set off 17°41'N. on the decl. arc; and at 0h 06m p.m., l.m.t., observe the sun on the meridian; the resulting lat. is 43°04'; which is correct.

West on 7th Mile.

Over gradually ascending land through very dense small pine and fir timber.

Diff. bet. measurements of 40.00 chs. by two sets of chainmen is 1.2 lks; position of middle point

By 1st set 40.006 chs.

By 2nd set 39.994 chs.; the mean of which is

40.00 Set a charred pine post 6 ins. sq., 4 ft.long, 2 ft. in the ground for 6½ M. monument, marked

P L on N.

6½ M on E.

C L N P on S.faces; from which

A pine 11 ins., diam., bears N. 5°11'W. 25 lks.dist. marked P L 6½ M B T

A pine 9 ins., diam., bears S. 18° 13' W. 34½ lks. dist., marked C L N P 6½ M B T.

Note:- At a point near the line about 10.00 chs.W. of this cor. I observe Polaris at E.elongation and determine a true meridian therefrom, and test the adjustments of my instrument, finding it correct, the details of which I omit herein for brevity.

August 5, 1903.

50.00 Ascend steep E. slope of Mtn. bears N and S.

67.50 Summit of ridge 300 ft. high, bears N. and S.

Enter large pine and fir timber. Descend.

75.00 Foot descent of 200 ft., bears N. and S., descend gradually.

Diff. bet. measurements of 80.00 chs. by two sets of chainmen is 0.4 lks.; position of middle point

By 1st set 79.998 chs.,

By 2nd set 80.002 chs; the mean of which is

80.00 Set a lava stone 24x14x1½ ins. 18 ins. in the ground for 7 M monument, marked

P L on N.

7 M on E.

C L N P on S faces; from which

A fir 21 ins., diam., bears N. 39°38'E. 57½ lks. dist., marked P L 7 M B T

A fir 20 ins., diam., bears S.41°49'E. 84 lks.dist marked C L N P 7 M B T

A pine 15 ins., diam., bears S. 57°49'W. 32 lks.dist., marked C L N P 7 M B T.

A pine 21 ins., diam., bears N. 24°29'W. 58½ lks.dist.

dist., marked P L 7 M B T.

Land, mountainous and nearly level.

Soil, rocky and pumice, 4th rate.

Timber, small pine and large pine and fir 80.00 chs.

August 4; At 9h 05m a.m.,l.m.t., I set off 17°27'N on the decl. arc;43°04'N. on the lat.arc; and determine a true meridian with the solar.

Thence I run

West on 8th Mile.

Over gradually descending land through heavy pine and fir timber.

21.50 Ascend steep E. slope of ridge.

38.50 Summit of 300 ft.bears N. and S. Thence across top of ridge.

Diff. bet. measurements of 40.00 chs. by two sets of chainmen is 0.1 lk; position of middle point

By 1st set 40.0005 chs.

By 2nd set 39.9995 chs; the mean of which is

40.00 Set a lava stone 26x24x18 ins., 19 ins. in the ground for 7½ mile monument, marked,

P L on N.

7½ M on E.

C L N P on S.faces; from which

A Balsam 9 ins., diam., bears N.0°34'W. 14½ lks. dist., marked P L 7½ M B T.

A Balsam 8 ins., diam., bears S.2°46' W. 47 lks.dist., marked C L N P 7½ M B T.

Aug. 4; at this point I set off 17°25'N on the decl. arc; and at 0h 06m pm. l.m.t., observe the sun on the meridian; the resulting lat. is 43°04'; which is correct.

50.00 Descend, bears N. and S.

66.50 Foot descent of 100 ft. ascend steep E. alope of Mtn.

75.75 Summit of Mtn. 600 ft. high, bears N. and S. Descend.

Mt. Thielson bears N. 37° 50' E.

Diff. bet. measurements of 80.00 chs. by two sets of chainmen is 8 lks. position of middle point

By 1st set 80.04 chs.

By 2nd set 79.96 chs; the mean of which is

80.00 Set a lava stone 24x14x12 ins., 18 ins., in the ground for 8 M monument, marked.

P L on N.

8 M on E.

C L N P on S. faces; from which

A pine 11 ins. diam., bears N.61°25'E. 27½ lks.dist., marked P L 8 M B T.

A pine 11 ins., diam., bears S. 43°04'E. 13 lks.dist., marked, C L N P 8 M B T.

A fir 25 ins., diam., bears S.40°29'W. 48 lks.dist. marked,C L N P 8 M B T.

A Balsam 8 ins., diam., bears N. 29°33'W. 83 lks. dist., marked P L 8 M B T.

Land, mountainous,

Soil, stony and pumice 4th rate.

Timber, heavy pine and fir.

Mountainous, heavily timbered land, 80.00 chs.

August 4th 1903.

Aug. 5; At 8h 55m a.m., l.m.t., I set off 17°11.5' N. on the decl. arc; 43°04' N. on the lat. arc; and determine a true meridian with the solar at the 8 M monument.

Thence I run

West on 9th Mile.

Over mountainous land,covered with heavy fir and

pine timber and dense brush.

Descend steep S.W. slope of Mtn.

37.50 Enter scattering undergrowth.

39.00 Dry ravine, course N.W.

Diff. bet. measurements of 40.00 chs. by two sets of chainmen is 12 lks; position of middle point

By 1st set 40.06 chs;

By 2nd set 39.94 chs.; the mean of which is

40.00 Set a lava stone 30x18x10 ins., 22 ins. in the ground for 8½ M monument, marked

P L on N.

8½ M on E.

C L N P on S. faces; from which

A fir 20 ins., diam., bears N. 18°08'E. 40½ lks dist. marked P L 8½ M B T

A fir 19 ins., diam., bears S.8° 13' E. 59 lks.dist marked C L N P 8½ M B T.

Note:- Clouds at noon prevent taking lat.observations

58.00 Foot of Mtn. and descent of 1200 ft bears N. and S.

Thence over level land covered with dense small pine and fir timber. Leave brush.

Diff. bet. measurements of 80.00 chs. by two sets of chainmen is 3½ lks; position of middle point

By 1st set 80.01 3/4 chs.

By 2nd set 79.98½ chs. the mean of which is

80.00 A pine 10 ins., diam., for 9 M monument, I mark

P L on N.

9 M on E.

C L N P on S. faces; from which

A pine 12 ins., diam., bears N. 37° 35' E. 58 lks. dist., marked P L 9 M B. T.

A pine 9 ins., diam., bears S.22°43'E. 36 lks.dist., marked C L N P 9 M B T.

A pine 9 ins. diam., bears S 58° 27' W. 13 lks.dist., marked C L N P -9 M B T.

A pine 9 ins. diam. bears N. 22° 34' W. 52 lks.dist., marked P L 9 M B T.

Land, mountainous and level.

Soil. pumice and rocky, 4th rate.

Timber, pine and fir.

Mountainous or heavily timbered land 80.00 chs.

West on 10th Mile.

Over nearly level land, through dense small pine and fir timber.

Diff. bet. measurements of 40.00 chs. by two sets of chainmen is ½ lk.; position of middle point.

By 1st set 40.00¼ chs.

By 2nd set 39.99 3/4 chs.; the mean of which is

40.00 Set a charred pine post 6 ins. sq. 3½ ft. long 2 ft in the ground for 9½ M monument marked

P L on N.

9½ M on E.

C L N P on S. faces; from which

A pine 12 ins., diam., bears N. 28° 30' E. 58 lks. dist., marked P L 9½ M B T.

A pine 12 ins. diam., bears S.22°34'E. 43½ lks.dist., marked C L N P 9½ M B T.

August 5, 1903.

67.00 Ravine 25 ft. deep, course N.

Diff. bet. measurements of 80.00 chs. by two sets of chainmen is 2 lks.; position of middle point

By 1st set 80.01 chs.

By 2nd set 79.99 chs.; the mean of which is

80.00 Set a charred pine post 1 ins. sq., 4 ft. long, 2½ ft in the ground for 10 M monument, marked.

P L on N.

10 M on E.

C L N P on S.faces; from which

SURVEY OF CRATER LAKE NATIONAL PARK,

GENERAL DESCRIPTION.

The area included in Crater Lake National Park is of greatly diversified character. While the greater part is rugged and mountainous, seamed and furrowed by deep ravines, canyons, and gorges, there are some fine valleys which are seldom equalled for camping facilities. The nutritious grasses and excellent ice cold springs of water that form many miniatures cascades and water falls, the fine grove of pine, fir and balsam, the picturesque though rugged cliffs of ancient lava flows, all unite to charm the seeker of nature's beauties. The ancient volcanic activities of the region are vividly are brought to mind, when many cones of nearly perfect form are seen rising in rustic granduer to a height of 1000 to 2000 feet above the pumic covered plateau. But grander than all and a sight which electrifies the admiration and wonder of the most casual observer, is a view of Mt. Mazama from some neighboring cone a few miles distant. The jagged rim of the great Crater gives it the appearance of an unfathomed abyss, profoundly impressive and never to be forgotten. The catastrophe which wrought the deepest crater in North America if not in the world was probably one of the greatest volcanic disturbances. The rim as now seen is perhaps but a small remnant of the once great volcano.

The Crater is about 6¼ miles long and 4¼ miles wide and at the deepest place is about 4000 feet below the highest point on its rim. It is filled to a depth of nearly 2000 feet by Crater Lake, a deep blue body of water on whose placid surface is mirrored the rugged walls of the rim, presenting a scene of rarest beauty which rivals anything of

its kind in the world. Llao Rock on the north rim rises nearly 2000 feet above the lake and presents a perpendicular front of over 1200 feet of solid lava. Other peaks on the west and south rims are Glacier Peak, The Watchman, Castle Crest, Videa Peak and Dutton Cliffs, all of which are covered with snow till late in the summer.

Wizard Island lies near the western shore and beautifully breaks the monotony of the unbroken walls of the lake. It is a wooded cone about 8000 ft. high covered with fragments of lava, pumice, and cinders, on the summit of which is a promounced Crater about 80 ft deep.

The camp grounds are about half a mile west of Castle Crest beautifully located on a flat plateau overlooking the lake. A Trail leads down to the water's edge and a boat has been provided for excursions around the shore and to Wizard Island.

The country to the south and east of Crater Lake is very rough and broken. Anna Creek heads near the base of Castle Crest, flows in a southeasterly direction between Canyon walls in places 1000 ft. high composed of glacial drift and pumice.

Sun Creek heads near the base of Vidae Peak and flows southeasterly through a gorge several miles long and nearly 1000 ft. deep.

Sand Creek heads near the summit of the south east rim of Crater lake and flows in a southeasterly direction out of the Park near the 3½ mile monument on the east boundary. Sand Creek Canyon is about 250 ft. deep with precipitous walls of pumice and glacial drift. It is impassable for a distance of three miles inside the Park. Between the two forks of Sand Creek is a level valley sparsely

wooded, covered with a fine growth of grass and is one of the most pleasant camping places in the Park. Bear Creek heads near the foot of Mt. Scott and flows northeasterly out of the Park near the 12 Mile monument. It is a small stream having numerous cascades and small waterfalls, and along which are several small parks, which add to the beauty of the region. From Bear Creek to the head of Rogue River near the 11½ M monument on the north boundary there are no streams or springs of any kind. The pumice desert lies about four miles due north of Crater Lake and is nearly bare of all vegetation and timber, and the fine dust rises in great clouds as the pack train crosses it. The northern part of the Park is covered for the most part with pumice and there are no streams except in the extreme northwestern part.

Here Rogue River heads from a large spring which forms a stream fifty feet wide and nearly two feet deep. Many other small streams head in this corner of the park and the numerous water falls the rugged cliffs and the beautiful fir timber make it an attractive spot for those in search of wild scenery.

The western part of the Park is well supplied with streams and spring. Red Cone Creek has many branches and the canyons are sharply cut from 75 to 125 ft. deep, Castle Creek, the principal stream heads near the base of Glacier Peak and The Watchman. It has several forks whose canyon range from 50 to 250 ft deep. Between them are many fine parks covered with grass and enclosed by beautiful fir and pine groves. Springs are numerous, and the picturesque rugged cliffs on the west slopes of The Watchman and Glacier Peak from

which issue numerous small streams lends an added charm to the scenery.

Castle Creek is impassable for several miles and in many places the sides of the canyon are studded with pillars and columes resembling castles, which perhaps is the origin of the name.

In the south west part of the park are few streams. Blanket heads near the base of Union Peak and flows southwesterly out of the Park. The canyon is about 2000 ft. deep whose sides are rugged and precipitous and covered for the most part with dense manzanita and buck brush.

Union Peak is a very prominent land mark in the south west corner of the Park. It rises about 1400 feet above the surrounding country and is composed almost entirely of solid lava. It is a volcanic neck stripped of its cinder cone. The crater of two small cones about three miles north of Union Peak, are partly filled with water, forming miniature Crater Lakes.

Mt. Scott, the highest peak in the park situated about 2 miles east of Crater Lake, rises about 2000 ft. above the surrounding country. It is nearly bare of timber, having a stunted growth of pine fir and cedar around its base and scattering in strips to its summit. It was once a well defined crater but has been broken away upon the northwest and drains into Bear Creek by a broadly rounded valley which looks as if it had been cut by glacial actions. The slopes of the mountain are generally covered with pumice with here and there fragments of lava. The outer slope of the mountain is gentle but within the curve of the ancient volcano they are very steep.

On the southeast and northeast sides large masses of snow accumulate which sometime become dislodged and form snowslides of considerable magnitude.

Timber Crater is a cone situated about six miles north east of Crater Lake, rising about 1500 ft. above the surrounding country. The outer slope is long and gentle but the inner slope is very steep It is generally covered with pumice and red cinders, several lava dikes extend to the north and north east. The Crater is about 50 ft.deep and nearly half a mile wide. Another small crater appears on the north side about 200 ft.below the summit. A magnificent view of the rim of Crater Lake can be had from the summit of Timber Crater.

Bald Crater is situated in the north western part of the park and rises to a height of about 600 ft. above the surrounding country. It is nearly bare of timber and is covered with pumice and cinders of a reddish hue.

Red Cone is a very prominent peak about two miles northwest of Llao rock, rising to a height of 1500 feet above the surrounding country. It is nearly bare of timber and is covered with pumice, cinders and fragments of lava. Its name is derived from the color of the cinders which are a light red and greatly enhance the beauty of the extinct volcano.

The timber in the parks chiefly fir and pine with some cedar and balsam. In the northeastern part of the park is a small area covered with yellow pineaveraging 30 to 50 inches in diameter.

In the southern part along Sun Creek and Anna Creek is also some fine yellow pine and a few sugar pine. Large fir timber is found in small areas throughout the park. The greater part of the timber is

small and dense. In the northern part of the park the timber is very dense with many dead and fallen trees which render travel with a pack train very difficult. In the western part the timber is generally dense and small, with a few scattering fir of large size. Several large areas have been burned over years ago and nothing remains of the once dense forest save a few charred stumps. One of the first things to attract the attention of the visitor to Crater Lake is the beautiful moss clinging to the trees. It is a bright yellow and grows more brilliant in the higher altitudes. It is probably the result of the heavy snows in the spring and early summer. The snow fall is very heavy is probably twenty to thirty feet deep in places as indicated by the absence of moss to that height.

There are no valuable deposits of minerals known but in the region of Union Peak the presence of iron ore is indicated by the variation in the magnetic meridian in that vicinity. The rock is principally lava, tufa and pumice.

Crater Lake may be reached by the route from Medford over the Rogue River road, which is perhaps the best road of all; from Ashland over the Dead Indian road via Fort Klamath; and from Ager, California, via Klamath Falls and Fort Klamath. All routes are constantly travelled and the roads are good considering the mountainous character of the country. The road from Fort Klamath to Crater Lake is of an easy grade till the ascent of the rim is reached where the slope is steep and rough. A new road has been recently completed leaving the main road at the head of Anna Creek, which is crossed by a bridge, and thence around the south and

east sides of Munson point to the camping ground west of Castle Crest.

A trail leads from the head of Castle creek around the foot of The Watchman and Glacier Peak and thence in a northeasterly direction to Diamond Lake, six miles north of the park.

Other trails will soon be made rendering a camping trip around the lake and to Diamond Lake feasible and attractive.

There are several cabins built by homesteaders along Sun Creek and one trappers cabin at the head of Rogue River and another near the 10½ M monument on the south Boundary of the Park.

Deer and bear appear in small numbers during the summer months but after the first snows in the fall they leave the vicinity for lower altitudes.

(Signed) Carl R. Caudle,

U.S.Examiner of Surveys, G. L. O.