

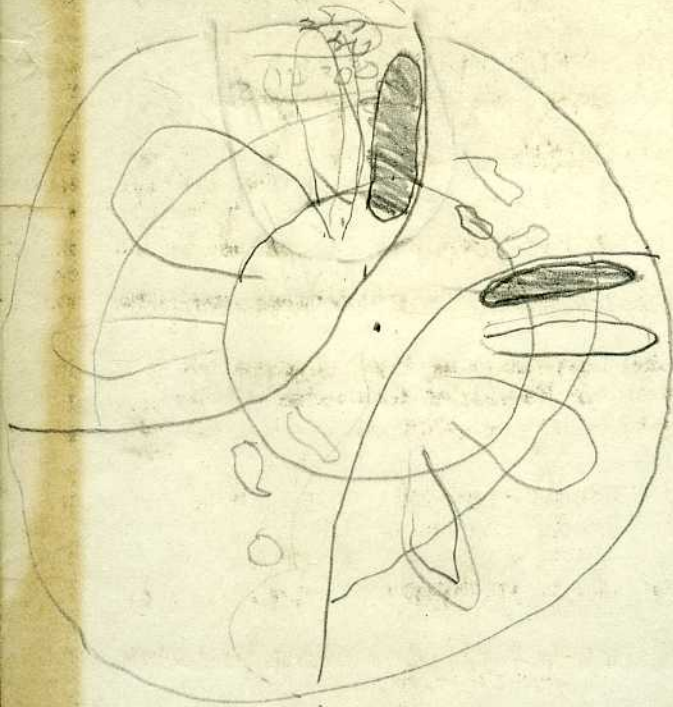
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Roosevelt Lodge
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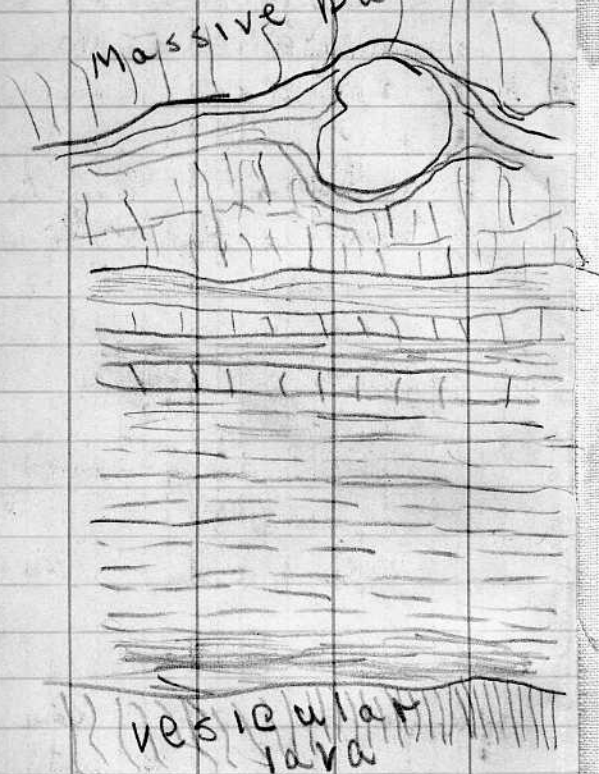
CHICAGO STEEL TAPES

BLUE PRINTING

May 26, 1930

The Dalles Flora

Massive Basalt



- Locality near The Dalles, Ore.
- #1. E. end of outcrop in roadcut, lignetic wood-
 - #2. Approx 50 ft from E end of outcrop occupying position with upper half in lava, lower in old soil layer.

Basalt (non vesicular)



(vesicular) Basalt

- #3 From section at #2. upper 4-8 inches of lignetic material, poorly indurated, resembles forest loam -
- #4 Intermediate layer about 1 ft. in thickness, chiefly tuff with low percentage lignetic material.

- #5 Lower contact of interbedded
tuff and lower lignetic
zones.
- #6 Interbedded tuff and
loamy-lignetic soils,
finely laminated and
poorly consolidated - about
8 inches thick
- #7 Lower lignite - well
indurated, siliceous,
irregularly bedded, 2 ft.
in thickness.
- #8 Lowest lignitic zone
6 inches thick & resting
disconformably on surface
of vesicular lava.
- #9 Weathered vesicular basalt
from lower contact.
- #10 Vesicular basalt from
below contact.
- #11 Baked layer below upper
contact.
- #12. Upper basalt slightly
vesicular.

- #13 Lignite from a dit leading into cliff from lower end of outcrop - Lignite seam on river side of road is about 10 ft higher than on opposite side of cut & thickens towards inland side (S). An old cut runs back into cliff for several hundred ft and follows layer of lignite, partly baked into coking coal, layer 3-4 ft thick.
- #14 Base of log extending up into lava.
- #15 Trone log near top of lens.
- #16 Small roots or stems
- #17 Large log near top of section
- #18 Trone log near top of section
- #19 Lignite from middle of section

- #20 Wood thrown out by steam shovel during road construction
 - #21 Hardwood, diffuse porous from roadcut material as above.
 - #22 Ditto
 - #23 Ditto Sequoia
- Notes - Upper flows have attitude of $N 20 E 10-15^{\circ} SE$ and are of blocky type. This seems to have been attitude of all of the flows of this particular locality and is presumably the result of deformation during the Cascade uplift. The Dalles lava occurs 5 mi. W of The Dalles, Ore. in a roadcut on the Columbia R. highway & is on a lens with attitude of $N 5 E 20-30^{\circ} SE$ across the roadcut and flattening out to the SE where the lens thickens. The lens seems to occupy an old valley

or possibly an old river or other basin of deposition. The lens disappears beneath the lavas and extends for an unknown distance, although presumably not very far. The sediments are interbedded lignitic material, highly siliceous and partly charred, interrupted by layers of tuffaceous material. Little evidence of leaves or leafy fragments is present & the material is largely coniferous, with Sequoia most common. A slight amount of hardwood is present.

The present flora of the vicinity is a scattered growth of oak, yellow pine, Corylus, hickory, maple, alder, etc. placed in an open woodland landscape such as is common on the east slope of the

Cascades as one approaches the plateau region
#24 Hardwood from roadcut
#25 Root from upper layer
#26/27 - Lignite from intermediate layer.

Field Work in Yellowstone Park - June to September - 1930.

Jones and Field's section near Tower Falls -

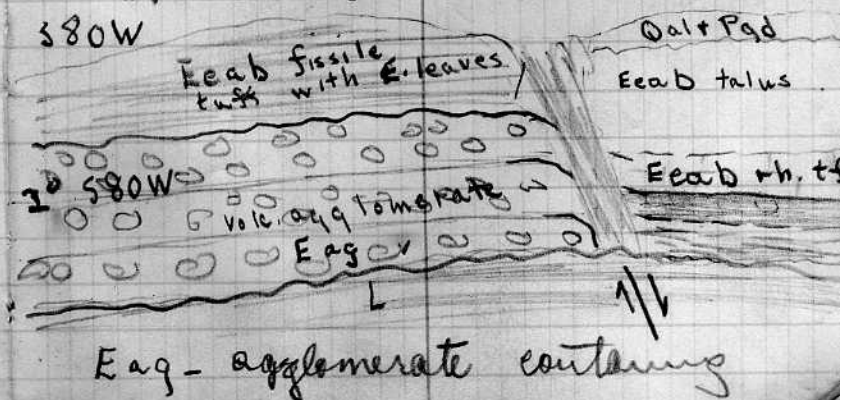
I (Holo)	II (Jones Fall)
Lacustrine Deposits	Lacustrine Deposits
glacial Drift	glacial Drift
Recent Basalt	Basalt
Rhyolite	Canyon Cong.
Basalt	Basalt +
Canyon Cong.	Trachytic Rhyolite
Basalt	Rhyolite
Andesitic flows	Andesitic flows
Late Basic Breccia	Late Basic Breccia
Late Acid Breccia	Late Acid Breccia
Early Basalt	Early Basalt flows
Trachytic Rhyolite	Early Basic Breccia
Early Basic Breccia	

June 6, 1930.

Station 1. Below Lamar R. bridge approx. 5 mi. out Cooke City rd from Tower Falls. Eeab steps, beginning at 500 yds. below bridge on N bank river. Section exposed:

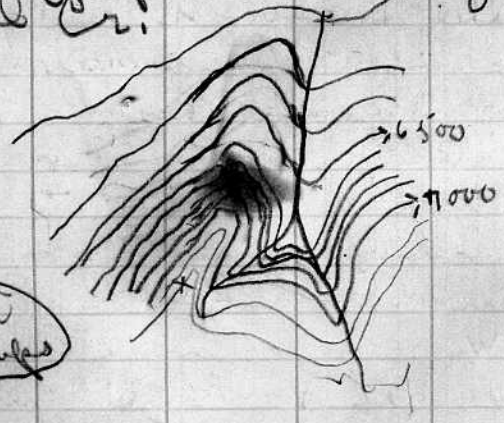
Qal + Pgd - - - -
 Eeab - - - - - 15 ft talus.
 Eeab - - - - - 8-10 ft. steps
 disappearing beneath river.

Eeab a poorly bedded, massive rhyolite tuff becoming more fissile in lower pt of section. A short distance (100 ft) below first appearance of step. The following relationships are observable - -



pebbles, cobbles, + boulders of old
 Crgn complex - in acid matrix.
 Fault zone well defined with
 development of calcite + orthoclase (?)
 Disconformable relations shown
 between E_{ag} + Feab. & E_{ag}
 a part of Feab? -

June 17 - Specimen Ridge -
 1 Foot picked up on lower
 slope of spur to west of
 Crystal Cr.



cliffs with
 crystal
 outcrops

June 17-18 - Three down trees
 were studied. These are located
 at approx. 7200 ft. elevation
 on east spur of Specimen
 Ridge. This spur forms
 one side of the canyon of
 Crystal Creek. The trees are
 located on the west slope
 of this spur and are
 in place in the coarse
 breccia which outcrops and
 forms a comparatively flat
 subsummit area of some
 slight extent. The breccia
 here weathers into a
 bouldery cover and where
 weathered material is absent
 as around the edges of the
 hill, it forms a cliff-like
 feature, but less than 15 ft
 in thickness. Three trees are
 located along the western face
 of this hill. Two of these
 designated YD8 and YP9 were
 regarded as desirable for

collected and were studied. YD8 had one long sequence and one shorter sequence removed from it. YD9 had a single sequence removed - A description of these trees is given further on -

Section from YD3 marker up to trees Nos. YD8 + 9

54 Fine textured, poorly bedded, tuff (Nebb) bearing trees at base of section (this set at bottom of tree YD3 and not at base of tuff). Tuff a buff color & contains feldspar together with a slight amount of quartz & what appears as weathered feldspar - The tuff is suggestive of an andesite type. It contains fragments of previously consolidated tuffaceous material and likewise fine material (?)

most of which appears to be basic in character & may come from near the base of the section. This tuff gradually fades into a phase of the material described below.

18" Tuff similar to that above
 5' 54 described, massive, little
 5' 54 evidence of bedding, containing
 3 abundance of volcanic boulders
 16' 2" and showing veins of
 quartz (banded chalcedony)
 occasionally - Contains a
 few fragments of plants.

5' 54 Outcrop of a few trees in
 + siliceous matrix - this layer
 5' 54 predominantly infusuous. The
 + 18" is no discernible break
 in the rocks or any evidence
 of an old soil - Trees at
 base

5' 54 Outcrop of layer of trees
 5' 54 in coarse, andesite tuff, poorly
 5' 54 bedded, but appears to be

54 less massive than finer
tuff below. Above is
tuffaceous material covered
by scree.

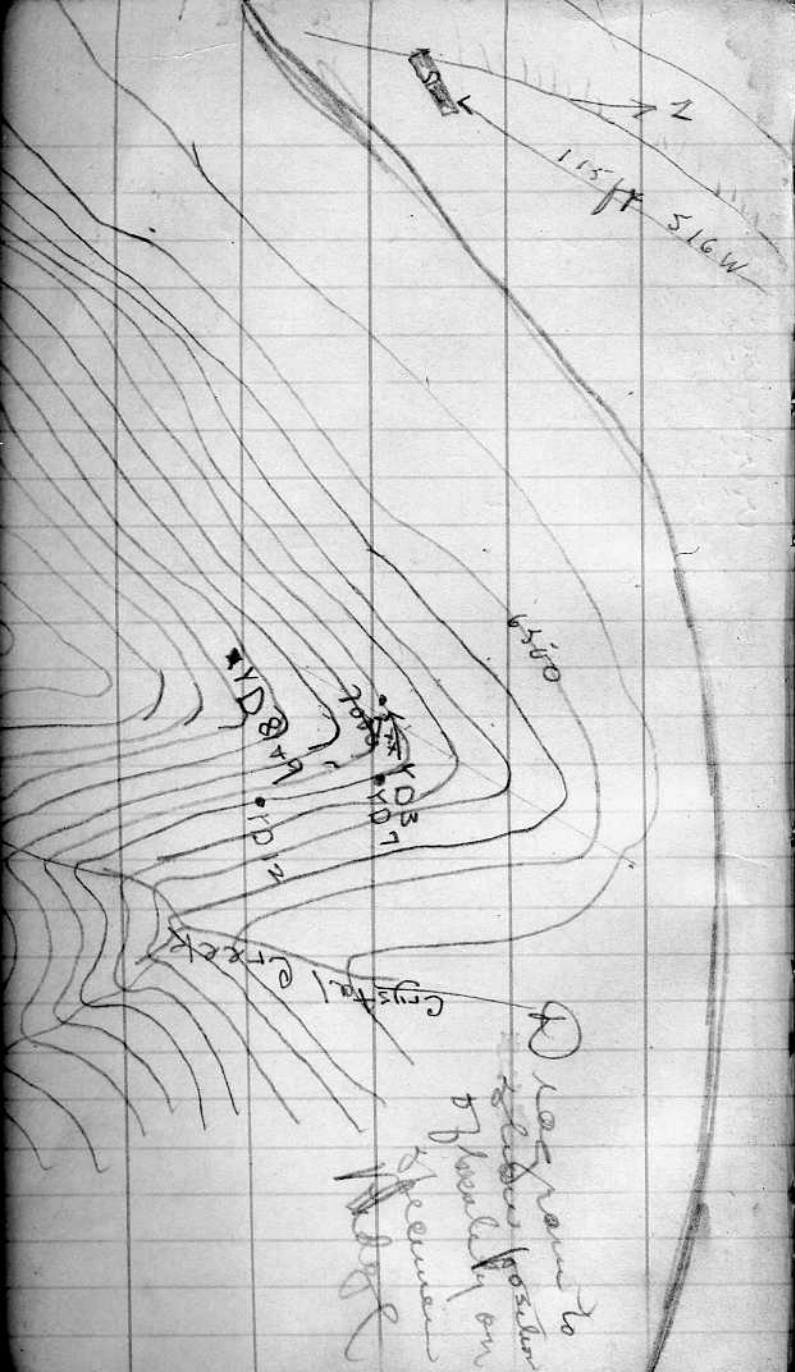
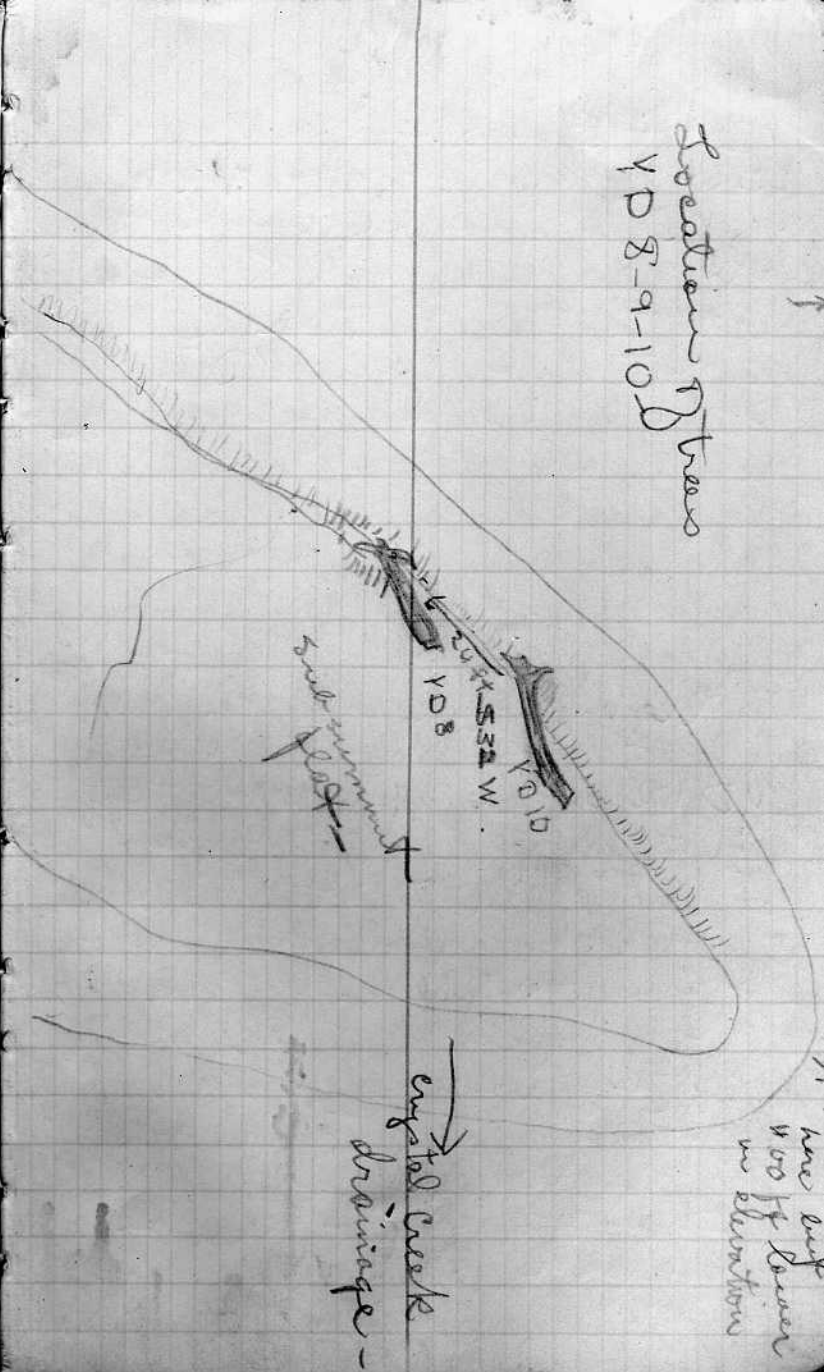
54 Series of steeply outcrops
here, some of which
are upright and others
prone - Contact obscured
by scree but lithology
changes into breccia
containing many fragments
less than 1" in diameter.

6 Transition into heavy
massive breccia contain
many large fragments -
This is at a few ft below
top of section - Contact
here between lower breccia
and upper massive
breccia outcropping
in ledges near sub-
summit flat. Roots
attending below contact.

4 Heavy breccia composed of
angular tuffaceous & thin
fragments cemented together

& with a minimum of
interstitial tuff or ash
5.54 At approx. 5 ft below top
5.54 is series of trees lying
56.54 prone & recorded YD879
5.54 These lie with trunk
5.54 oriented to N. 60-65 E
5.54 & roots pointing S 60-65
This suggests possible
source of breccia from
Washburn volcano
center. These trees are
Sequoia. A third exst
& is designated YD10 but
is too poorly preserved to
remove any sequoias
from. These are plotted
in location on the follow
page -

Location of trees
YD 8-9-10



Restroom to
be located on
the
hill

YD 8-9-10

Crest of hill

Crest of creek drainage

YD11 - Stump in group with
YD6-7 - approx 50 ft N 30 W
to YD7 and on point of
hill - Is a small Sequoia
with the top of stump a
few feet lower than YD7.

YD12 + Sequoia - #1 goes on
inside, #2 fits on side rather
low but tight - #2 fits
tight on #3 which laps on
side of #4 - #1 fits loose but
approx. on #4 - #5 fits on
#3 - tight and group of fragments
fits on outside of #4.

YD12 is an upright stump
of Sequoia about 100 yds.
S 46 E of YD7. It stands,
almost surrounded by sage-
bush, on the east face
of the spur of Specimen
Ridge above Crystal Cr.,
and appears to be on
the same level as the
YD1-7 group - The tree
is approx. S 83 W of Druid
Peak.

YD13 - Pines - This is a down
log in place in the
breccia. It lies in about
the same orientation as
YD8-9 (N 66 E). The log is
on an open hillside above
and to the west of
Crystal Creek above the
"Y" in the Specimen Ridge
horseback trail, 945 paces
from the Y is N 47 E and
it is approx. 100 paces
and 150 ft. above. Two
specimens were removed
a long sequence and
a short sequence from
outside for cross dating
YD14 Sequoia. This tree is
in place on the point of the
hill on the N side of the
creek draining Lost Lake. It
is approx. 100 ft above the
creek bed and slightly
to the right and above
the large standing and

badly shattered stump
plainly visible from the
trail between Lost Lake &
the Petrified Tree just after
the trail passes out of
sight of Lost Lake. It is
a down log with the orientation
of N71E.

D15 This is a large standing
Sequoia \approx 75E of YD(13) 14?
and about 88 paces. It
is sheathed in well
indurated Aebb on the
uphill side but the downhill
side is exposed and the
surface shattered. It
is in plain sight of the
lower end of Lost Lake and
is visible from the trail
running to the Petrified
Tree from the Lake. It is
approx. 10 ft lower than
YD14.

YD16 - "Good Pine" of Douglas
This is a piece of float in
the notch to the right
of the fence in Petrified tree
where the Howard Eaton trail
passes between Roosevelt Lodge
and the Petrified tree. It is on
slope near top and to
left of trail about 100 ft.

YD17 - This is a down log
apparently float, (Sequoia)
on the summit of hill above
Ranger Station. Two
short but characteristic
sequences were collected from
it.

YD18 - Large Sequoia Stump at
first pinnacle reached going along
hill from "Petrified Tree" to Lost
Lake. These pinnacles are in
the timbered area just south
of the notch or saddle above
the "Petrified Tree" where the Howard
Eaton trail leads to Tower Falls
Ranger Station. This Sequoia

at the first pinnacle reached and is almost above the loop in the road.

It is badly fractured and only one side is preserved. Two sequences were collected. One of these is from the center out and the other is a possible overlap on the outside.

YD7 Sequoia - just above (so far as lower most ledge of Breccia) which is outcropping in wall on slope below type Sequoia. It is encountered when ascending this slope following the ravine which bounds it on the NE. This stump is only a short distance (150 ft) from the ravine and directly above the precipitous outcrop of Breccia. It is 3 ft above ground and split so that one side is $\frac{1}{2}$ ft higher than the other

YD19 - Sequoia 53W+16 feet from YD7. Is just to right of Douglas Fir tree and slightly above. It is almost flush with surface of slope.

YD20 Flout from same horizon as YD19.

YD21 - Flout from below YD19.

YD22 - 5/4 W of YD7 + 38 feet. This is a large standing Sequoia.

YD23 - Pinus. This is a piece
of float though obviously from
summit of hill & in same
horizon as YD24. It was collected
about 30 paces from YD24 (so N
YD24 - ^{sequoia} large stump in position
containing many small rings -
Two sequences were collected
of which the longer has
two minor breaks but the
great number of rings
seemed to justify this collecting
even with the breaks. Its
position is N 84 W of the
Elk Creek turn on the Mammoth
Tower Falls road + N 12 W of
the conspicuous basalt covered
butte on Crescent Hill - It
is just below the summit
of the hill + on the N W side -
YD25 - Sequoia - This is only
a foot or two from YD24 +
is above - It is a prone log
which may possibly belong
to YD24 but that is not
clear from field relations.

One short sequence was collected from it.
YD 26 - Sequoia. This is one of the largest stumps I have seen in the park. The top only is exposed and two sequences were collected from the outside. One of these does not show good sutures but the sequence is without break (between 3 & 4). This stump is about 5-1 paces S of YD 25 - 6 -
YD 27 Sequoia - S 16 E + 25 paces from YD 26. This is a large standing stump but badly fractured. A sequence was collected from the outside for some distance in but not to the center. No bark was observed so it was impossible to judge whether the outermost rings were obtained -

YD 28 - This is a small Sequoia S 16 E + 4 paces from YD 27. An excellent sequence was obtained from this stump. No bark.
YD 29 - Sequoia S 40 E 33 paces from YD 27 - Another Sequoia stump from which good sequences were obtained but no bark. Stand
YD 30 - Sequoia S 33 E 26 paces - A fragment in place from which one very good sequence was collected. No bark.
YD 31 - 53 - These are badly shattered standing stumps of Sequoia magnifica located on the map but judged unsatisfactory to collect from due to the broken condition.

N33 W to "The Gut"
 N12 E to "Wellroaring"

Location of Elk Creek Trees

Sighting Station	Station Sighted	Bearing Sight	Paces Horizontal	Vertical Dist
YD24	→ YD25	Then 2	4 feet 25	S + 4
YD24	→ YD26	S13 W	54 (40°)	(2) 5.5
YD26	→ YD27	S16 E	25	4 ft
YD27	→ YD28	S12 E	4	Level of
YD27	→ YD30	S33 E	26	4 ft
YD27	→ YD29	S40 E	33	5.5
YD27	→ YD31	S43 E	31	3
YD27	→ YD32	N86 E	16	9'
YD27	→ YD33	S21 E	33	7'

YD34 - This is a large Sequoia which has dropped down but of place from a short distance above. The location is on the slope to the E of the YD20 group below the types of S magnific across the ravine. This tree is lying on a steeply inclined slope in the position plotted above. No bark is present & only a mediocre sequoia was collected.

YD35 Large Sequoia stump to right and W of YD34 (below) from which two good sequoias were collected. No bark was observed. This stump is in place & standing with its surface only a few inches above the ground.

YD36 - 5 paces and S4E of YD35. Is a small fractured sequoia.

Station A	Station B	Distance	vert. angle	Bearing	Remarks
YD35	YD38	46 paces	19°	N79E	YD35's collected
YD38	YD34	14 paces	12°	S86E	collected
YD36	YD37	46 "	17°	S9E	collected
YD35	YD36	5 "	15°	S4E	collected
YD39	YD38	15 "	6°	N21E	collected
YD35	YD39	36 "	29°	S63E	collected

YD37 - A large standing
Sequoia 46 paces + 59E of
YD36. Two sequences were
collected.

YD38 - A down pine
just above the leaf locality
which lies about 200 ft
down slope from Sequoia
type. The log is large
and lies flat on the
ground. It is broken
into several segments. One
sequence was collected from
it.

YD39 - N18E of end of loop
road to Petrified Tree and
just below crest of spur
on hill opposite Petr. Tree
and approx. 100 ft above
creek. Is a down log
below which is a great
deal of wood scree, chiefly
flat fragments.

Further notes on the
sequences

It may be said that the horizon marked by YD 13 is the highest horizon collected from on Specimen Ridge. Below this comes the group to which YD 8-9 belong and a short distance below, probably the next forest layer contains YD 3, YD 1-6, YD 11-YD 12. It is this horizon to which the trees from YD 40 on up belong. These were collected on the horizon mentioned on the sparsely wooded slope to the east of the slope containing the type sequoia on Specimen Ridge. Above this layer (probably) lies the horizon of YD 7 and above this only a few feet the horizon of YD 19, 20, 22. Below YD 7 is the horizon of YD 21.

Regarding the Lost Creek localities the trees YD 16, YD 14, 15, and YD 18 all belong to the same horizon as near as can be told. YD 17 lies about 200 ft above

Regarding the stratigraphic position of the whole of these trees it may be said that YD 24-33 lie the lowest. They are well within the Early Acid Baccian and cannot be correlated with any other horizon. I incline to the opinion that in this group the most satisfactory cross-dating in a single horizon will be done. The records are all fairly long and all are probably from the same horizon.

The Lost Creek specimens probably represent the next lowest horizon collected from. Two horizons here, that of Y016, 18, 14, 15 are lowest and above that of Y017.

The Specimen Ridge stumps can not with the present knowledge be correlated across the Yellowstone valley with those already discussed. The relations of these horizons has been discussed already.

I think that little can be done in correlation of the groups or horizons. My suggestion is that the attempts at cross dating be confined to a single layer at a time. The intervals between

horizons are too great
to cross by use of rings
of growth of trees. Likewise,
it is impossible to follow
any one horizon for any
great distance. The whole
problem, in final analysis,
is one of a bewildering mag-
nitude and can be solved
only by a great deal of
field work over a long
period of time.