TREES INDICATE RECENT ORIGIN OF YOSEMITE VALLEY

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The trees in Yosemite Valley are about 300 years old. Nobody claims, of course, that Yosemite Valley is that young. Yet the evidence from trees, and other evidence, shows that Yosemite Valley is much younger than sometimes stated. While the formation is often ascribed to glacial action, it seems likely that it, like many other features of the Earth's surface, may have been caused by the violent erosion which happened at the end of the Flood, in conjunction, perhaps, with earthquakes.

For many years my vacations were spent in or near Sequoia National Park. The remarkable redwood trees in that park are undoubtedly thousands of years old. When I first visited Yosemite National Park in 1950 the comparatively young trees amazed me. For years there was no publication which adequately discussed the trees of Yosemite, and Park Rangers had various and conflicting stories as to why trees comparable to those of Sequoia National Park could not be found.

Then, in July of 1964, Robert Gibbens and Harold F. Heady published their remarkably fine booklet entitled, *The Influence of Modern Man on the Vegetation of Yosemite Valley.*[1] Evidently the trees are of three age levels:

(a) First, scattered black oak, ponderosa pine, incense cedar, white fir, and Douglas fir trees show ages of 250-300 years. These are relatively few in number.

(b) Then there is a somewhat more numerous stand of intermediate age, that is, 174 years plus or minus 10 years.

(c) Finally, the oldest trees in the young forest, which predominates today, are only about 100 years old.

The above is clearly shown in various photographs taken in 1866, 1943 and 1961. A series taken from Union Point is remarkably clear, as shown in Figures 1, 2, and 3. Note how very sparse the trees were in 1866.

Causes of Irregular Tree Age

Gibbens and Heady are of the opinion that the Indians kept trees from growing by their practice of continual burning. But because of disease the Indians fled from the valley temporarily during the years from 1800 to 1810. This allowed the intermediate stand to become established.

The very young forest of trees only about 100 years old owes its origin to two and possibly three factors. Most important was the discontinuation of burning again when the white man took over the park. Thus Galen Clark in his letter to the Commissioners dated August 30, 1894 wrote:

> My first visit to Yosemite was in the summer of 1855. At that time there was no undergrowth of young trees to obstruct clear open views in any part of the valley from one side of the Merced River across to the base of the opposite wall. The area of clear open meadow ground, with abundance of luxuriant native grasses was at least four times as large as at the present time.[2]

Most of the young forest is post-1851 or about 100 years old. Other factors included over-grazing; especially after 1870 when the trees began an even more rapid increase. Later, drying out of the marshes and swampy meadows, which J. D. Whitney described in 1866, also allowed trees to increase.

Gibbens and Heady then raise the very pertinent question of why older forests were not established in the period since the filling of Lake Yosemite, presumably about 10,000 years ago according to orthodox geological concept. Lake Yosemite must have been of exceptional beauty for it filled the entire length and breadth of the valley and so was about 5½ miles long. Imagine the beauty of an early morning reflection of the cliffs of both El Capitan and Half Dome as well as the sprays of Yosemite Falls plunging into this lake!

This lovely lake, according to Francois E. Mathes[3] was gradually filled up by the Merced River and Tenaya Creek in the *same slow* manner that Merced Lake and Washburn Lake are now being filled up. However, it is more in line with evidence regarding the end of the glacial period, particularly in the later stages of glacial retreat, that *far greater* amounts of water flowed down these streams than now, even after the heaviest of snow-falls. Thus, according to Wallace S. Broeker, Maurice Ewing, and Bruce C. Heezen, "Evidence from a number of geographically isolated systems suggest that the warming which occurred at the close of the Wisconsin glacial times was *extremely abrupt.*"[4] (Emphasis added) Likewise Richard J. Russell, former president of the Geological Society of America, wrote:

> In summary, shoreline irregularity and the alluvial filling of valleys indicate a recent general rise in sea level. Comparatively small areas of deltas and topographic instability along coasts, which is evidenced by rapid advances from delta fronts and anomalous features such as Sapanca Lake, suggest that the rise in sea level *has been rapid.*[5] (Emphasis added)

Early Eyewitness Reports

Furthermore floods and rockslides contributed heavily toward filling the valley floor. According to Hutchings (1886):

> On December 23, 1867, after a snowfall of about three feet, a heavy down-pour of rain set in, and incessantly continued for ten successive days; when every little hollow had its own particular waterfall, or cascade, throughout the entire circumference of the valley, each rivulet became a foaming torrent, and every stream a thundering cataract. The whole meadowland of the valley was covered by a surging and impetu-

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Figure 1. Lower Yosemite Valley from Union Point, 1866. Note how very sparse the trees were even on talus slopes. The young forest had not started to grow.

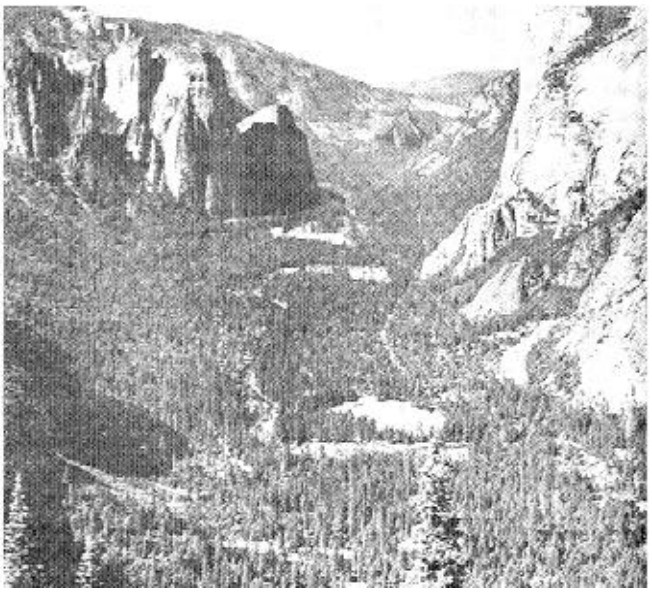

Figure 2. Lower Yosemite Valley from Union Point, 1943. The vantage point is a short distance to the left of the one used in 1866, the original view having been blocked by trees in the meantime. The young forest was only about 70 years old when this picture was taken.

> ous flood to an average depth of nine feet. . . . Immense quantities of talus were washed down upon the valley during this storm, more than at any time for scores, if not hundreds of years, judging from the low talus ridges, and timber growth upon them. After this rainstorm . . . a wind sprung up and blew down over one hundred trees. In one spot of less than seven acres twenty-three large pines and cedars were piled crosswise upon each other.[6]

Other major floods occurred in 1890, 1919, 1937, 1950, and 1955. Certainly, before recorded history of the valley, many such storms coupled with the heavy flow of the Merced River with melting glacial ice must have rather rapidly filled up Lake Yosemite.

Most interesting is the 1866 statement by state geologist J. D. Whitney:

> Along the banks of the river and over the adjacent rather swampy meadows we find . . . a dense growth of older . . . small trees of *Rhamnus* . . . A few willows, the Douglas fir *(Pseudotsuga menziesii),* and in the upper part of the Valley an occasional sugar pine. Where the Valley widens out, and the river banks become lower, so that sloughs and swamps are formed, the Balm of Gilead *(P. trichocarpa)* comes in. . . . On the drier and loose (sandy) portions the yellow pine *(P. ponderosa)* and incense cedar *(Libocedrus decurrens)* are the most abundant trees . . . the pines being usually from 125 to 150 feet high.[7]

These are the oldest group mentioned above.

It is my conviction that these forests show the extreme youth of Yosemite Valley. No doubt for many years during and immediately after the melting of the glaciers, great floods and destructive flows of ice and water kept forests from becoming established: and, only after the change-over to the comparatively mild climate we now have could forests get started.

Concepts on Valley Formation

Regarding formation of the valley, geologists such as Mathes postulate a slow formation of the river valley beginning about 60,000,000 years ago. He diagrams and describes this transformation to a U-shaped valley very clearly.[8] However, as shown most effectively by Henry M. Morris, the rather thin coating of Miocene, Pliocene, and Pleistocene strata as yet unconsolidated could be rapidly carved out by the violently flowing Merced River. The High Sierra mountain uplift occurred after deposition of these stratified rocks.[9]

Mathes indeed concedes that glaciers alone cannot erode granite walls unless the granite already has a tendency to break into blocks. Thus the 14 mile Grand Canyon of the Tuolomne River has walls rising to 5200 feet. Yet the glacier filling this valley was unable to change the V shaped canyon walls into the U-shape of intensely glaciated canyons.

Mathes attributes this to the fact that the granite of the Tuolumne canyon wall is made up of a few monoliths that are hundreds to thousands of feet long, and so these gigantic blocks cannot be dislodged by glacial action. The granite of Yosemite Valley however is closely jointed; and these joints are "avenues" for percolating water, quite acidic from decaying vegetable matter. Weaker minerals are decomposed, thus further weakening the granite blocks. When frozen, water widens the seams.

As a result of such weathering: there have been many rockfalls even in historic times. At the toe of El Capitan there is over 100 feet of broken rock fallen from the cliff. In some recesses the debris reaches 2000 feet in depth! John Muir witnessed the rare spectacle of the downfall of a whole pinnacle called Eagle Rock, on the south side of the valley not far from Moran Point, at the time of the Owen's Valley earth-

Figure 3. Lower Yosemite Valley from Union Point, 1961. The young forest thickly covered many areas, and was about 90 years old when the picture was taken.

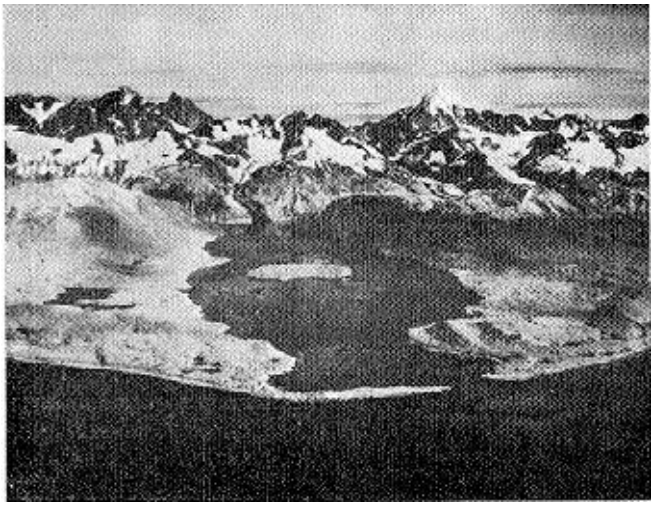

Figure 4. Lituya Bay and the surrounding country before the rock slide and wave in 1958. Note the extensive glaciers in the mountains. The greyish areas were covered with trees.

quake in 1872. His graphic account of the great avalanche of bounding rock resulting from the crash is an aid to comprehension of how very rapid erosion can be.

Comparison to Recent Event

A vivid idea of how violent rapid erosion can be, and no doubt was during the final stages of the melting of the Yosemite glacier, may be obtained from a description[10] of the damage caused by a quake-induced rock slide into Lituya Bay in the gulf of Alaska on July 9, 1958.

Lituya Bay, according to W. H. Dall, was "a Yosemite Valley retaining its glaciers, its floor submerged six to eight hundred feet." The bay lies at the confluence of two major glaciers, the North Collins and the Lituya; and a smaller glacier, called the Cascade, lies between the major glaciers.

The highest wave in history, causing a "big splash," occurred on July 9th, and trimmed off vegetation to an altitude of 1700 feet! A Mr. Swanson described that apparently Lituya glacier had "risen in the air and moved forward so it was in sight. . . . It seemed to be solid, but was jumping and shaking. . . . Big cakes of ice were falling off the face of it and down into the water," After a while "the glacier dropped back out of sight and there was a big wall of water going over the point (the spur southwest of Gilbert Inlet.)"

Vegetation was severely damaged. More than 1700 feet above the normal water level, trees were trimmed or thrown over and destroyed. Many of them resembled redwood logs trimmed by the "hydraulic barker" used in lumber mills along the Pacific Coast, Figures 4 and 5 vividly show the enormous damage.

Quakes of this sort give some idea of what the action must have been like when Yosemite Valley was filled with a huge glacier yet suffered earthquakes comparable to the one observed by John Muir.

Conclusion and Considerations

Finally, California State geologist Whitney, for

Figure 5. Lituya Bay after the slide and wave in 1958. The black areas in the foreground were formerly covered with trees, but the trees were largely destroyed, as is mentioned in the text. Other differences in shade may be because this picture was taken at a different time of the year than the time at which Figure 4 was taken.

whom Mt. Whitney was named, was of the opinion that the valley floor sank many hundreds of feet during a massive earthquake.[11] Modern geologists do not accept this concept, but a reconsideration of Whitney's ideas would surely be a worthwhile project for the Creation Research Committee of the Creation Research Society.

In other words, just how much of Yosemite Valley's great beauty is actually due to slow glacial action as claimed by John Muir, and how much resulted from rapid and violent earthquake induced erosion? Violently flowing streams filled with huge chunks of ice and boulders might well have been potent factors. The "glacial boulders" now perched on rock pedestals several feet high, such as those on Moraine Dome, are considered by Mathes as evidence that ice over

500 feet thick moved over the surface of this and other High Sierra areas.

Yet, when I travelled from Avila, Spain to Segovia, I saw boulders perched on top of pedestals. Indeed other boulders, just as in the higher mountain area above Yosemite Valley, are very characteristic features of that landscape. Yet the glaciers of Europe never reached Spain!

Surely a reconsideration of the so-called glaciation of the higher Sierra mountain areas is most logical. It is my hope that a more intensive study of the various questions involved in really explaining Yosemite Valley in terms of a recent time span of several thousand years may soon be undertaken.

References

[1]Gibbens, Robert F. and Harold F. Heady. 1964. The influence of modern man on the vegetation of Yosemite valley. University of California Division of Agricultural Science publication Manual 36, pp. 1-34.

[2]*Ibid.,* p. 7.

[3]Mathes, Francois E. 1970. The incomparable valley. University of California Press Berkeley. Los Angeles, pp. 130-131.

[4]Broeker, Wallace S., Maurice Ewing, and Bruce C. Heezen 1960. Evidence for an abrupt change in climate close to 11,000 years ago, *American Journal of Science,* Vol. 258, pp. 429-448.

[5]Russell, Richard J. 1957. Instability of sea level, *American Scientist,* Vol. 45, pp. 414-430. (See especially pp. 419 and 420.)

[6]Quoted in Gibbens and Heady, *Op. cit.,* p. 30. (Reference No. 1).

[7]*Ibid.,* p. 7.

[8]Mathes, *Op. cit.,* p. 89. Mathes uses a most interesting series of illustrations to show the orthodox explanation of Yosemite Valley. Also see the excellent illustrations of various stages of the Valley on pages 2 and 3 as Plates 2, 3, 4, and 5. This may very well have been the way Yosemite Valley appeared during various stages of formation. But, since mountain uplift occurred during the Pleistocene, erosion was extremely rapid compared to the present. (For a complete discussion of Flood geology concepts as regards mountain uplift and erosion see J. C. Whitcomb and H. M. Morris, *The Genesis Flood,* pp. 121-122 and refer to Psalm 104:5-9, 127-128, and 151-153.)

[9]*Ibid.,* pp. 50-51.

[10]Hall, Mary R. 1965. The Biggest splash in history. Mineral Information Service, California Division of Mines and Geology, Ferry Bldg., San Francisco. Vol. 18, No. 12, pp. 217-219.

[11]Whitney, J. D. 1868. The Yosemite book. Julius Bien, New York. 116 pp., 28 plates and 2 maps.

NOTICE OF BOOK RECEIVED

Physical Science for Christian Schools by Emmett L. Williams and George Mulfinger. Bob Jones University Press, Greenville, South Carolina 29614.

This book, intended for about the ninth grade, keeps the Biblical viewpoint in sight in the presentation of scientific studies. This work is mentioned at least to encourage teachers to investigate it during the summer. Readers should expect to find a full review in the next issue of the *Quarterly*.

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