



1871-10-01

Letter from [John Muir] to [Jeanne C. Carr], [1871 Fall ?].

John Muir

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Letter #90

[Letter copied from typewritten, bound set, as this letter is missing in mounted series of letters to Mrs. Carr]

1871?3
[Autumn, 1872]

To Mrs. Ezra S. Carr

[No heading to letter—portion evidently lost]

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omit →
... The bottom portion of the foregoing section, with perpendicular sides is here about two feet in depth and was cut by the water. The Nevada here never was more than four or five feet deep, and all of the bank records of all the upper streams say the same thing of the absence of great floods.

The entire region above Yosemite and as far down as the bottom of Yosemite has scarcely been touched by any other denudation than that of ice. Perhaps all of the post-glacial denudation of every kind would not average an inch in depth for the whole region.

Yosemite and Hetch Hetchy are lake basins filled with sand and the matter of moraines washed from the upper canyons. The Yosemite ice in escaping from the Yosemite basin was compelled to flow upward a considerable height on both sides of the bottom walls of the Valley. The canyon below the Valley is very crooked and very narrow, and the Yosemite glacier flowed across all of its crooks, and high above its walls without paying any compliance to it, thus [Drawing] The light lines show the direction of the ice current.

In going up any of the principal Yosemite streams lakes in all stages of decay are found in great abundance regularly becoming younger until we reach the almost countless gems of the summits with scarce an inch of carex upon their shallow sandy borders, and with their bottoms still bright with the polish of ice.

Upon the Nevada and its branches there are not fewer than a hundred of these glacial lakes from a mile to a hundred yards in diameter, with countless glistening pondlets not much larger than moons.

All of the grand fir forests about the Valley are planted upon moraines and from any of the mountain tops, the shape and extent of the neighboring moraines may always be surely determined by the firs growing upon them.

Some pines will grow upon shallow sand and crumbling granite, but those luxuriant forests of the silver firs are always upon a generous bed of glacial drift. I discovered a moraine with smooth pebbles upon a shoulder of the South Dome, and upon every part of the Yosemite upper and lower walls.

I am surprised to find that water has had so little to do with mountain structure here. Whitney says that there is no proof that glaciers ever flowed in this valley, yet its walls have not been eroded to the depth of an inch since the ice left it, and glacial action is glaringly apparent many miles below the Valley.

omit → [John Muir]