Whitney Portal in the Sierra Nevada.

Alluvial Fan in the Inyo-White Mountains.

Sunrise shadows cast by the Inyo-White Mountains descend the Sierra escarpment before disappearing at midday on the hot valley floor. Sunset shadows from the Sierra crest cool the valley floor before overtaking the Inyo-White Mountains. Corresponding daily temperatures vary over a range of 40°F (22.2°C) or more with the passing shadows.

Seasonal rhythms of snowfall and melt overlie the daily changes of sun and shadow. Each winter, deep snow covers the Sierra peaks, carried there by rising winds from the Pacific Ocean. Each summer, the melt recharges one of the world's great underground reservoirs.

Whitney Portal, topping at 14,500 feet (4419.6 m), is the most dramatic example of lateral valleys that are etched into the Sierra Nevada slopes by melting snow. Precipitation drops off sharply from 40 inches (101.6 cm) on the crest to only 3 inches (7.6 cm) on the valley floor. Trees mark streambeds where water cascades year round, cutting through foothills to meet the Owens River.

The Inyo-White Mountains, bounding the east side of the valley, are older and lower than the Sierra Nevadas on the west. The outline here is not so sharp against the sky. The snowcap is smaller, just a fringe outlining softer contours. Still, the spring melt causes periodic stream action that deposits rich alluvial fans on the valley floor. Today, green irrigated fields define the edge of each cone-shaped fan where it meets the valley floor.

On the valley floor itself, the seasonal Owens River runs between the two mountain ranges. It follows a slow, ambulating course southward through a high-desert landscape. The stream gradient is slight, allowing major sideways movements that leave oxbows along the way. At the valley's south end, an estuary seeps into Owens Lake. The lake is shallow and dries up each year after spring melts, depositing snow-white salts that now blow in the wind from where they are being processed for commercial use.

Owens River with Oxbows on the Valley Floor.

The action of sun, rain, and snow in the valley creates a highly differentiated ecosystem. Plant and animal communities are narrow in the east–west direction: alpine dropping away quickly to high desert in sharply bounded steps. On the other hand, the same communities are elongated in the north–south direction, running more than 100 miles (160.9 km) in narrow strips the whole length of the valley.

The Paiute took advantage of the valley's richness by migrating. They lived in village groups, each exclusively occupying an oblong territory that stretched from west to east following the direction of greatest biodiversity. Within each territory, a village group moved in yearly cycles. Starting from permanent winter dwellings in the Sierra Nevada foothills, they traveled eastward in spring to spend summer by the river. In fall they continued eastward to harvest pine nuts below the Inyo-Whites, returning to their permanent dwellings before winter. Along the way, they gathered food and materials, always remaining within their north and south boundaries. An account of these travels remains today in an old man's recollections.[2] He speaks to his grandchildren: