Sibley Volcanic Regional Preserve

Continued from reverse

6 This is a sequence of basaltic tuffs (ash) lying on top of a dark lava (far left), all tilted steeply to the east. The base of the tuffs was baked red, probably because the lava below was still hot and steaming when the ash landed. At the top of the sequence there is another lava flow (far right, to the right of the post) that baked the underlying tuffs red. Before you is a basalt flow, massive at left, rubble to the right. The lower parts, coming into contact with cold land surfaces, harden early and are often jumbled by turbulence and drag. The angle of the cut here makes the flow structure of the flow difficult to visualize, and the picture is further complicated by a shear zone (fault) cutting from lower left to upper right in the massive basalt. The rubble piece of the flow is filled with vesicles caused by gas pockets, which were later filled with chalcedony, opal, calcite, zeolites, and sometimes green celadonite. To your far right you can see another view of the sequence at stop 6. The thin parallel bands in the soft tuff suggest that the ash fell into water because bedding in ash that falls on dry land is usually disrupted by tree roots.

7 This huge, reddish-brown block of lava fell from the top of a dark lava (far left), all tilted steeply to the east. The base of the tuffs was baked red, probably because the lava below was still hot and steaming when the ash landed. At the top of the sequence there is another lava flow (far right, to the right of the post) that baked the underlying tuffs red. Subsequently it was shifted about three and one-half miles northwest by movement along Wildcat Fault. That makes a total of four volcanoes.

8 The brick-red knobs in the foreground, and rugged outcrops of the same color on the skyline, are made of cinder that blew from Round Top and landed while still hot, so the pieces welded together. A gingerbread outcrop just beyond the trail is the only one, however, that you will see.

WELCOME! Please enjoy our Regional Parks safely, and help us protect and preserve your parklands by complying with park rules and regulations.

SAFETY and ETIQUETTE

- Stay on trails. Taking shortcuts can be dangerous and cause erosion.
- Water swimming in undesignated areas may be dangerous and may harm the watershed.
- Carry and drink plenty of water. Dehydration is a leading cause of injuries on the trail.
- Be prepared for sudden changes in weather conditions.
- Trails can be slippery, rocky and steep. Proceed carefully at your own risk.
- Wildlife may be present on the trails at any time. Feeding or approaching wildlife is dangerous and illegal.
- Bicycles are permitted on designated trails only. Horses have the right-of-way on trails.
- Keep the parks beautiful. Pack out what you pack in.

Sibley Volcanic Regional Preserve

To Reach Sibley Volcanic Regional Preserve:

From Highway 24 just east of the Caldecott Tunnel, take the Fish Ranch Road exit and go north, uphill, for 0.8 miles to Grizzly Peak Blvd. Turn left and go 2.4 miles to Skyline Boulevard. Turn left on Skyline and proceed to the park entrance, on the left. PUBLIC TRANSIT: The closest bus line is AC Transit #18, which runs to the Montclair Transit Center in Montclair. From 12th Street BART or 19th Street BART, take AC Transit bus #18 to the Montclair Transit Center. Call AC Transit to confirm transit information: dial 511 (TDD/TTY: 1-800-448-9790).

If you would like this information in an alternative format, please contact the EBPRD Public Affairs Department at (510) 344-2200, fax (510) 635-3478, TDD (510) 633-0460, or info@ebparks.org.
A SELF-GUIDED TOUR OF ROUND TOP VOLCANOES

By Stephen W. Edwards
Director, Regional Parks Botanic Garden

Robert Sibley Volcanic Regional Preserve features a complex volcanic center that was the source, 10 million years ago, of most of the lavas that underlie the ridges from Inspiration Point in Tilden Regional Park to Moraga. Round Top consists of lavas, breccias, and tuffs of varying textures and colors. Though Bounded on Round Top was once the infilling of a great crater, it stands out today because it was originally surrounded by sedimentary rocks of the Orinda Formation, which have eroded away. During the past 10 million years the Berkeley Hills were uplifted due to strata on the Hayward and Moraga fault systems. This uplifted the rock formations, and the Round Top vent complex was tilted on its side. Hence, folding and erosion have exposed a cross section of a volcano, right down to its roots.

The blocks of stone scattered around the flanks of Round Top are basalt lava, a hard, dense, dark volcanic rock. Lava from the vent has been dated at UC Berkeley; the oldest is 10.2 million years old. A great diversity of volcanic phenomena is preserved for study at Sibley. Basaltic dikes (feeds of the vents), tuff-breccias (ash containing a jumble of blocks and chunks of lava), lava flows, red-baked cinder piles, and the major vent itself can all be seen in an easy hike. The numbered descriptions below correspond to stops indicated by numbered posts along the trail.

1. Walk up the paved road to the EBMUD water tank to see a dark basalt dike, an important feeder of lava to the crater, that cuts through a sequence of tuff-breccias (grayish brown) and pebbly mudstones (light gray), inside and near the crater bottom. The mudstones indicate ponding of water; the tuff-breccias are the remains of landslides and blockfalls into the pit from the surrounding walls. This pit was made by quarry operations in which huge amounts of massive basalt lava were removed. The pit exposes the interior of the Round Top volcano. You are standing on bedded tuff-breccias, which filled much of the crater, settling at times into a small lake. Studies of exposures north and south suggest the crater was a little wider than the present quarry pit. The steep wall across the pit consists of lava that capped the crater after it was filled. Eventually the Round Top vent buried itself in basalt flows. Note the view of Mt. Diablo, which contains submarine volcanic rocks, but was not a volcano.

2. This roadcut exposes Orinda Formation river gravels, sands, and mudstones. The red (when moist) streaks and layers in these river beds were caused by oxidation of iron in the sediments. Such varicolored “redbeds” sometimes contain fossils of plants and animals. Elsewhere in the Preserve, bands of more intense red are found at the tops and bottoms of lava flows, where iron was oxidized and reddened by baking and steam action; these bands are called “bake zones.”

3. Massive basalt was removed from this major quarry pit. The north wall shows a set of thick lava flows tilted on edge, nearly vertical. The well-defined layers near the top of the face are jointing-planes resulting from shrinkage caused by cooling. They are analogous to the basalt pillars of Devil’s Postpile in the southern Sierra.

4. Before you is a wall with basalt on the left and Orinda mudstones on the right. The bedding in the mudstones gives the appearance of drag-folding resulting from relative uplift of the land occurring during the past 10 million years. Alternatively, the disruption of the mudstones may have occurred earlier, at the time of volcanic activity. This site was close to, or was in, the wall of the volcano, and would have been subject to slumping, sliding, and plowing.

5. Contour interval 20 feet in Claremont Canyon, Redwood, and Sibley triangle west of Thornhill Dr. Contour interval 10 feet elsewhere.