

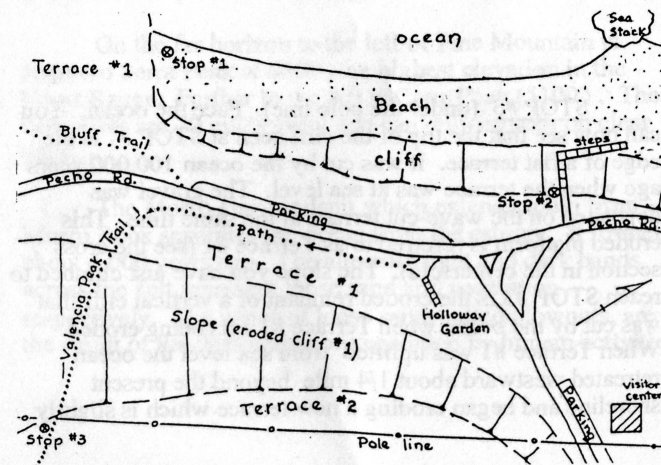
SELF-GUIDED GEOLOGY  
WALK TO VALENCIA PEAK

## SELF-GUIDED WALK - VALENCIA PEAK TRAIL

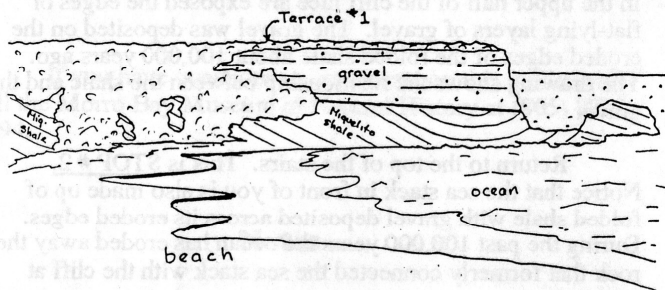
Park at the Visitor Center. Walk across Pecho Road to the stairs that lead to Spooner's Cove beach. Walk south on the beach to the base of the cliff. This is STOP #1.

The rock exposed in the lower half of the cliff is shale. It was deposited 6 million years ago in an ocean which at that time extended many miles to the east. It is referred to as the Miguelito Shale. The layers were originally deposited in a horizontal position, but about 3 million years ago were folded. The layers are dipping toward you at a steep angle. In the upper half of the cliff face are exposed the edges of flat-lying layers of gravel. The gravel was deposited on the eroded edges of the folded shale about 100,000 years ago. The drawing shows the relationship between the shale and the gravel.

Return to the top of the stairs. This is STOP #2. Notice that the sea stack in front of you is also made up of folded shale with gravel deposited across its eroded edges. During the past 100,000 years the ocean has eroded away the rock that formerly connected the sea stack with the cliff at STOP #1.



Recross Pecho Road and follow the path that heads southward parallel to the road. A sign marks the beginning of the Valencia Peak Trail. Poison oak is a minor problem on this trail. The only concentration is at "Poison Oak Spring", the location of which is identified in the Guide. Rattlesnakes are rarely seen but be alert. You should check your body and clothing for ticks when you return home. Proceed up the trail to the sign at STOP #3.



STOP #1

**STOP #3** (under the pole line). Face the ocean. You can now see that the top of the cliff seen at STOP #1 is the edge of a flat terrace. It was cut by the ocean 100,000 years ago when the terrace was at sea level. The gravel was deposited on the wave-cut terrace at the same time. This eroded platform is referred to as Terrace #1 (see the cross section in the centerfold). The slope you have just climbed to reach STOP #3 is the eroded remnant of a vertical cliff that was cut by the ocean when Terrace #1 was being eroded. When Terrace #1 was uplifted from sea level the ocean retreated westward about 1/4 mile beyond the present shoreline and began eroding a new terrace which is slightly

below sea level. This terrace will be referred to as Terrace #0. It has been undergoing erosion by the ocean for the past 100,000 years.

Proceed up the trail passing the junction with Rattlesnake Flats Trail. You are crossing Terrace #2 which was at sea level 150,000 years ago. Ahead of you is a low hill which is the eroded remnant of the cliff that stood inland of Terrace #2 when it was located at sea level.

The trail turns to the right and climbs diagonally along the face of this eroded cliff. Past the turn there is a short section of railing on your right. Note the verdant plant growth which is watered by a spring. Later we will refer to this as "Railing Spring". Continuing on the trail you quickly come to a fork. Bear left and stay on the main trail. Do not use any of the "short cuts" that branch off to the left. A short distance beyond a switchback is STOP #4 located across the trail from a large outcrop of Miguelito Shale. You are almost to the top of the cliff behind Terrace #2.

**STOP #4.** Face the ocean. From here you can see Terraces #1 and #2 (as well as #0 which is presently being cut). You are on your way up to Terrace #3. Refer to the cross section and map in the centerfold and review your progress across the lower terraces and the cliffs that formed behind them. Continue up the trail a distance of about 300 feet. On your right is an outcrop of gray and orange sandstone. This has been cemented from sand that accumulated on Terrace #3. The orange areas are rich in iron which has leached from the gray areas. Continue up the trail about 150 feet to a thicket of chaparral vegetation sustained by a spring located at the head of the gully a short distance ahead on your right. This spring will be referred to later as "Poison Oak Spring". It is on the same subsurface stream and supplies "Railing Spring" on the trail below.

Just beyond is an outcrop of gravel on the right side of the trail. This was deposited by streams draining the hillsides when Terrace #3 was at sea level. It rests on the eroded edges

of Miguelito Shale. The contact is below the surface. The trail curves around to the right and in about 100 feet you are walking on more of the gray/orange sandstone. Notice how well it is cemented. Continue up the trail (which is just to the left of a small gully) to STOP #5.

STOP #5. You are standing on the seaward edge of Terrace #3. Inland it extends to the base of a steep hill which is the remnant of its original cliff. The flat terrace across the deep ravine to the south is also part of Terrace #3. A walk-in campsite is in the grove of eucalyptus trees. The ravine, which is the headwaters of Corallina Creek, has eroded into Terrace #3 since it was uplifted about 200,000 years ago. The same gray/orange sandstone seen earlier is exposed in the shallow gully just north of the trail. Notice that there is only about 12 inches of soil over this well cemented impermeable sandstone. This hard layer extends under all of the surface of Terrace #3. Face eastward (up the trail). Off to the right is a large clump of shrubs called wax myrtle. It is a water-loving plant often found along creeks. Here it is getting enough water from the surface of the shallow hard sandstone. The groundwater flowing through the wax myrtle continues down the gully to "Poison Oak Spring" and "Railing Spring". Ahead and to the left of the trail is another clump of wax myrtle also on a concentration of groundwater perched on the sandstone.

Continue up the trail. At the base of the eroded cliff of Terrace #3 is a junction with 2 trails. On the left, a branch of Valencia Peak Trail leads down to the Visitor Center. ~~The sign is misleading - ignore it.~~ You may wish to use this trail on your descent from Valencia Peak. On the right is Badger Trail (no sign) which leads to the walk-in campsite referred to at STOP #5. The middle trail leads to the Peak climbing diagonally across the eroded face of cliff #3. At the first switchback is STOP #6.

STOP #6. To the south, Coon Creek enters the ocean between the green irrigated field on P.G.&E. property and the coastal scrub plants in the State Park. The second point south of Coon Creek is Point Buchan (see page 10).

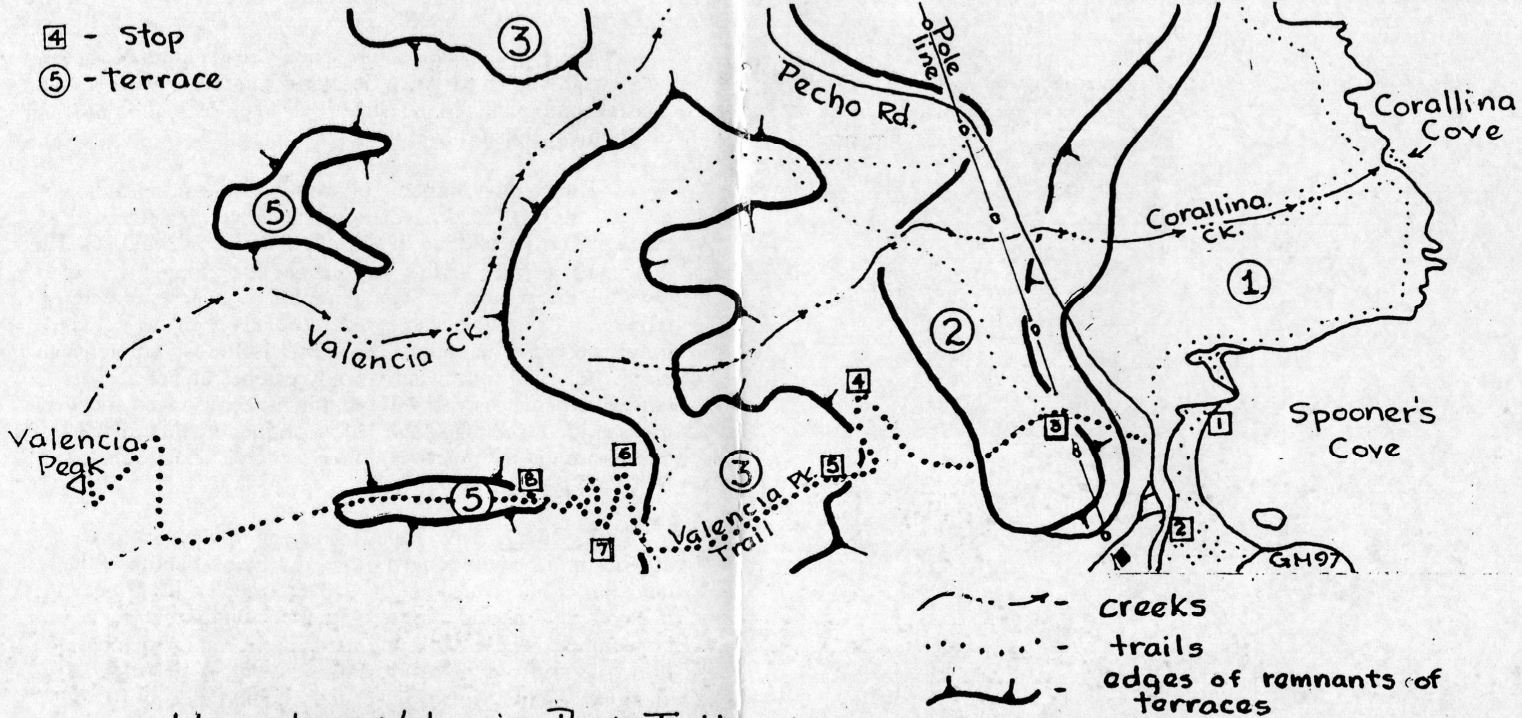
The canyon immediately south of this stop is being cut by Corallina Creek. Note that the canyon is deeper through Terrace #3 than it is through Terrace #2 and #1. This is because Terrace #3 has been eroded for a longer time than have the lower terraces. Keep in mind that each succeeding terrace up from the ocean is older and has been subjected to longer periods of erosion. Terrace #1 is almost uninterrupted along the ocean front whereas only patches of Terraces #2 and #3 remain. As you will see, the higher terraces are even more eroded (see map page 10). Continue up the trail. It curves around to the east and then switches back to the south. STOP #7 is at the switchback.

STOP #7. This stop affords a good view to the west and north. Locate Sooner's Cove. Terrace #1 south of the cove has a flat surface but the same terrace north of the cove is covered with sand dunes. Note the "hummocky" appearance. These dunes are made up of sand which has blown south from the Morro Bay sandspit. You can see a small part of the Morro Bay estuary behind the spit. The valley immediately below you is called Reservoir Flats. It is a natural depression which the ranchers used as an irrigation pond. It is an ancient stream bed dating back to the time when Terrace #2 was being eroded at sea level. Present Islay Creek is located a short distance to the north.

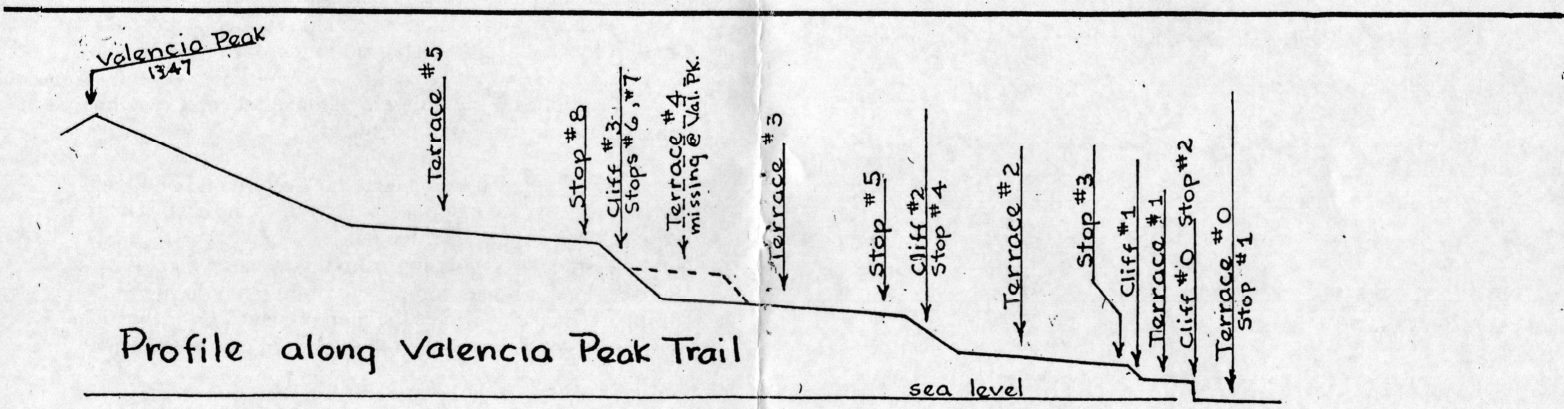
Continue up the trail which makes several switchbacks before reaching the top of the hill.

STOP #8. This stop is at the western end of a long narrow ridge which extends up the trail to the east. The ridge is the last remnant of Terrace #5.

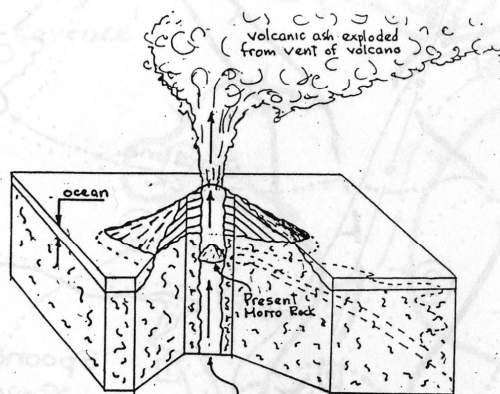
Note - Terrace #4 is missing from this western face of Valencia Peak. It was completely obliterated during the cutting of Terrace #3. See the map on page 10 for locations of remnants of Terrace #4 in the northern part of the Park.



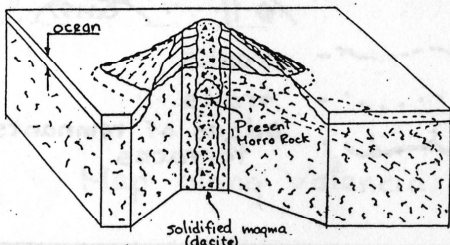
Map along Valencia Peak Trail



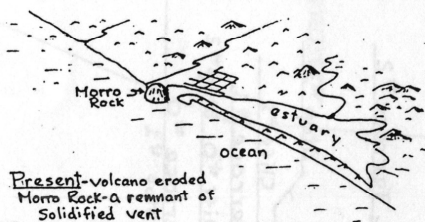
Profile along Valencia Peak Trail



Eruption - 22 million years ago



Following last eruption



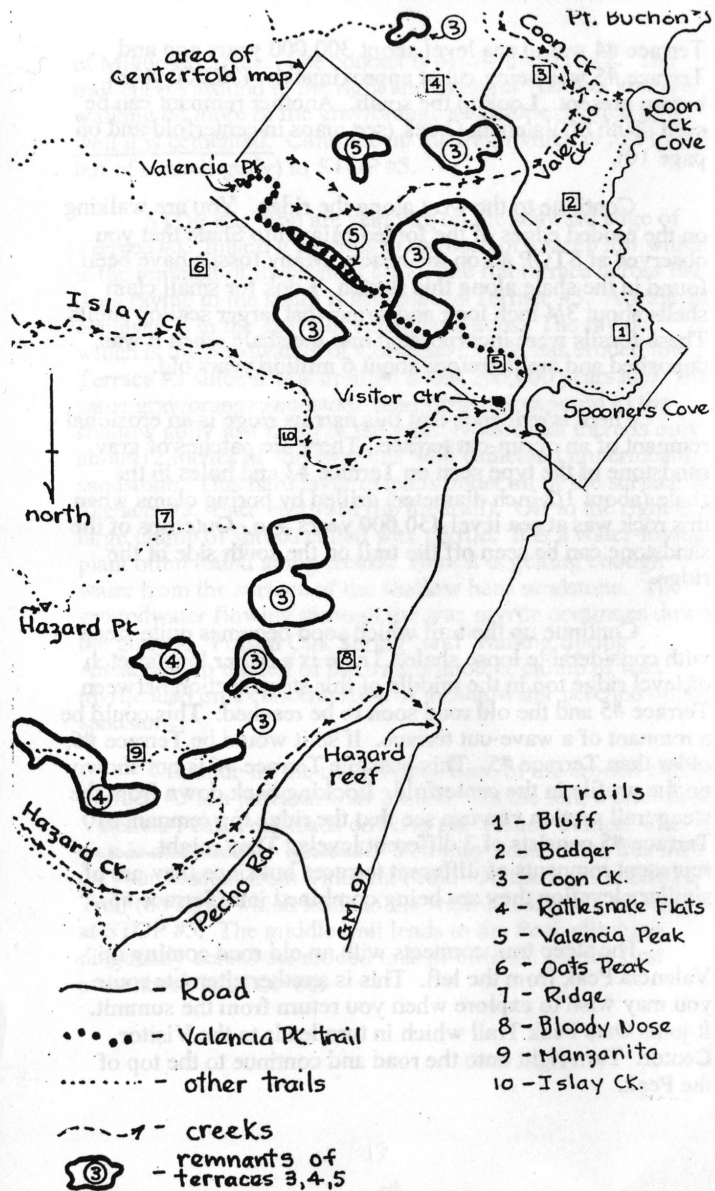
Terrace #4 was at sea level about 300,000 years ago and Terrace #5 was being cut at approximately 450,000 years before present. Look to the south. Another remnant can be seen south of Valencia Creek (see maps in centerfold and on page 10).

Continue to the west along the ridge. You are walking on the eroded edges of the folded Miguelito Shale that you observed at STOP #1 on the beach. Many fossils have been found in the shale along this stretch. Look for small clam shells about 3/4 inch long and somewhat larger scallop shells. These fossils were incorporated into the shale when it was deposited and are therefore about 6 million years old.

There is evidence that this narrow ridge is an erosional remnant of an ocean-cut terrace. There are patches of gray sandstone of the type seen on Terrace #3 and holes in the shale (about 1/2 inch diameter) drilled by boring clams when this rock was at sea level 450,000 years ago. Outcrops of the sandstone can be seen off the trail on the south side of the ridge.

Continue up the trail which soon becomes quite steep with considerable loose shale. There is a rather long stretch of level ridge top in the middle of this steep section between Terrace #5 and the old road soon to be reached. This could be a remnant of a wave-cut terrace. If so it would be Terrace #6, older than Terrace #5. This possible Terrace #6 is not shown on the profile in the centerfold. Looking back down from the steep trail section you can see that the ridge top remnant of Terrace #5 consists of 3 different levels. They might represent remnants of different terraces but since they are of similar elevation they are being combined into Terrace #5.

The steep trail connects with an old road coming up Valencia Peak from the left. This is another alternate route you may wish to explore when you return from the summit. It joins Oats Peak Trail which in turn leads to the Visitor Center. Turn right onto the road and continue to the top of the Peak.



At the summit, open the Trail Guide to an 8 1/2" x 11" position with the covers facing up. Orient the arrows so that the Morro Rock arrow points to Morro Rock. The arrows radiating from the center may now be used to sight on distant points of interest..

Morro Rock, Black Hill, Cerro Cabrillo and Hollister Peak are the westernmost of 8 "morros" that extend in a straight line to San Luis Obispo. Hollister Peak is the second highest of the morros at 1400'. Cerro Cabrillo has two peaks separated by a saddle. They are all the erosional remnants of extinct volcanoes which last erupted about 22 million years ago. See drawings on page 8. The upper part of the solidified vent as well as the sloping flanks have been eroded leaving the lower part of the hardened vent standing above the surrounding softer rock. Since it solidified from molten material it is referred as igneous rock.

The twin peaks of Pine Mountain and Rocky Butte are located along the top of the Santa Lucia Range. They are also remnants of hardened volcanic vents of the same age and composition as the "morros". They are lined up with some 2 dozen smaller peaks over a length of about 20 miles.

On the far horizon to the left of Pine Mountain is Junipero Serra Peak at 5800', the highest elevation in the Coast Range. Farther to the left is Cone Peak (5100'). These two peaks are 70 miles away and can only be seen on clear days.

The Morro Bay sandspit which extends south from Morro Rock separates the ocean from the estuary. It formed about 4,000 years ago. The alternate light and dark bands across the spit represent loose sand and vegetation respectively. The zones of loose sand, called blowouts, are the result of the destruction of vegetation by human activities.

The prominent eroded valley descending from the east edge of the Park might be an ancient streambed of Islay Creek cut prior to the repeated uplifts which have been responsible for the terraces.

Alan Peak at elevation 1650' is the highest point in the Park.

Finally, the high ridge to the south beyond Coon Creek is on P.G.&E. property. The trees on the skyline are Bishop pines.

If you have questions or comments on this guided walk call the Morro Bay Museum of Natural History at (805) 772-2694.

### Notes . . .