Craig Channel. Craig Channel separates San Marcos Island from the main-land. It is a little over a mile wide in its narrowest part and 4 fathoms of water may be carried through it. In using it, care must be taken to avoid the shoal that makes off from the south point of San Marcos Island, which has 3 fathoms on its southern edge, quickly shoaling to 2 and 1 fathoms.

Variation. Tides. The magnetic variation at San Marcos Island was 11° 20′ E. in 1878, increasing about 2′ annually. Tides rise about 4 feet.

San Lucas Cove. San Lucas Cove is a safe anchorage in all weathers for boats or small craft drawing *less than 6 feet of water*. It is about 2 miles in extent, north and south, and from a half to three-quarters of a mile wide. The entrance is narrow and shoal, with a small sand island nearly in the centre, which bears S. 55° W. (SW. mag.) from the north end of San Marcos Island, distant 6 miles. The channel is on the north side of the island, and has from 1 to 1½ fathoms of water in it at low tide; inside the cove the depth of water varies from half a fathom to a fathom.

The coast from San Lucas Cove to Santa Maria Cove. From the entrance to San Lucas Cove the coast trends northerly and is low and sandy for 3 miles, to a prominent point surmounted by a red mound 60 feet high. Thence to Santa Maria Cove, a distance of 12½ miles N. 30° W. (NW. ¼ N. mag.), the coast is a succession of bluffs of moderate height, with intervening sand beaches. The land back rises gradually to a high range of mountains in the interior. Las Tres Virgenes, over 6,000 feet high, are plainly visible to the north-westward. The soundings along this part of the coast show, with one or two exceptions, deep water close to the shore, from 20 to 40 fathoms being found a mile off.

Santa Agueda Point. Santa Agueda Point is five miles to the north-westward of the point at the foot of the red mound before mentioned, and is the eastern point of entrance to a lagoon and cañon of the same name. It is low and sandy, with a shoal extending half a mile off it, and across the entrance to the lagoon; outside the shoal the water deepens quickly, 60 fathoms being found half a mile off. A short distance north of the point is a large rock 15 feet high.

Six cañons. Cañon de Santa Agueda is the southernmost of six similar valleys, or cañons, between Santa Agueda Point and Santa Maria Cove. These cañons are widely known for their yield of rich copper ore, which comes from some distance in the interior. The mines were being worked at the time of the *Narragansett's* visit, and during that year 18 ships were loaded with the ore from these cañons, principally for European markets. The ore taken away (malachite) is mostly surface ore.

Cañon de Providencia, Cañon de Purgatorio, Cañon de Soledad, and Cañon de Santa Rosalia lie to the northward of Cañon de Santa Agueda, distant about a mile from each other. At the two first mentioned there are landing piers, and a short distance to the northward of Cañon de Santa Rosalia there is a ranch close to the beach.

Anchoring. Caution. In anchoring off these cañons the lead must be kept constantly going, as the water is deep to within a quarter of a mile of the shore and then shoals suddenly.

Santa Maria Cove and Cañon. Santa Maria Cove lies 3 miles to the northward of Cañon de Santa Rosalia. It is about three-quarters of a mile wide and a quarter of a mile deep; the southern shore is rocky, with bluffs and low hills back of it; on the north side the land is hilly, ending in a sharp, bluff point, with numerous outlying rocks off it; at the head of the cove is a shingle and sand beach. Santa Maria Cañon opens into the cove.

Anchorage. Anchorage may be had in Santa Maria cove, about a quarter of a mile from the beach, in 5 or 6 fathoms of water, with shelter from NW. winds, but open to south-easters. The southernmost and highest of Las Tres Virgenes, 6,547 feet high, lies 15½ miles N. 83° W. (W. ½ S. mag.) from the anchorage, and is a good mark when making for it.

Variation. Tides. The magnetic variation at Santa Maria Cove was 11° 40′ E. in 1875, increasing about 2′ annually. Spring tides rise about 6 feet.

Tortuga Island. Tortuga Island lies 23 miles nearly due east of Santa Maria Cove, its highest peak bearing N. 48° E. (NE. ¾ N. mag.) from the north end of San Marcos Island, distant 15½ miles. It is mountainous and barren, about 2 miles long ESE. and WNW. by a mile in width at the centre, narrowing towards the ends. The highest peak, near the southern shore, is 1,016 feet high.

Coast from Santa Maria Cove to Cape Virgenes. From the northern limit of Santa Maria Cove the coast first trends nearly north for 3½ miles, and then gradually falls away to the north-westward for 3 miles farther, to Cape

Virgenes. The land comes down to the coast in steep slopes from Santa Maria Mountain, which is about 3½ miles inland and 4,424 feet high, its ridge running parallel to the coast for several miles. The shore is of broken bluffs, varying in height from 30 to 200 feet, with occasional gravel beaches and deep arroyos.

The depth of water off this part of the coast is very great, soundings within 1¼ miles of the shore showing no bottom at 300 fathoms.

Las Tres Virgenes. From 12 to 14 miles inland are three remarkable mountains lying nearly parallel to this part of the coast, known as Las Tres Virgenes, the highest of which reaches an altitude of 6,547 feet. They are the north-eastern end of a continuous belt of volcanic peaks extending toward San Ignacio. (View opposite page 98.)

Sulphur. Sulphur is said to be found in abundance in the vicinity of these volcanoes.

CHAPTER III.

FROM CAPE VIRGENES TO THE ANCHORAGE OFF PHILIP'S POINT, COLORADO RIVER.

Cape Virgenes. Cape Virgenes is a rocky cliff about 200 feet high, surmounted by a hill 600 feet high, the high coast-range lying a short distance inland. Soundings off the point gave 5 fathoms close to, deepening rapidly to 130 fathoms a mile off. North-westward of Cape Virgenes the coast is generally low, the mountain range being several miles in the interior.

Punta Baja. Punta Baja, which is 4½ miles from Cape Virgenes, is of shingle, with a shoal extending off a short distance. Just south of the point is the mouth of a cañon which leads up to a silver mine, known as *Reforma*. About three-quarters of a mile to the south-eastward of the point is a landing place, marked by a flag-staff with a white flag.

Santa Ana Point and Bay. Santa Ana Point, seven and a quarter miles farther up the coast, is steep, with hills 400 feet high immediately back of it. It forms the eastern limit of Santa Ana Bay, which is about 3½ miles wide and from a quarter to three-quarters of a mile deep. The southern and western shores of the bay consist of sand and shingle beaches, the low-land back of them sloping gradually from the mountains. The water is very deep to within a short distance of the shore.

Anchorage. Anchorage may be had, with shelter from south-easters. The western limit of the bay is a low shingle point, off which a shoal extends for over a quarter of a mile. On the point is the opening to a small lagoon, into which Santa Ana Creek flows. This *fresh-water creek* may be recognized by the grass and trees on its banks. Fresh water.

Two and three-quarter miles north-westward is another low point and opening to a lagoon, with a shoal surrounding it.

Trinidad Point. Trinidad Point is 7 miles from the point last mentioned; the intermediate coast assumes a more northerly trend and