

acres of sand bars left bare by the tide were closely packed with geese, ducks, snipe, &c."

Channel.

A good channel is found along the south shore, reaching to near the head of the lagoon. To the north of this channel are numerous sand bars and low islets, the latter being the breeding place of seals and sea fowls. The whales formerly found in the lagoon were of the species known as the California gray, and from 1858 to 1861 many whalers visited it during the winter months. The oil taken there during that time amounted in the aggregate to 22,250 barrels. At the present time so few whales are found that it has been abandoned as a whaling ground.

Salt.

Near the head of the lagoon are the *salt fields of Ojo Liebre*, which are capable of furnishing an almost unlimited supply of salt. Vessels of 400 tons may lie within 5 miles of where it may be put in lighters of from 25 to 50 tons capacity.

Surrounding country.

The surrounding country for miles from the shores of the lagoon is a sandy desert, the only vegetation consisting of a few clusters of dwarfed shrubbery and the ever-present cactus. The nearest *fresh water* is 7 miles distant, and everything for man's subsistence, except fish, turtle, and sea fowl, must be brought from the interior or imported by sea. South and south-west from the lagoon may be seen the high, boulder-like peaks of the Santa Clara Mountains.

The sand bar off Scammon's Lagoon extends about 5 miles in a south-westerly direction from the entrance; thence to False Point the coast is clear, with 5 to 6 fathoms water within a cable's length of the beach.

Chester Islets.

The Chester Islets are two rocks 18 feet high, covered with guano. The westernmost lies half a mile N. 55° E. (NE. mag.) from False Point, and has a small outlying rock close to, on the north side. Two-thirds of a mile S. 69° E. (E. $\frac{7}{8}$ S. mag.) from the westernmost and 1 $\frac{1}{6}$ miles N. 87° E. (ENE. $\frac{3}{4}$ E. mag.) from the point, is the eastern one. The channel between the two islets and that between them and the point is filled with kelp, and, although no hidden dangers were found, it is not recommended to attempt their passage.

Reef.

Half a mile to the northward of False Point is a dangerous reef. It is egg-shaped, three-quarters of a mile long by half a mile in width, and is surrounded by kelp. There is a rock awash nearly in its center, over which the sea breaks

heavily. From 7 to 8 fathoms, rocky bottom, were found in the channel between the reef and the point and also between it and the westernmost of the Chester Islets.

Point San Eugenio is the NW. extremity of the peninsula that forms part of the southern shore of Sebastian Viscaïno Bay. It lies 1 $\frac{3}{4}$ miles S. 61° 30' W. (SW. $\frac{3}{8}$ W. mag.) from False Point, and is a dark, rocky projection surrounded by a reef, which extends about a quarter of a mile from the shore. There is a whaling station in a little cove about half a mile to the eastward of the point.

Natividad Island, lying to the north-westward of Eugenio Point and separated from it by Dewey's Channel, is about 3 $\frac{3}{4}$ miles long NW. and SE., and from half a mile to a mile wide, being widest at its south-eastern end. It is of moderate elevation, its highest point being 502 feet above the sea level, hilly and barren, with mostly steep rocky shores surrounded by detached rocks and kelp; on the south-eastern end is a sand beach about half a mile long.

Half a mile off the north-west point is a rock 15 feet high called Maria Rock, which is connected with the island by a reef.

Sail Rock lies about 400 yards west of the southern point of the island; a short reef extends off from it to the southward and eastward, on which the sea breaks only at long intervals in fine weather. About a quarter of a mile to the eastward of the southern point, connected with it by a reef, is a flat-topped rock about 25 feet high, called Flat Rock, upon which the sea breaks continually.

There are several reefs making off from the north-east side of the island.

Dewey's Channel, which lies between Natividad Island and San Eugenio Point, is about 4 miles wide and may be used with safety if proper care is observed.

On the Natividad side of the channel there is much foul ground and the soundings are very irregular. One mile S. 78° E. (E. mag.) from Flat Rock there is a circular shoal about half a mile in diameter, with rocky bottom, having 3 fathoms water over it and from 6 to 10 fathoms around it, the sea breaks over it only at long intervals in fine weather.

For a mile and a half to the eastward of this, numerous shoal spots exist, with from 6 to 7 fathoms over them. On the San Eugenio side there is a clear passage a mile wide,

through which, at a distance of about $1\frac{1}{2}$ miles from the shore, may be carried 17 to 20 fathoms, the kelp on either side plainly marking the channel. (View opposite page 25.)

Kellet Channel. Kellet Channel is a deep, clear channel $7\frac{1}{2}$ miles wide, separating Cerros and Natividad Islands; from 20 to 30 fathoms may be carried through the center; no obstructions are known to exist.

Cerros Island. Cerros Island, which forms the western side of Sebastian Viscaïno Bay, is $21\frac{1}{4}$ miles long and from 4 miles wide near the centre to 9 miles near the southern end. It is of volcanic origin, with numerous high peaks, the highest of which (the Mount Ayres of Dr. Veatch) is 3,955 feet high. In clear weather the peaks of the island may be seen from a distance of 60 miles.

Morro Redondo Point. Morro Redondo Point is the south-eastern extremity of the island, and is a rocky cliff 30 feet high, with numerous outlying rocks to the southward and westward. A round hill (El Morro Redondo) lies just back of it.

Observation spot. The *observation spot* was on a low point with a shingle beach and outlying rocks, situated half a mile to the northward of Morro Redondo Point, its position being lat. $28^{\circ} 01' 48'' .7$ N.; long. $115^{\circ} 11' 02'' .6$ W. The magnetic variation in 1878 was $11^{\circ} 40'$ E., increasing about 2' annually.

Tides. H. W., F. & C., IX^h 10^m; springs rise 7 to 9 feet.

Anchorage. To the northward of the observation spot the coast recedes, forming a good anchorage in from 7 to 10 fathoms, sandy bottom, not over a quarter of a mile from the beach. Care must be taken not to let go the anchor too far off shore, as the water deepens suddenly.

Watering place. About 4 miles to the northward of the anchorage and $5\frac{1}{4}$ from Morro Redondo is a good watering place, which may be easily recognized by a patch of tall rank grass that lies back of a sand beach about 250 feet in length, and the only one in the vicinity. The course of the stream ends in an arroyo about a mile to the southward of the easternmost point of the island and half a mile from the beach, where it is lost in the sand. There is a rough wooden spout at the stream by means of which casks may be easily filled.

There is deep water close to the shore, abreast of the watering place (20 to 25 fathoms within two cable lengths of the beach). Other fresh water springs are said to exist

in some of the ravines to the northward, where landings can be effected.

The whole eastern side of the island north of the watering place is a succession of rocky bluffs and ravines, with short stretches of gravel beach. Back of the shore line the land rises abruptly in sharp ridges and precipitous cliffs to mountain peaks of 3,000 feet and upwards.

The sea on this side is generally smooth, and deep water extends close up to the shore, which is free from kelp. Capt. C. M. Scammon's report contains the following: "On the NE. side, at about 3 miles from the extreme north end, a low sandy point makes out. Southward of this is good anchorage with the prevailing winds."

The northern point of the island is formed by broken bluffs, with many large outlying rocks. A sharp peak 1,761 feet high, with a comb or crest of cedar trees on it, rises just back of the point.

The western side of the island for about 8 miles from the northern point has the same general character as the eastern coast, but the outlying rocks are more numerous and extend farther off shore; thence the coast curves around to the south-west and is an unbroken line of steep cliffs to a point $2\frac{1}{2}$ miles north of Cape San Augustin. A stony beach fronts these cliffs for the entire distance except about $2\frac{1}{2}$ miles in the centre, where a rocky ledge with outlying rocks extends into the sea.

From the point $2\frac{1}{2}$ miles north of Cape San Augustin a reef of rocks makes off 2 miles in a north-westerly direction; half a mile from the north-west extremity of this reef is a conspicuous rock called Red Rock.

Cape San Augustin is a bold basaltic headland at the south-western extremity of the island, and is the termination of a range of high hills that is separated from the main range of mountains. There is generally a heavy surf on the whole western side of the island, and there are extensive fields of kelp along the shore of the south-western part.

The character of the southern coast of the island is similar to that of the eastern side. An indentation of $2\frac{1}{2}$ miles forms what is known as South Bay, where anchorage may be had in about 7 fathoms water, close to the shore, and sheltered from the prevailing winds, but open to the southerly gales that sometimes occur during the early part of the winter.

Eastern side of Cerros Island.

Northern point of Cerros Island.

Western side of Cerros Island.

Reef.

Cape San Augustin.

South Bay.

On the northern and eastern sides of the bay sand beaches front the bluffs; on the north-west side there are numerous outlying rocks, extending as much as half a mile off shore.

From the eastern limit of South Bay to Morro Redondo Point there are many outlying rocks, and the soundings off shore are very irregular, 10 to 15 fathoms being found within a mile of the coast, and patches of from 5 to 10 fathoms, rocky bottom, 3 miles off shore to the southward.

Remarks.

The northern portion of Cerros Island is comparatively fertile; the crests and western slopes of the mountains are covered with a growth of cedars and pines, some of which attain a height of 60 to 70 feet. A species of dwarf oak is also found, and the cactus and many varieties of shrubs and flowers are met with in the ravines. The southern part is generally barren.

Game, seals, &c.

There is said to be a few deer on the island; wild goats and rabbits are plentiful, especially in the northern part; sea-otters, sea-elephants, seals, &c., resort to its shores in great numbers.

Minerals.

Report assigns great mineral wealth to this island, but copper and a species of chromic iron were the only minerals found, and those existed apparently only in small quantities.

Fogs

Low fog banks in the morning are of frequent occurrence, the peaks showing plainly above them.

San Benito Islands.

The easternmost of the San Benito Islands lies about 15 miles to the westward of the northern part of Cerros Island; the group is about 4 miles in extent east and west, and $1\frac{3}{4}$ miles north and south.

Anchorage.

The westernmost island is the largest and is nearly rectangular in shape; it is $1\frac{1}{4}$ miles long by three-quarters of a mile wide, and is rather flat-topped, with a mound in the centre 650 feet high. There is an anchorage on its south side in 10 fathoms, sand bottom, a little to the westward of the south-eastern point, the mound bearing N. $33^{\circ} 10'$ W. (NW. mag.), and the north end of the easternmost island just open of the south-east point, and bearing N. $56^{\circ} 50'$ E.

Landing place.

(NE. mag.). A landing place may be found on a small shingle beach behind a large *red rock* that lies just to the eastward of the point.

All three of these islands are barren and surrounded by outlying rocks and kelp. There are boat passages between them. (View opposite page 16.)

The Pinnacle Rocks lie about three-quarters of a mile west of the south-west point of the largest of the San Benito Islands. They are about 80 feet apart NE. and SW., the southern one about 30 feet and the northern one about 10 feet in length on top and from 2 to 4 feet wide. At 100 feet east of the rocks bottom was found at 12 fathoms, but at no other place at the same distance from them was bottom found at 20 fathoms.

Pinnacle Rocks.