

nected with it by a rocky shoal, lies an islet 75 feet high; about half a mile to the northwest of which are some dangerous rocks. (See page 118.)

Rock.

A white rock 40 feet high, with deep water all around it, lies a little over half a mile to the southward of Smith's Island, and a mile and a quarter to the south-eastward is a small, flat-topped island from 90 to 125 feet high.

The coast north of Angeles Bay to within 3 miles of Remedios Point is composed of rocky bluffs, with short pebble beaches intervening. The land back of the coast is very much broken, with mountains from 1,500 to 2,000 feet high. Off this rocky strip of coast, near its northern extreme and close to the shore, are three small islets, varying in height from 15 to 30 feet. They are about $1\frac{1}{4}$ miles distant from each other and the two southern ones are of a whitish color.

Islets.**Remedios Bay.**

Remedios Bay is an open bay lying to the southward of Remedios Point. It has a shore line of sand and pebble beach about 3 miles in extent, just back of which, near its southern limit, is a small lagoon.

Anchorage.

Anchorage may be found here, with shelter from the north-westerly winds. The best is off a red hill 200 feet high, a third of a mile from the shore, in 10 fathoms of water, Remedios Point bearing about N. 30° E. (N. by E. $\frac{1}{2}$ E. mag.) distant $1\frac{3}{4}$ miles. The magnetic variation was $12^{\circ} 25'$ E. in 1877, increasing about $2'$ annually. Tides rise about 12 feet.

Remedios Point.

Remedios Point is low and sandy, with hills rising to the northward and westward, toward the coast range that lies a short distance inland.

From Remedios Point to Bluff Point, a distance of 26 miles, the general trend of the coast is N. $43^{\circ} 30'$ W. (NW. by W. mag.), and it is an almost unbroken succession of high, rocky bluffs ranging from 50 to 150 feet in height, the coast range of mountains rising immediately back of it. It affords no anchorage or shelter throughout the entire distance.

Bluff Point.

Bluff Point, the northern point of entrance to Ballenas Channel, is a bold, rocky bluff about 100 feet high, and may be recognized from a distance by Sharp Peak, 3,189 feet high, which lies $6\frac{6}{10}$ miles S. 60° W. (SW. $\frac{1}{4}$ W. mag.) from

it. Double Peak, 5,440 feet high, bears S. 29° W. (S. by W. $\frac{1}{2}$ W. mag.) distant $13\frac{4}{10}$ miles from Bluff Point.

Angel de la Guardia Island, which is high, rocky, and barren, is over 40 miles long, in a direction nearly parallel to the coast line, with a greatest width of about 10 miles. A range of mountains extends throughout its entire length, varying in height between 3,000 and 4,000 feet, being highest in the northern part. A comparatively low ridge about midway of the island separates the higher northern and southern portions.

The whole western side of the island bordering on Ballenas Channel is inaccessible and without any anchorage.

Humbug Bay, nearly opposite Remedios Bay, has a steep, sandy shore, but the water is said to be too deep, even close to the beach, for a vessel to find anchorage. Just north of this bay is a bold, bluff point, between which and Remedios Point, on the main-land opposite, is the narrowest part of Ballenas Channel, it being at this place only 8 miles wide.

The southern extreme of the island is a sharp bluff point, a mile to the northward of which is a hill 772 feet high, descending abruptly to the shore on the east and west sides.

The eastern side of the island is very irregular in its outline. The shore is generally bold, with rocky bluffs predominating. There are several open bays where vessels may anchor and be sheltered from the prevailing winds.

Starting from the southern extreme of the island, the coast trends nearly north for a distance of about 3 miles, where it becomes low and assumes a north-easterly direction, terminating in a sharp point, from which a rocky reef, partly dry at low water, connects it with Pond Island.

Pond Island is about a mile long, with an average width of a quarter of a mile, and over 400 feet high, with nearly perpendicular cliffs, and some outlying rocks on its north-eastern side.

Eastward of the reef connecting the two islands, about 300 yards distant from it, is a high detached rock, with a rock awash between it and the reef.

Anchorage may be had, with protection from the north-westerly winds, off a small strip of sand beach that is situated just where the coast commences to curve to the north-eastward, (about 3 miles from the south point of the island)

Angel de la Guardia Island.

Western side.

Humbug Bay.

Southern extreme.

Eastern side.

Pond Island.

Anchorage.

in from 7 to 9 fathoms of water, less than a quarter of a mile off shore.

Rock Point.

Rock Point is a bold head-land with cliffs over 500 feet high. It is surmounted by a hill 1,943 feet in height, the north-eastern end of a spur of very high and steep mountains projecting from the main range.

Anchorage.

The coast between Pond Island and Rock Point recedes considerably to the westward, forming an open bay in its southern part, where good anchorage may be found with protection from *south-easterly* winds. The shore near this anchorage is a sand and gravel beach, and the soundings increase gradually seaward.

Anchorage may also be had just south of Rock Point, close in shore, in from 5 to 8 fathoms of water, where some protection from the north-westerly winds will be found.

Bay.

Between Rock Point and the next prominent point to the north-westward, a distance of 12 miles, the coast recedes nearly 4 miles, forming a large open bay, the shores of which are for the most part pebble beaches, with a few small bluff points in its southern portion. The land back slopes from a moderately high table-land toward the sea and is covered with cactus.

About 2 miles south of the northern limit of the bay is a small lagoon with a narrow opening to the sea.

From the northern limit of the bay just described the coast trends about NW. $14\frac{1}{4}$ miles to Bluff Point, and is a succession of rocky bluffs. Five miles to the north-westward of the northern limit of the bay is a low, slightly projecting point and an arroyo.

Bluff Point.

Bluff Point is the north-eastern extremity of the island, and is a bold, rocky headland, with rocky bluffs from 100 to 300 feet in height, extending about a mile on either side of it.

Puerto Refugio.

Puerto Refugio, which extends over nearly the whole of the northern side of the island, is a fine large harbor, or more properly two harbors, where good anchorage will be found with shelter from every wind.

These harbors may be entered from three sides, viz: From the east, between Granite Island and the northern point of Angel de la Guardia; from the north, between Granite and Mejia Islands; and from the west, between Angel de la Guardia and Mejia Islands. Either of these entrances may be used with perfect safety.

The eastern and larger of the two harbors is about $1\frac{3}{4}$ miles in extent either way, and is entirely free from hidden dangers. The best anchorage will be found in the south or south-western parts in from 5 to 10 fathoms of water. Anchorage may also be found south of Granite Island in from 8 to 12 fathoms, but the bottom is mostly of rock.

Granite Island is a little over three-quarters of a mile long E. and W., one-sixth of a mile wide, and varies in height from 172 to 281 feet. It is entirely barren and extremely rocky. The eastern point is low and stony, with a white rock 15 feet high lying close to. Off the south-western end are several detached rocks awash and below water, and a reef, with one rock 13 feet above low water, extends off a cable from the north-western point. The passages on either side of Granite Island are over three-quarters of a mile wide, with from 15 to 25 and 30 fathoms of water.

White Rock is a large, rugged rock of whitish color, 41 feet high, lying nearly in the centre of the eastern harbor, with from 7 to 13 fathoms of water close around it.

In the south-western part of the harbor a spur of hills which terminates in a rocky, bluff point, projects a quarter of a mile into the bay, and from its extremity a rocky shoal extends northward about 300 yards.

To enter the eastern harbor by either the eastern or northern entrance, bring White Rock to bear about midway of the entrance and steer for it, passing it at a reasonable distance, when you may steer for the best anchorage, which is three-quarters of a mile due south from it, in $6\frac{1}{2}$ or 7 fathoms of water, sand bottom.

Mejia Island is over a mile and a half long in a nearly N. by E. and S. by W. (mag.) direction, and a mile and a quarter wide. With the exception of the SE. side, where there are some stretches of sand beach, the coast is a continuous rocky bluff, which attains on the NW. face a height of 500 feet.

South of the easternmost point is a shallow cove of considerable extent, with some small islets in it. Off all the more prominent bluff points are outlying rocks, and from the northernmost point a dangerous reef of rocks, above and below water, extends four cables in a N. by E. (mag.) direction. Care must be taken to avoid this reef when using the northern passage into the harbors.

Eastern Harbor.

Granite Island.

White Rock.

Directions.

Mejia Island.

The interior of the island is hilly and barren, with a greatest altitude, near the north-western point, of 857 feet.

Between the eastern end of Mejia Island and the north end of Angel de la Guardia, is an island (not named) over half a mile long, with a greatest width of 2 cables, and 250 feet high. It is connected at its southern end by a rocky reef, with Angel de la Guardia, and between its northern end and Mejia Island is a channel 150 yards wide, with from 7 to 10 fathoms of water, which connects the eastern with the western of the two harbors.

Western harbor.

The western harbor is a little over a mile in extent in a NE. and SW. (mag.) direction, with an average width of about half a mile. It may be entered either at its southwestern end, between the southern point of Mejia Island, (called Monument Point,) and a group of rocks lying off the NW. point of Angel de la Guardia, or at its north-eastern end, *with a leading wind or in a steamer*, by means of the channel (150 yards wide) that separates Mejia Island from the small island, before mentioned, lying between it and Angel de la Guardia and connected with the latter by a rocky reef.

About a quarter of a mile to the westward of the NW. point of Angel de la Guardia is a dangerous group of rocks, covered and awash at low water; their outer or western limit is about half a mile from the point. It is not recommended to attempt the passage between this group and the island.

Sail Rock.

Sail Rock is a sharp, conical rock 167 feet high, lying $1\frac{3}{4}$ miles S. 49° W. (SW. $\frac{3}{4}$ S. mag.) from Monument Point, with deep water (16 fathoms) close to it.

Directions.

To enter the western harbor from the westward, being north of Sail Rock, steer for the middle of the entrance, keeping White Rock, in the eastern harbor, in range with the south end of the island that separates the two harbors, until the eastern point of Mejia Island bears N. $33^{\circ} 45'$ E. (N. by E. $\frac{1}{3}$ E. mag.), when you will be in the best anchorage, with from 6 to 7 fathoms water, bottom of sand and shells. Wishing to pass through into the eastern harbor from the anchorage just described, steer for the north point of the island separating the two harbors, until the centre of the channel between it and Mejia Island bears N. $26^{\circ} 34'$ E.

(N. by E. $\frac{1}{4}$ E. mag.), when you may steer for it. This will lead through in not less than 4 fathoms of water.

Spring tides rise about 13 feet, neaps 9 feet. The magnetic variation was $12^{\circ} 30'$ E. in 1877, increasing about $2'$ annually.

Tides.
Variation.

Angel de la Guardia Island is inhabited by great numbers of iguanas and it also abounds in rattlesnakes, several of which were seen to occupy one hole, near the shore. The interior of the island was not examined and no indications of fresh water were seen.

Iguanas and rattlesnakes.

From Bluff Point, which lies nearly west from the north point of Angel de la Guardia, the coast of the peninsula trends about N. 50° W. (NW. by W $\frac{1}{2}$ W. mag.), and with the exception of a small stretch of low beach, 5 miles from Bluff Point, is high, rocky, and precipitous as far as Point Final, a distance of $20\frac{1}{2}$ miles. Back of the coast steep hills rise abruptly, attaining, at a distance of a mile from it, a height of over 1,900 feet.

Point Final is a rocky, bluff point of moderate height, the land in the interior, south-westward from it, being low.

Point Final.

From Point Final the coast turns sharply to the south-westward, and, sweeping around in a semicircle, forms the open bay of San Luis Gonzales, which affords good anchorage, with protection from south-easters, but is open to the northward. The shore of the bay is a low sand and gravel beach. In the southern part is the arroyo Calamujuet, on the bank of which, 12 miles to the southward, are the ruins of the old mission of the same name, near which are some pools of tolerably good fresh water.

San Luis Gonzales Bay.

Fresh water.

The coast for about 6 miles to the north-westward of San Luis Gonzales Bay consists of rocky bluffs from 25 to 50 feet high, thence to Point San Fermin, a distance of about 33 miles, it is for the most part low and sandy, with but few bluffs. The land back of the coast slopes from broken hills and table lands 1,000 to 1,500 feet high, behind which is a range of rugged mountains from 2,000 to upwards of 3,000 feet in height.

There are several islets off this part of the coast, and the water is comparatively shoal, not more than 12 or 15 fathoms being found 5 or 6 miles from the shore.

San Luis is a small island of volcanic origin lying 13 miles to the north-westward of Point Final, with a clear channel

San Luis Island.

1½ miles wide between it and the main-land. A low sand-spit extends nearly a mile from the south-western side of the island, with shoal water nearly half a mile off from it, on either side.

Anchorage. Good anchorage may be found on either side of the sand-spit, on the SE. side with north-westerly winds and on the NW. side during south-easters, taking care not to approach on either side within half a mile.

Cantada Island. Cantada Island, about 400 yards from the northern end of San Luis Island, and connected with it by a reef that is bare at low water, is a rocky islet 478 feet high. A mile and a quarter NNW. ½ W. (mag.) from Cantada Island there is a dangerous rock about 3 feet above low water, with 19 fathoms close to it, and 2½ miles NW. by W. (mag.) from Cantada there is a reef, nearly circular and over half a mile in diameter, of rocks both covered and awash at low water, with deep water close to.

Rock awash. Another rock awash at low water, lies a mile nearly due north from the NW. end of San Luis Island.

Islets. Parallel to the coast and from 3 to 4 miles from it are three small islets varying in height from 300 to 600 feet. They are distant from San Luis Island, respectively, 4, 6, and 9 miles. A third of a mile eastward of the southernmost of these islets is a large outlying rock. From the middle islet a low sand-spit and shoal extends over half a mile to the south-westward.

About 5 miles north-westward of the northernmost, and less than a mile from the adjacent main-land, is a large rock, 75 feet high.

Red Bluff. Red Bluff is a conspicuous bluff, of a reddish color, 100 feet high, back of which is a series of table-shaped hills from 1,000 to 1,500 feet high.

From this point the coast line assumes a more northerly direction.

Point San Fermin. Point San Fermin is a low sand point, not well defined. Just southward of it is an anchorage with some protection from the north-westerly winds. A rugged peak, 3,413 feet high, known as Rugged Peak, lying 10¾ miles S. 72° W. (SW. by W. ½ W. mag.) from Point San Fermin, serves as a good landmark. Springs rise about 18 feet.

Tides.

From Point San Fermin the general trend of the coast is N. 4° W. (N. by W. ½ W. mag.) as far as Diggs Point, a dis-

tance of 27 miles, whence it falls away to the westward. Point San Felipe, bearing N. 32° W. (NW. mag.) 13 miles distant from Diggs Point. The shore throughout the entire distance is low and sandy, the coast range, a few miles in the interior, rising to a height of about 1,000 feet.

The soundings at from 2½ to 4 miles off shore, show a depth of from 8 to 15 fathoms.

Diggs Point is low and sandy, projecting only slightly from the general coast line. A range of hills approaches the coast near it.

Point San Felipe is a dark rocky headland surmounted by a dark hill which rises abruptly to a height of nearly 1,000 feet. San Felipe Bay lies just south of the point of the same name; it is small in extent but affords some shelter from the north-westerly winds. The shore of the bay is for the most part, low and sandy, but in the north-western part there are some rocky bluffs, and back of them, rising from a plain, are a number of conspicuous hills of conical shape and moderate height. The water in the bay is quite shoal, less than 3 fathoms (*at low water*) being found a mile off shore.

The best anchorage is in the northern part of the bay, on the following bearings, viz: Dark hill surmounting Point San Felipe N. 35° W. (NW. ¼ W. mag.); sharp white peak, a conspicuous peak 4,288 feet high, S. 64° W. (SW. ½ W. mag.). This will place you in from 4 to 5 fathoms (*at low water*), muddy bottom.

The magnetic variation in 1877 was 13° E., increasing about 2' annually. Spring tides rise about 20 feet.

It is said that fresh water may be obtained in this vicinity. Game is abundant in the interior.

Calamahue Mountain, sometimes called Santa Catalina Mountain, from the old mission of that name near its foot, lies 28½ miles S. 84° W. (W. by S. ¾ S. mag.) from Point San Felipe. It has a whitish appearance with a jagged top, and is the highest mountain in Lower California, having an elevation of 10,126 feet above the sea level, and can be seen in clear weather from a distance of over 100 miles (see page 9). Strange as it may appear, it was never laid down on any chart until those of the *Narragansett's* survey, 1873 to 1875, were published. Father Kino speaks of it, in 1702, as

being covered with snow during the winter and spring. (View opposite page 130.)

Lake. There is said to be, in the vicinity of Mount Calamahue, a large mountain lake, which feeds the various small streams that flow toward the Pacific coast.

Indians. The Cocopa Indians, who inhabit some parts of this region, report the existence of gold there, and they occasionally come to the Colorado River bringing nuggets of pure gold with them, which they trade off. They do not permit white men to enter that part of the country which they inhabit, and thus far have succeeded in keeping undisputed possession of their treasure.

Consag Rock. Consag Rock, sometimes called Ship Rock, from its resemblance to a ship under sail, lies $18\frac{1}{2}$ miles N. 78° E. (N.E. by E. $\frac{3}{4}$ E. mag.) from Point San Felipe. It is small in extent, 286 feet high, and covered with guano, which gives it a whitish color. A number of detached rocks lie from a quarter to half a mile to the westward of it, some of them over 25 feet high. Soundings between it and Point San Felipe show from 10 to 15 fathoms of water, with generally muddy bottom. The tidal currents cause heavy rips in this vicinity.

This rock is an excellent mark for shaping a course to the mouth of the Colorado River. (View opposite page 130.)

The coast from Point San Felipe to the mouth of the Colorado River, a distance of about 30 miles, trends nearly due north, and is low, with plains rising gradually toward the mountains in the interior. Mud flats and shoals, which are bare at low water, extend off shore from $1\frac{1}{2}$ to 6 miles. Parts of this coast are subject to overflow at the time of heavy freshets and highest spring tides.

Soundings. Lines of soundings across the gulf, north of Consag Rock, show a greatest depth in the southern part, of 26 fathoms, decreasing rapidly toward the head of the gulf.

Colorado River. The entrance to the Colorado River may be considered as lying between Shoal Point, on the Sonora shore, and a point 27 miles due west from it, on the coast of the peninsula of Lower California. It is much obstructed by mud flats, which are bare at low-water springs, but have navigable channels between them at high water. There are also two islands, called Montague Island and Gore Island, which are subject to overflow at high-water springs.

The main channel, through which $2\frac{1}{2}$ fathoms may be carried at ordinary low water, as far as Philip's Point, lies close along the Sonora shore. Main Channel.

Shoal Point, at the eastern side of the entrance, lies 28 miles N. $18^\circ 30'$ E. (N. $\frac{1}{2}$ E. mag.) from Consag Rock, and is a low, sandy point, with a barren sand hill about 300 feet high immediately back of it. The water is shoal for about half a mile off the point and there is a shoal spot with $2\frac{1}{2}$ fathoms, least water,* lying from 2 to 4 miles about WNW. $\frac{1}{2}$ W. (mag.) from it. Between this shoal and the shore there is a channel over a quarter of a mile wide, with from 5 to 7 fathoms of water. Shoal Point.

It is H. W., F. and C., at Shoal Point about $0^h 30^m$; springs rise from 25 to 30 feet; neaps rise from 6 to 10 feet. The magnetic variation was $13^\circ 4'$ E. in 1876, increasing about 2' annually. Tides.

About 9 miles WNW. (mag.) from Shoal Point the beach projects slightly, and back of it are some sand cliffs at the foot of the hills which form the lateral spurs of a long, barren table-land. Variation.

Direction Sand-hill, which lies back of the above-mentioned projecting beach, is 556 feet high, and easily recognizable from the neighboring hills by a growth of bushes at its foot. (See view on page 136.) It is an excellent mark for entering the river. Direction Sand-hill.

Off the point just mentioned is a shoal with only 9 feet of water on its shoalest part. Between it and the shore is a channel three-quarters of a mile wide, through which 6 fathoms may be carried at low water. There is also a channel about a mile wide, with 5 and 6 fathoms of water, west of the shoal, between it and an extensive mud flat which is bare at low-water springs.

Santa Clara Beacon is on the west side of the mouth of the river of the same name and consists of a couple of piles driven in the ground, with a piece of board nailed across the top. It is about 10 miles from the low point fronting Direction Sand-hill. Santa Clara Beacon.

Santa Clara River is only navigable at high water. At Santa Clara River.

* All soundings in the Colorado River or at its mouth are referred to the level of low-water springs, unless otherwise stated. To reduce them to ordinary low water, 6 feet should be added.

low-water springs it is dry, with the exception of here and there a pool water.

From the junction of this river with the Colorado, the sand hills and table-lands, which up to this point have run parallel with the coast, assume a more northerly direction, following the course of the Santa Clara River.

White Beacon. White Beacon is 5 miles N. $76^{\circ} 30'$ W. (W. mag.) from Santa Clara Beacon. It is of piles, with a triangular cage fastened on them, and stands on a shoal-spit making off from the western side of the mouth of an extensive *slough*.

Cross. On the opposite side of the *slough*, 2 cables N. $19^{\circ} 15'$ E. (N. $\frac{1}{2}$ E. mag.) from White Beacon, is a beacon in form of a cross.

These two beacons serve as guides for entering the *slough* and for avoiding a shoal which extends a short distance off its mouth.

Port Isabel. Port Isabel is situated on the east bank of the *slough* about $2\frac{1}{4}$ miles from its junction with the Colorado River, and is the first good landing place above the junction, the shore below being of very soft mud. It serves as a repairing place for the river steamers and barges.

Ship-yard. About 2 miles above Port Isabel is a place called Ship-yard, where there are a few frame buildings and facilities for getting a vessel out of water, which is done as follows:

At the highest spring tide the vessel is taken as far as she can be got into one of the numerous narrow inlets of the *slough*; the receding tide will leave her resting on the bottom, supported on either side by the steep banks of the inlet. As there is about 10 feet difference between the high-water level of springs and neaps, the succeeding high waters will not come up to her, giving ample time for repairs before the next springs, which can be used to float her off.

The river steamers and barges enter the *slough* when waiting for the steamer from San Francisco, to avoid the strong currents in the river.

Philip's Point, Black Beacon. The Black Beacon on Philip's Point is $1\frac{4}{10}$ miles N. $81^{\circ} 15'$ W. (W. $\frac{3}{8}$ S. mag.) from White Beacon. It consists of a substantial frame on four posts, the top of which is cased in with boards and painted black.

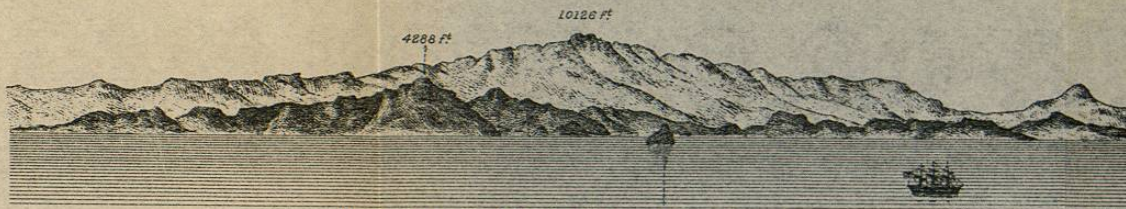
Philip's Point may be regarded as the head of deep water navigation in the Colorado River. Above it the channel



Pinacate Mountain,
N.E.N. (mag.)—63 m.

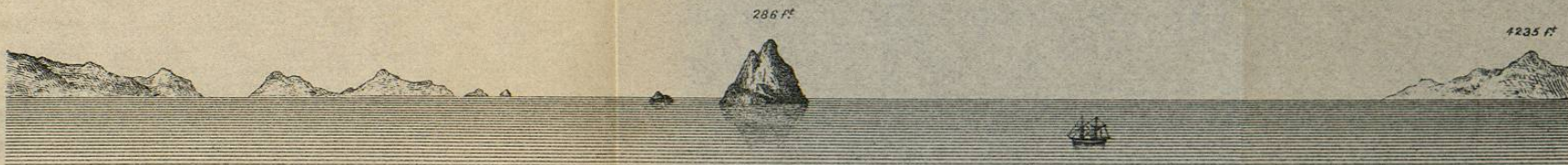


Coropah Mountains.



Sharp white peak Calamahue Mount.[†] Consag Rock, 286 ft.
S.W. by W 4 W. (mag.) 41 m. W.S.W 2 W. (mag.) 62 m. W.S.W. 4 W. (mag.) 152 m.

Calamahue Mountain.

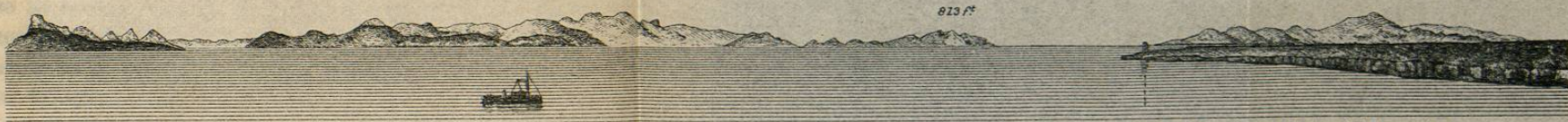


Mountains on the peninsula.

Consag Rock.
N.W. by W. (mag.) 3 1/2 m.

Pinacate Mountain,
N.E. 1/4 N. (mag.) 63 m.

Consag Rock.



Mountains on the peninsula.

Range Hill,
(conspicuous white cliffs)
West. (mag.) 24 1/2 m.

Philip's Point.
Black Beacon.
W 1/4 N. (mag.) 1 1/2 m.

Coropah Mountains.

Colorado River.
From the Anchorage off Philip's Point.