

CHAPTER I.

THE COAST AND ISLANDS FROM THE MOUTH OF THE COLORADO RIVER TO TOPOLOBAMPO HARBOR.

From Shoal Point, the eastern point of entrance to the Colorado River, the coast trends about S. 65° E. (E. by S. mag.) for a distance of 10 miles, and is generally low, with here and there a sand hill of moderate height. Shoal water extends off this part of the coast to distances varying from half a mile near Shoal Point to 2 miles at a point 10 miles to the eastward of it.

Adair Bay.

Adair Bay is a large bay entirely open to the southward, and is not navigable for even the smallest coasters, being full of dangerous, shifting shoals. Its western limit is 10 miles eastward of Shoal Point, from whence Rocky Bluff, the eastern limit, bears S. 69° E. (E. $\frac{3}{4}$ S. mag.), distant 25½ miles, the coast between falling away 10 miles from a line drawn between the two limits. The shore of the bay is low and sandy, with occasional rocky patches. In its northern part is a lagoon opening into the bay, with several sandspits at its entrance which project 2 or 3 miles into the bay and are dry at low water. Low plains with surface deposits of soda extend far into the interior.

Variation.

The magnetic variation was 13° 05' E. in 1877, increasing about 2' annually. Spring tides rise about 22 feet.

Tides.

Pinacate Mountain.

Pinacate Mountain lies about 19 miles in a north-easterly direction from Adair Bay. It is 4,235 feet high, and is the last *high* mountain seen on this coast when coming from the southward. (View on opposite page.)

Rocky Bluff.

Rocky Bluff is a bold, rocky point of a dark color, surmounted by a sharp hill 408 feet high.

A small bight on its northern side is shoal and partly dry at low-water springs, but on its western and southern face 5 and 6 fathoms will be found close to, with no outlying dangers. The land back is low and sandy. A conspicuous, dark-colored, solitary hill 426 feet high, called Flat Hill, lies 4½ miles to the north-eastward of the point.

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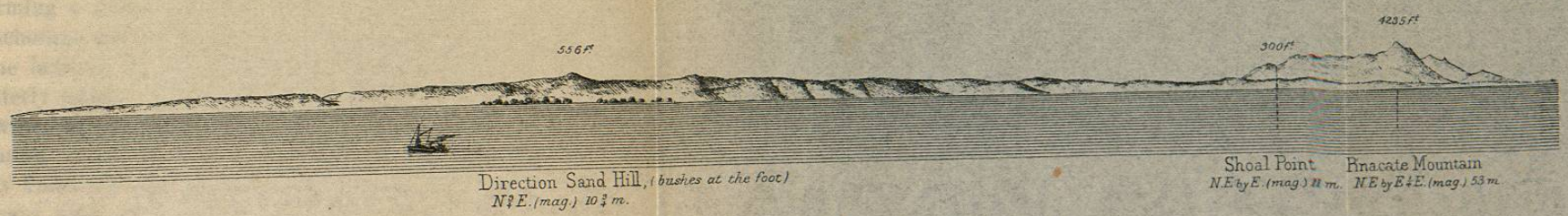


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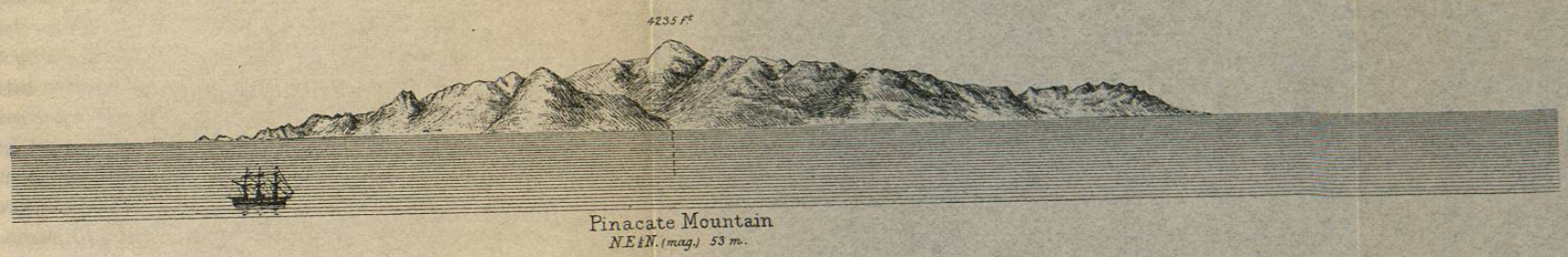
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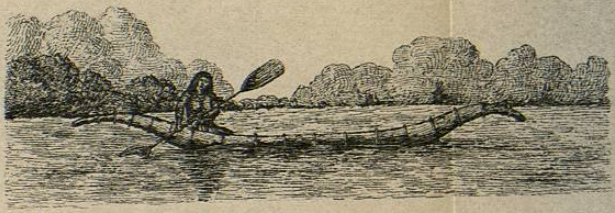
Iberon Canoe



The Sonora Coast at the entrance to Colorado River.



Pinacate Mountain.



Tiburón Canoe.



Section through middle.

Rocky Point lies 5 miles S. 66° E. (E. by S. mag.) from Rocky Bluff, and is like the latter in its general character. The hill surmounting it is 226 feet high.

Between Rocky Bluff and Rocky Point the coast recedes somewhat, forming a small open bay called Rocky Point Bay, where anchorage may be had in from 5 to 7 fathoms of water, on a line between the two points, with shelter from the north-westerly winds. The shore of the bay is sandy and covered with bushes. Shoal water makes off from it about half a mile.

From Rocky Point the coast falls away to the eastward, having a general trend S. 72° E. (E. ½ S. mag.) for a distance of about 22 miles, and then gradually assumes a southerly trend, forming a large open bay, known as George's Bay.

The shores of the bay are low and sandy; back of them are plains reaching to the foot of mountains well in the interior.

Six miles eastward of Rocky Point is the entrance to a lagoon, into which small vessels may pass at high water; and from 9 to 10 miles farther east are some salt lagoons lying a short distance back of the beach and having no apparent communication with the waters of the bay.

South-eastward from these lagoons the water is shoal for from one to three miles off shore.

A mountain range approaches to within 5 or 6 miles of this part of the coast, the most conspicuous peak of which, called Table Peak, is 1,366 feet high and flat-topped.

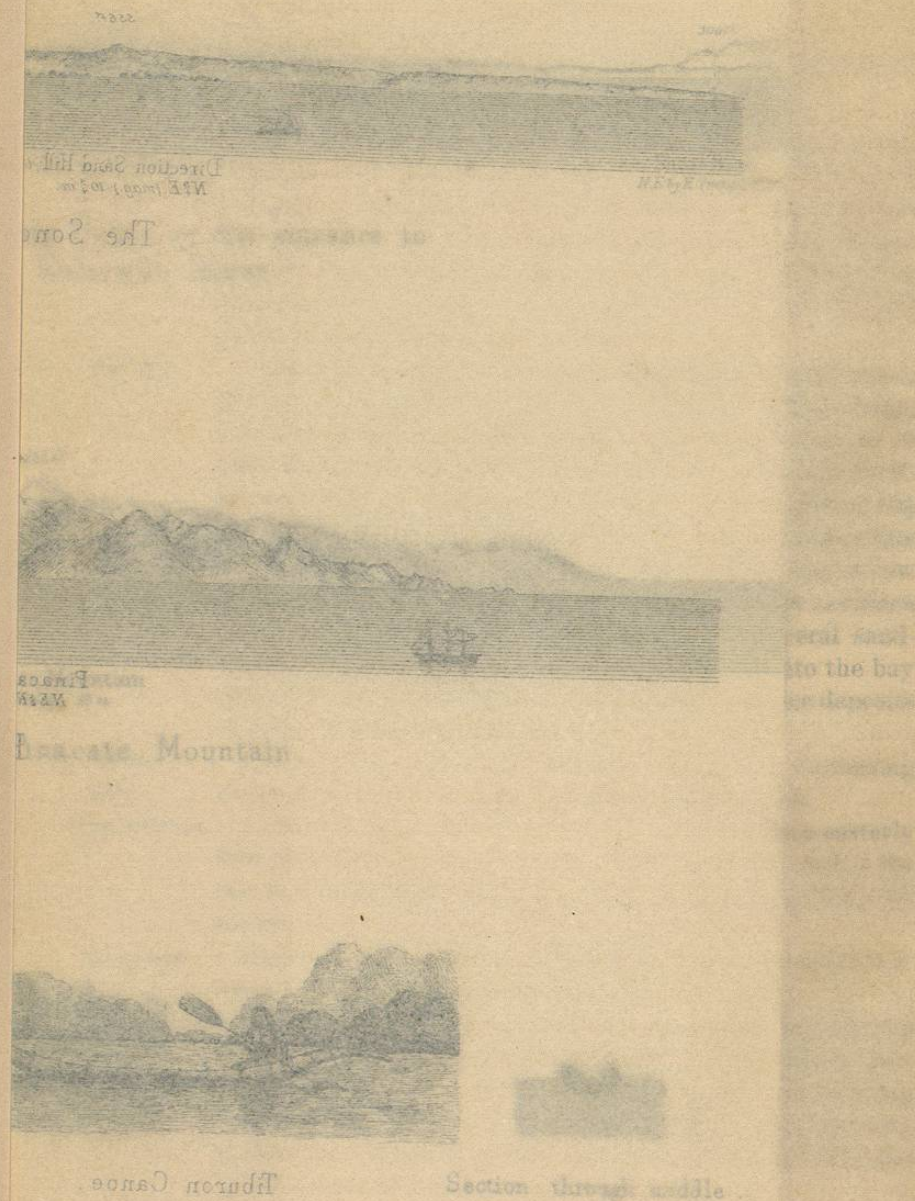
George's Island lies 23 miles S. 43° E. (SE. by E. mag.) from Rocky Point. It is a barren rock about 6 cables in length and 3 in width; its highest peak, near the SE. extremity, is 206 feet high. Some rocks above water and awash, extend a little over half a mile from it, in a north-westerly direction.

This island is covered with guano, which has been worked to some extent. Immense numbers of sea-fowl inhabit it, and a great many seals were seen along the rocky shore.

A fair anchorage, with protection from a south-east wind, may be found to the northward of the island, in 3½ fathoms water.

The magnetic variation was 13° 05' E. in 1877, increasing about 2' annually. Spring tides rise about 18 feet.

Plate XV.



Rocky Point and Rocky Point Bay.

George's Bay.

George's Island.

Guano.

Anchorage.

Variation. Tides.

Shoal.

Four miles to the north-eastward of George's Island is an extensive and dangerous shoal, which makes off 3 miles from the western side of a low, sandy point that projects from the south-eastern shore of George's Bay. There are from 3 to 6 feet of water over this shoal at low-water springs. Between it and the island is a channel, with from 4 to 7 fathoms of water.

Coast south of George's Island.

From abreast of George's Island the coast trends nearly south for 20 miles and then gradually falls away to the eastward, Cape Tepoca, 49½ miles from the observation spot on George's Island, bearing S. 24° E. (SE. ⅝ S. mag.) from it. As far as San Ignacio River (31 miles) it is low and sandy, with sand hills from 20 to 60 feet high. Southward of San Ignacio River the coast is higher, the hills approaching nearer the sea.

Soundings.

The soundings off shore increase gradually, the three-fathom line being from half a mile to a mile and a half from the beach.

Six and a half miles S. 72° 45' E. (E. ⅔ S. mag.) from the observation spot on George's Island is the mouth of a small estero, which was not examined. It is said to extend about 2 miles inland, and that fresh water may be found just back of it.

Shoal.

Seven miles S. 20° E. (SE. by S. mag.) from George's Island and 5 miles from the main-land, a shoal spot on which there were from 4¾ to 6 fathoms of water, was passed over, there being 8 and 9 fathoms north and south of it, at the same distance from the shore of the main-land.

San Ignacio River.

San Ignacio River, the mouth of which lies 31½ miles S. 24° E. (SE. ⅝ S. mag.) from George's Island, has an extensive shoal off it, over which the sea breaks heavily at times. The river as it approaches the coast loses itself during the dry season, in the sand, only breaking through to the gulf during the rainy season.

Fresh water.

Near the south bank of the river, about a mile from the coast, are some Indian huts and a well; fresh water may be procured at all times just back of the sand hills.

Game.

The banks of the river are covered with vegetation, and game is plentiful in the vicinity. About 75 miles from its mouth is the town *El Altar*, and 60 miles beyond is *San Ignacio*, with its renowned mining district (gold and silver).

The mouth of the river may be readily distinguished by

the break in the sand hills, through which it passes to the gulf. The northern extremity of the coast range of mountains is just south of the river.

Cape Tepoca, or Tepoca Hill as it is sometimes called, lies 17¾ miles south-eastward of the mouth of the San Ignacio River, the coast between sweeping about 3 miles to the eastward. It is of a reddish color and 300 feet high; when first seen from the northward it appears like an island.

From Cape Tepoca a low, rocky point makes out to the south-eastward about half a mile, having a reef and large rock partly covered at high water extending off from it about a quarter of a mile farther in the same direction. This point and reef form the western limit of Tepoca Bay, which is entirely open to the southward and about 2½ miles in extent east and west. The northern shore of the bay is low and sandy, covered with bushes; the eastern shore is bluff, with the coast range rising a short distance back.

There is good anchorage in Tepoca Bay, sheltered from the north-westerly winds, in 5 or 6 fathoms at low water, half a mile from the shore. Spring tides rise about 15 feet, neaps about 12 feet. The magnetic variation was 12° 35' E. in 1875, increasing about 2' annually.

A flat-topped hill 1,575 feet high, bearing N. 60° E. (NE. ¼ E. mag.), 6½ miles distant from Cape Tepoca, is an excellent guide to the anchorage in Tepoca Bay, when coming from the southward.

From Cape Tepoca the coast turns sharply to the eastward and trends in that direction for 2½ or 3 miles, when it again assumes a southerly trend, Cape Lobos bearing S. 18° E. (SSE. ¾ E. mag.), 23 miles distant from Cape Tepoca. For about 10 miles southward of the eastern limit of Tepoca Bay, sand cliffs from 25 to 50 feet high lie just back of the beach; thence to Cape Lobos the coast is generally low and sandy, the coast range approaching the shore. Fourteen and a half miles S. 27° E. (SE. ½ S. mag.) from Tepoca Point a peak, 1,642 feet high, rises immediately back of a steep shore. Lobos Peak, 3 miles north of the cape of the same name, is 1,186 feet high and somewhat less than half a mile from the shore.

Cape Lobos is a rocky headland of the same character as Cape Tepoca; near it are three hills, close together, the westernmost and highest of which is 669 feet high.

Cape Tepoca.

Tepoca Bay.

Anchorage.

Cape Lobos.

Vessels may approach the cape closely, 5 and 6 fathoms of water being found at a cable distant from it.

The entire distance from Cape Tepoca to Cape Lobos appears to be free from outlying dangers, the water shoaling gradually toward the shore.

Libertad anchorage.

At Cape Lobos the coast again turns sharply to the eastward, trending in that direction for $3\frac{1}{2}$ miles, when it assumes a south-easterly trend. The open bay or bight thus formed is known as Libertad anchorage, where a vessel will be well protected from the north-westerly winds, but exposed to south-easters. The best place to anchor is from three-quarters of a mile to a mile eastward of the cape and a scant half mile off shore, in 8 or 9 fathoms.

Custom-house.

Two and a half miles eastward of the cape, a sandy beach intervening, is a low projecting point, from which a shelving, rocky ledge and numerous detached rocks extend 2 cables in a southerly direction. Back of this point are some houses, one of which is used as a custom-house.

Tides.

Variation.

Three fathoms of water are found close to the sandy beach just mentioned. Spring tides rise 12 feet, neaps 9 feet. The magnetic variation was $12^{\circ} 30'$ E. in 1875, increasing about 2' annually.

Libertad is a shipping port for some of the agricultural and mineral products of the province of Sonora.

From Cape Lobos to Cape Tepoca, a distance of $36\frac{1}{2}$ miles, the general trend of the coast is S. 28° E. (SE. $\frac{3}{4}$ S. mag.). The shore consists for the most part of sand and shingle beaches, with occasional rocky bluffs intervening, the coast range rising to elevations varying from 500 to 2,300 feet, a short distance back of it. One or two small patches of kelp were met with along this part of the coast, close to the shore.

Shoal.

Eight and a half miles north of Cape Tepoca is a low slightly projecting point, off which a shoal, with from $2\frac{1}{2}$ to 3 fathoms of water on it, extends nearly three-quarters of a mile. With this exception the coast is clear, the water shoaling gradually toward the shore, from 15 to 30 fathoms being found a mile off.

Northward of Cape Tepoca a curve in the coast line forms a sort of open bay, which, however, affords no protection whatever from the prevailing winds. The shore of this bay

is low and sandy; back of it, low plains covered with bushes stretch far into the interior.

Cape Tepoca is a bold rocky headland surmounted by a peak 1,857 feet high. Cape Tepoca.

Tepopa Peak is the northernmost and highest of a small group of hills that lie parallel to the coast, and are separated from the coast range, which lies 5 miles to the eastward, by low sandy plains.

Sargent's Point is $6\frac{1}{2}$ miles to the south-eastward of Cape Tepoca. It is a barren, rocky hill 150 feet high, at the southern extremity of a low, narrow neck of land that is subject to partial overflow at high-water springs; the coast between it and Cape Tepoca is low. Sargent's Point.

Just west of the point a curve in the coast line forms a small bight, where tolerable anchorage may be found in 7 fathoms of water, half a mile from the shore. Anchorage.

East of Sargent's Point is a small bay, but the water in it is too shoal for it to be of any value. The beach of this bay is very flat, the low-water line being from half a mile to a mile outside that of high water.

At the north-west side of the bay is the outlet of a lagoon that lies parallel to the north shore, a narrow strip of sand intervening between it and the waters of the bay. Back of the lagoon is the low sandy plain before mentioned as intervening between the group of hills near Cape Tepoca and the coast range.

The main-land, from Sargent's Point to San Miguel Point, a distance of over 20 miles, has a south-easterly trend, and is for the greater part of the distance low and sandy, with a scattered growth of bushes.

Patos Island, the north-west point of which lies $5\frac{3}{4}$ miles S. 20° W. (S. $\frac{3}{4}$ W. mag.) from Cape Tepoca, is small in extent, and, except on the northwest side, where it rises in a conical hill to a height of 274 feet, is low. A deposit of guano gives it a whitish appearance. Patos Island.

The passage between Patos Island and the main-land, as well as that between it and Tiburon Island, is perfectly safe, with a least depth of 7 fathoms, near the land. Passage.

There is a tolerable anchorage on the southern side of Patos Island, with some protection from a north-westerly wind, in 5 fathoms of water, sandy bottom, a quarter of a mile from the beach. In using this anchorage care should Anchorage.

be taken not to approach the low shingle point that makes off from the SW. side of the island, nearer than a quarter of a mile, as shoal water extends off some distance from it.

Tides. Spring tides rise 10 feet, neaps 7 feet. The magnetic variation is $12^{\circ} 30'$ E.

Tiburon Island. Tiburon is the largest island in the Gulf of California, being about 29 miles long, nearly north and south, with an average width of 15 miles. It is high and rugged, with peaks varying in height from 1,000 to nearly 4,000 feet. A narrow, intricate channel called El Infiernillo separates it from the main-land to the eastward.

Northern side of Tiburon. The north-west extreme lies $10\frac{1}{2}$ miles S. $12^{\circ} 30'$ W. (S. mag.) from Cape Tepopa, and is a rocky bluff surmounted by a steep hill 1,123 feet high. Some detached rocks lie a short distance off. Five and three-quarters miles to the eastward of this is a high bluff point, the northern extremity of the island, between which and Sargent's Point is a channel $4\frac{1}{10}$ miles wide with 7 and 8 fathoms of water.

Fresh-water Bay. Fresh-water Bay is formed by a curve in the coast line between the north and north-west extremes of the island. It affords an anchorage in from 5 to 7 fathoms of water, three-quarters of a mile from the shore, with shelter from south-easters, but is entirely open to the north-west.

The land back of the bay slopes gradually toward the mountains in the interior of the island and presents a fertile appearance.

The NE. point of the island, is $3\frac{4}{10}$ miles eastward of the north extremity and the same distance from the nearest main-land to the north-eastward. A sandy islet 5 feet high lies in the prolongation of the point, connected with it by a shoal over which the water breaks. In the channel between the islet and the main-land are 3 and 4 fathoms of water, near the islet.

Eastern side of Tiburon. The eastern side of the island, from the NE. extreme to a low projecting point opposite San Miguel Point on the main-land, a distance of about 15 miles, is with the exception of a short stretch of bluffs, 10 to 20 feet high, low, sandy, and covered with a scanty growth of bushes.

El Infiernillo. This part of Tiburon Island is separated from the main-land by a channel varying in width from one to three miles, and called El Infiernillo. In its southern part from 5 to 7 fathoms of water are found, and it is comparatively free

from shoals, but in its northern part the water is shallow and it is full of shoals and sand-spits. It is unsafe for navigation by any except the smallest class of vessels. Half a mile northward of San Miguel Point is a small lagoon with shoal water off its mouth.

From the low point (before mentioned) opposite San Miguel Point, to the south-eastern extreme of the island, it is $13\frac{1}{2}$ miles, the shore-line trending S. $12^{\circ} 30'$ W. (S. mag.). For the first 8 miles of this distance the shore is low and sandy, with shoals and sand bars extending from a half a mile to a mile and a quarter off from it. The remainder is a steep coast, with rocky bluffs near the SE. point of the island, and the water near the shore is deeper, from 5 to 7 fathoms being found a quarter of a mile off shore.

The SE. point of the island is a high headland situated at the extremity of a peninsula that projects a mile from the main body and is half a mile in width. There are two hills on this peninsula, separated from each other by a strip of low land which forms a shallow basin for the reception of water during the rainy season.

On the north side of the peninsula just mentioned, good anchorage will be found in 5 or 6 fathoms of water, sheltered from the prevailing winds. A sand beach at the junction of the peninsula with the main body of the island affords a landing place.

Five and a half miles north of the anchorage is a collection of Indian huts, near which it is said fresh water may be obtained.

Monument Point, the southernmost point of Tiburon Island, is a rocky, bluff point, situated $3\frac{3}{4}$ miles S. 69° W. (SW. by W. mag.) from the SE. extremity of the island. The intervening coast is a sand beach and recedes half a mile from a line drawn between the two points.

From Monument Point the coast trends about N. 64° W. (WNW. $\frac{3}{4}$ W. mag.) $15\frac{1}{2}$ miles to Willard's Point, the SW. extremity of the island, and is with the exception of a small bight situated just west of Monument Point, a succession of rocky bluffs which project in places beyond the line of bearing. Back of the coast the mountains rise abruptly. This part of the coast appears to be free from hidden dangers, with deep water close to the shore.

Turner's Island is a small barren island about $1\frac{1}{4}$ miles

Anchorage.

Huts.

Fresh water.

Southern coast of Tiburon.

Turner's Island.

in length north and south, half a mile wide, and 550 feet high, lying $1\frac{1}{4}$ miles to the south-eastward of Monument Point. A reef of rocks, both above and below water, extends half a mile off from its northern end, leaving a narrow boat passage between it and Seal Rock.

Seal Rock. Seal Rock is a rocky islet 150 feet high, lying between Turner's Island and Monument Point. There are numerous outlying rocks surrounding it, but there is a clear channel a quarter of a mile wide, through which 5 fathoms of water may be carried, between it and Monument Point.

Rock. Six cables to the south-westward of the above-mentioned islet there is a dangerous rock, awash at high water.

Red Bluff Point. Red Bluff Point is a sharp, rocky point of a reddish color and about 150 feet high, situated $2\frac{1}{2}$ miles to the westward of Monument Point.

Anchorage. Between Monument and Red Bluff Points the coast recedes about three-quarters of a mile, forming a small bay, open to the southward, in which good anchorage may be found in 5 or 6 fathoms, a quarter of a mile from the shore, which is a sand beach, with shelter from the north-west winds. The magnetic variation was $12^{\circ} 05'$ E. in 1877.

Variation. Tides rise 6 to 8 feet. About midway between the two points mentioned above there is a slightly projecting rocky point with an arroyo just east of it.

Willard's Point. Willard's Point, the south-western extreme of the island, is a bold cliff over 300 feet high, surmounted by a hill about 800 feet in height. There is said to be a tolerable anchorage about $1\frac{1}{2}$ miles eastward of it, in 7 fathoms of water, close to the shore.

Three and a quarter miles eastward of Willard's Point, and $1\frac{1}{2}$ cables from the shore, there is a large, detached white rock 30 feet high.

Western shore of Tiburon. The western shore of the island from Willard's Point to its north-western extremity, a distance of 21 miles, is for the most part steep, with rocky bluffs, the mountains rising abruptly just back of the coast.

The general trend of the coast from Willard's Point is N. 16° E. (N. $\frac{3}{4}$ E. mag.) and it is for the greater part clear of dangers, with deep water close to. One and a half miles northward of Willard's Point and less than a cable off shore, there is a detached rock 8 feet high, and $11\frac{1}{2}$ miles farther north is another similar rock. Near the NW. extreme of

the island there are a number of outlying rocks close to the shore.

During the greater part of the year Tiburon Island is resorted to by the Seris (or Ceres) tribe of Indians, who inhabit the adjacent main-land, and their huts and encampments may be seen in many places along the shore, principally on the eastern side of the island. They are reputed to be exceedingly hostile and to use poisoned arrows in opposing the landing of strangers on what they consider their domain, but during the stay of the *Narragansett* in the vicinity they were very friendly. At first they were shy and made threatening gestures, but soon finding that our intentions were peaceable, became friendly and returned our visits to the shore by frequent and lengthy calls on board ship. They are very expert in hunting with the bow and arrow and in catching fish and turtle, which abound in the surrounding waters.

The canoes of these Indians deserve especial mention. They are made of long reeds, which are bound together with strings after the manner of fascines, three of which when fastened together as shown in the sketch opposite page 136, have sufficient buoyancy to support one or two persons. They kneel in these canoes when paddling, the water being at the same level in the canoe as outside of it. One of these canoes was purchased for a pint of alcohol, largely diluted with water, and a couple of pairs of old trowsers.

A species of large deer is found in great numbers on the island, one of which we succeeded in killing.

A rich bed of pearl oysters is said to exist in the channel between the island and the coast of Sonora, and there are reports of rich gold mines on the island, but these reports need confirmation.

San Esteban is a barren, rocky island lying $7\frac{3}{4}$ miles south of the south-western point of Tiburon. It is 4 miles long north and south, about 3 miles wide, and from 1,000 to 1,800 feet high. On its eastern side, a mile from the south-east point, is a rock 25 feet high, a quarter of a mile from the shore, to which it is connected by a rocky reef. Just north of this rock and reef is a gravel beach, from which a valley slopes toward the interior of the island. From the south-western part a low shingle spit makes off three-quarters of a mile, the soundings on either side of it increasing rap-

Remarks.

Hostile Indians.

Canoes.

Deer.

Pearl oysters.

Gold mines.

San Esteban.