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*Dr. Isaac Bowman
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Alexander McAdie*

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Nova Albion—1579

BY
ALEXANDER G. McADIE

American Antiquarian Society

Nova Albion—1579

BY
ALEXANDER G. McADIE, ^{George} 1863-

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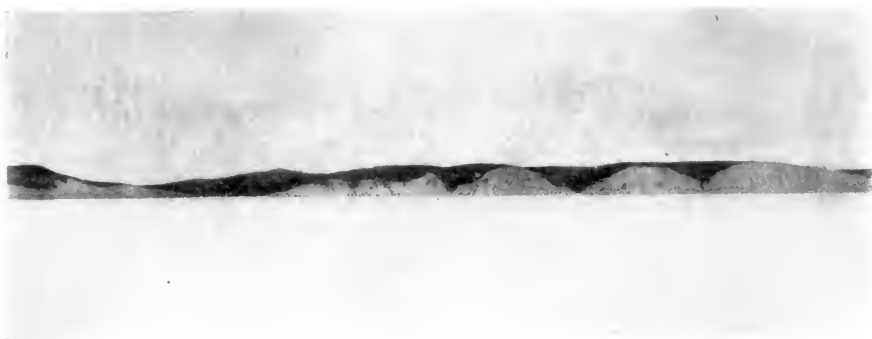


FIGURE 1

"The white banks and cliffes which ly towards the sea." These white banks led Drake to call the locality Nova Albion. The photograph was made from the deck of a vessel drawing about the same depth of water as the *Golden Hinde* and anchored near the supposed anchorage of Drake in June, 1579. The original negative was destroyed in the earthquake and fire of April 18, 1906.



FIGURE 2

One of the Farallon Rocks which Drake probably rounded on July 24, 1579.

NOVA ALBION—1579

BY ALEXANDER G. MC ADIE

PREFATORY NOTE

It was my good fortune to know well the late Professor George Davidson, a high official of the Coast and Geodetic Survey, and for many years Professor of Geography in the University of California.

While in command of the Survey brig *Fauntleroy*, he began the preparation of the Coast Pilot; and followed with much detail the voyages of early explorers. To Cook and Vancouver he gave special attention and indeed verified their positions. Nor did he withhold his admiration for the indomitable courage and perseverance of the early Spanish navigators. His paper covering the period from 1539 to 1603 is a classic.¹

In addition to Cook and Vancouver, there was another son of Albion who came a-roving to the Pacific coast when Spain was at the zenith of her power. He cast anchor in an open roadstead thirty miles west northwest of where the greatest city of the West Coast lies "serene, indifferent to Fate."

As a citizen of this metropolis it was natural that George Davidson should become intensely interested in the identification of the anchorage made by Francis Drake in 1570. He proved, I think, beyond question that

1. Drake did not reach the latitude of 48 degrees north, as claimed by many English writers and repeated in the last edition of the *Britannica*;
2. The most northern latitude reached by Drake was 43 degrees;
3. The *Golden Hinde* never sailed into the Bay of San Francisco, nor did Drake see the entrance to the Bay nor surmise that such a body of water existed in the vicinity of his anchorage. School textbooks are prone to state that Drake discovered the Bay.
4. In all probability, Drake cast anchor under the lee of Point Reyes; and this is the locality which he named Nova Albion, or New England, from a fancied resemblance of the white cliffs to those of his native shire.

¹U. S. Coast and Geodetic Survey, Appendix No. 7. An Examination of some of the Early Voyages of Discovery and Exploration on the Northwest Coast of America from 1539 to 1603. Also Francis Drake on the Northwest Coast of America, *Trans. Geog. Soc. of the Pacific*, Vol. V, Series II, 1908.

In company with Professor Davidson and on many a lonely trip I have tried to follow Drake as he approached this anchorage; and in this paper bring forward and as evidence the conditions of the winds, the fogs, the landfalls as affected by the fogs; for all these must be much the same as in 1579.

When Drake and his men got back to Plymouth, they found that they had lost a day, even as Magellan had. According to their reckoning it was Sunday when they arrived, whereas those who had stayed at home, said it was Monday. It was suggested that perhaps the different climates which they had experienced caused the discrepancy. Now climate, which is the summed-up weather of a locality, has been held responsible for many sins of omission and commission, but to make the weather responsible for the loss of a day in the circumnavigation of the globe from east to west is calculated to arouse the ire of the most placid aerographer.

It is however undeniable that weather was responsible both directly and indirectly for many of the episodes of the voyage. Certainly it played an important part in determining the courses; and it may therefore be well worth while to examine critically the weather conditions as recorded, in the light of our modern knowledge of the fogs, winds, currents and temperatures along the coast of California. If we can prove the constancy of certain climatic factors, we may use these to great advantage in interpreting the narrative of the voyage. Indeed, they become extremely valuable evidence in identifying the courses and the various anchorages. It is therefore from the standpoint of the aerographer rather than historian that the writer approaches this subject.

First, we must prove the constancy of the great air currents; the fog formations and other characteristic physical features of the air circulation in these parts. Let us begin with the winds.

The winds have long been used as fitting symbol for things inconstant. Yet in many localities the wind





FIGURE 3. The Southeast Farallon which Drake named the Islands of St. James on July 24, 1579. He sent a boat's crew ashore to obtain seal meat. Landing is not an easy matter and there is only one point where the crew, if on the west side, could have landed. This is near the flag pole near the center of the photograph.



FIGURE 4

Relief map of California. A indicates Drake's anchorage B indicates San Francisco.

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systems are more to be relied upon in running a course than the compass readings. I give below a note on the courses of the *Paramour Pink* under Edmund Halley and the non-magnetic ships of the Carnegie Institution.² I have no doubt that a course could be sailed today along the coast of California following the wind directions as given in "The World Encompassed" which would be much nearer the one taken by Drake than if we attempted to use the compass bearings. Bancroft Library

The log or daily journal of this voyage has never been published, and perhaps was not kept. The instrument used for determining latitude was probably not reliable within a degree, and positions in longitude are guesses. We know that on April 16, 1579, Drake left Guatulco. The narrative based upon the notes made by Francis Fletcher says:

"setting our course directly into the sea, whereon we sayled 500 leagues in longitude, to get a winde; and betweene that and June 3, 1400 leagues in all, till we came into 42 deg. of North latitude, where in the night following we found such alternation of heat into extreame and nipping cold, that our men in generall did grievously complaine thereof, some of them feeling their healths much impaired thereby, neither was it that this chanced in the night alone, but the day following carried with it not onely the marks but the stings and force of the night going before to the great admiration of us all; for besides that the pinching and biting air was nothing altered, the very roapes of our ship were stiffe, and the raine which fell was an unnatural congealed and frozen substance so that we seemed rather to be in the frozen Zone than in any way neere unto the sun or these hotter climates . . . though seamen lack not good stomachs yet it seemed a question to many amongst us whether their hands should feed their mouthes, or rather keep themselves within their couverts from the

²Doctor Bauer in charge of the magnetic work of the Carnegie Institution, in the fourth Halley Lecture, delivered at Oxford, May 22, 1913, says: "Two sailing ships cruising in the Atlantic Ocean from port to port, the one in 1700 and the other in 1910, were forced by the prevailing winds to follow very closely identical courses. If however these two vessels had been directed to follow certain definite magnetic courses and if we may suppose that they had such motive power as to render them independent of the winds, then their respective paths would have diverged considerably . . . In brief while the sailing directions as governed by the winds over the Atlantic are the same now as they were during Halley's time the magnetic directions or bearings of the compass that a vessel must follow to reach a given port have greatly altered."

pinching cold that did benumme them The 5 day of June we were forced by contrary winds to runne in with the shoare which we then first descried and to cast anchor in a bad bay, the best roade which we could for the present meete with where we were not without some danger by many of the extreame gusts and flawes that beate upon us, whic if they ceased and were still at any time, immediately upon their intermission there followed most vile, thick and stinking fogges, against which the sun prevailed nothing till the gusts again removed them which brought with them such extremity and violence when they came that there was no dealing or resisting against them."

"In 38 deg. 30 minutes we fell in with a convenient and fit harborough In this bay we ankered the seventeenth of June, Our Generall called this country Nova Albion and that for two causes; the one in respect of the white banks and cliffes which ly towards the sea th other that it might haue some affinite euen in name also with our own countrie which was sometime so called."

The World Encompassed

by Sir Francis Drake, nephew of the navigator,
London 1682, p. 132.

Professor Davidson has identified Chetko Cove as the place of this first anchorage.

"In this place was no abiding for us and the winds directly bent against us, having once gotten under sayle againe commanded us to the southward whether we would or no."

It is here that mention of 48 degrees is made; but it would seem plain from the context that 43 was intended. There has been much argument over this. An error may have been made in the original entry or in the transcription. Certainly the figure 3 as generally written is not unlike an 8. It must be remembered too, that in any narrative compiled after the cruise the fact that the party remained for a period of 37 days in a locality whose latitude was 38 N. might have led to a slip of this character. Wherever the figure is written out, it is "fortie-three degrees toward the pole Articke."

A good reason for discrediting 48 is the time, 11 days, required to make the distance, for they hove to each night and probably did not average 50 nautical

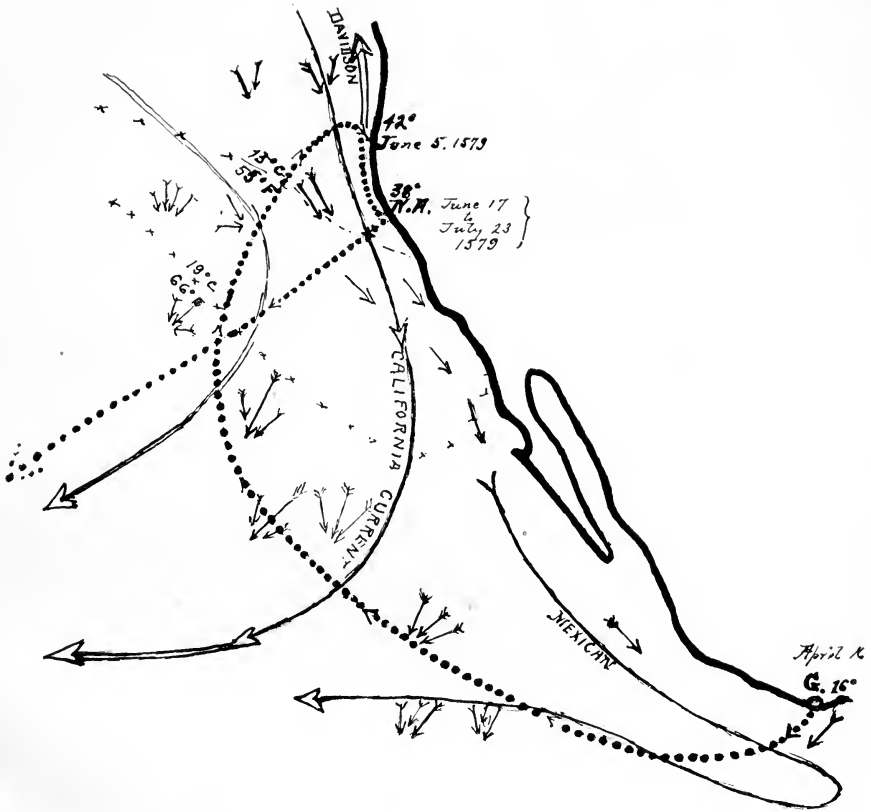


FIGURE 5

Drake's probable course and the prevailing winds, ocean currents, and air temperatures for June off the California Coast.

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miles a day. Furthermore they were in the Davidson current, an inshore eddy return current which would carry them north. The *Golden Hinde* was somewhere between 100 and 120 tons burden and drew about 13 feet of water. There was not much spread of canvas and she was a poor traveller because her bottom was foul from long stay in southern waters, also she was heavily laden with stolen silver, had a crew of 60 souls, carried cannon and cannon balls and above all was leaking. The narrative says that they diligently searched the shore. Had they made 48 and diligently searched the shore, they could hardly have passed unnoticed Cape Flattery and the Straits of Fuca. And farther south, Gray's Harbor, Shoalwater Bay, Cape Disappointment and the mouth of the Columbia River.

It must be remembered that the prime object of all this northing was to discover the big river or passage through which they could sail from the South Sea into their "owne" ocean, the Atlantic. They dared not go south and retrace their course, for they feared the Spaniard now on the alert. To have found this short way home, to have outwitted the greatest seapower of the day, to have discovered and traversed the Anian Arcticus, why this would have eclipsed the glory of all previous explorers!

This conclusion is strengthened if we recall that some thirteen years later, the Greek pilot Apostolos Valerianos, or to give him his sailor name, Juan de Fuca, claimed that he did pick up the entrance to the Strait and actually entered it. There are many romantic incidents connected with early Spanish exploration of the Pacific coast; but it is doubtful if any surpasses the adventure of this sixteenth century Ulysses. Captain George Vancouver, entering the passage two centuries later, did well to name it after the old pilot.

Drake and his men then, according to the best evidence, turned southward, somewhere near the

43d parallel. The latitude was determined with an astrolabe and there was a probable error of a whole degree, perhaps even more in the reading. As they sailed south within sight of land, after leaving Chetko Bay, they saw or thought they saw *snow covered* hills. There are no peaks visible from the sea high enough to have a snow line at this time of the year, and there is no special evidence of an abnormal season. Drake's men made the not unnatural error of thinking that the dense white fog on the hilltops was snow. It is a common occurrence today for tourists on coasting vessels to call attention to what they think is snow on the mountains. It may be said that seamen like the crew of the *Golden Hinde* who had gone half-way round the world would surely recognize fog; but the fog formations in this section differ greatly from sea fogs elsewhere. In several technical papers, the writer has discussed the fogs of the Pacific Coast³.

Still working southward the little company worn out with the fierce and biting northwest wind, rounded the headland which we now know as Point Reyes, named by Vizcaino, on Epiphany day, twenty-four years later, *la punta de los tres Reyes*, after the three wise men.

The locality then in which we would place the anchorage is what is now quite appropriately known as Drake's Bay. On June 17, 1579, he landed and took possession in the name of his sovereign Elizabeth. After making proper military disposition of his force, which included the landing of the cannon, Drake hauled the *Golden Hinde* ashore, careened ship and then cleaned and caulked her bottom. Completing this he launched her again and took aboard supplies of fresh water and wood. He sailed thence on July 23 after a stay of thirty-seven days. He passed the North Farallon and farther south the Southeast Farallon, which he called the Islands of St James.

³The Rainfall of California, Univ. of Cal. Publications, 1913.

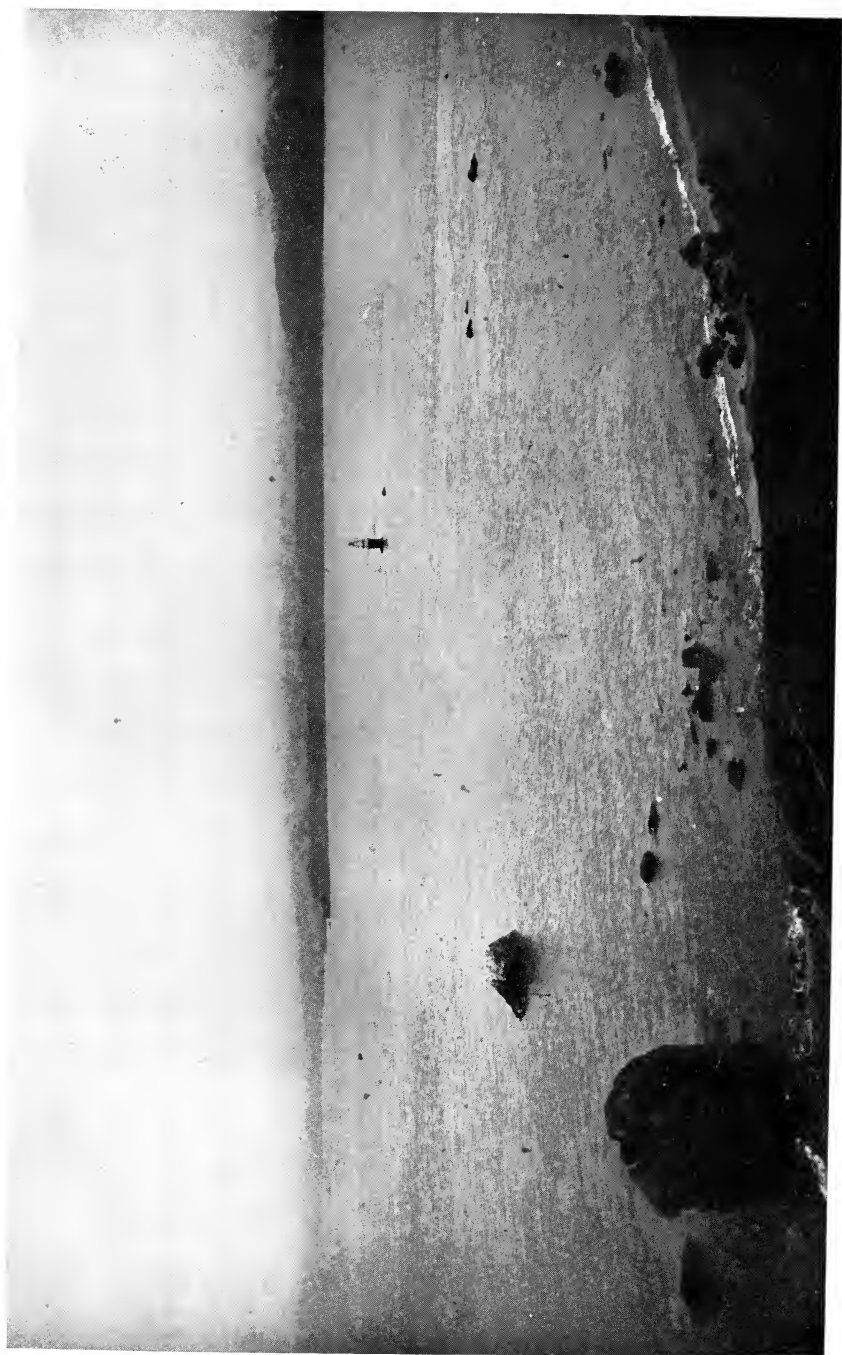


FIGURE 6. Entrance to San Francisco Bay—made with telephoto lens—to show the whitish appearance of the upper limit of the fog, which Drake's crew mistook for snow.

Both of these are shown in the accompanying photographs.

In the photograph herewith may be seen the white cliffs referred to. Along the whole section of the coast there is nothing which resembles the description other than these. They lie towards the sea, facing south and in plain view of the natural anchorage after rounding the headland of Point Reyes and getting out of the stiff northwest wind and into quiet water. Furthermore from this anchorage one can make the North Farallon in about four hours and the Southeast Farallon in three hours more; and this is just what Drake did. The *Golden Hinde*, after cleaning and caulking could make with the northwest wind about four nautical miles in an hour. Sailing southwest on what is now called 225 degrees, and making the Farallon rocks, Drake passed by the entrance to the Bay of San Francisco about twenty miles out. He would not discern the entrance. One must go over the course to fully appreciate the conditions. The writer has done this many times and tried to pick up the entrance, and especially at the time of the year when Drake was there. Knowing exactly the location of the Golden Gate, he was never able to pick it up with the unaided eye. The landfall is deceptive and seems like a continuous horizon line. The crest of Tamalpais, the Sausalito hills, Angel Island, Alcatraz and the Berkeley Hills with Diablo in the background blend into one sky line.

Furthermore, in the summer months there is a valid reason why the entrance can not be seen, even when one is only a few miles outside. This is the fog which comes in with the regularity of clockwork on summer afternoons. I have described the character of this fog in several papers.⁴ It is not necessary to go into details here but it may be said that even if Drake had been close to the entrance he probably would have

⁴Bulletin I. Climatology of California, U. S. Weather Bureau, 1903; The Clouds and Fogs of San Francisco, 1912.

missed it. About the only time when the entrance can be picked up from outside is in winter after a southeaster, when the visibility is remarkably good.⁵

Drake left his anchorage on July 23 (old style) having remained 37 days. He passed the North Farallon rock and some hours later the Southeast Farallon sending a boat's crew ashore to get seal meat. The seals (or rather their descendants) are still there; and a little cove just under the big pinnacle rock known as Maintop is the spot where I think the crew must have landed, as it is the only place where a landing could be safely made from a small boat even in a smooth sea, and the sea is seldom smooth. Drake called these rocks "The Islands of St. James" and from here steered boldly west by south on the longest leg of his journey round the world. He knew that in time he would reach the Ladrones, the Philippines and Moluccas; and passing round the Cape of Good Hope come into the Atlantic. He had captured some Spanish "sea cards" from Don Francisco Xarate; and in fact was following the return route of the galleons to Spain. These charts also gave the Pacific Coast north as far as 43 degrees, a matter which must not be overlooked. Of course the possession of these cards robs the voyage of much of its glory. It is interesting to note that certain English historians, "sing small," as the Scotch say, about these cards. The very name, California, was on the charts previous to Drake's visit. [I may digress for a moment to refer to the fact not generally known that a former member of this Society, Dr. Edward Everett Hale, has credit for discovering the origin of the word California.⁶ But I regret to add that the good Doctor inclined to the belief that Drake anchored in San Francisco Bay.]

⁵One peculiarity of the fog in summer months is the clear zone from sea-level to a height of about 30 metres. At such times the seaman does not clearly realize the true conditions. The upper level of the fog is about 500 metres (1640 feet) and when viewed from a distance resembles a white blanket. The temperature at sea level in June is approximately 11 C. (55 F.) while at the top of the fog it is 27 C. (81 F.) or very much warmer and this means a heavy water vapor content and a density that results in the whitish aspect.

⁶Proc. Am. Antiquarian Soc., April, 1862.

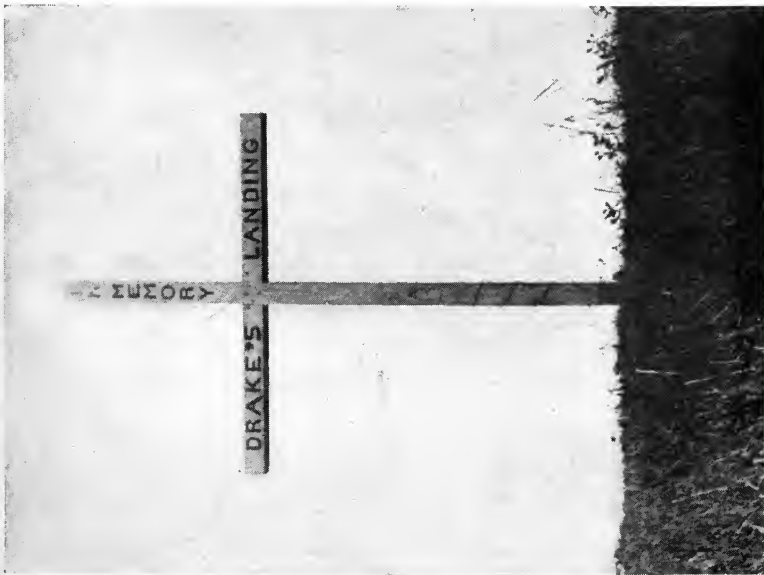


FIGURE 7. Wooden Cross erected by Bishop Nichols on the supposed site of Drake's landing. The cross is about three feet high.



FIGURE 8. Stone Cross about forty feet high, erected in Golden Gate Park, San Francisco, and known as the Prayer-Book Cross in commemoration of the first use of the Book of Common Prayer in our Country by Drake, 1579. The gift of Mr. George Washington Childs.

It now remains for us to attempt to fix the location of the Portus Novae Albion by a closer study of the weather conditions for that period of the year when Drake was there. This is the more necessary since the anchorage has been challenged on the ground of climatic conditions.

In the Dictionary of National Biography, Vol. XV, p. 431, under the heading Sir Francis Drake it is stated:

“The one doubtful point is the account of the climate, which is described with much detail as excessively cold and foggy, (Vaux, pp. 133-118). This is now said to be an exaggeration; but to speak of the climate near San Francisco or anywhere on that coast in July in these terms is not exaggeration but a positive and evidently wilful falsehood credulously inserted by the original compiler of ‘The World Encompassed’.”

On the contrary the description fits the facts. In 1902 I made an abstract of the weather records at Point Reyes for the 37 days corresponding to those spent by Drake under the lee of this headland.⁷ It is plain that the fog and wind conditions are remarkable and in accord with the experience of Drake’s party. Professor Davidson surveying there in 1859 noted in his journal that the fog hung over the promontory of Point Reyes for 39 consecutive days and nights. The sun was invisible for the first nine days and on shore it was visible only at mid-day for the next thirty days.⁸ How well that description tallies with the narrative where it says “neither could we at any time in the whole fourteen days together find the aire so clear to be able to take the height of sunne or starre.”

We give on a Meteorological Chart of the North Pacific for June the probable course of the *Golden*

⁷Taking a five year period or 185 days in all, there were 97 days of fog. With regard to wind we note that on May 18, 1902 the average velocity was 32 metres per second (72 miles an hour). For a given day the average velocity was 35 metres per second. The greatest wind for one hour was 164 kilometres (102 miles) while in a period of seventy-two hours the wind blew 7565 kilometres or 4701 miles, that is, it would go around the world in sixteen days if continuous. I had personal experience of these high winds in different years both afloat and ashore.

⁸Coast Pilot, 1889, p. 232.

Hinde. Appended are copies of the map of Hondius, 1595, in the British Museum, and the Port of New Albion, both taken from Davidson's earlier paper on the Identification of Drake's Anchorage, read before the California Historical Society in May, 1891.

Port of New Albion
Drake 1579.

From the side plane on the map of
Hondius, 1695.
British Museum.



*Regia corporum locustione, et Crabs in montibus parviflori, hujus
Novae Albionis praevalentia, tum jam his coronati, obsequium assent.*

By horrible locustations of their bodies and by frequent seizures
in the mountains, the inhabitants of this part of New Albion, deplore
the departure of Drake now hence crowned.

FIGURE 10. Hondius Map, showing Nova Albion.

Copy of part of the
Map of Hondius, 1695.
British Museum.

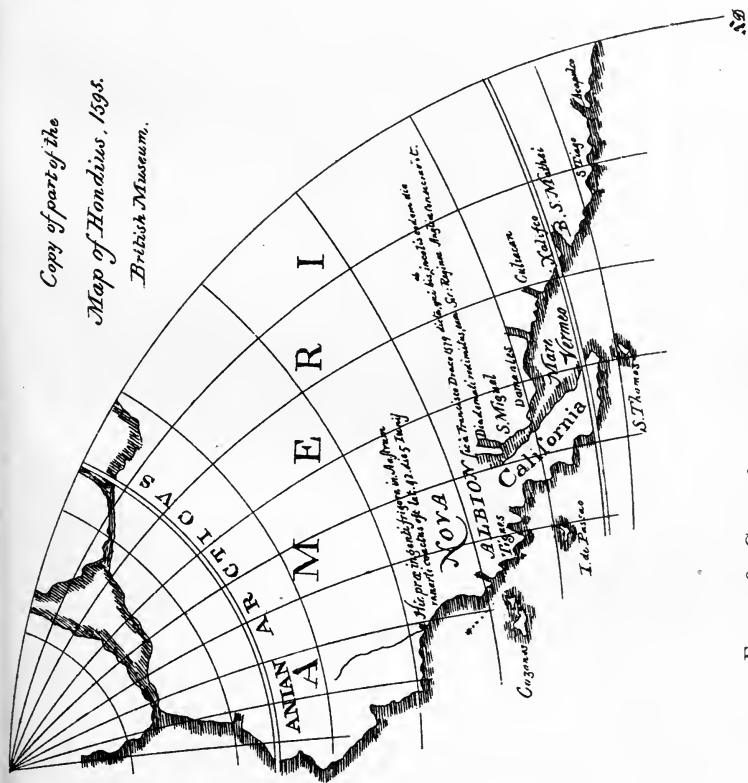


FIGURE 9. Copy of part of a Map of Hondius, 1695.

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