

COMPARISON OF LATITUDES

	Latitude	Difference
<u>17 June - 23 August, 1579</u>		
Drakes Bay, Coast of California.	38° 02' N	
<u>World Encompassed</u>	38° 30' N	28'
<u>Famous Voyage</u> and other accounts	38° - N	2'

The true position given here is for the landing site. World Encompassed implies that an observation for latitude was taken on shore.

<u>16 October, 1579</u>		
Palau Islands (approximate middle of group.)	7° 15' N	
<u>World Encompassed</u>	7° 05' N	10'
<u>25 October, 1579</u>		
Sangi Island, Celebes Sea. (Center of Island)	3° 32' N	
<u>World Encompassed</u>	3° 40' N	8'

" . . . we passed by the Iland named Talao in 3 deg. 40 min."

<u>25 October, 1579</u>		
Siaoc Island, Celebes Sea.	2° 43' N	
<u>World Encompassed</u>	3° - N	17'

The identification of this island is made certain by an account from Francisco de Dueñas. See Wagner, Sir Francis Drake's Voyage, pp. 172-175. Two Indian fishermen were taken on board here to act as pilots for the Moluccas.

<u>1 November, 1579</u>		
Maju Island, Molucca Sea.	1° 19' N	
<u>World Encompassed</u>	1° 30' N	11'

This island, seen in passing, was called Ile Suaro in World Encompassed.

<u>5-9 November, 1579</u>		
Ternate, Islands of Molucca.	0° 48' N	
<u>World Encompassed</u>	0° 27' N	21'

The account states that Drake did not go ashore here.

COMPARISON OF LATITUDES

	Latitude	Difference
<u>14 November - 12 December, 1579</u>		
Potil Islet, northeast tip of Banggai, Celebes.	1° 28' S	
<u>World Encompassed</u>	1° 40' S	12'

Camp was set up ashore and the Golden Hind careened here. Identification is made on the basis of descriptions given in the accounts.

<u>9-10 January, 1580</u>		
Vesuvius Reef, Banggai Archipelago, Célèbes.	2° 07' S	
<u>World Encompassed</u>	1° 56' S	11'

The account gives the latitude as "2 deg., lacking three or four minutes South latitude." The identification of the reef is based upon descriptions from the account.

<u>12 January, 1580</u>		
Shoal east of Matarape Bay, Celebes.	3° 15' S	
<u>World Encompassed</u>	3° 30' S	15'

The account states "being not able to beare our sayles, by reason of the tempest, and fearing of the dangers, we let fall our anchors vpon a shoale in 3 deg. 30 min." No landmarks are given by which to pinpoint the place on the shoal where anchorage was made. The true position given above is the mean latitude of this shoal and the difference of latitude could vary several minutes.

<u>14 January, 1580</u>		
Wowoni Island, Celebes. (Assumed anchorage)	4° 02' S	
<u>World Encompassed</u>	4° 06' S	4'

The account states that "at an Iland in 4 deg. 6 min., we again cast anchor, and spent a day in watering and wooding." It seems probable that this anchorage was found on the north side of the island where there is a bay and a stream. The weather at this time was apparently clear as the account goes on to say that "After this wee met with foule weather."

COMPARISON OF LATITUDES

	<u>Latitude</u>	<u>Difference</u>
<u>6-10 February, 1580</u>		
Damar Island, Banda Sea	7° 09' S	
<u>World Encompassed</u>	7° 13' S	4'

A landing was made on this island for water and wood, and trade for fresh food was conducted at the principal town, probably on the east side.

<u>12 February, 1580</u>		
Moa Island, north shore, Banda Sea	8° 09' S	

World Encompassed states that "When we were come into the height of 8 deg. 4 min., Feb. 12, in the morning we espied a greene Iland to the Southward," Retracing Drake's course makes this Moa Island and the position given would have placed him five miles offshore. However, it seems probable that he was between ten and fifteen miles offshore and his latitude 5' to 10' too high, but consistent with the errors above.

<u>9 March, 1580</u>		
South Coast of Java, vicinity of Tjilatjap	7° 47' S (approximately)	

World Encompassed states that on this date ". . . in the morning wee espied land, some part thereof very high, in 8 deg. 20 min South latitude." This latitude would have placed Drake about 33 miles offshore, which is reasonable, but it is probable that he was somewhat closer consistent with his previous errors making his latitudes a few minutes too high.

A latitude for Java is given in World Encompassed as follows: "This Iland we found to be the Iland Jaua, the middle whereof stands in 7 deg. and 30 min. beyond the equator." The center of the island in this vicinity stands in about 7° 15' S, making Drake's latitude about 15' too high, but the location of the middle of the island could only have been approximated, possibly on the information that Mt. Slamet, easily visible on the coast, stood in about the middle.

In summary, the average error in latitude for places that can be reasonably pinpointed (36), excluding the doubtful latitudes of Valparaiso and Arica, is about 16'. Of these, the average error for latitudes that

COMPARISON OF LATITUDES

were probably obtained on shore is about 09' with nearly half of them being of less than 10' error. The average error of latitudes probably taken at sea is about 21'.

BIBLIOGRAPHY

- Aker, Raymond, M. P. Dillingham and Robert Parkinson, Nova Albion Rediscovered, ms., Point Reyes, 1956. (Copies at Bancroft Library and California Historical Society.)
- Aker, Raymond, The Cermeño Expedition at Drakes Bay, 1595, Point Reyes, Drake Navigators Guild, 1956.
- Allen, Robert W., An Examination of the Botanical References in the Accounts Relating to Drake's Encampment at Nova Albion in 1579, Point Reyes, Drake Navigators Guild, 1969.
- _____, Identification of "an herbe much like our lectuce...." Point Reyes, Drake Navigators Guild, 1969.
- Allen, Robert W., and Robert W. Parkinson, Identification of the Nova Albion Conie, Point Reyes, Drake Navigators Guild, 1969.
- Andrews, Kenneth R., "The Aims of Drake's Expedition of 1577-1580," American Historical Review, LXXIII (February, 1968), 724-741.
- Bancroft, Hubert Howe, History of California, San Francisco, The History Company, 1884-1890, 7 vols.
- Barrington, Daines, Miscellanies, London, 1781.
- Bascom, Willard, Waves and Beaches, the Dynamics of the Ocean Surface, Garden City, Anchor Books Doubleday & Company, Inc., 1964.
- Beardsley, Richard K., Temporal and Areal Relationships in Central California Archaeology, Berkeley, Reports of the University of California Archaeological Survey, Nos. 24 and 25, November 30, 1954.
- Bishop, R. P., "Drake's Course in the North Pacific," British Columbia Historical Quarterly, III (July, 1939), 151-182.
- Blundeville, John, M. Blundeville His Exercises, containing sixe Treatises, London, 1594.

BIBLIOGRAPHY

- Bocqueraz, Leon, Finding the Drake Plate, a tape recorded interview under auspices of University Libraries Cultural History Project, University of California, Bancroft Library, November 9, 1955.
- Bolton, Dr. Herbert Eugene, et al, Drake's Plate of Brass, evidence of his visit to California in 1579, San Francisco, California Historical Society, Special Publication No. 13, 1937.
- Brady, William, S.M., U.S.N., The Kedge-Anchor or Young Sailors' Assistant, New York, published by the author, 1847.
- Brown, Lloyd A., The Story of Maps, Boston, Little, Brown and Company, 1949.
- Bry, Theodore de, America Achter Theil, Frankfort, 1599.
- _____, Americae Pars VIII, Frankfort, 1599.
- Burney, James A., A Chronological History of the Discoveries in the South Sea or Pacific Ocean, 1803 to 1817, 5 vols.
- Caldeira, William, Statement to Allen L. Chickering, California Historical Society Quarterly, XVI (June, 1937), 192.
- Camden, William, Annales Rerum Anglicarum et Hibernicarum, regnante Elizabetha, ad Annvm Salvts M. D. LXXXIX, London, 1615.
- _____, Annales, The True and Royall History of the famous Empress Elizabeth, A. Darcie, transl., London, 1625.
- Casson, Lionel, The Ancient Mariners, New York, The Macmillan Company, 1959.
- Chickering, Allen L., "Some Notes With Regard to Drake's Plate of Brass," California Historical Society Quarterly, XVI (September, 1937), 275-281
- _____, "Further Notes on the Drake Plate," California Historical Society Quarterly, XVIII (September, 1939), 251-253.

BIBLIOGRAPHY

- Christy, Miller, The Silver Map of the World: a Contemporary Medalion Commemorative of Drake's Great Voyage (1577-80), London, Henry Stevens, Son, and Stiles, 1900.
- Corbett, Sir Julian S., Drake and the Tudor Navy, London / New York / Bombay, Longmans, Green, and Company, 1898, 2 vols.
- Dana, Richard Henry, Jr., Two Years Before the Mast, New York, Harper and Brothers, 1840.
A revised edition in 1869 adds a chapter "Twenty-four years after" describing his second visit to the Pacific Coast in 1859-60. A reprint edition by The Ward Ritchie Press, Los Angeles, 1964, includes additional original material of author and notes by John Haskell Kemble, ed.
- Davidson, George, Identification of Sir Francis Drake's Anchorage on the Coast of California in the Year 1579, San Francisco, California Historical Society, 1890.
- _____, Francis Drake on the Northwest Coast of America in the Year 1579, Transactions and Proceedings of the Geographical Society of the Pacific, Vol. V, Series II, 1908.
- Davis, John, The Worlde's Hydrographical Discription, London, 1595.
- Dillingham, Matthew P., and Raymond Aker, A Review of the Findings of Dr. Adan E. Treganza Relative to the Site of Drake's Landing in California, Point Reyes, Drake Navigators Guild, 1960.
- Drake, Sir Francis, Bart., comp., The World Encompassed by Sir Francis Drake, London, 1628. Reprinted in The World Encompassed and analogous contemporary documents concerning Sir Francis Drake's circumnavigation of the world, N. M. Penzer, ed., London, The Argonaut Press, 1926.
- Dudley, Robert, Arcano del Mare, Florence, 1646-47.

BIBLIOGRAPHY

- Eastwood, Alice, "Archibald Menzies Journal of the Vancouver Expedition," California Historical Society Quarterly, II (January, 1924), 265-340.
- Elliott-Drake, Lady, The Family and Heirs of Sir Francis Drake, London, Smith, Elder & Co., 1911. 2 vols.
- Farquhar, Francis P., and Walter A. Starr, "Drake in California: A Review of the Evidence and the Testimony of the Plate of Brass," California Historical Society Quarterly, XXXVI (March, 1957), 21-34.
- Fink, Colin G., and E. P. Polushkin, Drake's Plate of Brass Authenticated, San Francisco, California Historical Society, Special Publication No. 14, 1938.
- Frere-Cook, G., ed., The Decorative Arts of the Mariner, Boston / Toronto, Little Brown and Company, 1966.
- Follette, W. I., Fish Remains from a Sixteenth Century Site on Drakes Bay, California. Annual Report, Archaeological Survey, University of California, Los Angeles, 1963-64.
- Foster, Sir William, The Voyage of Sir Henry Middleton to the Moluccas, 1604-1606, London, The Hakluyt Society, 1943.
- Furst, Peter Townsend, "Happy Seals are Here Again," Fortnight, (September, 1956), 34-36.
- Hakluyt, Richard, The Principall Navigations, Voiages and Discoveries of the English Nation, London, 1589. Facsimile reprint of this edition, Hakluyt Society Extra Series, No. 39, Cambridge, 1965.
- _____, The Principal Navigations, Voiages, Traffiques and Discoveries of the English Nation, London, 1598-1600, 3 vols. Reprinted for the Hakluyt Society Extra Series Nos. 1-12 by James MacLehose and Sons, Glasgow, 1903-5.

BIBLIOGRAPHY

- Hakluyt, Richard, Divers Voyages touching the Discoverie of America, London, 1582.
- Harrington, J. C., Search for the Cittie of Raleigh, Archaeological Research Series No. 6, U.S. National Park Service, Washington, GPO, 1962.
- Haselden, R. B., "Is the Drake Plate of Brass Genuine?" California Historical Society Quarterly, XVI (September, 1937), 271-274.
- Heizer, Robert F., Francis Drake and the California Indians, 1579, Berkeley and Los Angeles, University of California Press, 1947.
- _____, "Archaeological Evidence of Sebastian Rodrigues Cermeño's California Visit in 1595," California Historical Society Quarterly, XX (December, 1941)
- _____, and William W. Elmendorf, "Francis Drake's California Anchorage in the Light of the Indian Language Spoken There," Pacific Historical Review, XI (1942), 213-217.
- Herrera, Antonio de, Historia General del Mundo, Valladolid, 1606-12, 3 vols.
- Hewes, G. W., Aboriginal Use of Fishing Resources in Northwestern North America, doctoral dissertation, University of California, Berkeley, 1947.
- H. O., No. 163, Sailing Directions for Celebes, Southeast Borneo, Java (Except from Java Head to Batavia), and Islands East of Java, Washington, D.C., U.S. Navy Department Hydrographic Office, 1935.
- H. O. No. 164, Sailing Directions for New Guinea and the Islands Eastward of Celebes and Timor, Washington, D.C., U.S. Navy Department Hydrographic Office, 1936.
- Hues, Robert, Tractatus de Globis et Eorum Usu, 1594. Reprinted by The Hakluyt Society, London, 1888.

BIBLIOGRAPHY

Hume-Rotherby, W., Review of "Drake's Plate of Brass Authenticated" by Colin G. Fink and E. P. Polushkin, Geographical Journal, CXIV (1939), 54-55.

Kroeber, Dr. Alfred Louis, Handbook of the Indians of California, Washington, D. C., Smithsonian Institution, Bureau of American Ethnology, Bulletin 78, 1925.

Lewis, Michael, The Spanish Armada, New York, The Macmillan Company, 1960.

Lumis, Charles F., ed., Land of Sunshine - The Magazine of California and the West, XII (February, 1900).

Mainwaring, G. E., and W. G. Perrin, eds., The Life and Works of Sir Henry Mainwaring, London, Navy Records Society, 1922.

Martyr, Peter, De Orbe Novo, Alcalá, 1530.

Mattingly, Garrett, The Armada, Boston, Houghton Mifflin Company, 1959.

McAdie, Alexander G., "Nova Albion - 1579," Proceedings of the American Antiquarian Society, XXVII (October, 1918), 189-198.

Meighan, Clement W., Excavations in Sixteenth Century Shellmounds at Drake's Bay, Marin County, Berkeley, Reports of the University of California Archaeological Survey, No. 9, Paper 9, November 20, 1950, 27-32.

_____, "Report on the 1949 Excavations of Sixteenth Century Sites of Drakes Bay," U.C.A.S. ms. No. 79, 1949 (?)

_____, and Robert F. Heizer, "Archaeological Exploration of Sixteenth-Century Indian Mounds at Drake's Bay," California Historical Society Quarterly, XXXI (June, 1952), 98-100.