SMITHSONIAN MISCELLANEOUS COLLECTIONS
VOLUME 148, NO. 1

A NEW THEORY IDENTIFYING THE LOCALE OF COLUMBUS'S LIGHT, LANDFALL, AND LANDING

By
RUTH G. DURLACHER WOLPER
Director, New World Museum
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(Publication 4534)

CITY OF WASHINGTON
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FOREWORD

When Columbus stepped ashore on Guanahani and renamed it San Salvador on that portentous day of October 12, 1492, he could not have dreamed of the confusion he was creating. He could not have guessed that the discovery was to be traced dozens of times by scholars of the 19th and 20th centuries in as many places. Practically every island in the Bahamas has been nominated to the honors of first landfall.

In 1958 the Smithsonian Institution published *A New Theory on Columbus's Voyage through the Bahamas*, by Edwin A. and Marion C. Link.[1] It suggested that Columbus had in fact landed on the Grand Caicos. This paper and others revived the landfall question which had lain dormant for a considerable period of time. As a result, Mrs. Ruth Wolper, a sometime resident of Watling Island, who has had a long interest in the island and who has established there a museum on its history, decided on some field tests to confirm the theory that Watling was indeed the landing place of Columbus, as Admiral Morison had concluded in his *Admiral of the Ocean Sea*. Her tests centered around the light which was supposed to have been seen from the *Santa Maria* at about 10 o'clock the night before the landfall. Admiral Morison had concluded that the light must have been a hallucination. Mr. and Mrs. Link concluded that it must have been on the northern tip of Turks Island, 4 hours' sailing time from the beaches of Grand Caicos. In the paper presented here Mrs. Wolper gives an account of the test which she believes proves that Watling Island is in truth San Salvador.

It is perhaps appropriate to quote from the Foreword which I wrote for the Links' paper: "In publishing this monograph the Smithsonian Institution of course takes no sides in the major problems considered." It wishes only to assist in making available to interested scholars this new theory to explain the light seen before Columbus's landfall.

MENDEL L. PETERSON
Head Curator, Department of Armed Forces History
Museum of History and Technology
Smithsonian Institution

[1] Smithsonian Misc. Coll., vol. 135, No. 4, January 20, 1958.

ACKNOWLEDGMENTS

Seven years of generous and patient cooperation from many good Columbian enthusiasts have encouraged this writer to record the information that follows. Without the thoughtful help of these individuals this study could not have been completed.

The first to whom I am deeply obligated is Adm. Samuel Eliot Morison, USNR, the eminent historian and author. Without his interest this paper never would have been written, and without his accurate translation of Columbus's *Journals* many of our finds might have remained undiscovered.

To my close friend the Hon. Sir George W. K. Roberts, Kt., C.B.E., M.L.C., president of the Bahamas Legislative Council and Historical Society, I gratefully acknowledge the sponsorship of my expeditions by sea. These were made in the interest of the Colony for the clarification of historical facts regarding Columbus's landfall and landing. For these expeditions, Sir George had offered his 110-foot *M.V. Drake* with the assistance of the late Capt. Claudia Storr and his crew. My grateful appreciation for the many ways in which I have been helped over the years goes also to the Development Board in the Bahamas and for the interest shown through the courtesy of Bahamas Airways, Ltd., and its pilots. Another who has been invaluable is the Hon. Étienne Dupuch, O.B.E., K.C., C.H.M., M.L.C., editor of the *Nassau Daily Tribune*. He helped by supporting my work in the newspapers and by publishing accounts of all my expeditions (copyright 1959). It is not always easy in another country to have the freedom that we so enjoy in our own America, and yet the spirit and encouragement that I received from him made my acceptance and my explorations feasible. And for this, I wish to thank also the Governors of the Bahamas during these years for their letters of gratitude and encouragement.

I am deeply indebted to Dr. James S. Pickering of the American Museum-Hayden Planetarium, New York, N. Y., who instructed me in timing my approach to the island to accord with that of Columbus; his assistance made it possible for me to explain the mystery of the light Columbus saw, to identify the true landfall and landing, and to verify the accuracy of Columbus's *Journal* from the 11th to the 16th of October 1492.

I am grateful for the courtesy, enthusiasm, and information received from the natives and individuals on San Salvador Island whom I mention in the body and notes of this manuscript and for the help from those on Rum Cay, Columbus's second island. Gratitude is also extended to volunteers of the United States bases who, in their spare time, explored with me on land and sea; to those who sighted latitudes for me on my 1959 expedition; and especially to Capt. Claude D. Stephenson, USAF, who worked out various technical problems with me. It has not been easy to disentangle the confused web of simple mistakes that accrued for almost 500 years. Many have helped to make this assembly of facts, and, although their names are not all mentioned, I remember and am grateful to those who have helped from museums, libraries, and societies in America, Spain, Italy, England, and the Bahamas.

Many new discoveries have opened avenues for further research in other fields on San Salvador. No investigator can isolate himself in only the fields in which he is interested, and this paper is the combined effort of many disciplines focused on the one moment when Columbus thought he saw a light. Not being able to trace Columbus's movements, as described in the *Journal,* step by step, from either of the two Columbus monuments I found on San Salvador in 1955, I surmised that the study of what had been written was not enough; something more concrete was needed—i.e., excavations. For the archeological help in this research, I wish to thank my friends Dr. Cornelius Osgood and Dr. Irving Rouse of Yale University, Dr. Frederick Dockstadter and Mr. William Stiles of the Museum of the American Indian, and the late Dr. John Goggin of the University of Florida.

I owe a great deal to Don Cristóbal Colón, El Duque de Veragua, the 17th descendant of the Discoverer, for his generous and loyal support of my theory. He dedicated the New World Museum on San Salvador on October 16, 1960, and prayed before the cross I had erected to the memory of his ancestor. His influence later led to the reconstruction of the *Niña II* and to its voyage to San Salvador at High Cay (Colón, 1962, and Hermida, 1963). I do thank him for this.

My gratitude also goes to Capt. Carlos Etayo of the *Niña II* and his courageous crew. They are to be congratulated in making the exact approach to our island at High Cay as we proved the landfall of Columbus.

Last but not least, I owe a great deal to my daughter, Beatrice, whose enthusiastic support and cooperative work carried me through

the years when this project was not always easy. Today, there are over 15,000 potsherds from Indian village sites—proof of the accurate descriptions in Columbus's *Journal* of this island of San Salvador.

In closing, again I thank Dr. Dockstadter and Dr. Rouse for their enthusiastic encouragement, incomparable advice, and instruction through the years, for commenting and editing this paper, and also am I grateful to Dr. Rouse who made suggestions and reviewed this manuscript from the first version through the final revision.

A NEW THEORY IDENTIFYING THE LOCALE OF COLUMBUS'S LIGHT, LANDFALL, AND LANDING

By RUTH G. DURLACHER WOLPER

Director, New World Museum
San Salvador, Bahamas

INTRODUCTION

On October 11, 1492, Christopher Columbus and his restless crew sailed west-southwest from sunrise to sunset; they had sailed 27 leagues that day and then changed back to their original course—west. During the afternoon Columbus was convinced by signs of land that the end of their 33-day voyage was near; after sunset, therefore, he ordered that the little fleet continue its course. It was 6 nights after full moon when these caravels sailed on into unknown waters. Although the *Pinta* was in the lead, Columbus, on the sterncastle of the *Santa María*, was in a higher position than the others, to see whatever was ahead.

At 10 p.m. Columbus thought he saw a light in the black night, but the light was "so uncertain a thing that he did not wish to declare that it was land" (Morison, 1942). He called Pedro Gutiérrez to come to the sterncastle to see it; Pedro thought he saw a light also. Rodrigo Sánchez was asked to look at the light, "but he saw nothing because he was not in a position where he could see anything." Columbus described the light: "Like a little wax candle falling and rising, which to a few seemed to be a sign of land, but the Admiral was confident that it was ashore." Pedro Yzquierdo thought he was the first to see the light and cried out, "Light! Land!" Columbus informed him that he was not the first to see the light. After all, the Sovereigns had promised an annuity of 10,000 maravedis to the first who sighted land, and Columbus was going to claim it!

On October 12, at 2 a.m., land was sighted straight ahead about 2 leagues distant; Rodrigo de Triana described it as "a white head of sand." At this hour, anything ahead of their ships would be lighted from the moon. The *Santa María*, the *Niña*, and the *Pinta* "jogged off-and-on until daylight" (Morison, 1942, vol. 1, p. 311).

The significance of this light in establishing definite proof of the position of Columbus's landfall has increased over the years. Did Columbus really see the light he thought he saw?

This light has been the subject of many theories (table 1) suggesting several places where the Admiral could have made his first landfall in the New World. Most of these theories have provided more heat than light, in the absence of adequate proof. As a result, the mystery of the light remained unsolved for 467 years.

Theories have been contributed by scholars with many different backgrounds. Historians, navigators, biographers, and numerous other investigators have contributed to the light-landfall controversy.

TABLE 1.—THEORIES OF VARIOUS INVESTIGATORS AS TO COLUMBUS'S FIRST LANDFALL IN THE NEW WORLD

Year	*Island was called* San Salvador	*Investigator*
1793	Watling	J. B. Muñoz, *Historia del Nuevo Mundo*, vol. I.
1802	Cat	Bahamas Parochial Act, first public record, *Moseley's Handbook*, 1926, p. 18.
1802	Watling	Bahamas Parochial Act of 1802.*
1826	Turks	Martín Fernández de Navarrette, *Colección*, vol. 1, 1, p. 20.
1828	Cat	Alexander S. Mackenzie, USN, worked problem for W. Irving.
1837	Cat	Alexander von Humboldt, *Examen Critique*, vol. 3, pp. 181, 186-222.
1856	Watling	Capt. A. F. Beecher, R.N., *Landfall of Columbus*, pp. 1-58.
1858	Watling	Oscar Peschel, *Geschichte des Zeitalters der Entdeckungen*, 2d ed., 1877.
1864	Mayaguana	F. A. de Varnhagen. *Das Wahre Guanahani;* and *La Verdadera Guanahani*, 1896.
1870	Grand Turk	R. H. Major, *Select Letters of Columbus*, 1847.
1871	Watling	R. H. Major, *Journ. Royal Geographical Society*, vol. 16, p. 193.
1880	Samana	Capt. Gustave V. Fox, USN, *U.S. Coast Guard Survey Report*, app. xviii.
1884	Watling	Lt. J. B. Murdock, USN, *The Cruise of Columbus in the Bahamas*, 1492.
1889	Watling	Clemente R. Markham, *Hakluyt Society*, ser. 1, vol. 86, p. 15, London 1893.
1921	Watling	Dr. Rudolf Cronau, *Discovery of America and the Landfall of Columbus.*
1926	Watling	Father Schreiner Chrysostom, O.S.B.* *Nassau Daily Tribune*, Bahamas
1942	San Salvador	Admiral Samuel Eliot Morison, USNR, *Admiral of the Ocean Sea*, vol. 1, pp. xvi, 294-313.
1958	Caicos	Edwin A. and Marion G. Link. *New Theory on Columbus's Voyage through the Bahamas.*
1959	San Salvador	R. Wolper *Columbus's Landing: Light Dispute Is Now Settled. Nassau Daily Tribune*, Oct. 1959.
1964	San Salvador	R. Wolper. Present paper.

* Watling called St. Christopher. Cat Island, called San Salvador officially from 1802 until 1926, when Father S. Chrysostom, O.S.B., was responsible for having the name San Salvador returned officially to Guanahani (Watling).

NORTE

DESCRIPTIÕ DEL DESTRICTO DEL AVDIENCIA DELA ESPAÑOLA

3

Cuba

1 Baracoa
2 pto delprincipe
3 Baiamo
4 Santispiritus

Xamayca

1 Scnilla
2 Oristan
3 Melilla
4 pto de xanta
5 pto del Guayamo

La Espanola

1 Elzeibo
2 higuei
3 Santiago
4 pto de la plata
5 monte xpi

San Juan

1 Clarrecibo
2 Guadianilla
3 Golfo de S. Germ

30

FIG. 1.—Theodore de Bry's engraving of John White's original drawing.

In the library of the Hispanic Society of America, New York

Each has had his turn in attempting to identify the San Salvador of Christopher Columbus. Theories formed from the mistakes in cartographers' charts and maps have caused confusion[1]; some theorists, charging that Columbus was highly imaginative and his descriptions inaccurate,[2] have suggested tracts that could not be followed in Columbus's *Log;* these do not present sufficient evidence for consideration in this study. Theories not based on actual investigation cannot adduce arguments logical to the discussion. Mathematically, to see a light under ordinary conditions, from the distance Columbus

[1] The demand for maps brought a map-trade to the markets; surveys were too expensive because of changes; and in the 18th century plates were sold, touched up, and maps made from them sold as new maps (Skelton, 1952, vol. 3, p. 74).

It is important to rely mostly on the records and maps of those who have either visited these parts or received word first hand.

1492. Columbus was the first to mention Guanahani, the first island seen.

1513. Ponce de León mentions the Caÿcos, Guanahani, and Guanima—places visited by him. He did not know about Guanima until he had passed it on his way to find Bimini; it was on his return that he mentioned this island. Guanima cannot be confused with Guanahani as the writings and drawings of White show.

1587. John White made a voyage to Virginia in 1587 and on July 6th he recorded that the island of Caÿcos was one of the Turks Island group. The chart he drew of islands was copied and engraved by Theodore de Bry (1624) showing three separate islands of Guanima, Guanahani, and Caÿcos.

De Bry, who had also made engravings for the writings of Las Casas, must have read that Las Casas described Guanahani as Triango, and therefore he added the name Triangulo to his chart, which gave it some originality. There are no islands east of Guanahani, but it is likely that the many cays southeast of Guanahani were called Triango or Triangulo as they are depicted in several maps. This island has many cays, southeast and north of the island, which could have been the reason for it to have been called "Lucayo," which Morison translates as "dwellers of Cays."

1635. Blaeu copied De Bry's chart and in his chart #92 he places "Guanahani O' S.Salvador" where Guanima should be and makes it the shape of Guanima; this confused Washington Irving, whose mistake remains a controversial issue, when he called Guanima "Cat Island—San Salvador." (In maps 1700 and 1747 Guanima was first called Catt, perhaps after a Catt family or because it was confused with other islands such as Blaeu's Los Cata meaning Little Cat, etc. There are more explanations, but this can become more confusing.

In Blaeu's same Atlas of 1635, in chart #91, Guanimo is where it should be and Trianga is where Guanahani should be, which is called Triangulo in the chart #92. The shape of Guanimo in chart #91 is the same Guanima as the one drawn by John White on page 186 of Lorant, 1946.

[2] "It is impossible to see Mayaguana Island from Caicos. We also found it impossible to see from one island to another anywhere on these suggested courses of Columbus, although Columbus frequently notes seeing the island ahead" (Link and Link, 1958, p. 10). (Columbus described the second island 7 leagues from San Salvador; the Links' (1958) choice of the second island was 165 miles from Caicos.)

described, would have been impossible and the author originally had leaned toward Ferdinand Colón's theory of a "spiritual light" and toward Admiral Morison's belief in a light that was in Columbus's imagination. It could have been for this reason, probably, that no one previously reconstructed the approach to an island of his choice to test his own theory.

Only a few theories are still discussed but, because of the size of a torch light, the following suggestions have been eliminated by the writer. Washington Irving (1849) wrote:

> They saw it [the light] once or twice afterwards in sudden and passing gleams; as if it were a torch in the bark of a fisherman, rising and sinking with the waves; or in the hand of some person on shore, borne up and down as he walked from house to house . . . the island where Columbus had thus, for the first time, set his foot upon the New World, was called by the natives, Guanahani. It still retains the name of San Salvador, which he gave it, though called by the English, Cat Island. The light which he had seen the evening previous to his making land, may have been on Watling's Island, which lies a few leagues to the east.

In 1958, Marion and Edwin Link argued for the Caicos:

> . . . 7 miles north of the northernmost point of Turks Island, our party found that we could see the top of its high bluff and the lighthouse that surmounts it. We realized that Columbus, standing on the poop deck of the *Santa María* 14 feet above the water on that historic night, could easily have seen the flicker of an Indian campfire on this point as it appeared and disappeared behind the rolling seas. Or if the light 'like a small wax candle raised and lifted up' were a torch carried in the canoe of some Indian fisherman a few miles offshore, according to the dip tables it would still have been visible to Columbus 5 miles away . . . in approaching Caicos it would be simple to glimpse a light on or near Turks Island 4 hours previous to the Landfall.

Although the Links agree with Irving's type of reasoning, the writer finds it difficult to believe that the sailors, having been at sea for 33 days, would have continued to sail on at the same pace on a dark night to land on another island 4 hours later, if any of them had seen a light. The writer finds this theory unacceptable, because it seems incredible that, if Columbus saw a light on an island, he would not have headed cautiously for that island and landed there. To discover where the light was situated, therefore, we must identify the island that Columbus called San Salvador.

IDENTIFICATION OF GUANAHANI

In his official report of his first voyage to the Indies, in the form of a letter (Morison, 1959) to Luís de Santangel for King Ferdinand and Queen Isabella of Spain, Columbus wrote, "To the first island

which I found I gave the name *Sant Salvador*, in remembrance of his Heavenly Majesty, who marvelously hath given all this; the Indians call it, *'Guanahani.'*"

On Columbus's second voyage to these parts, he carried with him Don Juan Ponce de León[3] (Winsor, 1892), who was one of the first explorers to sail to Guanahani, only 21 years after its discovery, with his own caravels in 1513. Ponce de León had been sent from Puerto Rico to find the Fountain of Youth at Bimini, but after passing the Caicos, Yaguna, Amaguaya, and Manigua, he restored his ships with mastic at Guanahani, bore northwest, and discovered Florida. He took with him pilot Anton de Alaminos, who as a boy had also been with Columbus. Before returning to Puerto Rico, Ponce de León is said to have dispatched one of his caravels from Guanima under Juan Perez de Ortubia with Anton de Alaminos to continue the search for Bimini. It is reasonable to conclude from this description: Guanahani was not the Caicos; Guanahani was not Guanima; Guanahani was remembered for its mastic.[4]

Guanahani and Guanima are shown as two separate islands on many graphic documents (table 2) during the 16th, 17th, and 18th centuries. It was Blaeu in his *Atlas* of 1635 who first called Guanima "Guanahani." Blaeu made this mistake when he copied from the DeBry engraving (fig. 1) of John White's original drawings. In John Thornton's "New Chart of the Bahama Islands . . ." in his *Atlas Maritimus* of 1700, he first called Guanahani "Watlins,"[5] which

[3] Admiral Morison wrote that he located the statement of Ponce de León calling at San Salvador in Herrera's *Historia General*, 1501, p. 312—"On the 14th [March 1513] they made Guanahani, which is in 25° 40′, where *adereçaron* [they cleansed or repaired] a ship to cross the windward gulf of the Bahamas. This island Guanahani was the first which the Admiral Don Cristóbal Colón discovered, and where on his first voyage he disembarked and named it San Salvador."

[4] Columbus had made several voyages to Chios (Xios) in Greece which was known for its mastic. He knew how easily it grew, its use, and for how much it sold to the bank of Genoa. At that time Chios (Xios) was under the Genoese family, the Giustiniani, during three generations and, therefore, architecture, costumes, and culture were influenced by the Genoese from 1346 to 1566 and Genoese dress as late as 1690 (Argenti, 1953, ch. 6, p. 123). In *The Letter of Columbus* (1493) on his first voyage, he wrote: " . . . besides spice and cotton, as much as Their Highnesses shall command; and gum mastic, as much as they shall order shipped, and which, up to now, has been found only in Greece, in the island of Chios, and the Seignory sell it for what it pleases."

[5] Helen Wallis, British Museum, has searched for information about Watling, but could find only the John Thorton map on which was Watlin for the first time. Nothing could be found of Watling. She suggested making inquiry at

TABLE 2.—IDENTIFICATION OF GUANAHANI AS ONE OF THREE SEPARATE ISLANDS

Date	*Islands identified*			*Graphic document**
1513	Guanahani			Ptolemy—The Admiral's Map
1529	Guanahan			Diego Ribero
1533?	Guanahani			Early French Map found by Jomard
1542	Guanahani			Johne Rotz
1563	Guanahani			Jean Ribault
1566	Guanabo			Zaltieri
1579	Guanima	Guanahany	Caÿcos	Ortelius
1587	Guanima	Guanahani	Caycos	John White
1593	Guanahani			Cornelio Judaeis
1600	Guanabana			Mathias Quadus
1601	Guanima	Guanahani	Caycos	Antonio de Herrera
1603	Guanima	Guanahany	Caycos	Abraham Ortelius
1624	Guanima	Guanahani	Caycos	Theodore De Bry
1635	Guanimo	Trianga	No. 91	Willem Jannson Blaeu
1635	Guanahani	Triangulo	Caicos No. 92	Willem Jannson Blaeu
1650	Guarao	Guanahani	Caicos	Johan Jannson
1715	Guanima	Guanahani	Caicos	Johannes Van Keulen
1730	Guame I.	Guanahani	Caiquos	Math Seutter
1747	Guame I.	Guanahani	Caiques	Tobiam conr. Letter
1876	Guanima (Cat)	Guanahani (Watlings)	Turks (Caycos Group)	Sephus Ruge's edition el Peschel
1964	Guanima (Cat)	Guanahani (San Salvador)	Caycos (Caicos)	Ruth Durlacher Wolper

* Although there are more maps which include more problems, those above should be sufficient to solve the immediate problem of indicating three separate islands.

was copied later by Emanuel Bowen in 1747. On these two maps Guanima is "Catt."

In 1779, in an early French *Atlas*,[6] "Watlins" becomes "Wattelin" and Catt is "I de Chat ou Guanima." Guanahani or "Watlins" now becomes "I. de Wattelin ou S. Sauveur." On the very next page in the same atlas, Catt Island is "I de Chat ou Guanahani ou de S. Sauveur"; Rum Cay[7] (Columbus's Santa María de Concepción), is "La Petite Isle de S. Sauveur, decouverte par le St. Abotret."

Cat Island enthusiasts in the Bahamas first called Catt Island "San Salvador" in the Parochial Act of 1802; Washington Irving[8] wrote from a library in Milan in 1828 that this was also his opinion. Cat Island remained San Salvador in Bahamian public records for 124 years, after which the name was restored to Guanahani in 1926.[9] At that time the island was called "Watlings,"[10] after a pirate; but no records of significance have been found concerning anyone of that name who lived on the island.

EXPEDITION RECONSTRUCTING THE APPROACH TO GUANAHANI—SAN SALVADOR

The historical and graphic documents, then, indicate that the present island of San Salvador was Guanahani, that Cat Island was Guanima, and that these two islands were distinct from the Caicos

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the Public Record Office, London. Two letters stated that this office had no information concerning Watlin either, and suggested that the name might be found in "the records of the High Court of Admiralty and State Papers, Foreign (Spain)."

[6] *Mappe-Monde Physique d'après les Vues de M. Pallas*, redigées par M. L. Abbé Mongez, *Journal de Physique*, Mai 1779. Avec Privilege du Roi.

[7] Rum Cay is an island southwest of San Salvador and deserves the name Conception Island. A small cay southeast of Cat Island, "2¾ miles in length and 2 miles across at its widest point," uninhabited, is Conception Island today.

[8] In 1829, Washington Irving sealed his new theory with a gift; both were accepted. He was responsible for having a statue of Columbus made (with a beard, which historians say he did not have) in London, which was imported by His Excellency, the Governor of the Colony, Sir James Carmichael Smith, and now stands in front of Government House in Nassau.

[9] The Very Reverend Chrysostom Schreiner, O.S.B., V.F., who lived on San Salvador for 3 years, died and was buried there in 1928. He was responsible for the change in 1926, according to the records, the writer was told by the Hon. Étienne Dupuch, O.B.E., K.C.S.G., C.H.M., M.L.C., editor of the *Nassau Daily Tribune*.

[10](a) The *Bahamas Handbook* (Dupuch, 1960, p. 101) says, "Captain George Watling, sometimes known as the pious pirate, made his headquarters on the island at one time and it became known as Watling's Island."

group. This being so, the writer has attempted to identify the present San Salvador Island as Columbus's landfall and in particular to determine whether Columbus could have seen a light from shore 4 hours before he sighted land at 2 a.m. on October 12, 1492.

To investigate this problem, the author conducted a Columbus Expedition in October 1959, sponsored by the Bahamian patriot Hon. Sir George Roberts, president of the Legislative Council for the Colony. The results of this expedition depended greatly on preliminary studies which will now be outlined and which led to the explanation of how and why Columbus saw the light he described in his *Journal*.

Several points in the following light-landfall discussion hinge on the interpretation and translation of the *Journal* of Columbus. It is agreed that the original may have been lost, but it was seen by Ferdinand Colón,[11] son of Columbus, and he used it when he wrote the biography of his father. The original was abridged by Las Casas.[12] This is the *Journal* used by most historians; its accuracy

(b) *Yachtsman's Guide to the Bahamas* (Etheridge, 1952, p. 231), an official publication, says this, "Locally it is known as Watlings Island in honour of a famous buccaneer who made his base there in the 18th century."

(c) John Harris (1743), vol. 1, p. 86), says that Captains Coxon, Sawkins, Sharpe, and others, arrived at the island of Juan Fernandez at Christmas, 1680. After Sawkins had been killed in battle, Sharpe was made Chief of Command, after which the crew disposed of Sharpe, "and made choice of one Captain Watling to command, under whom they attempted Arica; but were repulsed with the loss of 28 men, among whom was their new Commander Captain Watling . . ." He was Captain for only a few months, and then Sharpe was restored to Chief Command.

(d) Esquemeling (1893, pp. 273, 274, 408) calls him John Watling. John Watling is depicted as cruel for having killed an old man, and was made captain only because the mutineers outnumbered the others. He was Captain for 24 days only, and on Sunday, January 30, 1681, was killed while attempting to plunder Arica.

(e) Charles P. Bethel, for Stafford L. Sands, Bahamas Development Board reported that after an "exhaustive enquiry" he was unable to find the date on which the island of Watlings first received its name. He kindly sent the writer information from the late Mary Moseley's *Bahamas Handbook*, 1926, which says, "Its other name (San Salvador being the official name) was evidently bestowed on it out of compliment to Captain George Watling, a noted buccaneer, who probably frequented it, but whose chief claim to remembrance was his rigid observance of the Sabbath, his crew being severely punished if they threw dice on a Sunday. In some old charts the name is spelt Watland."

[11] Ferdinand Colón wrote this book to defend the attacks made against his father in Giustiniani's *Annali di Genoa*, 1537, which he said were not true.

[12] First priest ordained in the New World, Bartolomé de Las Casas wrote the *Historia de las Indies*, supposedly the most authentic of all accounts.

depends upon its translation. Interpreting the translation on the spot, word by word, particularly that part pertaining to the days Columbus spent going about San Salvador and on to the next island, is of the utmost importance. The eminent historian Adm. Samuel Eliot Morison, USNR, has written this about the *Journal:* "No one who did not follow Columbus's route could have faked this document, so accurate are the bearings, the courses and the observations."

1. Preparation

Documentation. In preparing for the Columbus Expedition, the writer used, with his generous permission, Admiral Morison's manuscript of his exact translation of Columbus's *Journal* for the 11th, 12th, 13th, 14th, 15th, and 16th of October 1492. He actually has retraced 10,000 miles of the voyages of Columbus and has made the most complete investigation into this subject.

Exploring. The writer followed Columbus's statements word for word, exploring San Salvador Island for 7 years by plane, jeep, foot, and boat, comparing today's topography with that described in the *Journal.* The search continued on cross-island jaunts with machete, in fields, on beaches, and along the banks of Pigeon Creek and all the lakes. Underwater equipment was used in harbors connecting the island reefs and in channels and the cays; the investigations included measuring the height and length of sites about which there had been some question. Modern maps, written records, and oral information from outsiders (even as close as Nassau, the capital of these islands) are inaccurate and misleading.

Tradition. Studies have been made of the soils, trees, fruits, and bush-medicines. The culture described by Columbus can be linked with part of the present-day culture. This continuity casts doubt on the statement that all Indians on these islands became extinct during the 16th century (Wolper, 1962). Most knowledge of the traditions of the past, however, will end with the present older generations. For this reason a study should be made of these people before their traditions die with them and are lost forever; the author plans to do so in a later publication.

Climate. Trips were repeated during various months, in seasons of drought as well as of rain. On each trip were found additional data concerning Columbus's landfall. The season of drought lasts usually from January or February to May or June. In 1955 there was no rain in January or February; the smallest amount fell in March (0.35 inch); none fell in April; the total rainfall for the year

was 30.35 inches in 64 days. The greatest monthly rainfall in 1955 was 6.73 inches in September. Similar comparisons were noticeable for the 7 years that followed. Fresh-water ponds were evident only in the rainy season. In October, lakes are filled, foliage is lush and green, and visibility is good because the air is clear. To compare what Columbus found in October with what he would find in a month of drought is inconceivable, and yet there are theorists who attempt to do it, giving no consideration to the climate.

Topography. San Salvador (fig. 2) is an island 18 to 20 miles long, including the connecting-reef harbor at the north; it is 6 to 8 miles wide. As one approaches the island, its aspect is seen to be long and flat with scattered, low, rolling hills; the highest, Kerr Mount, is 140 feet. Surrounding the island are reefs and channels; there are cays at the north and southeast, harbors at the north and south. There are more than 20 lakes and salt ponds in the interior. Great Lake, the largest, is close to 12 miles long and averages 4 to 6 feet in depth. At one time it seems to have been considerably wider, although it is still 2 to 3 miles wide; several lakes are cut off from the main lake by swamp. Although a few settlements can be reached by boat and haul-overs, contrary to written reports,[13] this is not the means of transportation today. There are only two small boats on Great Lake, which natives scull or sail across to their "generation" farms (farms that have been in their families for generations), where root crops grow best. There is a creek at the southeast, approximately 9 miles long.

San Salvador is the southeastern most island of the Bahamian Archipelago above the Tropic of Cancer and north of the Antilles and South America.

Settlements. Through preliminary archeological excavations the author has located approximately 20 Indian sites on the island. To judge from these sites the prehistoric aborigines were concentrated on the banks of Pigeon Creek, which is in the southeastern part of Guanahani-San Salvador. Their settlements have also been found around the island, away from the shores, on the ridges and small hilltops, where there are villages today. After the arrival of Europeans, the most populated area continued until the 20th century to be on the southeastern part of the island, facing the open sea. The

[13] See footnote 10b. "This lake [Great Lake] provides the most popular form of travel between settlements."

early settlers who depended on fishing[14] and hunting[15] for their food found this location ideal, since it faced the creek and the open sea; and agriculturists preferred it because of the depth and richness of both black and red soil.

Conclusion. It would be easy for Indians from the villages on the banks of Pigeon Creek to see Columbus and his ships as they "jogged off-and-on" waiting for daylight. It would have been the natural thing for them to paddle to the mouth of the creek to have a better glimpse of these ships which they thought had come from the sky. The mouth of Pigeon Creek is protected by a wide, long, circular range of cays. The highest is High Cay, 114 feet above sea level; its face toward the sea is straight white rock about a half mile or more in length. Plans were made by the writer to approach the island[16] as Columbus might have done, toward High Cay in October; the stage would be set with a fire. Every opportunity was given in this test to allow for the finding that the light could indeed have been imagined by Columbus. The light was not needed

[14] The popular way of fishing at Pigeon Creek is to stupefy the fish. This is done by crushing the leaves and chipped bark of dogwood (*Ichthyomethia piscipula* L. Hitch), a narcotic; when this is placed in a bag, dragged in the water near the mangroves (35-foot *Rhizophora mangle* L.), the fish float on the water "ready for the pot," say the natives. Fish are also caught in hand-made nets and by spearing with long poles. South of the creek there are also many turtle beds.

[15] Pigeon Creek—just what the name implies. The natives hunt here for pigeons, tobacco, and wood doves which are plentiful. Black ducks across the pond nearby are caught when young in nets and brought home to feed on Indian corn (maize) which the Indians used to obtain from the farms on the island. These birds are plentiful, and make good eating when they are fattened on the corn. Bird and fish bones found in excavated sites have yet to be identified; work is incomplete.

[16] Captain McElroy plotted Columbus's dead-reckoning at 23° 47′ 24″ N. Admiral Morison suggests 24° but states, "A mistake of only 15 to 20 miles in dead-reckoning . . . on so long a voyage . . . is extraordinarily good (Morison, 1942, vol. 1, p. 311, note 13). After studying the bluff (24°), which was measured and where Indian artifacts were also found, I asked Dr. James Pickering of the Hayden Planetarium whether there would be a difference in what we would see at 24° with the moon shining at 2 a.m. and what we would see 3 miles south of that latitude, from which point I planned to approach the island. His answer was this: "The difference of 3 minutes of latitude would have an effect, but it would be so small that only precise instruments could measure it. If the cliffs were more than a few yards in length, it should be equally well seen from 24° as from 23° 57′, provided it faced generally east." However, at 24° the height is 69′ as measured by Captain Stephenson and me.

KEY TO MAP OF SAN SALVADOR, FIGURE 2 ON FACING PAGE

Border design of the map is found on Indian pottery. X shows the location of villages mentioned in Columbus's *Journal.* Quotations in the list below are from the *Journal;* "ch." is the abbreviation for channel.

1. High Cay, 114 ft. high
2. Pokus Cay
3. Middle Cay
4. Hinchinbroke Rocks or Low Cay ch., 10-12′, 80′
5. Low Cay
6. Snow Bay ch., 10-11′, 80′
7. Snow Bay
8. Sandy Point Reef
9. Sandy Point Harbor
10. Sandy Point ch., 12-14′, 100′
11. Sandy or Southwest Point
12. Sugar Loaf Rocks
13. Gardiner's Reef
14. Long Bay Lagoon 30′, $1\frac{3}{4}$ m. or First Landing Beach
15. Columbus Monument
16. Long Bay Reef
17. Hall's Landing
18. Fernandez Bay
19. Bamboo Point
20. Riding Rocks
21. Bonefish Bay
22. Bonefish Bay ch., 12-14′, 100′
23. Flamingo Ponds
24. Polaris Reef and Bay
25. Rocky or Polaris Point
26. High Reef ch., 12-14′, 125′
27. Middle Reef, 1 mi.
28. "Entrance" and "shoals"
29. Graham's Harbor
30. Green Cay ch., 7-11′, 60′
31. Green Cay
32. White Cay ch., 10-12′ 100′
33. White Cay
34. Sea Dog ch., 12-14′, 60′
35. "Reef of Rocks"
36. Goulding Cay
37. Bull Rock and channel
38. Cato Cay
39. Cut Rock Cay, "island"
40. Manhead Cay
41. Bolas Reefs
42. Light House
43. Guana Cay
44. Great Lake, "Large Lake"
45. Crab Cay
46. Goulding Cay
47. Almgreen Harbor
48. Almgreen Cay
49. Kerr Mount, 141 ft. high
50. Black Duck Pond
51. Pigeon Creek
52. The Bluff
53. Nana Cay and ch., 10-12′, 50′
54. Hawks Nest ch., 10-12′, 50′
55. Little High Cay
56. Breezy Hill

FIG. 2.—Map of San Salvador, 1962.

to prove to the writer that this island was the original Guanahani; the topography and archeological findings did that.

2. The expedition

Four hundred and sixty-seven years after the historic discovery of Christopher Columbus, as the sun set at 5:27 p.m. on October 21, 1959, a small Columbus Expedition had coasted southwest by south from the harbor at the north, on the outside of Bolas Reefs along the entire eastern shore of San Salvador. Aboard the 110-foot *M.V. Drake*,[17] was the regular crew with the late Capt. Claudia Storr at the wheel; Capt. Enos Collie was in charge of the logsline; Lt. William Mohin, Commander of the United States Coast Guard Loran Station on the island, sighted latitude shots with Capt. Claude D. Stephenson, AAF, Commander of the United States Guided Missile Range there. Also on board was Pastor Paul Ward, a native who, although 80 years old, has never missed a trip with the writer.

Staying $3\frac{1}{2}$ miles from shore, then west by south until High Cay was abeam to starboard, we sighted latitude shots to establish the position of the *M.V. Drake* by means of a quadrant similar to one Columbus might have used in 1492,[18] but compared and checked with an aircraft A8A bubble sextant. At High Cay, position was established, taking the average of shots sighted, which was $23°56 \pm 1'$.[19] In an hour and three-quarters, from Sea-Dog Channel at the north to High Cay, the logsline had read 16 knots. From this point the course was due east in order to be 28 nautical miles[20] from shore at 10 o'clock (Bowditch, 1958, p. 26).

The *M.V. Drake* was estimated to be $2\frac{1}{2}$ miles offshore at the beginning of the run-out,[21] and at 9:45 p.m. the logsline read $24\frac{1}{2}$

[17] The Government boat that comes to San Salvador once a week, owned by Sir George Roberts.

[18] This quadrant was made by Lt. William Mohin, USCG, from solid mahogany found on San Salvador, and is on view at the New World Museum.

[19] Lt. William Mohin, USCG, used a Marine quadrant; four readings gave him 23° 54′. Capt. Claude Stephenson, AAF, checked this with an Aircraft A8A bubble sextant; three readings gave 23° 57′.

[20] Captain Stephenson worked with the writer (1959-60) in several projects of exploration, one of which was to determine the length of mile Columbus could have used when he referred to 4 miles in a league in the two logs he is supposed to have kept. It is hoped that a pamphlet will be published in the future with charts explaining the two logs: one using the Roman mile of 4,858.59 US feet; the other using the Mediterranean mile of 4,035.42 US feet attributed to the Greeks.

[21] From the ship's Log.

knots; this, added to the estimated $2\frac{1}{2}$, made 27.[22] The night was black. The moon had been full on October 16; this being the fifth night after full moon, it was expected that 60 percent of the moon would be lighted and that it would rise 40 minutes earlier than the night when Columbus approached the island.[23]

Light (fig. 3). Seconds after 9:45, on a deck $12\frac{1}{2}$ feet above sea level, the writer saw two flashes of light pierce the darkness; one followed the other but disappeared into a large white circle that was seen by those on the same deck. This circle remained. At 10:05 the skipper asked the author whether he should direct his course due west, and as the boat was turned about, the white circle remained in the same area.

At 10:15 a bright light flared up, then sank; another light followed, and then another shot up, disappearing slowly into the center of the white circle. Suddenly a small flashing light grew at the bottom center of this remaining white circle, the light becoming steadier and brighter as the boat continued to move in closer; steadier and larger it grew as it rose and fell, until at $18\frac{1}{2}$ nautical miles from the point of the *Drake's* departure, with much excitement and scrambling about on the decks below, the crew shouted, "Ho-ho up there; Hey, Mon, d'ja see the light? D'ja see the light?"

The light was red now; it had been white first, then yellow. At this point, when it had risen to its fullest height, a picture of it was taken (fig. 4).

At 11 p.m. the light was steady, "rising and falling" slowly, but the planned fire was not the only one seen! There were two other lights which had disappeared at 10:40! Why? The answer to this problem was found the following day. Could it have been the same answer to the disappearance of the light Columbus described?

The planned fire on High Cay was blazing red as though the entire cay were on fire, and straight ahead of the ship at 11:15 p.m., but Columbus's description of the light as "a little wax candle rising and falling" was similar to the other lights also seen this night! All those aboard waited anxiously for the coming of day, to learn from the natives responsible for the fires what had caused this condition.

[22] It should be noted that by 10:05, when the *M.V.Drake* began its turn about, approximately 2 more nautical miles had been traveled, which accounts for the 29 nautical miles given on page 22.

[23] This information was given by Dr. James S. Pickering, assistant astronomer at the American Museum-Hayden Planetarium, New York, N. Y., who worked with the writer in determining the exact night to approach the island.

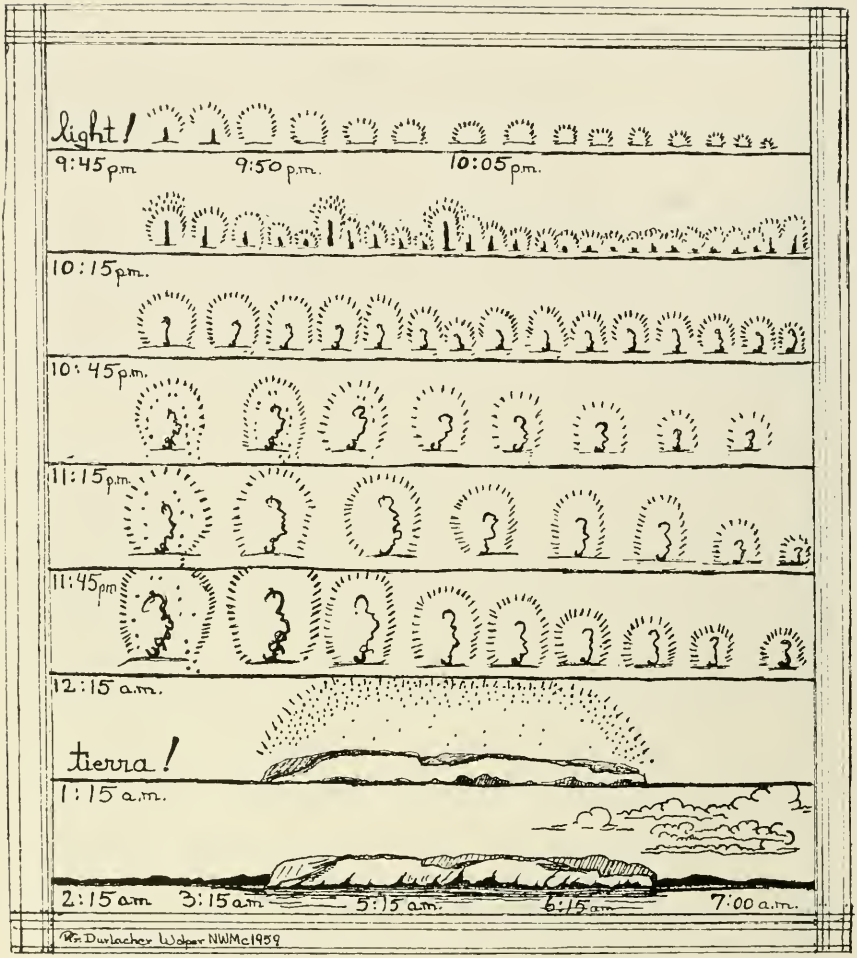

FIG. 3.—Light's appearance and the landfall as seen on the author's Columbus Expedition of 1959.

9:45 p.m. 27 nautical miles
10:05 p.m. 29 + nautical miles
10:15 p.m. 28 nautical miles
11:00 p.m. 21 nautical miles
11:15 p.m. 18½ nautical miles
12:15 a.m. 10 to 12 nautical miles, Drake's speed now cut in half
1:15 a.m. 7½ nautical miles (approximately) from island. High Cay began to glow, illuminating the atmosphere.
2:15 a.m. Jogged off and on. It was dark.
5:15 a.m. Few clouds now edged with sunlight.
6:15 a.m. More clouds lighted as well as horizon; sunlight creeping slowly on south of High Cay across the white rock.
7:00 a.m. High Cay completely bathed in sunlight from one end to the other; repeating the appearance of the moonlight's reflection at 1:15 a.m

"Head of sand." At 12:15 the moon was 45° over starboard quarter; at 12:25 the moon on port quarter was even with Orion; at 12:30, the moon rose above Orion and was climbing slowly; soon after 1:15 a.m., $7\frac{1}{2}$ miles from the island, directly in front of the

Fig. 4.—The light "like a candle falling and rising . . ."

ship, High Cay glowed from one end to the other! The reflection from the moon covered not only the entire surface of the white rock facing the east, but the brilliance of this light spread its illumination throughout the atmosphere circling above and around these cays (Pokus and Middle Cays appeared to be connected to High Cay at this distance.) There was no doubt left now that this was the "white head of sand" (fig. 5) seen 467 years before!

Beyond these cays and the gleaming beach of Low Cay in the early dawn, because they are separated from the mainland, a low dark silhouette appeared a few hours later, which gave the impression of a flat, long island stretching on for miles. And if it were here that Columbus's ships "jogged off-and-on" waiting for daylight, all the Indians who lived in the villages on the banks of Pigeon Creek could have been in this area to greet him and his men. "Lucayos"

FIG. 5.—The "white head of sand," filmed on the author's Columbus Expedition in 1959.

Columbus had said (meaning dwellers of cays), and that name has remained for this group of islands since then.

While those aboard the *M.V. Drake,* 467 years later, waited for daybreak, the skipper had turned the boat about four times to keep her in this area. Currents and waves forced the boat not only toward the island but also in a southerly direction, which could have been disastrous[24] if the skipper had not had full control of his boat. Could this have been the very reason why Columbus had ordered his ships to "jog off-and-on until daylight?"

"Reef of rocks." At the mouth of Pigeon Creek there are three channels separating these cays: The Nana Cay Channel, at the north

[24] There are many shipwrecks strewn along this eastern coast.

of the range, is 10 to 12 feet deep and 50 feet wide; Hawks' Nest Cay Channel is 10 to 12 feet deep and also 50 feet wide; and the Low Cay Channel is 10 to 12 feet deep and approximately 80 feet wide. Middle Cay is north of this channel. It is reasonable to assume that Columbus would not have wanted to take the chance of losing a caravel so far from home by sailing through these channels, and it is obvious that he could not anchor his ships on the outside in this strongly moving sea. He must have seen those cays, for he described a "great reef of rocks which surrounded the whole of this island" when he also saw the "reef of rocks" at the north, October 14, 1492.

South of the island there is a long ridge of connecting reefs from east to west with channels at each end. This forms a harbor at the south of the island. South of Low Cay, the Snow Bay Channel is 10 to 11 feet deep and about 80 feet wide. Also called Sandy Point Bay, its other channel at the west of this ridge is 12 to 14 feet deep and 100 feet wide; through this channel ships enter the Sandy Point harbor, although the reefs give inadequate protection when winds come from the south or southwest. This harbor was used when the southern half of the island was the principal area of habitation. In 1831 (Farquharson, 1957), boats came in here from Nassau, Savannah, Jamaica, and Glasgow. Exports were cotton, corn, logs, hogs, sheep, cattle, and horses, but the tons of lignum vitae (the "island tree") had to be shipped from the harbor at the north of the island, which is safer and has more protection in all weather.

It is no wonder, when Columbus saw the breaking waves crash over this ridge of reefs south of San Salvador, that he continued to sail around Sandy Point to the first opening. This would have taken his ships less than 1 hour to reach, but in a shorter interval the Indians could have paddled there while communicating with all the others on the low hills around this part, blowing on their conch horns,[25] curious, and eager to greet these visitors.

First landing beach. But first, how did Columbus find this opening? West of, and around Sandy Point, there is a continuous reef that runs north for less than 4 miles, and then this reef, called Gardiner's Reef at its highest point, turns sharply to the east for

[25] Communication remained the same until 1961, and the conch horn is still used by some fisherman when they are returning in the evening. It had been used to notify others from the other side of the island that someone had died. It is the same type as the conch horn found in archeological excavations.

several yards. This first opening in the reefs is $1\frac{3}{4}$ miles wide[26] and easy to see. This lagoon between reefs, with a deep pool of about 30 feet of water, is navigable almost to the beach. There is room inside for a 50-foot boat [27] to swing and anchor close to shore. If it is reasonable to assume that a seaman would anchor at the first opportunity after being out to sea for 33 days, then this—certainly—would be the spot.[28]

In the abridged edition of the original *Journal,* Las Casas wrote: "Once ashore they saw very green trees, many streams, and fruits of different kinds. . . . Presently there gathered many people of the island." After Columbus had taken possession of the island, which was called in the Indians' tongue *Guanahaní* for the King and Queen of Spain, he explored the island. Mastic trees 24 feet tall, lignum vitae, gumelemi, genipap, wild guava, wild fig, papaya, sugar apples, sapadilla, pricklypear, and others grew on the ridge; fringing the shoreline he must have seen dense plants of seagrapes and extremely green, high bushes of the green and the black cocoplum. These and more are native to this island and are here in abundance today. What a joyous sight these must have been to Columbus and his men on their arrival in this New World! In October, fresh-water ponds are within walking distance of where he could have landed, and from the settlement nearby lakes can be seen.

Before the writer compares the exact words of the Admiral with today's topography, in order to identify his landfall, the mystery of the light will be clarified.

[26] Admiral Morison follows Mr. Massey as to this anchorage, and after a thorough investigation, in and out of the water, the writer is completely convinced.

[27] Dr. Cortez F. Enloe, Jr., *Yachting,* Dec. 1960, p. 114.

[28] Three monuments, where Columbus was supposed to have landed, grace San Salvador's shore: One was erected on the northeast side by the *Chicago Herald* in June 1891 (although most books will say that the date reads June 15, 1891, there is no "15" on the monument; probably copied from the first mistake, when a dispatch announcing that "the expedition had discovered the landing spot of Chris Columbo on Watling Island, and a monument . . . had been dedicated at 4 p.m. that day, June 15). Three pages in a *Memo to City Desk re Chris Columbo* were sent to the writer on September 15, 1955, in which is the following: "To determine the exact spot where Columbus landed, the group approached the island inland 'from the same direction as Columbus did . . . east bearing a little south.' They landed on the east side and said here's the place and started building the monument." The second monument was a slab of cement erected by the Heloise in 1951, but no reason for this has been found. The third monument is in the form of a cross at First Landing Bay, erected by the writer with volunteers in December 1956; photographs in *National Geographic Magazine,* Feb. 1959, p. 198, and Oct. 1959, pp. 448-450; *Saturday Evening Post,* Oct 3, 1959, p. 43.

3. Facts contributing to the clarification of the light mystery

The significance of the light as an indication of where Columbus landed in the New World is established—a question asked and answered only by theory for 467 years until now. Columbus could have been right when he thought he saw a light, and this island could have been the Guanahani he found in 1492, for the following reasons:

(1) Columbus approached his San Salvador in October, near the end of the rainy season, when the foliage is green, the lakes are filled, and fires are necessary in the evening, after the rains, to ward off sand flies. By conducting our expedition at the same time, we found similar conditions.

(2) Columbus approached the island 6 nights after full moon. Having planned our approach for the same time, we found that the island was dark at 10 p.m., providing a background for the light. By 2 a.m. the moon was shining on the rocky face of High Cay, permitting it to be seen, as it was by Columbus.

(3) Archeological surveys and excavations have revealed the existence of Indian sites at the places where Indians and their villages are mentioned by Columbus in his *Journal*.

(4) The altitude of High Cay, opposite the creek and separated from the island, was unknown prior to the time we measured it while studying the topography of the island. It is higher than indicated on any map; its face of straight white rock toward the east was found to be 114 feet above sea level. It is more than a half mile in length. It is this height of 114 feet that made our fire visible from $12\frac{1}{2}$ feet above sea level, $28\frac{1}{2}$ nautical miles out to sea.

(5) The planned fire [29] on top of High Cay was larger than anticipated, owing to a waxy coating on the Sabal palmetto leaves,[30]

[29] Fires are common on the island. Although planes spray against the sandflies over the areas where there are U.S. bases, at certain times of the evening and dawn, particularly after rain, these insects are unbearable. The natives use fire in torches at night to hunt for land crabs and sometimes in boats at night to attract fish; they use fires for cooking, for light, and for smudges in front of their huts to ward off the sandflies. Until recently stones were rubbed together to make the fire, and then "caught in trash or old wood stuffed in a tender horn of a cow. This fire can be kept or carried" (as told by the writer's Indian friend Paul Ward). Andrew Arnott, Indian descendant, said, "I make fire; you see fire." Those responsible for the fire that night were: Andrew Arnott; Vulcan Rolle; Samuel Ferguson; Maxwell, Clarence, and George Ferguson; and Herman Benson.

[30] Confirmed by Dr. Harold E. Moore, Jr., Bailey Hortorium, New York State College of Agriculture, Cornell University, Ithaca, N. Y.

which caused these leaves to burst into flame and flare up, burning brilliantly.

(6) The flame fell and rose for the following reasons: At 9:15 p.m. the fire had been started with yellow wood. At 9:45, the first three leaves were thrown on the fire. This accounted for the flares of light seen at this time from the sea. At 10:15, when the fire had decreased in size, three more leaves were added; this continued at intervals of one-half hour. No more than three leaves were used at any time. This procedure caused the light to rise and fall.

(7) The two lights we saw that had disappeared at 10:40 were from fires on top of Breezy Hill.[31] The author was told by the natives who live there that these fires in front of their huts were to ward off the sandflies, and when they went to bed and closed up their huts, the fires died down. It is possible that this could be why Columbus and a few men from the same position saw a light once or twice which then disappeared.

(8) The white circle was caused by high waves at the foot of High Cay, breaking and crashing against it, throwing salt spray up into the atmosphere. Luminescence from the fire in the salty atmosphere caused a glow above the fire, increasing the range of visibility. Although the light from the fire was not visible at first when it decreased, the large white circle remained continuously.

(9) Radiation of the light, in rays estimated to have extended over 200 feet above sea level, explains the fact that a light was seen nearly 29 nautical miles out to sea.

(10) In conclusion, it was felt by all aboard that the expedition was a successful reconstruction of how Columbus might have approached Guanahani-San Salvador on October 12, 1492. If the latitude at High Cay had not been correct and our distance at sea not closely similar to that of Columbus, the white sand cliffs would not have glowed when the moonlight pierced the darkness straight ahead of the *M. V. Drake*, 30 minutes before 2 a.m. on October 22, 1959.

SIGNIFICANCE OF THE LIGHT IN IDENTIFYING COLUMBUS'S LANDFALL

If the light and "white head of sand" that were seen are significant to the position of the landfall, then to substantiate these findings it should be possible to follow every word of the Admiral in chrono-

[31] The light from the lighthouse on San Salvador was not seen until midnight. This light is 163 feet above sea level and is at the northeast part of the island.

logical order. If this could not be done, then our island would not have been his San Salvador.

What follows are the formal words of the Admiral in his Book of the First Navigation and Discovery of these Indies. Columbus wrote:

Friday, 12 October

Later they came swimming to the ships' boats in which we were, and brought us parrots and cotton thread in skeins and darts and many other things, and we swopped them for other things that we gave to them, such as little glass beads and hawks' bells . . . All that I saw were young men, none of them more than 30 years old, very well built, of very handsome bodies and very fine faces; the hair coarse, almost like the hair of a horse's tail, and short, the hair they wear over their eyebrows, except for a hank behind that they wear long and never cut. Some of them paint themselves black (and they are of the color of the Canary Islanders, neither black nor white), and others paint themselves white, and some red, and others with what they find. And some paint their faces, others the body. Some the eyes only, others only the nose. They bear no arms, nor know thereof; for I showed them swords and they grasped them by the blade and cut themselves through ignorance; they have no iron. Their darts are a kind of rod without iron, and some have at the end a fish's tooth and others, other things . . .

Although parrots [32] have not been found here, bone pendants representing a parrot have been found in an excavated Indian village. It is said that parrots were here at one time, but because of low-flying planes they had been frightened away, just as the flamingoes had been. (In 1955, two flamingoes were seen by the writer on the banks of Flamingo Pond.)

Cotton [33] (*Gossypium hirsutum* var. *punctatum*) grows wild on the island. This is the type that grew before the white man came.

Darts could have been a spine or "whip," as the natives call that part that grows out from the tail of a sting-ray, inserted into a reed. Possible darts of stone and shell have been found in excavations.

Was Columbus responsible for the rumor of the Fountain of Youth [34] that was never found? He is not the only one who thought the people on San Salvador looked young. Curiously enough, there are many who have unlined faces. For example, 80-year-old Paul Ward, whose ancestors many generations ago, longer than his grandfather could remember, were the Indians of Trinidad, has not one wrinkle.

[32] Hedley Edwards, owner of parrots and Ardastra Gardens in Nassau, states that there were parrots on the island and they can be found now in certain areas.

[33] Confirmed by Dr. Edward J. Alexander of the New York Botanical Gardens.

[34] Ponce de León could have heard about this on his second voyage with Columbus or from Indians.

Is the "tea" [35] they drink their Fountain of Youth? His grandfather had long straight black hair, which he would never cut. Olive Nairn, whose grandfather and grandmother were both pure Indians, her father being the first to break the line, claimed that her father and grandfather wore their straight hair in the same manner, and their color was "bright," confirmed by others on the island. Those who have Indian background, the Arnotts, Williamses, and others, all have strains of this "bright color" that is seen in some of the children as well as in themselves. These are the people who remembered stories about Indians who lived at the south of the island, in a "hole," i.e., a cave. There must be 40 to 50 caves on San Salvador, in which natives hide with vessels of water and food during hurricanes.

Traces of red, ground into the concavities of old stone mortars that were uncovered archeologically, and the same red on the tips of small hand axes and stone pestles, associated with extremely dark red stones, suggest that these stones were broken and then hammered into powder for pigment. The occurrence of sites in overgrown wild pricklypear or Indian cactus areas suggests that the red dye [36] from these fruits also could have been used for the Indians' paint.

Columbus continued:

Saturday, 13 October

At the time of daybreak there came to the beach many of these men, all young men, as I have said, and all of good stature, very handsome people. Their hair is not kinky but straight and coarse like horsehair; the whole forehead and head is very broad, more so than [in] any other race that I have seen, and the eyes very handsome and not small. They themselves are not at all black, but of the color of the Canary Islanders; nor should anything else be expected, because this is on the same latitude as the island of Ferro in the Canaries. The legs of all, without exception, are very straight, and they have no paunch, but are very well proportioned. They came to the ship in dugouts which are fashioned like a long boat from the trunk of a tree, and all in one piece, and wonderfully made (considering the country), and so big that in some came 40 or 45 men, and others smaller, down to some in which a single man came. They row with a thing like a baker's peel and go wonderfully, and if they capsize all begin to swim and right it and bail it out with calabashes that they carry. They brought skeins of spun cotton, and parrots and darts, and other trifles that would be tedious to describe, and gave all for whatever was given to them.

Columbus asked these people where gold could be found, and by signs he was told that from where he was "going to the S, or doubling

[35] A special "tea" is drunk every morning by some natives, and when they visit another island they take it with them. It consists of the blending of five or seven leaves or bark (it must be an uneven number) of lignum vitae, gumelemi, old woman, old man, strong bark, three fingers, and guava vine.

[36] Pricklypear is used today for red dye.

the island to the S" there was a king who had a great deal of gold. They said that the people at the northwest used to come to attack them; and there was land at the south and southwest, but they indicated that they did not want to go to the south. Columbus then resolved to wait until the following afternoon and go southwest. Columbus explored all that day and then wrote:

> This island is very big and very level, and the trees very green, and many bodies of water, and a very big lake in the middle, but no mountain, and the whole of it so green that it is a pleasure to gaze upon . . .

On the morning of October 13, Columbus had noticed the structure of their foreheads and heads.[37] Documenting his description, skulls found in caves and village sites indicate artificial flattening (fig. 6), typical of the West Indies in prehistoric times. This deformity was also found in parts of northern South America.[38]

The dugouts Columbus saw could have been brought in or could have been made there from madeira[39] (*Swietenia mahagoni* (L.) Jaca), which grows in the interior and south of the island. Indian descendants relate stories about making these dugouts by burning the center and scraping it from the bark with shells or anything they could find.

It has been suggested that some Indians of the Caribbean area may have also used rafts for transportation (Rouse, 1960). Not too long ago rafts were commonly built and used on Guanahani-San Salvador. These were made from the large gumelemi (*Bursera simaruba*), also called the West Indian birch, and if the tree is cut when first green it is scooped out easily. When it is dry, it is extremely lightweight for carrying and yet is strong. Three or four tree trunks are fastened together with a cordage of mahot, sisal, or fiber from the fig tree (*Ficus carica*), which makes a raft for fishing and is used with a long pole.

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[37] Prof. W. K. Brooks, Johns Hopkins University, Baltimore (Nov. 1889) had written: "[about the] study of bones of the Lucayans found in caves in the Bahamas. These relics indicate a heavy, muscular people with sloping eyes and protuberant square jaws, very round skulls, but artificially flattened on the forehead . . . a result singularly confirming Columbus's description of broader heads than he had seen."

[38] The cranial deformations were identified by Dr. T. Dale Stewart, Director, Museum of National History, Smithsonian Institution.

[39] Identified by Dr. David D. Keck, Director, New York Botanical Gardens in 1958, who noted, "We are pleased to have this sample of bark, which is the only mahogany bark now on file in our collections. 1 sample of *Swietenia mahagoni* (L.) Jaca."

FIG. 6.—Prehistoric skull showing artificial flattening of the forehead; identified by Dr. T. Dale Stewart, Smithsonian Institution.

Columbus described their paddles as like a baker's peel; the natives use a similar peel today on Guanahani-San Salvador to lift their cassava (*Manioc* or *Manihot esculente*)[40] and sweet potato (*Ipomoea batatas*) cakes into their stone ovens to bake. They resemble the drawing of a paddle carved by an Indian, which is on a stone petroglyph (fig. 7)[41] in the New World Museum, San Salvador.

The fishing boats carry calabashes or cocos[42] cut in half, which are still used today for baling water. They also employ the largest calabashes, left whole, as vessels to transport water while they work their farms. These keep water cooler than do glass bottles or tin containers, and are lighter in weight to carry.

When Columbus learned by signs that he would have to go south by "doubling the island," he could see that from First Landing Bay he would have to go around Sandy Point, also called Southwest Point (see fig. 2) to go south. He would not have to go around this piece of land to go southwest, where he planned to sail the following afternoon.

When Columbus approached the island it must have impressed him as large, level, and green, and as he explored away from First Landing Bay up to the ridge where the settlements were, he could see for many miles around. Trees of a wide variety and that are native to this place grow in abundance all over the island. From this ridge he could see the great lake in the middle, surrounded by many lakes

[40] Root crops and maize are the main diets here today. Two types of cassava are grown: the white has seven leaves, the red has five leaves. The abundance of cassava griddles found in every site indicate that cassava must have provided the Indians with their starch, cereal for babies, flour for bread, and cooked whole vegetable, which it does today. The sweet potato here is different from that in America; it is dry and tastes like the chestnut. Staghorn coral, which is found with the sherds of griddles and milling stones, is plentiful and well worn. Not only was it used for "cobbing their corn" as it is used today but it is likely that the coral was used for grating cassava and sweet potato for bread.

[41] The author recommends that this cave be scientifically preserved before the petroglyphs are eaten away. This one is from a cave at Rum Cay, and has already been eroded to a depth of 7½ inches and over 1 foot on the shaft. The length is 31 inches overall. Dr. David M. Seaman wrote to the author to say that, "The altered material is decomposed limestone, now forming sand of limestone or calcite particles, which mineral makes up the composition of limestone . . . I see no possible way to save the walls from erosion in a cave facing the rough sea and covered with algae in a damp atmosphere." (Analyzed at the American Museum of Natural History, New York.)

[42] The calabash is similar to the coco, according to Oris Russell, Department of Agriculture, Bahamas; calabash grow on trees and the coco grow on vines. It is most likely that it was the large coco Columbus saw.

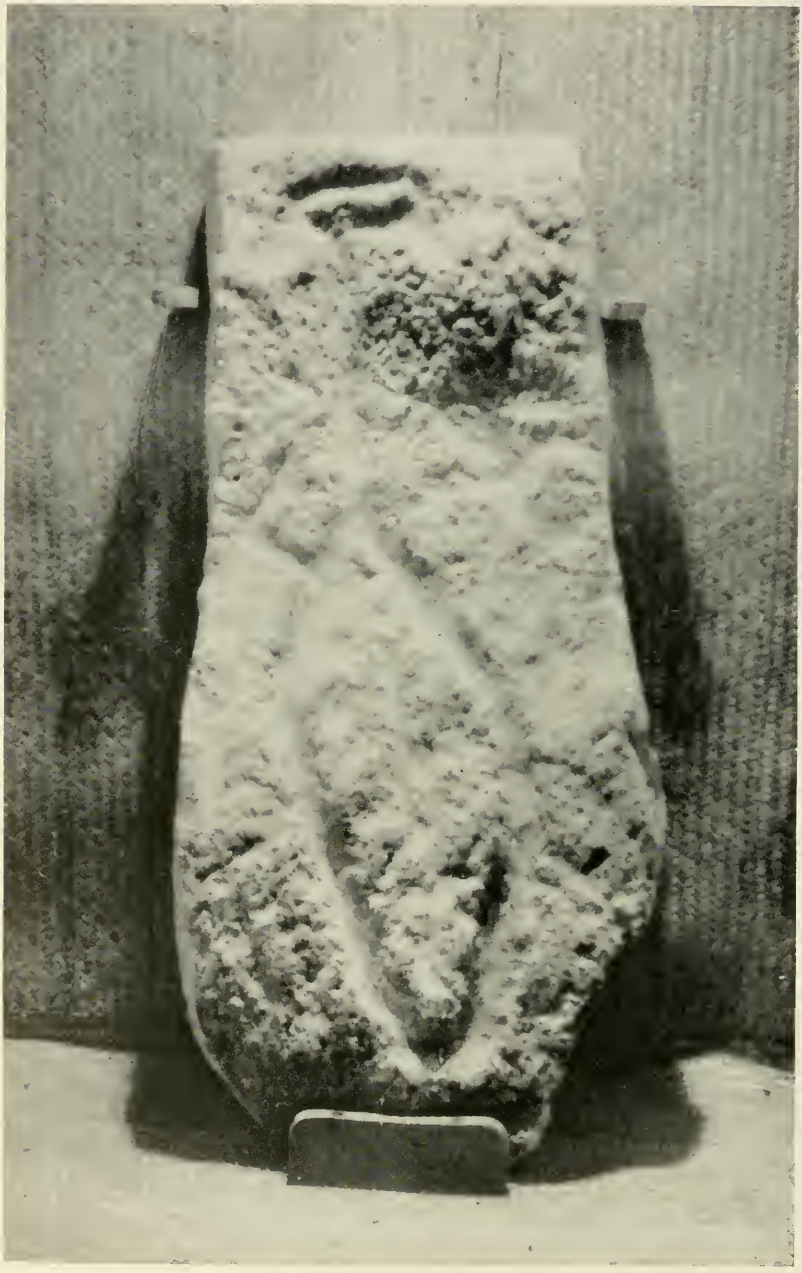


FIG. 7.—Petroglyph from Columbus's island of Santa María de Concepción.

and ponds. In October, when the rains have almost ceased, the island takes on the freshness of spring in New England.

Columbus continues:

Sunday, 14 October

When day was breaking I ordered the ship's gig and the caravels' barges to be readied, and I went along the coast of the island to the NNE, to see the other side, which was the eastern side, what there was there, and also to see the villages; and soon I saw two or three, and the people who all came to the beach, shouting and giving thanks to God. Some brought us water, others, other things to eat. Others, when they saw that I didn't care to go ashore, plunged into the sea swimming, and came out, and we understood that they asked us if we had come from the sky. And one old man got into the boat, and others shouted in loud voices to all, men and women, 'Come and see the men who come from the sky, bring them food and drink.' Many came and many women, each with something, giving thanks to God, throwing themselves on the ground, they raised their hands to the sky, and then shouted to us to come ashore; but I was afraid to, from seeing a great reef of rocks which surrounded the whole of this island, and inside it was deep water and a harbor to hold all the ships in Christendom, and the entrance of it very narrow. It's true that inside this reef there are some shoal spots, but the sea moves no more than within a well. In order to see all this I kept going this morning, that I might give an account of all to Your Highnesses, and also [to see] where there might be a fortress; and I saw a piece of land which is formed like an island, although it isn't one (and on it there are six houses), the which could in two days be made an island, although I don't see that it would be necessary . . . and, moreover, next to said islet are groves of trees the most beautiful that I have seen, and as green and leafy as those of Castile in the months of April and May; and much water. I inspected all that harbor, and then returned to the ship and made sail, and saw so many islands that I could not decide where to go first . . . Finally I looked for the biggest, and decided to go there, and so I did, and it is probably distant from this island of San Salvador 5 leagues . . .

Reconstructing Columbus's last day around Guanahani-San Salvador has been done at least 50 times by the writer. This day and the time of Columbus's approach to the island are the two most important comparisons with the *Journal* for proof that the island is his landfall. As Columbus went north-northeast to see the other side, he passed two or three villages. Three have been found by the writer, and one was found by Beatrice Wolper at the harbor. They are called Victoria Hill, Ward, Palmetto Grove, and Harbour Yard sites. Red potsherds, made from clay mixed with crushed shells, representing vessels, bowls, platters, and cassava griddles (fig. 8), and bearing plaited and woven impressions, were found in all sites. They were accompanied by bones of parrotfish, chiton, barracuda, whale, and turtle. Other artifacts of stone, bone, and shell have been discovered also. These village sites probably would not have

been found if Columbus had not described where they were in his *Journal.*

It appears to be characteristic of these people to believe that something strange or not understood comes from the sky. Columbus understood that the Indians thought he and his men had come from the sky. And yet, on October 12, Columbus wrote:

> I believe that they would easily be made Christians, because it seemed to me that they belonged to no religion . . .

FIG. 8.—Cassava, from which cassava bread is made today; cassava griddles, such as the one shown in the left foreground, were found in all field sites.

Now, on the 14th, Columbus noted that they were "shouting and giving thanks to God." In the letter (Morison, 1959) of his first discoveries, he had written:

> And they know neither sect nor idolatry, with the exception that all believe that the source of all power and goodness is in the sky, and in this belief they everywhere received me, after they had overcome their fear.

Today, the Arawak petaloid stone celts, which are found in the open, on the surface of farms and old settlements, are made of a hard green shiny stone unknown to these natives, and they call them "thunderbolts," thinking that when the thunder "claps," a stone falls from the sky, and stays buried in the ground for 7 years. After this time,

it comes up and when a lucky person finds it, he keeps it on the table inside his hut for protection against thunder. This is an example of their belief that goodness comes from the sky.

Columbus had said that he saw no idols here, and archeological surveys and excavations have not revealed any.[43] The writer does not intend to imply that there is none here, but merely that none has been found to date.

When the Indians shouted for Columbus to come to shore, he was afraid to do so because of "a great reef of rocks."

To go north-northeast it is necessary to sail along the outskirts of a "reef of rocks"; otherwise, Columbus would have entered through the Bone-fish Channel, which is 12 to 14 feet deep and about 100 feet wide. It is doubtful whether he could have found this passage because of its position, which is several miles from the harbor. However, the reef that runs north-northeast from here close to the shore would have prevented Columbus from going ashore, and it is along this coast that the writer found Indian sites. Columbus would have had to pass the Indian villages before he found the channel at the entrance of the great harbor at the north. It is quite likely that he would have then taken the first opening, which is the High Reef Channel; this is 12 to 14 feet deep and 125 feet wide at the end of Polaris Reef. Although this channel, closer to shore, is the deeper it looks shallow because of its clear, sandy bottom. Between the High Reef Channel and the Green Cay Channel, 7 to 10 feet deep and 60 feet wide, which is south of Green Cay, there is a reef called Middle Reef, a half mile or so long. The Green Cay Channel which looks deep and dark because of a reefy bottom, is shallow, although it is farthest from shore but, from his description, it is the High Reef channel [44] that Columbus most probably took.

Once Columbus had navigated through this entrance, he would have had to go around some shoals, which today protrude above the water, before he was clear in the great harbor where the "sea moves no more than within a well" (fig. 9). Fringing the harbor he could see the high, white sea foam from the breaking waves on the line of

[43] Through the courtesy of Dr. Clifford Evans, Curator, Division of Archeology, Museum of Natural History, Smithsonian Institution, casts of fine examples of zemis were sent to and are on view in the New World Museum. These original zemis were from Puerto Rico, not from San Salvador.

[44] If Columbus had kept close to shore and saw the opening of the High Reef Channel, he would have had to direct his longboats due east through it heading for land; then a sharp NNW, NE around Bacchus Point, and then SE to anchor or cruise about the harbor.

reefs that protected the inner harbor. It is very seldom that the water is disturbed. To prove this, the writer explored the entire harbor with hurricane clouds overhead, when radios had ordered all ships to port; but the water outside the reefs is extremely dangerous. The United States Naval Facility has a base on the shore of this harbor. In 1955 Capt. Clarence R. Redman, commanding officer of the base, issued an order which appeared in the organization book,

FIG. 9.—A "sea that moves no more than within a well," being sketched by the author in July 1955. (Graham's Harbor.)

restricting all naval personnel using the Welfare and Recreation 15-foot rowboat to the vicinity of Sampson Bay, otherwise known as Graham's Harbor. The men were not permitted to use the boat outside the reefs.

In 1958, Lt. A. M. Danielsen, commanding officer of the United States Loran Station on San Salvador, assisted in the safe navigation of a P5M-type seaplane from the seaward side through the channel into and across the harbor to the southeastern shore. This was done on a day in which wind and weather were northwesterly; in a 13-foot boat Lieutenant Danielsen led the aircraft, which had a disabled engine, to a safe anchorage where repairs could be effected. Upon completion of repairs, a sea lane of approximately 3 miles of good clear water was marked off with the assistance of Lt. Comdr. Richard L. Phares, commanding officer of the United States Naval

Facility at that time, and the aircraft made a routine takeoff. There should be very little doubt that this harbor is one of the best in the Bahamas. It is described by Linton Rigg (1951).

Graham's Harbor is a large body of water about 3 miles in width, 4½ miles in length, average depth 20 to 25 feet; the central portions are virtually free of reefs. The outside reefs around the island form a triangle [45] with White Cay at the top of the harbor. It is protected along the east and northeast by a long peninsula which Columbus said looked like an island but is not one (fig. 10). This "piece of

FIG. 10.—A "piece of land that looks like an island but is not one." Note hurricane clouds overhead.

land" is more than half a mile long; a third of it is cut from the mainland, Cut Rock Cay, separated now by a narrow channel of water averaging about 3 feet in low tide and 50 feet wide. This cut was made by pounding of the open sea against it. This could be the very spot which Columbus thought it might take 2 days to cut. It is here that Columbus had described six houses he saw ("bohio," made of native stone and lignum vitae, with a palmetto-thatched roof) (Granberry, 1956), and on this peninsula evidence [46] of Indians has been found by the author. It was later, on the 17th, that Columbus described the houses as "all like tents, and very high,

[45] Las Casas called San Salvador "Triango."

[46] On this "piece of land" artifacts were found in 1958, identified by Dr. Irving Rouse, who advised the author to have instruction in scientific archeological excavations. Dr. John Goggin, University of Florida, was invited in February 1960, and he conducted field work on several sites, which has been continued by the author since that time. (Gallager, 1961.)

and with good chimneys . . ." A stone pendant that was uncovered, shaped like a hut, documents Columbus's statement.

While Columbus explored, he noted beautiful groves of green trees. He could have seen groves of lignum vitae (*Guaiacum officinale* or *G. sanctum*), which grow to 20 feet on the island. Although tons were shipped from this harbor in 1831, this tree continues to have many uses here today. The Sabal palmetto groves near the "piece of land" may have been those that Columbus admired. He could have had his choice. On the peninsula alone, there are over 26 varieties. The trees on San Salvador are too numerous to itemize in this study.

Columbus returned to his ships late in the afternoon of the 14th and then set sail. During these 4 days around San Salvador, he described only the one island [47] that he saw. But it was a New World he found!

On a clear day it is possible to see the next island, Columbus's Santa María de Concepción, now called Rum Cay, from the Sandy Point Plantation House on the southwest hill of Guanahani-San Salvador. Not too far from this southwest point out to sea, Columbus, in his excitement, thought he saw so many islands that he could not decide where to go first and looked for the biggest. The writer has explored these parts often in the *M. V. Drake;* the next island does look like 21 islands because of its topography, consisting of hills and bays (fig. 11a).

Monday, 15 October

I had lain to this night for fear of approaching the shore and anchoring before morning, not knowing whether the coast was clear of reefs, and at dawn the current detained me, it was about midday when I arrived at the said island, made sail. And as the island was more than 5 leagues distant and nearer 7, and and I found that the coast which lies over against the island of San Salvador ran N and S and for 5 leagues; and that the other which I followed ran E and W for more than 10 leagues. And when from this island I saw another bigger one to the W, I made sail to navigate all that day until nightfall, because otherwise I would not have been able to reach the western cape [fig. 11b], to which I gave the name, The Island of *Santa María de la Concepción*, and just about sunset I anchored near the said cape . . . and I anchored and remained until today Tuesday, when at break of day I went ashore in the armed boats, and landed, and the people who were numerous and also naked and of the same condition as they of the other island of San Salvador, let us go over the island and gave us what we asked . . . And I made sail to go to the other big island which I saw to the westward . . . And so I departed . . . Standing in mid-

[47] If Columbus had landed at the Caicos islands, he probably would have described the group of islands earlier and not have waited until after he left San Salvador.

FIG. 11.—(*a*) "I saw so many islands . . . " (*b*) Columbus navigated all day and night to reach the Western cape.

channel between the two islands, i.e., this *Santa María* and that big one, to which I give the name Fernandina, I came upon a man alone in a dugout on his way from Santa Maria to Fernandina, and he carried a bit of his bread that would be about the size of your fist, and a calabash of water, and a lump of bright red earth powdered and then kneaded, and some dry leaves which must be something much valued among them, since they offered me some at San Salvador as a gift. And he carried a basket of his own work in which he had a string of glass beads and two *blancas,* by which I knew that he had come from the island of San Salvador, had passed over to Santa Maria and was going on to Fernandina . . .

This Indian reached Fernandina [48] before Columbus went ashore at daybreak on the 17th, and met him there.

It takes the *M. V. Drake* 4½ hours at 8½ knots to reach Rum Cay (Columbus's Santa Maria) and only 3½ hours to return to Guanahani-San Salvador. Captain Storr claims that crossing the channel, "Currents are a bit northerly set." It also takes the *M. V. Drake* a good part of the following day to reach the western point of the island, which looks like a larger island to the west, because of the presence of a wide bay that appears to separate the farthest part from the land.

Columbus wrote that he thought the next island was 5 leagues away, but found it to be 7, because the current detained him. Therefore, having left San Salvador late in the afternoon of the 14th, he could not have reached the next island before dark. Because of shoals, he kept his distance. When day broke, he could not have landed and would have had to sail from north to south, and then, as he wrote, he followed the coast from east to west.[49]

On the 15th he saw what he thought was a larger island to the west, but that point of Rum Cay is deceiving to the eye, owing to the curve of the island, and it would have taken him that day to reach its western tip. The Columbus Expedition, conducted by the writer, has reconstructed this trip several times. We concluded that Columbus would have had to wait until the next day, the 16th, before he could explore, which is exactly what he did do.

When Columbus left at noon that same day, he met an Indian in a dugout in midchannel. He described the size of the bread carried by the Indian as big as a fist, which is the size of cassava bread or cake today, since it is baked on a grape leaf. The lump of bright

[48] This is an example of the speed of a dugout against a ship with sails. Fernandina is now Long Island, where more elaborate wooden artifacts have been found by Father Arnold, O.S.B.

[49] It is misleading to the reader for an investigator to figure mileage any other way than that described by Columbus.

red earth powdered and then kneaded that the Indian carried may have been red clay to make a cooking pot. Anyone leaving home to go to a distant, unknown place would want to provide himself with food. The leaves he carried could have been "tea."

Columbus then sailed west to the next island, his Fernandina, which he could have seen easily from aboard ship at the western point of his Santa María de Concepción. And thus far, the *Journal* has been followed by the writer many times, repeating each trip to validate statements in this study and to test beyond any doubt the *Journal* of Columbus.

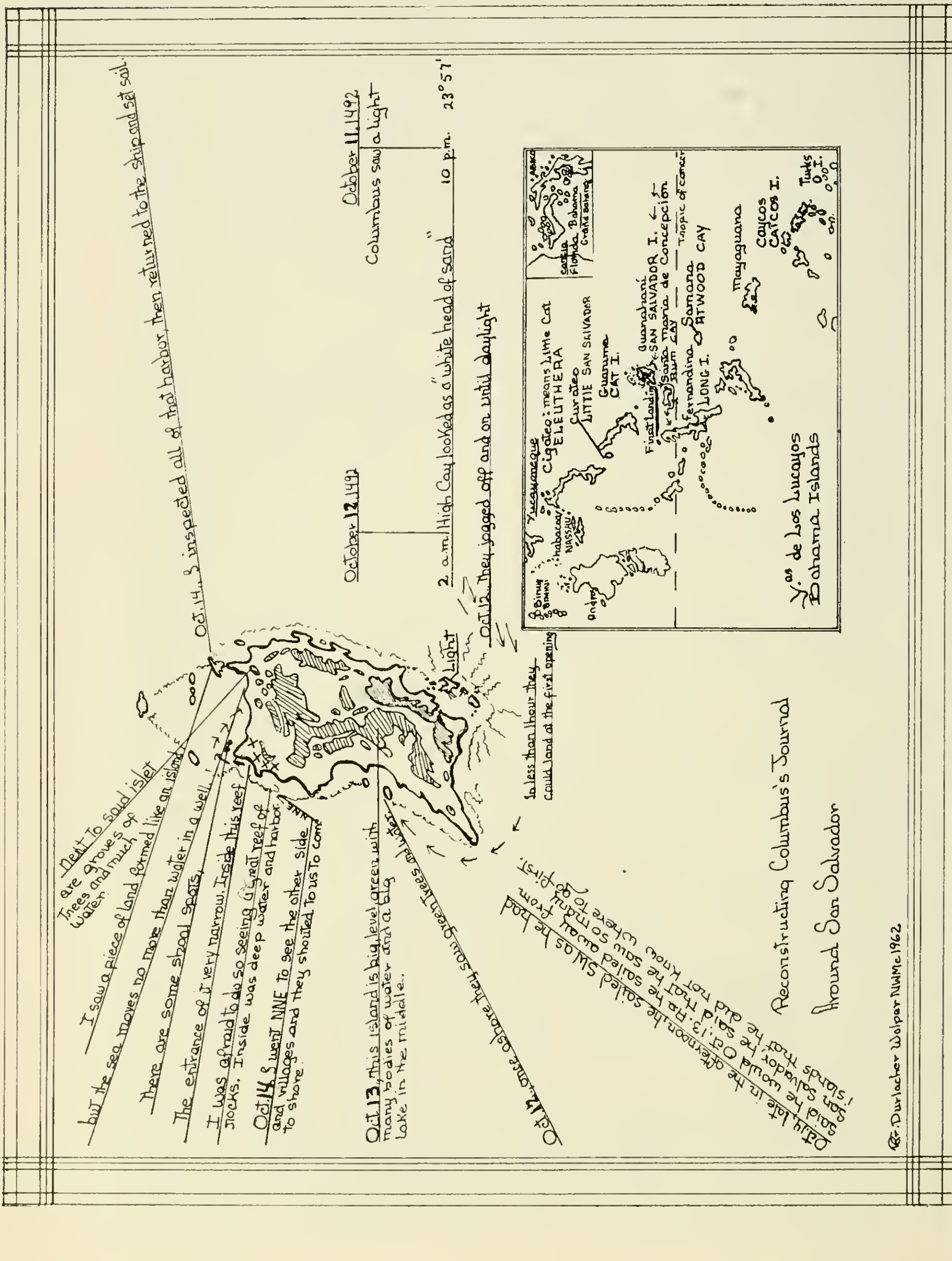
CONCLUSION

Historical documents alone have not presented adequate evidence explaining the light described by Columbus or identifying the position of his landfall. The purpose of this objective presentation of facts pertaining to the light has been to establish conclusive proof regarding the landfall of the great Discoverer.

Research during the past 7 years, undertaken by the writer, has challenged every argument that the island of Guanahani-San Salvador in the Bahamas is not that landfall. The facts of the time element and climatic conditions, the topographical and botanical evidence, the artifacts identified from scientific, archeological excavations, where Columbus described the Indians and their villages which he saw, and the links in the cultural development from the past to the older native folk of today, all combine to indicate that the landfall was near High Cay and that this island is the Guanahani-San Salvador, where Columbus first landed in the New World. The chronological order (fig. 12) in which Columbus's *Journal* can be followed, word by word, around these parts, from the time when he approached the island until after he left to sail on to the next one, substantiates the claim that this island is Columbus's San Salvador.

After Don Cristóbal Colón, XVII, El Duque de Veragua, and his party [50] visited Guanahani-San Salvador on October 16, 1960, on an expedition by air that reconstructed the entire trip the author had

[50] *Life Magazine*, Nov. 28, 1960. Don Cristóbal Colón's party consisted of Don Cristóbal Colón and his wife (Duke and Duchess of Veragua); the Minister of Spain and Mrs. Jaime Alba; the Consul General of New Orleans, José Luis Aparicio; Commander David Butler, USN, and his wife; the Columbus Committee from Miami; and from *Life Magazine*, Jane Rieker and Flip Schulke, photographer and the writer; and the author of this paper.


Oct.14...S inspected all of that harbor, then returned to the ship and set sail.
October 11, 1492
Columbus saw a light
10 p.m.
23°57'
October 12, 1492
2 a.m. High Cay looked as a "white head of sand"
Oct.12...They jogged off and on until daylight
Light
In less than 1 hour they could land at the first opening
Next to said islet are groves of trees and much of water.
I saw a piece of land formed like an island
but the sea moves no more than water in a well.
There are some shoal spots.
The entrance of it very narrow. Inside this reef
I was afraid to do so seeing a great reef of rocks. Inside was deep water and harbor.
Oct.14 S went NNE to see the other side and villages and they shouted to us to come to shore.
Oct.13 this island is big, level, green with many bodies of water and a big lake in the middle.
Oct.12...once ashore they saw green trees and waters
Oct.14 late in the afternoon he sailed SW as he had said he would Oct.13. As he sailed away from San Salvador, he said that he saw so many islands that he did not know where to go first.
Reconstructing Columbus's Journal
Around San Salvador
R. Durlacher Wolper NWMc 1962
Yos de Los Lucayos
Bahama Islands
Bimini
Andros
Yucayoneque
Habacoa
Nassau
Ciguateo: means Little Cat
ELEUTHERA
Curateo
LITTLE SAN SALVADOR
Guanima
CAT I.
Guanahani
First landing
SAN SALVADOR I.
Santa Maria de Concepcion
RUM CAY
Fernandina
LONG I.
Samana
ATWOOD CAY
Tropic of Cancer
Mayaguana
Caycos
CAICOS I.
Turks
Florida
Bahama
Grand Bahama
Abaco

made around these parts the previous year, first by air and then by land, he sent a facsimile of *La Carte de Colón* to the writer for the New World Museum. *La Carte de Colón* was sent because the landfall of his ancestor had been established. In it is written: "To the first island which I found I gave the name SANT SALVADOR, in remembrance of His Heavenly Majesty, who marvelously hath given all this; the Indians call it GUANAHANI . . ."

Later, Don Cristóbal Colón reconstructed Columbus's voyage to San Salvador at High Cay in *Niña II*. The writer was on the trial run of the *Niña II* in Spain, August 2, 1962, and spent much time with Capt. Carlos Etayo, Don Cristóbal Colón, and Robert Marx explaining the approach to the island of San Salvador with reference to this theory, a copy of which was carried aboard the *Niña* when it crossed the Atlantic approaching High Cay at *1515* December 24, 1962. An exclusive account of the voyage of the *Niña* using the writer's theory is described in *La Actualidad Española*, Año XI, Num. 570, 6 Diciembre 1962, pp. 74, 75 (Colón, 1962). An account of the arrival after the voyage with charts of the Wolper theory is described in Año XII, Num. 574, 3 Enero 1963, pp. 20–39 (Hermida, 1963).

The voyage of the *Niña* accomplished the following facts:

1. The approach to San Salvador was at High Cay where a white cliff was seen before the long low island was in view. The light was not seen, owing to the time of the approach.

2. The *Niña* sailed around the reefs at the south of San Salvador, but at this time of year the currents at the southwest were stronger than they would have been in October. It was at this spot and in this area where Columbus described on October 14, 1492, that the current had detained him. This current took the *Niña* past San Salvador at night. If the *Niña* had waited 2 leagues from shore on the 24th and waited for day as was planned, the writer believes she would have easily made her landing at Long Bay or First Landing Bay on Christmas morning. However, the captain and crew were anxious to reach the Cross to pray on Christmas Eve and therefore continued around the south of the island in the strong winds.

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