THE DISCOVERY OF AN AMERICAN BRIG: FIELDWORK INVOLVING APPLIED REMOTE VIEWING INCLUDING A COMPARISON WITH ELECTRONIC REMOTE SENSING

by Stephan A. Schwartz and Randall J. De Mattei -- The Mobius Society

ABSTRACT

In the fall of 1987 Mobius began fieldwork, under a license from the Bahamian Government, to carry out an archaeological survey in an area of the Grand Bahama Banks encompassing some 579.15 square miles (1500 sq. km). This report compares the Remote Viewing, electronic remote sensing, and visual search process used to locate the wreck site of a previously undiscovered armed American merchantman believed to be the Brig *Leander,* which was found in a sub-section of the License Area known as Consensus Zone C; an area of 11.81 sq. miles (30.59 sq. km) of water. It concludes that Remote Viewing was the source of information which led to the site's location, and that electronic remote sensing was not useful in this instance. *Leander* was under the Command of Captain William Johnson when she sank for unknown reasons near Beaks Cay on 6 April 1834, while returning from Manzanilla, Cuba to her homeport in Boston, Massachusetts. In addition to location information, a total of 193 conceptual descriptive concepts concerning the site were proffered by twelve Remote Viewers. Of this, 148 concepts, or 75% of the total, could be evaluated through direct field observations, or historical research. An evaluation of this material reveals 84% Correct, 12% Partially Correct, 4% Incorrect. There is little accuracy variation across the sequence of material from the Los Angeles interviews (84% Corr., 13% Part. Corr., 3% Incorr.), to the on-site data (81% Corr., 11% Part. Corr., 8% Incorr.). Approximately 300 notable wrecks went down, not just in the License Area but across the entire Banks, from 1500 to 1876 as determined by a thorough search of historical records and archival material in the U.S., the U.K., Spain and the Bahamas. To make a conservative assessment of this location occurring by chance, assume the wrecks are evenly distributed not throughout the Banks, but only within the License Area. That said, we should expect to see 6.12 boats in Consensus Zone C (11.81 / 579.15 x 300 =6.12). The brig site is 5000 square feet (464.5 sq. m), equaling 0.00018 of a square mile. Within Consensus Zone C 65,849 sites of this size could be placed, thus yielding a grid of 65,849 cells.. If the probability of selecting this particular cell in the grid by chance exceeds $p \geq 0.05$ then Remote Viewing can be considered a determinative factor. The probability of finding this one 5,000 square feet area is then 6.12 / 65,849 = p0.00009, which strongly suggests that chance is not an explanation for the location of *Leander*.

History: "The Discovery of an American Brig: Fieldwork Involving Applied Archaeological Remote Viewing." *Research in Parapsychology 1988,* Eds. Linda A. Henkel and Rick E. Berger. (Scarecrow: Metuchen, N.J. & London, 1989). pp. 73-78. Also *The Discovery of an American Brig: Fieldwork Involving Applied Archaeological Remote Viewing, Including a Comparison with Electronic Remote Sensing.* Conference on Underwater Archaeology / Society of Historic Archaeology Annual Meetings. 1989.

BACKGROUND AND OVERVIEW

The central problem facing archaeology is the challenge of where to look. Both on land and sea, the literature makes it clear that serendipity is a principal explanation for many discoveries.

This paper reports the latest development in a ten year program to explore the efficacy of a previously reported applied Remote Viewing methodology, and its integration with electronic remote sensing. [1,2,3,4,5,6] It argues that even though we may not possess a universally accepted explanatory model for Remote Viewing,[7] the accumulation of research argues that this approach offers an efficient cost-effective procedure for locating and finding sites, both marine and terrestrial, particularly those deeply buried and obscure to visual inspection. A previously unknown site is presented as a case study to illustrate this conclusion.

The paper covers the location and excavation of an unusually intact shipwreck, believed to be the American brig *Leander,* which was located by Remote Viewing, and excavated during the course of three voyages of the Research Vessel *Seaview. (See Illustration One)*

The work in this report was carried out by a team of parapsychologists, archaeologists, geophysicists and historians under the auspices of The Mobius Society, in conjunction with Seaview Exploration Associates, under license from the Bahamian Government. It describes a total of four weeks of field time devoted to this site, involving 443 hours of dive time by an archaeological dive team composed of 18 men and women working from *Seaview,* as well as a team of historical and archival researchers working in the U.S., Spain, Great Britain, and the Bahamas. Several sites were found in the Beaks Cay area using this approach; this site was selected for this report based on five considerations: 1) The site most clearly illustrates the relative strengths and weaknesses of various search techniques; 2) It contains the most well-preserved ship remains in the area; 3) We have been able to locate the historical documentation concerning the probable identity of this wreck; thus allowing the most comprehensive evaluation of the remote viewing data; 4) This area has been covered by an unusually clear Landsat 4 computer image with very minimal cloud coverage; and, 5) A comprehensive magnetometer survey for this site was carried out.

The Research Vessel Seaview

Illustration One

HISTORICAL CONTEXT
THE GULF STREAM AND THE GRAND BAHAMA BANKS

The Gulf Stream was discovered by the Spanish in the mid-fifteen hundreds. For three and a half centuries, until steam replaced sail, and emancipation brought about the collapse of the slave-powered sugar cane economies of the Caribbean Islands, it remained the best way back to Europe from much of the New World.

This extraordinary geographic phenomenon, which Matthew Fontaine Maury called "the River in the Ocean,"[8] passes between Florida and the Bahamas, channeled on the west by the Florida Keys, and the east by the vast shallows of the Bahama Banks. The Grand Bahama Banks to the south, and the Little Bahama Banks to the north, are made of calcareous limestone thousands of feet deep, formed from the action of organic matter on the light sand. This rocky plateau is covered with five to 15 feet (1.52m – 4.57m) of sand, and fringed on its western side by a long series of reefs, rocks and cays. The average water depth over the Banks is about 15 feet (4.57m), until it reaches its western edge whereupon there is a precipitous drop off to more than 800 feet (244 m). Visually however, from a ship, this difference is not readily perceptible, which accounts for the large numbers of ships lost on the Banks.

Vessels blown eastwards out of the deep gulf stream by storms, particularly hurricanes, were driven across the flats until they either struck a sandy area shallow enough to ground them or until a submerged reef knocked out their bottoms. There are no accurate figures on the numbers of vessels that have been lost in this way but a database, compiled in the course of Mobius' archival research, suggests that, from the a 15th Century onwards, approximately 300 notable, i.e., mentioned in historical sources, vessels met such a fate, with the loss of ships, cargo, lives, or all three.[9]

In the time period of particular interest to this report, however, the piracy situation is the probable critical factor explaining why the ship was found where it was. The new governments that grew up as the Spanish empire fell apart at the end of the Napoleonic Wars, were corrupt, poor, and rebellious. For them piracy of ships from more developed nations was an attractive activity and, by 1821 a good part of the United States Navy was in the Caribbean suppressing pirates.[10] England and France helped, but even in l829, the year before the death of Simon De Bolivar, the *Maine Enquirer* advised: "All vessels bound to the Spanish Islands to be armed at least with one or two guns, a dozen muskets and boarding pikes or harpoons........"[11] Before the struggle against piracy was over, more than 500 American vessels were captured by pirates in the Caribbean.[12] In the years l8l2 to l8l5 alone, over three thousand assaults occurred.[13]

The north coast of Cuba was a particularly rank nest of semi-legal and illegal pirates and privateers. If one wanted to avoid the notorious Cuban coast, it was possible to go north across the Bahama Banks in order to come out in the north flowing Gulf Stream somewhere due east of what is now Miami. The passage between Beaks Cay and Browns Rock is one of the last safe exits from the Banks, through the barrier reefs, into the northward flowing Gulf Stream. It was here that an armed American

Brig sank, which current research suggests, by reason of ship measurements, wood, pottery and metal analysis, as well as historical research, was *Leander*. [14,15] Under the Command of Captain William Johnson she sank for unknown reasons near Beaks Cay on 6 April 1834, while returning from Manzanilla, Cuba to her homeport in Boston, Massachusetts.[16]

PERSONNEL

There were six categories of personnel, organized as teams, involved in this study:

1. The Parapsychology & Management Team: Research Director, Stephan A. Schwartz, Project Director and Executive Director, Randall J. De Mattei, Deputy Project Director. This team carried out the parapsychological research, and coordinated all aspects of the project.

2. The Remote Viewers: Twelve men and women, acted as Remote Viewers in this experiment. It is their images which serve as one of the data sources. All Remote Viewers were blind to all information in any interview session but their own. They were also provided no intellectual material on the project. Eight of the viewers took part in the project through direct interviews. Four responded to mailed questionnaires. For eight of them we have, through earlier experimentation, profiles under the Personality Assessment System (PAS)[17] with subscript addition by Saunders[18]as:

A. In-person Interview Remote Viewers:

Andre Vaillancourt R-1: a man, 36, musician and film producer. He is defined by PAS as an IRU6. R-1 had never been to the Grand Bahama Banks.

John Oligny R-2: a man, 37, staff photographer for a major western daily newspaper. He is defined by PAS as an IFA8. R2 had never been to the Grand Bahama Banks.

Ben Moses R-3: a man, 40, feature film producer and documentarian. He is defined by PAS as an EFU6. R-3 had never been to the Grand Bahama Banks.

Hella Hammid R-4: a woman, 64, fine arts photographer, defined under PAS as an ERA8. R-4 has never been to the Grand Bahama Banks.

Judith Orloff R-5: a woman, 36, board certified psychiatrist. She is defined under PAS as an IFU3. R-5 had never been to the Grand Bahama Banks.

Alan Vaughan R-6: a man, 48, author, psychic, lecturer, and parapsychological researcher. R-6's research work has primarily been in dreams and precognition. As a Respondent, he has participated in studies for many research groups. He is defined by PAS as an IRU2. R-6 had never been to the Grand Bahama Banks.

Rosalyn Bruyere R-8: a woman, 36, director of a healing outreach clinic. She is defined by PAS as an ERU6. R-6 had never been to the Grand Bahama Banks.

Michael Crichton R-15: a man, 44, author, feature film director. He is defined by PAS as IRU6. R-15 had been to Nassau in the Bahamas, but never to the Banks.

B. Remote Viewers by Mail:

Keith Harary R-7: a man, psychologist, parapsychologist. PAS profile not available. R-7 had never been to the Grand Bahama Banks.

Umberto Di Grazia R-9: Italian television consultant. R-9 had never been to the Grand Bahama Banks.

Terry Ross R-10: a man, retired investment broker. R-10 had never been the Grand Bahama Banks. PAS profile not available

Roger Nelson R-17: a man, psychologist and parapsychologist. R-17: has never been the Grand Bahama Banks. PAS profile not available.

The R- numbers, 11, 12, 13, 14, and 16 were assigned but, for a variety of reasons the individuals to whom these numbers were assigned did not end up being interviewed.

These 12 individuals, were selected on the basis of past performance in other Remote Viewing experiments. They volunteered approximately two hours of their time for the interviews, for which they received no fee. Five of them R-1, R-3, R-4, R-5, R-6, were brought on-site and contributed location material on the site that is included in this paper.

3. The Archaeology & Archivist Team: Peter Throckmorton of Nova University, one of the founders of modern nautical archaeology, oversaw all archaeological aspects of the project. A recognized authority on wooden sailing ships, Throckmorton is a member of the Society of Professional Archaeologists, and the author of numerous scholarly papers, books, and articles on nautical archaeology. In addition to his role in interpreting what was brought up during the fieldwork phase of the project, Throckmorton coordinated the archivists and historians who carried out the historical archival research, and did the archival work in the Bahamas himself. The other members of this team were: Catherine Throckmorton in Maine, working on colonial newspaper searches, with a particular emphasis on Massachusetts shipping; Richard Swete, at the Mariners' Museum in Newport News, Virginia working in colonial newspaper and academic literature searches, with a particular emphasis on southeastern colonial and U.S. shipping; Stephen Rogers in London and Greenwich, working in the British Admiralty records, and searching period European papers; and, Michel Parret in Seville, working in Spanish commercial and shipping records. The database, which was developed as the fruit of this work is the first comprehensive survey of these waters.[19]

4. The Geophysical & Electronic Remote Sensing Team: Saul Friedman, formerly of Lamont Geological Laboratories, and Robert Bisson, Chief Executive Officer and Senior Researcher for BCI Geonetics, carried out the electronic remote sensing aspect of the project. Friedman did the on-site proton precession magnetometer survey, while Bisson coordinated an aerial survey and satellite surveillance analysis of the site.

***5.* The Divers & Ships Personnel:** Fieldwork was carried out by teams of certified divers who also comprised crew of the *Seaview*.

6. Photography, Audio Recording, Videotape Team: A photographic record was made by a number of divers as events unfolded. Additionally, a professional videotape crew came out to *Seaview* to make a real-time video record of the Remote Viewers at work.

ELECTRONIC REMOTE SENSING

Aerial Survey: Prior to the *Seaview* arriving on station, three overflights were made at an altitude of 100-200 feet above the ocean surface. Flight speed on all three occasions was approximately 50 miles per hour. By flying spaced parallel north-south patterns a thorough coverage of the entire license zone was possible. Photographs were taken on each flight.

Satellite: A Landsat 4 image, commissioned under a National Science Foundation Grant, and taken on 3 May 1983 was obtained. The image covered the northern part of the license area, bounded by Latitudes 25°50'00" by and Longitudes 79°20'00" and 78°58'00".

Magnetometer: A Barringer SM-123 Shallow Marine Proton Precession Magnetometer System, Console S/N 750, Sensor S/N 8046, was obtained from the Barringer Corporation. The instrument was checked by the manufacturer prior to shipping and, again, upon receipt aboard *Seaview*. The instrument was run at 1.0 second interval pulse cycles, from a diesel powered small craft. The sensor was towed 140 feet from the craft, and performed within manufacturer's tolerances in the daily test runs that were carried before actual survey procedures were implemented. Magnetometers, of course, principally locate ferrous mass (no signal is produced by wood or non-ferrous metals).

The *Seaview* magnotometer procedure was to conduct parallel runs approximately 30 feet apart. Lanes were usually run north-south, with perpendicular east-west lanes run across the same area when anomalies were recorded.

Navigation: The great challenge in nautical search procedures is fixing a location in such a way that it can be reliably relocated. *Seaview* was equipped with a Foruno Satellite Communications navigation downlink, model FSN50 linked to a Forun LC-90 Loran-C.

Because the Loran C signal is weak on the Banks, electronic navigation is notoriously unreliable over long periods. Variations as much as 0.3 of a mile (.48 km), can occur over several days. For this reason we established, through repeated readings off the SatCom a fixed known point. The Loran was corrected daily, by the SatCom relative to this point, thus assuring reasonable accuracy standards. A Raytheon Model R41 rastar scan radar equipped with range and bearing capability provided the ability to fix small boat locations. Sexton fixes were also shot, as needed, from the magnetometer craft, on land masses (Beaks Cay, Brown's Cay) in the northernmost consensus zone. Most important, however, was the use of simple Styrofoam buoys. These were dropped with 8 -16 pounds of lead at the end of the line at every significant mag "hit" .

Metal Detectors: Dive teams making a visual inspection of a site were equipped with metal detectors, Whites model P1-1000. Unlike the magnetometer these metal detectors are non-discriminating; that is, they detect the presence of any type of metal within their range. Tests were run to establish an efficacy parameter: under optimal conditions, a metal object, the size of a dinner spoon could be detected under three feet of sand. As expected larger objects produced stronger signals.

Visual: Two divers at a time were slowly towed over significant portions of the license area in water 8-18 feet (2.44m – 5.49m) deep. They were visually inspecting the bottom, typically sand with eel-grass,.

ARCHIVAL RESEARCH

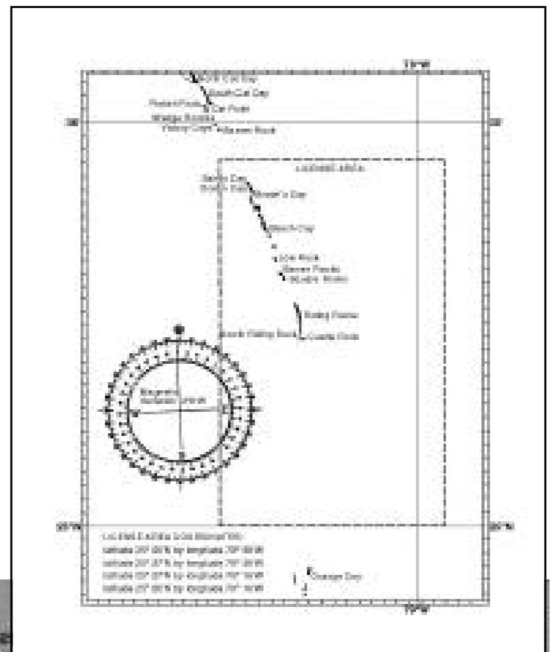
Maps: In August 1985, we began our research seeking to define, on the basis of historical research, an area where there was some likelihood that shipwrecks existed representing the maritime history of the Caribbean. This archival work produced an area, approximately 579.15 square miles (1,500 sq. km) in size. Once we had defined this general area, we applied for, and received, an exclusive license from the Bahamian Government to search it. *(See illustration Two)* The next task of the Archival Team was to produce the first compendium of all known shipwrecks from 1500 to 1876 known to have gone down on the Banks – an area much larger than the License Area. 1876 was established as the cut-off for this database because ships after that date usually have little or no historical significance.

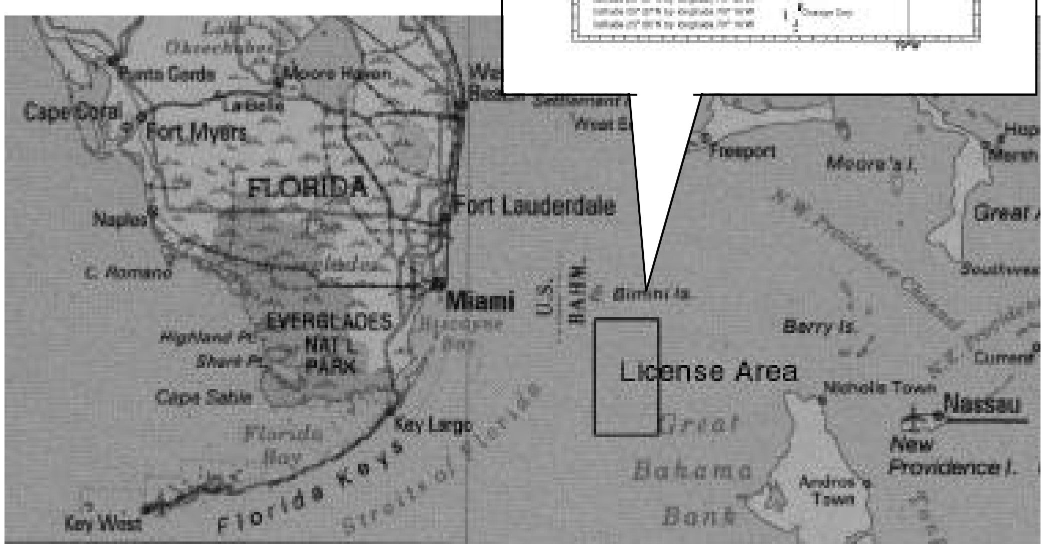
The database had a second function. It allowed us, for the first time to develop in an applied Remote Viewing experiment, the baseline necessary to develop a statistical analysis.

REMOTE VIEWING

While the License Area was only a small portion of the Bahamian national waters, it was still an area so large that it was obvious from the beginning that the Remote Viewing portion of the project would have to be carried out in stages.

To do this, we started with a map of sufficient scale to encompass the License Area, *(See Illustration Two)* using Bahamian Government Hydro-graphic Chart *(BLSH702, scale 1:300,000 Mercator, 1st ed. Sept. 84). (See Illustration Three)*



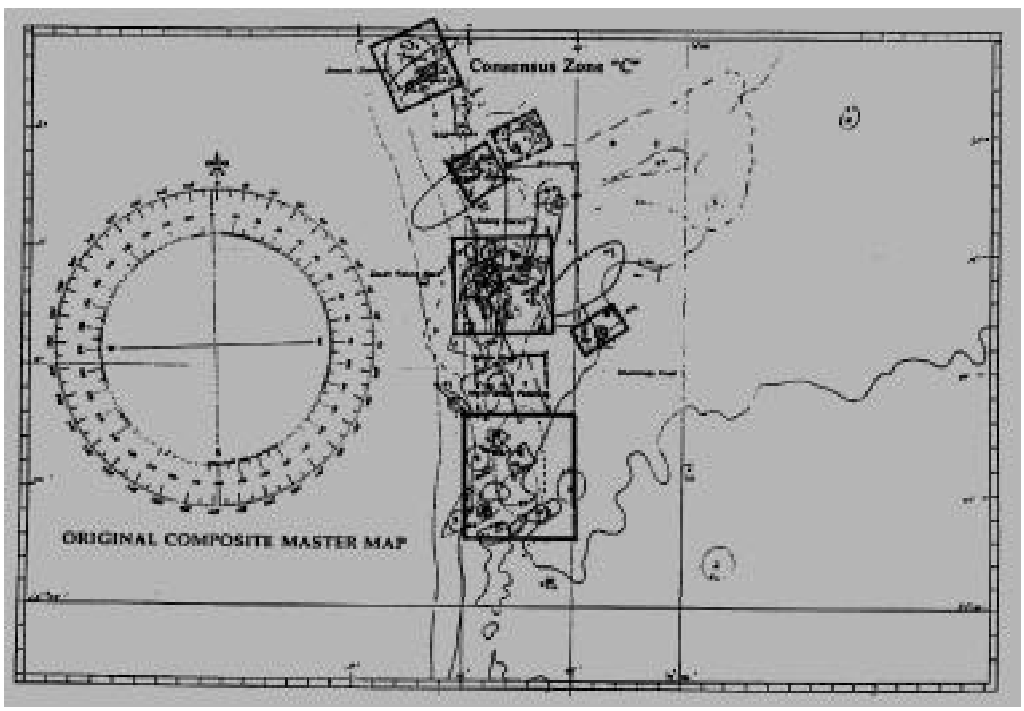


The License Area

Illustration Two

This work began in December 1985. Consistent with our earlier work, the individual Remote Viewing session map used in our applied Remote Viewing protocol ere prepared. Significant place names, and other geographic data were removed, a compass rose was added, and the map was transferred to a Mylar™ master and identical blueprint copies were run off, thus eliminating colors which might cause inadvertent cueing. These blueprint charts were then used in a series of individual and identical interview sessions with twelve Remote Viewers.

Consensus Zones. When all sessions from the first cycle of interviews were completed, the maps were put on a light table and location



The Composite Master, produced by transferring the data from individual Remote Viewer charts to a single master. Each square encompasses areas where multiple selections of the same area have been made. Consensus Area C, at the top of the chart, is addressed by this report. Other wrecks and debris were found in the Consensus Zone and other areas as well.

Illustration Three

markings, from the individual Remote Viewing session maps, were all transferred to a blank copy of the map. This became the Composite Master Map. Where more than one Remote Viewer selected the same area, the aggregate area encompassed by those marks was designated a Consensus Zone. The entire search area was, in this way, broken into three major, and several secondary, Consensus Zones. *(See Illustration Three)* It was this composite, with its Consensus Zones which lay the foundation of the location hypotheses, and which led to the second cycle of Remote Viewing sessions, which would direct the fieldwork.

More detailed charts of the three major Consensus Areas were then obtained. The Northern most Consensus Zone, which is the subject of this report, was covered by a Bahamian Government Chart *(Bimini Sheet 8 (Ref: PU822070, scale 1:10,000). (See Illustration Four)* Note the difference in scale. The maps used in this second set of interviews were prepared in the same way as those used in the first sessions. Following the same protocol a second set of interviews was carried out.

Remote Viewing Sessions:

a. Via Mail Sessions: Remote Viewers were blind to all but their own session. As already noted, some of the individual sessions, in both the first and second cycles of the map probe phrase were done via mail. These viewers received the map and a series of questions, each in its own sealed numbered envelope. The questions they contained were answered sequentially, with each envelope remaining sealed until the viewer felt the previous question had been responded to as fully as possible. Responses included audio tapes, drawings of things to be found at the sites marked on the map, and the map itself with the viewer's locations. Each sheet of paper, signed and dated, as well as the audio taped, were then returned by mail.

b. In Person Sessions: Where interviews were conducted in person the interviews were split between the authors to at least ameliorate any subtle biases that might develop in the researchers, and lead them to unintentionally cue the viewers. It was not a question of cueing a correct answer, since that was unknown to all, but of creating a kind of "noise", a favored outcome, that would override the Remote Viewing perception. There was no discussion between Interviewers; thus, each Interviewer was blind to the interviews he did not conduct, until all sessions had been completed.

Everyone throughout the experiment, of course, was blind as to whether the information proffered by either electronic remote sensing, or Remote Viewing was accurate, until the answer was revealed through fieldwork.

Interview Room: A room equipped with a table on which were:

An audio-tape recorder, lavolier micro-phone, and the specially prepared map; pencils and pens; a file folder containing the initial charge or direction;blank 8 1/2" x 11" paper for drawing RV images.

Interview in Steps: Following are the steps comprising a standard interview:

1.) Remote Viewer enters. On the table, face down, is the map.

2.) The tape-recorder is turned on and the tape is initialized with the names of the interviewer the name of the Remote Viewer, the time and date of the interview, and the interview location.

3.) The initial charge for the session is given.

4.) A free-ranging interview discussion follows. The Interviewer follows the viewer's lead. The role of the Interviewer is to elicit, without cueing, further impressions concerning a primary image offered by that session's Remote Viewer.

5.) At a point that "feels comfortable" for the Remote Viewer, the map is turned right side up, and locations are marked on it. The map is signed and dated by the viewer and the Interviewer.

6.) At such time as a Remote Viewer desires, he or she makes drawings to illustrate perceived images. These drawings, when completed, are signed and dated by the Viewer. They are numbered sequentially beginning from #1.

7.) When the Remote Viewer feels he or she has exhausted the images available, the session ends (a time ranging from 20 minutes to an hour). Map, tape(s) and drawings are all coded with the date and Remote Viewer number, and filed. The session is concluded.

We go into this in some detail because it is our view that what is going on in all Remote Viewing is a transaction involving everyone defined by intention and agreement as being part of the experiment. We are in essence faced with an engineering problem in which a bio-circuit made up of all participants is created by intention. Studies in the life sciences suggest, to us at least, that levels of interaction whose mechanisms are unknown at present – although well observed[20] – have to be considered in designing these experiments. Practically, this means what everyone feels, thinks, and intents is a factor in the protocol.

REMOTE VIEWING ANALYSIS LABORATORY *&* APPLIED

In laboratory Remote Viewing experiments, it is possible to establish a fixed number of variables in the form of a descriptor list, in which descriptive detail is reduced to a binary “Yes / No” format. "Hits” can be described in terms of whether or not a given descriptor is turned on or off, and the descriptions provided by Remote Viewing can be measured against a previously encoded correct answer form created by visually examining the target.[21] In this way statistical analyses can be developed.

In an archaeological project such as this one, the target is a large geographical location (as in some laboratory Remote Viewing research), but the correct answers have not been previously worked out. Only fieldwork can say whether a given bit of data is correct or not. The experiments are truly triple-blind. For this reason, it is usually impossible to establish a baseline against which to measure the exact probability of a given answer. However, in this instance, thanks to the exhaustive survey of the Archival Team, we have a baseline against which to measure the probability of a given location; and it is one in which we can repose reasonable confidence.

While this is important in determining whether a location or a concept is something which might have been arrived at by Remote Viewing, as opposed to intellectual knowledge, practically it doesn’t mean very much, since the probability is only defined *after* the fieldwork.

The central difference between a laboratory experiment, and an applied experiment is that in the laboratory experiment evaluating the accuracy of the information is the final step. In the applied experiment, it is only a midway point useful, as with all remote sensing input, in making decisions as to how to conduct fieldwork.

What counts, in the applied experiment, is the considered expertise of several disciplines, in analysing the proffered Remote Viewing data in greater detail than the relatively coarse "screens" provided by descriptor lists; which are typically limited to 20 or 30 discrete concepts.

FIELDWORK PROCEDURE

Remote Viewers came out to the *Seaview*, one or two at a time. Once there, they were individually taken in a small boat carrying a diver/boat operator, a researcher/diver, and a Remote Viewer. Each boat was equipped with a VHF two-way radio and a radar reflector. The reflector allowed the position of the small boat to be fixed relative to the known location of *Seaview*. The boats went to the outer boundaries of the Consensus Zones developed during the pre-fieldwork phase. One boat worked one zone. At this point Remote Viewers, accompanied by a researcher and a small boat operator, were asked to guide the craft to areas to which they were drawn. Guided by the Remote Viewer the boat moved to a specific location, at which point a range and bearing fix was taken, and a numbered Styrofoam buoy was dropped. Its number and location was logged on the 1:10,000 work charts for the area being searched.

3) While this was going on the magnetometer boat was carrying out its own assigned independent search pattern. In addition to its search gear, the boat was equipped with a radar reflector and a two way radio. The boat was usually manned by a boat operator and the magnetometer operator; although the operator sometimes performed both roles. Either after its independent survey was completed or, occasionally, as an interruption to the mag process, when a remote viewing "hit" was reported via radio, the mag boat would follow behind the Remote Viewer boat, and mag the area just selected. If a mag "hit" was also

reported, a second buoy would be dropped, and its location fixed. In this way it was possible to clearly know whether a site had been located by magnetometer, Remote Viewing, or both. Subsequently, divers equipped with metal detectors searched the area, seeking visual clues, i.e., mounding, right angle shapes, and metal detector “hits”.

4) Through this step-down process, a search area that began with approximately 579.15 square miles (1,500 sq. km), was brought down to a precision of feet (m), as is required if such information is to be really useful.

5) The Overburden, of sand, coral, rock, and vegetation was then removed from the site, thus revealing what lay beneath the seafloor.

RESULTS
ELECTRONIC SENSING *&* VISUAL SURVEYS

Satellite: The Land Sat image is unusually fine. There was virtually no cloud cover, and penetration to the bottom was clear and unequivocal. In these waters, however, resolution of unclassified satellite imagery, was not adequate to locate or identify sites as small the wreck site reported here, so this form of remote sensing was not useful.

Magnetometer: *Seaview’s* magnetometer running over this site, never produced readings greater than 60 gammas. This is explained by the fact that the target ship was an unusually fine one, and was built with the leading technology of its age. That is, because the fastenings were brass, bronze, or Muntz metal (a patented brass based amalgam introduced in the early part of the 19th-Century), the mass of ferrous metal, which is the magnetometer’s target, was far smaller than would have been found on a ship of less expensive construction. *(See Illustration Nine)* Whether readings such as these would have resulted in discovering this site is discussed below.

The failure of the magnetometer to locate the site, as it turned out, occurred on more than one occasion. When we found the site on 29 September 1987, we were unequipped to do excavation. That awaited a stop in dry-dock where alterations and additions were made to *Seaview.*

When we returned to the area some three weeks later, unaccompanied by a Remote Viewer, the buoys we had left on the earlier voyage had been blown away by storms, or stolen by fishermen.

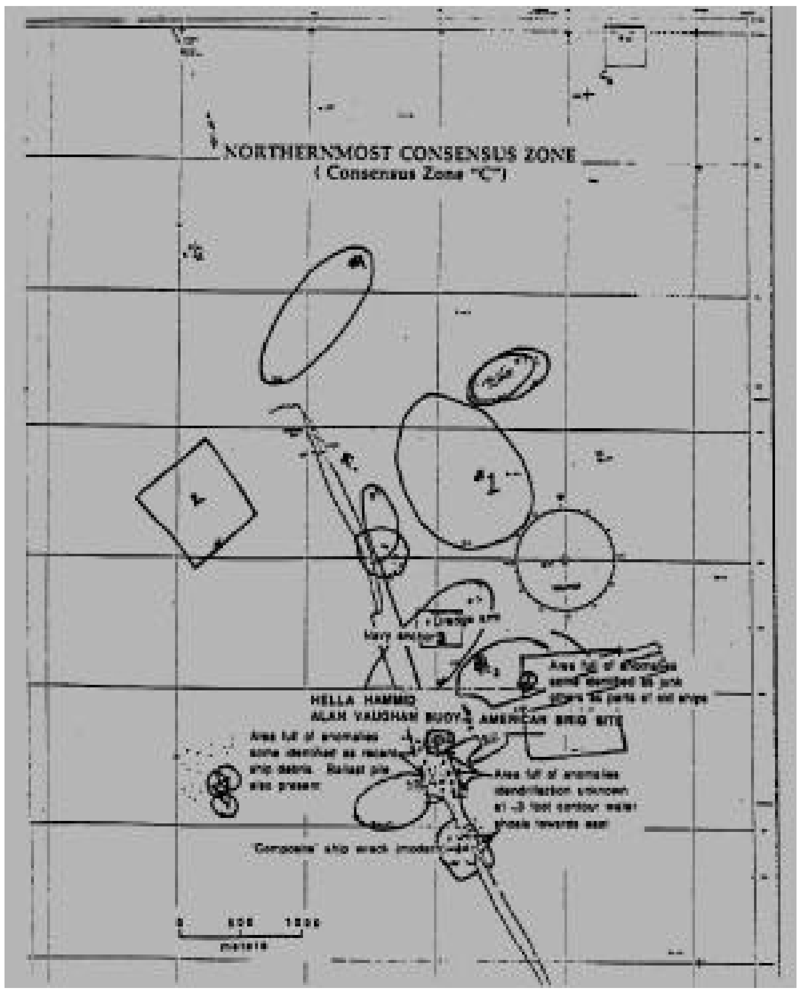
We could not be sure about the Loran, beyond saying that we were within 500 yards (457m) of where we had found the ship. No Remote Viewer was present. Three days of towing divers, and magging this area, failed to relocate the site. Three weeks after that we again returned and tried to make the location. This time a Remote Viewer was aboard. With that guidance we positioned ourselves with sufficient accuracy that the visual memory of the original divers were triggered. Three of them snorkeling had re-found the site within an hour.

Aerial: Three flights were carried out, at different times of day, and with different cloud covers, to assure complete visual aerial surveillance. No ship wrecks, not already on the charts, were visible. There was no sign of the wreck site that is the focus of this report.

Visual: Salvers from the 16th century onward have been searching this area particularly because it is immediately adjacent to Brown's channel. There are no reports of such a discovery. This is also a favored area for sport divers, and at least two sport dive operations regularly bring out clients for dives working the Beaks Cay area. Interviews with their staffs established they had no previous knowledge of the site.[22]

RESULTS
REMOTE VIEWING

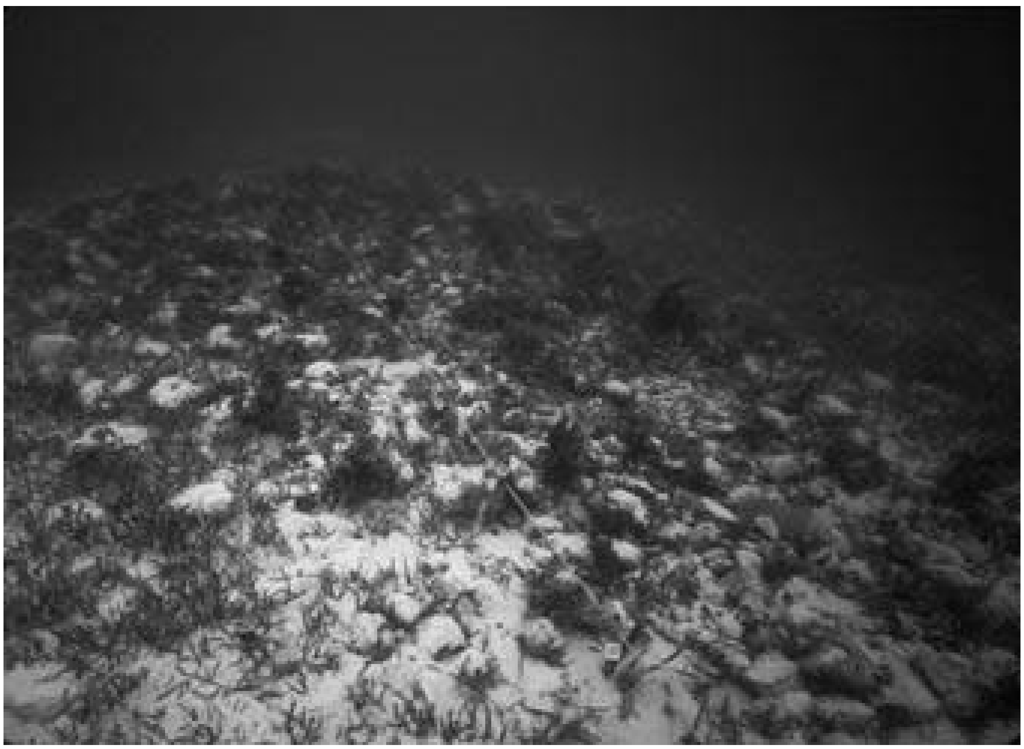
Location: As the Master Composite Map for Consensus Zone C *(See Illustration Four)* shows, this wreck was found by Remote Viewing at the location predicted. On 29 September, 1987, Hammid and Vaughan were taken out in a small boat and, within an hour, had agreed on a site and dropped a buoy. It was too dark, by the time they were finished to make a visual inspection. The next morning divers went down to look at what at first appeared to be a typical low rise covered with eel grass. *(See Illustration Five)* Without the impetus of Remote Viewing guidance, it is unlikely the site would have been discovered, but the divers were particularly vigilant and, as the dive was ending, one of them noticed that a sequence of fire coral, when viewed from one angle, seemed unnaturally symmetrical. On a "hunch" a diver struck the coral with his dive knife, and a piece gave way. The chip revealed what was later determined to be a bronze keel bolt. This led to a reexamination of some small rocks, later determined to be ballast stones. This entire process took perhaps five hours. The buoy dropped by Vaughan and Hammid was less than 35 feet from the keel bolt.



Note placement of the two buoys, within the most significant cluster within the zone. The other locations all contained debris as well.

Illustration Four

After a second failure of mag and visual survey in an area of only a few hundred yards, the site was relocated by Remote Viewing, Excavation began immediately. It revealed an unusually intact wreck buried three to five feet beneath the eel grass and sand. Nothing was visible except the fire coral covered keel bolts, and some ballast mixed in with natural rock. Only excavation revealed what were remains of a collapsed American armed merchant brig which sank in the early decades of the 19th century.



The site as it originally appeared. Note the keel bolt with a line attached. The magnetometer survey, on two occasion failed to locate it.

Illustration Five

Descriptive Concepts: The transcripts of the interview sessions show there were 193 conceptual concepts put forward about this site by the Remote Viewers. This material covered surface geography, sub-surface geology, ship location, and the position and identity of both ship parts and contents. Based on fieldwork, archaeological, and historical research, the accuracy of the concepts was determined to be:

CONCEPT ACCURACY EVALUATION

	Correct	Partially Corr.	Incorr	Non-evaluable
PRE-FIELDWORK				
TOTAL				
Total Number of Concepts	91	14	3	38
146 / 108				
Percentages Including N-e	62%	10%	2%	26%
Percentages Minus N-e	84%	13%	3%	-
ON-SITE				
Total Number of Concepts	30	4	3	10
47 / 37				
Percentages Including N-e	64%	9%	6%	21%
Percentages Minus N-e	81%	11%	8%	-
COMBINED				
Total Number of Concepts	121	18	6	48
193 / 145				
Percentages Including N-e	63%	9%	3%	25%
Percentages Minus N-e	83%	12%	4% -	

Table One

***A Piori* Evaluation:** The reconstructive material is subject to what might be called The Generic Criticism. That is: When a Remote Viewer is asked to describe something in, or under the sea, there is a generic sort of description that many presume will cover many, if not most wrecks. In the sense of naming or drawing certain nautical universals, for instance an anchor, this is true. But in most respects, as we have learned by direct field experience and study of the literature, this criticism is true in only the broadest terms. Shipwrecks present themselves in many ways. There are thousands of boat types.

The Remote Viewers describe a ship that is intact. Several saying it sank in place. This sounds generic but, in fact, the brig is the only wooden sailing ship wreck ever found in the area this intact. Sailing ships driven or mis-sailed onto the Banks did not often stay completely together like this when they sank. Typically, one find a debris trail along which, over

The timbers of the brig Leander, *represent a rare case on the Bahamas Banks of a shipwreck that is still intact. This is because* Leander *probably sank while at anchor. The Remote Viewing description of timber stacked like "railroad ties" seemed particularly apposite.*

Illustration Six

some distance, a ship breaks up, spilling contents, and parts of its structure. Here are a few other examples of Remote Viewing at an even smaller scale, that also had a low *a priori* probability of being correct: R-15 described the site by saying: <2840> "I feel wood, big pieces of wood, like railroad ties…". *(See Illustration Six)* This may sound generic. It is not. The massive timbers of the *Leander* present the rare case of a ship that sank intact. *There is no other ship recovery on record in the License Area that matches this site. There does not seem to have been another equivalent reported excavation like this on the entire Banks.*

Similarly, <2847> "and small glass bottles." Small glass bottles rarely survive the constant movement of sand, and currents on the Bank. The probability of discovering one is very small. Yet two were found in the wreckage of this site. *(See Illustration Seven)*

Or, <2848> "… pewter…I don't know what it is, but some kind of corroded metal."; *(See Illustration Eight)* And <2849> "Everyday artifacts…" Again, these observations only seem commonplace. Based on other excavation reports the site is notable for the number of such items which have survived. Among the artifacts recovered: The Captain's pearl handled razor, parts of a drafting set, a silver or pewter cruet.

Remote Viewing predicted "small glass bottles" would be found, and they were.

Illustration Seven

Remnants of containers. Of particular interest is the pewter cruet in the center; it had been predicted by Remote Viewing.

Illustration Eight

Experience taught us that arguments proposing that most wrecks can be described by predictable inter-changeable cliché images, simply do not hold up. Similarly, the criticism that anywhere one looks one is likely to turn up a wreck, is ludicrous in the face of the immensity of the ocean, the uniqueness of each site, and the academic and historical search literature.

Statistical Analysis: There are three ways to determine the statistical probability that this discovery was a chance occurrence: 1) The location of the site only in reference to Consensus Zone C; 2) The location of the site in reference to the entire License Area; 3) the location of the site in reference to the entire Grand Bahama Banks. Let us select only the first two, since it must follow that if these two analyses are above chance, then the third, involving the entire Banks, must be even more improbable.

No matter which case is selected, one begins by recognizing that *approximately 300 notable wrecks went down, not just in the License Area but* *across the entire Banks, from 1500 to 1876* as determined by a thorough search of historical records and archival material.

Let us take the most conservative (and obviously artificial) position: Assume all 300 of those wrecks were within Consensus Zone C. The search area of Consensus Zone C is 30.59 square km (11.81 sq. miles, 12 sq. miles of sea minus 0.19 sq. miles of land mass). The brig site is 5,000 square feet, equaling 0.000179 of a square mile. Within Consensus Zone C, 65,849 sites of this size could be placed. In essence, then, we have a grid with 65,849 cells. If the probability of selecting that particular cell in the grid by chance exceeds p0.05 then Remote Viewing can be considered a determinative factor. In fact, it is 300 / 65,849 or p0.005; a very significant result.

Let us next take the less conservative, and more realistic, (although still artificially conservative) case: Assume the wrecks are evenly distributed throughout the entire License Area. That said, we should expect to see 11.81 / 579.15 x 300 = 6.12 boats in Consensus Zone C. The probability of finding one in a 5,000 square feet area is then 6.12 / 65,849 = p0.00009, which strongly suggests that chance is not an explanation for the location of *Leander*.

DISCUSSION

Remote Viewing was the one location methodology that produced accurate useful location data on this site. That conclusion, however, should not overshadow another, which is also notable: the efficiency of Remote Viewing. From the time we arrived at the edge of Consensus Zone C, a total of approximately five hours of operation time was required to initially make the location.

If the site had been found

Examples of ship fittings. These were used to establish the identity of the Leander. *Several were predicted in the Remote Viewing sessions, particularly the ratchet wheel, top center.*

Illustration Nine

by the magnetometer how long would it have taken? The site is 100 feet (30.5m) long by 50 feet (15.3m) wide. The traditional approach would have been to use a magnetometer to search the overall area. The ship follows Loran-C, or some locally set up navigation system, such as Del Norte with the magnetometer sensor trailing from a ship operating at no more than 6 knots. Parallel lanes no more than 30 feet (9.14m) from one another are run, much like a tractor making corn rows. Thus it is possible to compute with considerable accuracy exactly how long a magnetometer survey will require, if one first knows the size of the area to be searched.

The total area of the chart given to the Remote Viewers to search is 12 square nautical miles (a nautical mile ≈ 6000 feet (1,829m)); it measures 3 miles by 4 miles. At 6 knots, a standard magging speed, a run 30 feet (9.14m) wide and one mile long is optimally covered in ten minutes. To cover one square mile in 30-foot (9.14m) swaths, then, would require 200 passes.

Thus, in a "perfect" plan, the fastest possible survey time for the chart area can be calculated as 10 x 200 x 12 = 24,000 minutes / 60 = 400 hours. Adding just the most conservative turn around and set-up time between each of these perfect one mile runs, say five minutes, would bring the total up to 600 hours. This "perfect" plan, of course, fails to take into account any of the realities of navigation, weather, site obstructions, equipment set-up and break-down, currents, or the myriad other factors that actually would have to be considered.

A *post hoc* reexamination of the record was carried out, and it reaffirms that over this site *Seaview* did not get anything like the pattern associated with a ship, although there were two "hits". But of such a low range that they did not suggest a ship site. Understanding why this is so, takes some sense of field realities; the question of why the magnetometer did not identify the site on not one but two occasions is an important one.

Removing sand under water is a major logistical operation. It forces any field project to establish a threshold beneath which mag "hits" are discarded as not worth following up. It is simply not practically possible to follow up on every magnetometer "hit", particularly in an area like the Banks where, during the 1940s and 50s, pilots trained for strafing and bombing runs, littering the sea with thousands of expended 50 caliber machine gun bullets, and unexploded bombs. Such a search would take years, if not decades.

Low level individual "hits" when isolated are also of less interest than a pattern consisting of a number of small 10-15 gamma responses with 30-60 gamma spikes. Such patterns suggest that a ship, as opposed to a single ferrous object, lies beneath the seafloor overburden. Each expedition must, of course, set its own threshold, and pattern requirements, but an informal survey of individuals who have worked the banks suggests that 30 gammas is about the lower practical limit, and that these really only become meaningful in the context of a pattern. The ship was expensively built of the latest materials for its time. Thus, it used relatively little ferrous metal and, thus, made a small target for the magnetometer.

It seems to us reasonable to conclude that the involvement of archaeological remote viewing made the search procedure more efficient, cost effective, and faster than would otherwise have been the case. It is hard to explain away sailing up to the site, dropping a buoy within a few feet of a site, and accurately and uniquely describing the wreck's disposition, and contents prior to excavation.

The fact that the site was previously unknown is not hard to explain, given the depth at which the wreck was buried, the paucity of visible signs on the seafloor, and the low iron content, because of the use of bronze, and Muntz metal. Thus, while one can not absolutely say that the site could not have been found using electronic remote sensing the fact that it lay undisturbed for 154 years, in one of the most intensely searched areas of the Banks, supports this improbability. Our own unsuccessful attempt to relocate the site, even though we knew it was present, until Remote Viewing was employed, further suggests this was the critical variable in bringing our success.

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