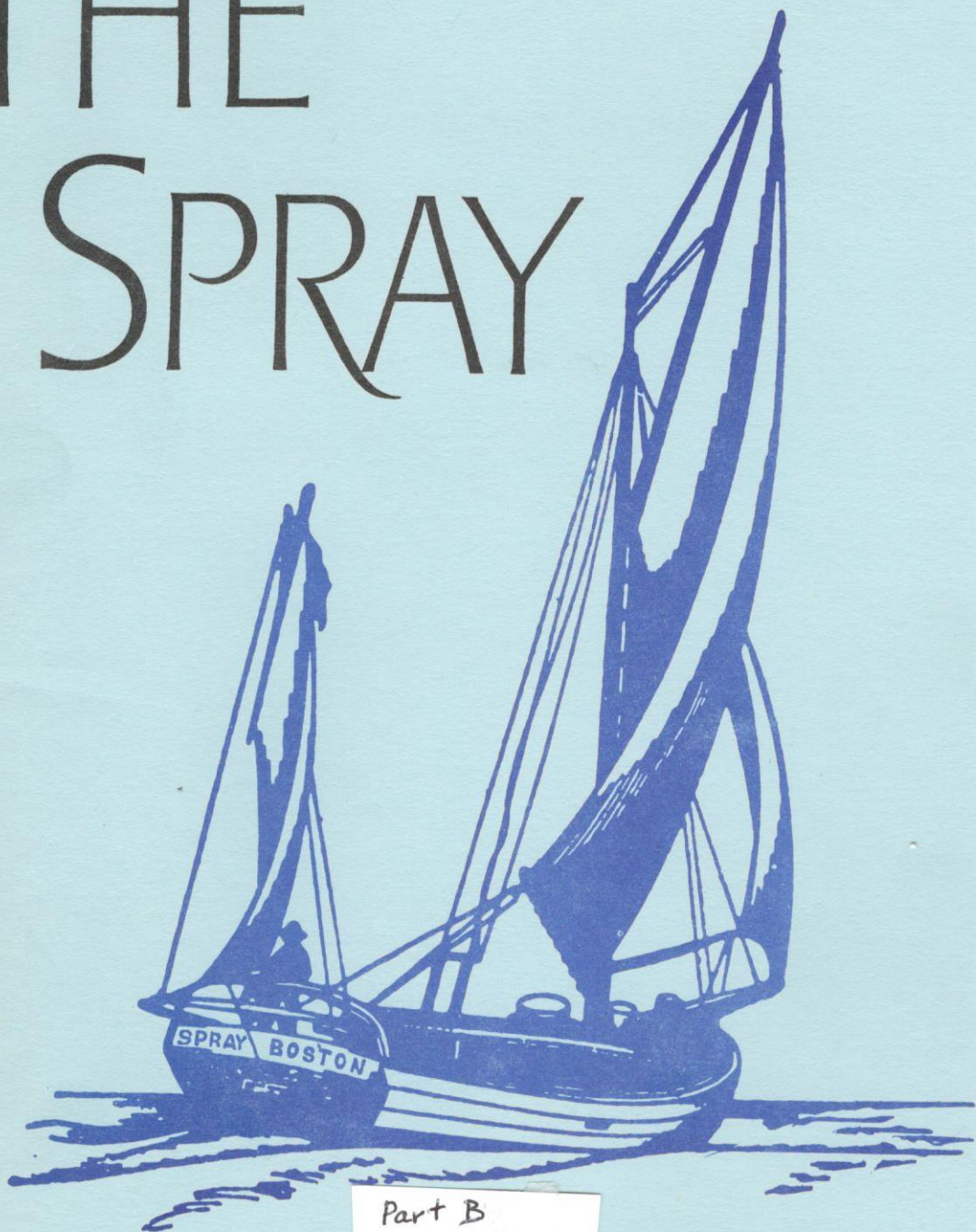


THE SPRAY



Part B

VOLUME XXV NO. 1 JANUARY-JULY, 1981

Yoichi Higashiyama was the youngest entrant, 18 years old. He is a graduate of a school for wayward or displaced boys; a strict sailing school which was started by an entrant in the **1975 Singlehanded Transpac**.

The June 7th start of the race went off like clockwork, with the ten entrants over the line in seaman like manner. The eleventh participant, **Senji Kohmoto**, arrived a few days later, refitted and started off.

Misfortune in the form of badly leaking keel bolts caused **Tadashi Kato's KASAGURA** to sink just out of San Francisco. He turned on his E.P.I.R.B. and abandoned ship. After a short time in his life raft he was picked up by a Japanese freighter. Next to drop out was **Kaysuya Sakai** who stopped in Hawaii after completing 2200 miles (which incidentally is the total length of the "other" **Singlehanded Transpac**, San Francisco to Kauai, Hawaii). The next casualty occurred to **Senji Kohmoto**, the late starter from San Francisco. He had a run in with a freighter just outside of Tokyo and was dismayed.

Fukunari Imada chose the southern route and led the fleet across the Pacific, crossing the finish line in *TAIYO*, his Sawaji 37 after 42 days, and 15 hours at sea. Second was **Yoshiji Okamoto** on *RAY*; third was **Yoshihide Oda** on *CHARLIE*; fourth was **Gozo Okada** on *TASAKI PEARL OF TIDA*; fifth was 18 year old **Yoichi Higashiyama** on *TAKARABUNE*; sixth was **Linda Weber-Rettie** on *SPIRIT OF SUNTORY* (formerly *ROUGH AND RETTIE*); seventh was **Masato Hatanaka** on *SPIRIT OF HALF MOON BAY*; and last was **Mitsugu Sakaino**, a 27 year old sailing instructor who took 75 days, 2 hours and 45 minutes to complete the race onboard his *BLUE JAY*. To this persevering mariner the *Singlehanded Sailor Magazine*, of which I am editor, awarded Y 25,000 on the theory that whoever finished last and endured longer than anyone else is deserving of some recognition, recognition that is seldom forthcoming because of all of the excitement generated by the winner.

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So, of the 13 original entrants, eleven started. Of those who started, one sank, one was dismayed and forced to retire, one dropped out enroute and eight finished. In fact, the sixth and seventh place finish between Linda and Masato was so close that at one point just off Kobe, he was able to hand her a cup of coffee.

And what were the conditions faced by the racers as they sailed westward? According to Linda, who took the southern route, "*after Hawaii I don't think it ever got over 10 knots except in the squalls when it got up to 25 knots. And, was it hot! It was over 100° (F) on deck; 95 in the shade of the sails with 80-90% humidity. Then, when I reached the coast of Japan the wind blew 35-40 knots for about 10 hours.*"

As Linda approached the Japanese mainland one of their "routine" lightning storms was "really bad news" to her. She swore that she wasn't exaggerating when she said that the lightning bolts were "like telephone poles all around her -- they didn't even zig zag".

After the race Linda gave a lecture to the Pacific Singlehanded Sailing Association and had several interesting techniques to talk about. One was her "headsail bag" which is somewhat like a mainsail cover-except that it lays along the edge of the deck like a snake. When you drop the headsail, you maintain tension on one sheet, the one on the side with the "snake". You lower the jib into the bag and snap it up and your sail is stowed on deck, ready for use and out of the way. Linda also described a "magazine loading" system

for the hanks on the jib. The hanks are attached to the magazine and the magazine is put on/removed from the headstay. She said it took a while to get used to the bulk but that it was worth it once you did. (Linda, would you sketch that for us, Ed.)

Another device Linda described was a "spinnaker sleeve". It allows you to hoist the whole sleeve but lets you use as much of your spinnaker as you want. You can pull it halfway or all the way up and, if you get into heavy air you can choke it down. When jibbing the choke feature is especially good.

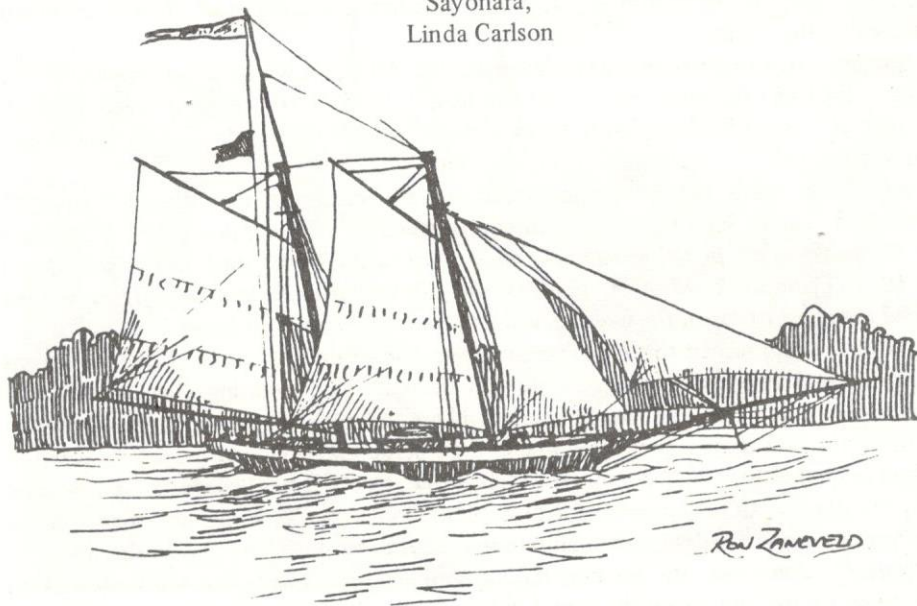
As the only woman in the race, Linda said that she was accorded movie-star treatment when she reached Japan... the best hotels, restaurants, etc. The price, of course, was lack of free time and privacy as she was on call 24 hours a day for lectures, guest show appearances, parades, etc.

The third **Singlehanded Transpacific Race** is now history. In the past, six years has elapsed between each race. The first was held in 1969 between San Francisco and Jogashima, on Miura Peninsula at the mouth of Tokyo Bay. It was won by **Eric Tabarly** who still holds the record for the fastest passage. The second race was held in 1975 between San Francisco and Motobu, Okinawa (see *The Spray*, Vol. XIX, pgs. 7-12). Participants had to pass through the Molokai channel of Hawaii enroute and **Hiroshi Tozuka** won the race. In that race there was one woman, **Noriko Kobayashi** who finished sixth. Also in that race were **Kenichi Horie**, who in 1962 had shocked the world with his lone passage from Japan to California and **David White** who recently has organized **Alone Around** (see following article).

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Now, breaking all tradition, plans are underway for the next **Singlehanded Transpacific Race**, this one to be held in only four years in 1985. Its not too soon to start your preparations.

Sayonara,
Linda Carlson



'Round the World Race

Single Handed
Round the World Race Headquarters
Goat Island Marina
Goat Island, Newport, Rhode Island 02840
(401) 846-1376

'82-'83

UNOFFICIAL RACE UPDATE

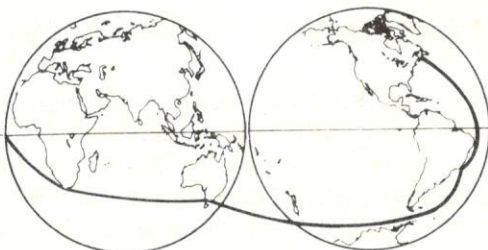
August 17, 1981

The "Around Alone" Race Committee has been notified that the Royal Cornwall Yacht Club of Falmouth, England will be running a feeder race from Falmouth to Newport, Rhode Island in early-to-mid June 1982.

As you are aware, the "Around Alone" Rules and Conditions state that entries for the 'Round the World Race must be submitted to Race Headquarters no later than January 1, 1982. Entries have until August 1982, however, to complete their qualifying sails. This feeder race will be an ideal opportunity for those who will need to qualify.

For full details of this feeder race, please contact:

MARY MUIRHEAD, SECRETARY
ROYAL CORNWALL YACHT CLUB
FALMOUTH, CORNWALL
UNITED KINGDOM



The Slop Chest

The Seattle Rally - Aug. 15, 1981

The Slocum Society Rally in August, 1981 was a smashing success. Held at the home of long time society member **Gini Dumont**, about 30 members and friends gathered on 15 August to enjoy the hospitality and get to know each other. Our first secretary, **Richard McCloskey** with a broken but not plastered (refers to both the limb and owner thereof) ankle held court with newer members, regaling the listeners with yarns of the early years of the society when he held sway in Santiago Chile; Lima, Peru; and Shady Side, Maryland. Mac also had an innovative method of raising money. Modeled after a Brown University tradition, each Slocum Society member would empty his pockets of loose change on the good captain's birthday, February 20th and send it to headquarters for the society's slush fund.

Don Holm, our Sailing Club Commodore Northwest USA Correspondent, and Port Townsend Port Captain was there as were **Lynn** and **Julie Bramkamp**, possibly our highest members present. They live in the tiny California gold rush town of Nevada City, elevation 769 meters.

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The Midwest, US Rally - Early 1982

Bill Brewer is planning on a "Midwest USA Rally" sometime after the first of January, 1982. He will be mailing an announcement of the rally to all members living in midwestern USA. For more information he may be contacted at: 2011 Cass Road, Toledo, Ohio, 43614, USA.

English-French Nautical Dictionary

We recently heard of an *English-French Nautical Dictionary* which was published in early 1981. It contains 194 pages with 7500 English words and phrases translated into international French. It has been approved by the French Sailing Federation, the Canadian Power Squadron, the Canadian Coast Guard, and the Canadian Naval Reserve for teaching purposes. It is available from Pierre Biron, C.P. 1600, Cote des Neiges Station, Montreal H3S 2R1, Canada. The price postpaid first class to Canada, USA and Mexico is CAN\$19.50. The price postpaid first class to other locations is CAN\$29.50.



Klaus Alverman on board PLUMBELLY in 1972.

News from Klaus Alverman

Klaus Alverman wrote to the society in mid-1981 with the latest news of his "irregular lifestyle". *"It seemed more than just accident to read about Frank Casper after arriving here in Bermuda. We spent many evenings together playing chess and I remember him as one of the most tenacious players I ever met over the board. He came often to Bequia during the time I was building PLUMBELLY and helped me with advice and encouragement.*

"Well, I have decided to make yet another trip with PLUMBELLY, this time towards Brazil via the Azores and Canaries. As usual, I have planned in plenty of time. I may not get there much before the end of the year. If PLUMBELLY was only a little bigger I would gladly stop sailing singlehanded. The seas have become almost too crowded to be sailing with no one on watch. And electronics have not yet come up with a fully safe warning system. Let me know if you hear of one.

In the Wake of the Spray to be published soon

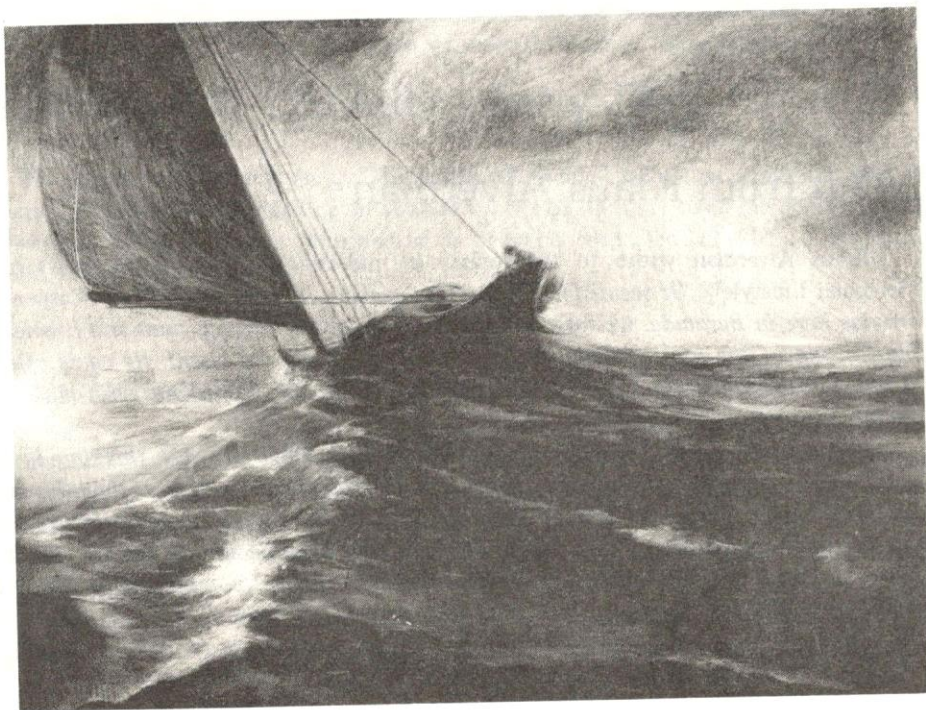
In the Wake of the SPRAY, Ken Slack's excellent analysis of the design of Captain Slocum's *SPRAY* will soon be available again. Sheridan House will publish it in late 1981 and it will sell at retail for \$17.50, however through special arrangement with the publisher it will be available through the Slocum Society for only \$14.25, postpaid by book post/surface anywhere in the world.

Your editor recently wrote to Jean Simon, manager of Sheridan House, asking for a photo of the book which we could display here, however, at that time none were available. So, instead we here publish on the adjacent page a photo of Ken Slack and his *PAGAN* taken after she had finished 4th in the **Trans Tasman** race of 1961.

Christmas Greetings form Don Sabath

The Slocum Society received an early Christmas Card from Don Sabath, on the cover of which was a print of one of his charcoal drawings entitled "Down Hill", reproduced here. In it he said, *"There are many thoughts that pass through the minds of the sailing breed -- and impressions of moments, special moments, are carried vividly for long periods of time. I feel fortunate to be able to recall and communicate at least this one impression which seems to have a bit of universal appeal."*

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A New Cover for THE SPRAY

Late news from **Rus Tonkiss**, who designed the cover presently used on *The Spray* and who is designing us a new cover: *"I've done the lettering of The Spray and that was the part that looked at me the most. I'll have everything off to you shortly along with stationery, artwork, camera ready for the printer. The delay was inevitable. Two months ago I decided, after ten years as a free wheeling design consultant, to take on staff and tangle with corporate headaches once again, albeit on a modest scale. We are now "Quadrant Design Group".*

*"Last week we enjoyed a good sail down the Bay and Lo and Behold as we reached eastward, a 30 footer passed us in the opposite direction flying the Slocum flag. I had the South Bay Cruising Club Burgee hoisted so when we came about a couple of hours later, I hoisted the Slocum Society Sailing Club flag, figuring we may pass our friend as he returned. No such luck, alas, so no opportunity to hail him for identification. My friend **Bob Wissman** is the only one I know hereabouts who is a member but it wasn't him.*

A Request from Gini Dumont

45

We heard recently from **Gini Dumont**, gracious hostess of the August Slocum Society get-together in Seattle. She sent along the following asking if *The Spray* carried advertisements:

Widow, whose world cruise was interrupted, wants to return to crossing oceans. Has perfect cruising boat but needs partner/sailor. Man in mid-fifties preferred. Must have extensive experience. Call Gini: (206) 772-0535 or write 8541 S. 113th St., Seattle, WA 98178, U.S.A.

Your editor wrote back and said "no" we don't carry ads. (Good luck, Gini, Ed.).

Antifoul Paint

The *Navy Times* of July 13, 1981, has reported a team of scientists at the Naval Research Laboratory has developed and successfully tested "*fouling release*" coatings that allow marine fouling organisms attached to a ship's hull to be easily removed by blasting with water or wiping by hand. The non-toxic coating is commonly known as Teflon and can be applied by a conventional airless spray gun. After drying it is capable of long-term performance. Field experiments indicate that even after prolonged exposure in water, in one case three years, marine organisms were quickly removed. According to the research team the coatings should last even longer. Any cruisers interested?

News from John Guzzwell

Honorary Life Member **John Guzzwell** sent us a recent update on what he has been doing lately:

For the past five years I have been based on Orcas Island in the San Juan Islands of Washington State (USA) where I have operated a small custom yacht building business with my two sons, James and John. We have turned out several good boats all cold-molded, usually out of Alaska cedar using epoxy glue throughout.

A few months ago I married Dorothy Saunders, a Canadian Widow who has two sons, Steve and Jono, slightly younger than mine. Now, we have quite a crew on our hands. Dorothy and I have started a Brokerage business specializing in deep sea cruising yachts, not exactly the regular kind of brokerage as many of the boats that we have listed are located in various parts of the country. That means taking clients to see them and assisting with sea trials, etc. At this time there is still much to learn but both of us enjoy being around boats and cruising people. It is very satisfying to help someone find their ideal vessel. We are looking for more, good boats to list so if you know of anyone who is either looking for one or wants to sell a good cruising boat, tell them to contact us as we just may be able to help. We can be reached at: P.O. Box 4B, Orcas, WA 98280, USA or by telephone at (206) 376-4737.



The two vessels built and sailed around the world by John Guzzwell moored side by side at Ala Wai Yacht Harbor, Honolulu in September, 1974. TREKKA on the left was built in 1955 and circumnavigated from 1955 to 1959. It is still the smallest vessel to have completed a singlehanded circumnavigation. TREASURE on the right was built by John in 1965 in Hawaii.

Piracy

A Request from Jean-Michel Barrault

In response to our articles on piracy, *The Spray's* correspondent in Paris, Jean-Michel Barrault, wrote,

"As a Slocum Society member, yachting journalist, and long range sailor, I was deeply interested in reading your very good pieces about piracy. I would like to write an article in a French magazine, Neptune-Nautisme, and to ask our readers to write if they have any information about facts of modern piracy, especially about the Mediterranean area, the Red Sea, and the west coast of Africa.

With my wife as crew aboard our 40 footer, we sailed from France to the West Indies in 1979-1980, with stops in Madeira, the Canary Islands, Mauritania, Senegal, Brazil, French Guyana, and Grenada. We have crossed the Pacific twice, in 1975 and 1981, with stops in Panama, the Galapagos, the Marquesas, Gambier, and the Tuamotus and we left the boat in Tahiti. We never had a problem. We had no guns on board.

The question as to whether or not to have guns and rifles on board is a tricky one. We are peaceful people but, having read your articles, I could change my mind!"

47 *The Spray* is not trying to make paranoids of our readers but to make them more aware of the realities of our "modern" world. We welcome your responses to our articles, whatever your feelings. We will, of course, present them to our readers. If you wish to respond to Jean-Michel directly his address is: Jean-Michel Barrault, 55 Avenue Marceau, 75116, Paris, France, or you may write to the Slocum Society and we will forward your letters to him.

Trouble in the Bay of Bengal

The Spray has received news that on August 11, 1981, an Indian naval vessel had come to the aid of a grounded freighter attacked by spear and arrow wielding natives off an island in the monsoon-swept Bay of Bengal. The *PRIMROSE* made contact with officials of the Indian Navy via an SOS. The 16,000 ton vessel asked for an air drop of weapons. The Panamian-registered vessel was grounded off the Indian-administered Andaman Islands, which is said to be inhabited by aborigines and former convicts of the penal colony at Port Blair.

Update on Palmyra Murders

Buck Duane Walker and **Stephanie Stearns** will stand trial for murder in connection with the disappearance of **Mac and Muff Graham** on Palmyra in 1974. The Grahams met Walker and Stearns when their two boats, *SEA WIND* and *IOLA*, anchored in the lagoon of the island 1,101 miles south of Honolulu. Several months later, *SEA WIND* was found docked in Honolulu and Stearns and Walker were charged and convicted in 1975 of boat theft. During the trial Walker testified that the Grahams disappeared while fishing in their Zodiac dinghy.

Stearns served two years and was released but Walker escaped in July of 1979 from McNeil Island penitentiary where he was serving his 10 year sentence. In January of 1981 the bones and skull of Mrs. Graham were discovered in an aluminum box on the beach of Palmyra. Both the box and the bones were charred and the skull had a hole in it. Mac Grahams' remains have not been found.

After the news of the discovery broke, Stearns turned herself in to the authorities in Los Angeles on March 5. She was living in Simi Valley, California. She has been free on \$100,000 bail. On August 12 it was reported that Walker has been arrested in a motel near Yuma, Arizona. Drug Enforcement Administration officers and Yuma County authorities were investigating narcotics leads to persons associated with Walker, including a former girl friend, and Walker showed up.

His arrest came hours before a federal judge in Honolulu denied a defense request to move the murder trial from Honolulu to a Mainland court. The judge also denied a defense request to introduce as evidence at Stearns' murder trial a lie detector test which her attorneys claim would show she was not involved in Graham's murder. At the time of this writing no decision had been made by the defense as to whether the co-defendants would be tried separately or not. Both are scheduled to be tried on October 20, 1981, unless one or the other asks for separation.

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Tuol Sleng Prison

The Slocum Society has received more information about the infamous Tuol Sleng prison camp near Phnom Penh in Cambodia where several cruising sailors were reported incarcerated and executed (see *The Spray*, Volume 24, No. 1, January-June, 1980, p. 56). Records found at the prison indicate that four Americans were taken off boats cruising the Cambodian coast in 1978.

The first two were **James William Clark** of Anaheim, California, and **Lance McNamara** of Santa Barbara, California. Their boat was fired upon and taken by a Cambodian vessel. Seven months later, **Michael Scott Deeds** of Long Beach, California, and a companion identified as **Christopher Edward Delance** were captured while sailing near an island some 60 miles from the Cambodian port of Kompong Som.

The records show that Deeds and Delance entered Tuol Sleng on November 26, 1978. This was about a month before the Vietnamese invasion of Cambodia which eventually resulted in the overthrow of the Pol Pot regime. Their "confessions,"

translated into Khmer, are dated January 5, 1979, just two days before the Vietnamese captured Phnom Penh.

Some of the extracts from the confessions appear ludicrous. Delance, for example, gives his "*working CIA code number*" as 570-80-677 -- apparently a Social Security number. It appears that both Delance and Deeds were executed but a Cambodian survivor of Tuol Sleng believes that at least one of the other Americans, James Clark, was tortured to death. **Ung Pech**, one of only a dozen persons to survive the prison, thinks both Clark and McNamara died in late May of 1978, about a month after their capture.

Clark's 20 page confession, dated May 23, 1978, is a bizarre tale of drug smuggling as a cover for CIA espionage over a three year period. Clark evidently typed the paper himself and described a variety of contacts with alleged CIA accomplices and travels throughout Mexico, Europe, North Africa, and Southeast Asia. In several places Clark appears to be telling his Cambodian captors what they want to hear. His details of alleged CIA links include curious statements such as that regarding his recruitment: "*I signed a receipt paper which made me a member of the CIA with the number 1492.*"

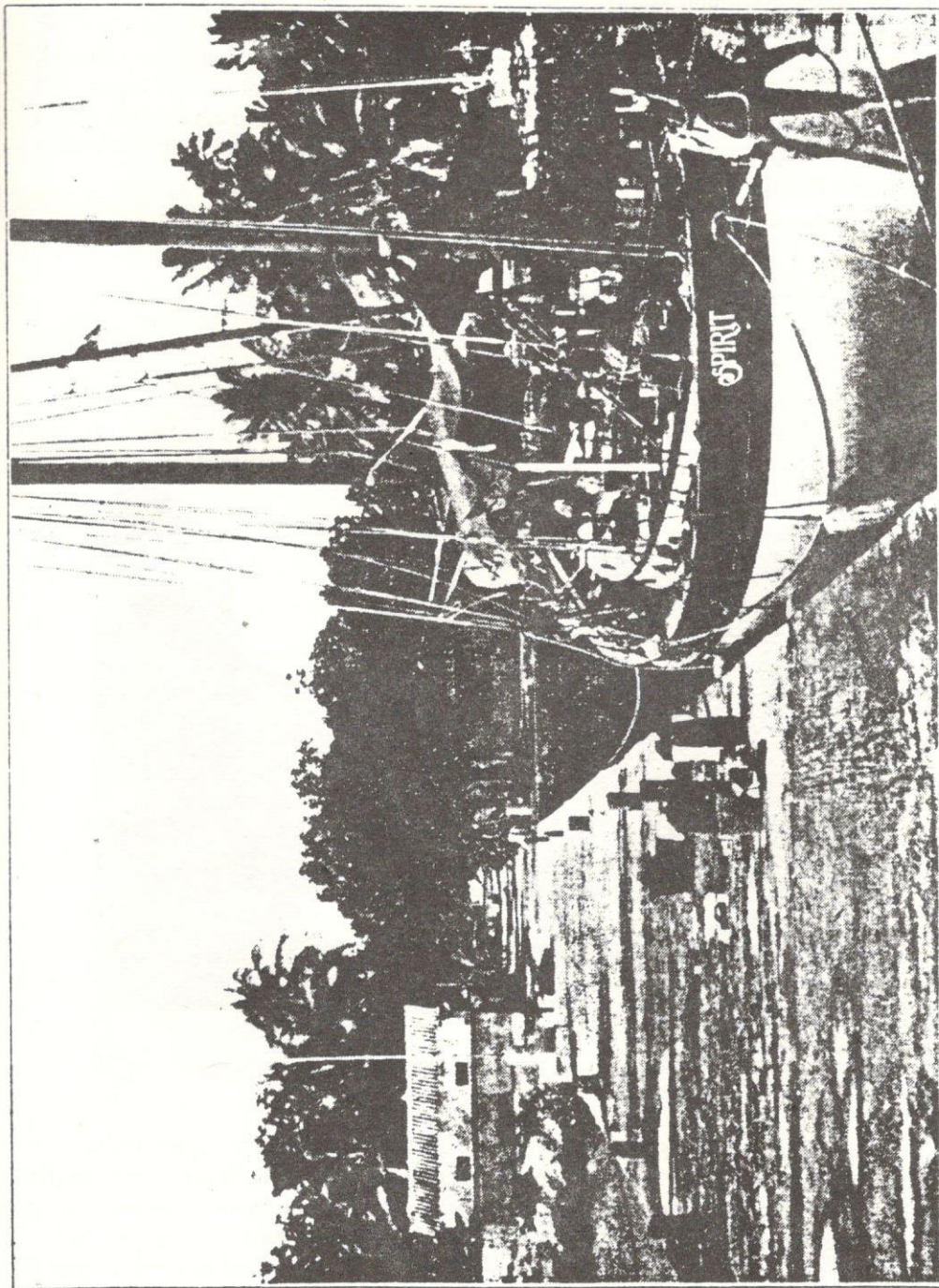
The origins of Clark's intelligence mission allegedly began when he was commissioned by a man named Henderson in July of 1977 to photograph fishing boats, warships, islands, and radio or radar installations off the coast of Cambodia. "*This was because Cambodia was a very new but powerful country that seemed to be getting stronger each year.*" Clark also called Cambodia, "*the most successful communist country.*"

49 Clark said he and McNamara left Pattaya, Thailand, on April 18, 1978, and sighted an island off Cambodia two days later which they photographed from a distance. A Cambodian gunboat which he described as a converted wooden fishing boat with a 20mm cannon and a machine gun then approached them and opened fire. Clark said, "*I thought this was a pirate boat and fired about 15 rounds from my revolver and Lance's automatic, hoping they might go away. The Cambodian boat shot at us with the 20mm cannon and my boat was hit. I stopped, and the Cambodian forces caught me.*" This ended his "*intelligence mission.*" He was to have received \$700,000 and McNamara \$400,000. He concluded, "*As to Cambodia, the CIA will keep on bringing its agents of kinds to spy upon it.*"

A copy of the final page of Clark's "*confession*" is posted on a wall in Tuol Sleng beneath a picture of a handsome dark haired man with cleanshaven features. On another wall in another room a different picture looms. It shows, from the bridge of the nose down, an emaciated body of a man with a black beard, pale skin and broad shoulders. The facial features which can be seen appear to be those of the man in the picture above Clark's confession.

In the SPIRIT of Litigation by Sandy McLeod

Who is responsible for loss of life at sea? In a long and involved court case which is still not over, a jury has ruled in one direction and the judge has set aside the verdict. The plaintiffs have appealed and the judge has granted a new trial based on a motion by the defense. It will likely be years before a final decision is made, but when it is the impact

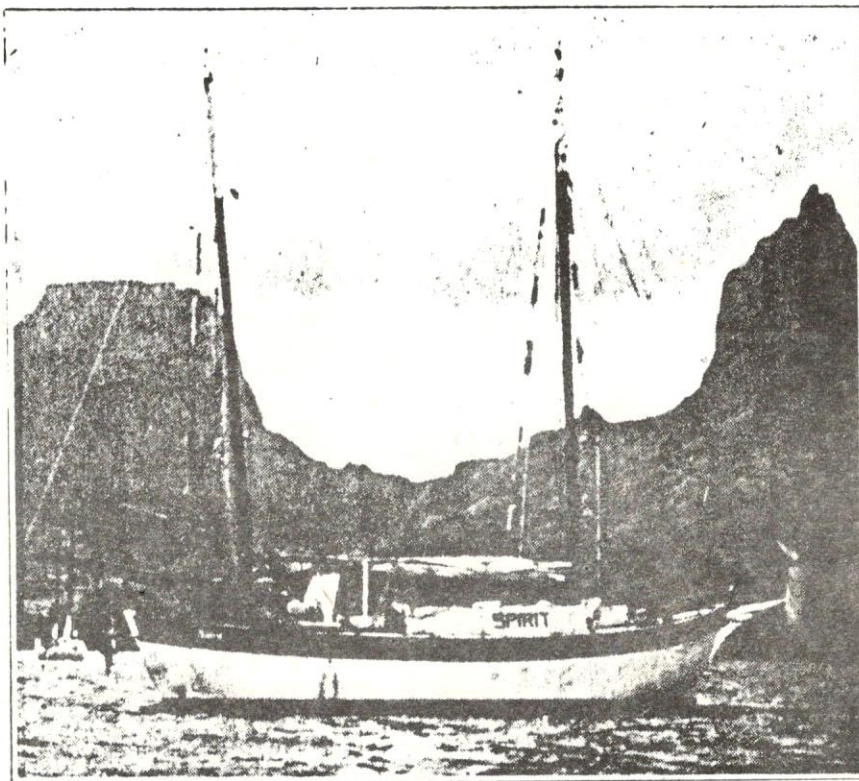


SPIRIT at Ahe

will be felt by all offshore sailors.

SPIRIT, a 42 foot ketch bound for its home port of San Francisco from Honolulu with a crew of five (among them two women who had no previous sailing experience), sank 13 days out of Honolulu on September 27, 1976. The cause of the well-found craft going down has never been determined. Various hypotheses have been advanced but after a lengthy investigation the Coast Guard concluded that what happened will probably never be known but that *SPIRIT* may have hit a submerged object.

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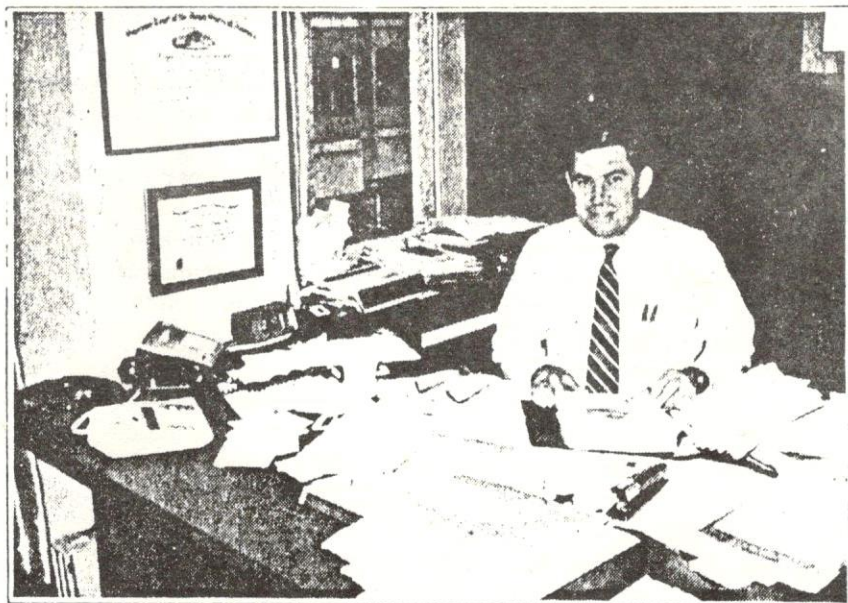
SPIRIT at Anchor

The crew disembarked safely into two Avon liferafts but drifted apart. On October 18, 22 days after *SPIRIT* sank, a freighter picked up crewmembers on one of the liferafts. Both were still alive. Unfortunately, two crewmembers on the second raft were not so fortunate. One man had died two days earlier and the woman died the same day the first raft was spotted. The third crewmember on the second raft endured and was rescued 28 days after *SPIRIT* sank.

In the fall of 1977 two sets of lawsuits were filed on behalf of the surviving woman and by the estate of the deceased woman. One suit was against the owners of *SPIRIT*, who were not aboard during the voyage, and the other against virtually everyone and every company that had supplied products or had done work on the ketch. This included the designer and builder, the previous owner, the yard which had done work on the boat, the surveyor who had surveyed the vessel almost three years before, the installers of a new galley and a diesel engine, the owner of one of the liferafts which was being carried as cargo on *SPIRIT* (unknown to him), Avon Company, and the company which packed one of the rafts, as well as several others.

Each defendant was named for having supplied a defective product or having done negligent work which proximately caused injury and death. Incidentally, none of these allegations were supported by the Coast Guard investigation. None of the other crewmembers, or their survivors, filed suits.

After considerable work on the part of both sides, the suit against the owners of *SPIRIT* was settled out of court. The surviving woman received \$32,500 and the estate \$37,500. The plaintiffs settled with the packer of the liferaft for \$250. The other suits were dropped, save one.



Defense Attorney, Douglas Moore, Jr.

With Avon as defendant, the case went to trial before a jury made up of 12 non-sailors in San Francisco. The decision to try the case before a jury was made by the plaintiffs, who paid extra fees to do so. It was money well spent as the jury, to a large degree because of the nature of the judge's instructions and California case law which precludes comparisons between products, held for the plaintiffs in a 10-2 verdict. A 9-3 vote is sufficient to win such a case and an 8-4 vote is a hung jury.

The jury then retired to determine the settlement and after 2½ days awarded a total of \$120,000 to be paid by Avon, \$75,000 to the estate and the balance to the survivor. The judge then "laid-off" \$70,000 of that award, which was the amount the plaintiffs received from the owners of *SPIRIT*.

The decision of the jury caused great reverberations, particularly in the Bay Area. In a lengthy and detailed article on the case, "*Latitude 38*" commented, "*nobody is forced to go to sea in a small boat... Those who decide to pursue these activities cannot be ignorant of the inherent risks, no matter how diligent the precautions that have been taken. That's adventure. That's life. People are simply going to have to take responsibility for their decisions, rather than cry 'no fair' and prevent others from having the opportunity they had.*"

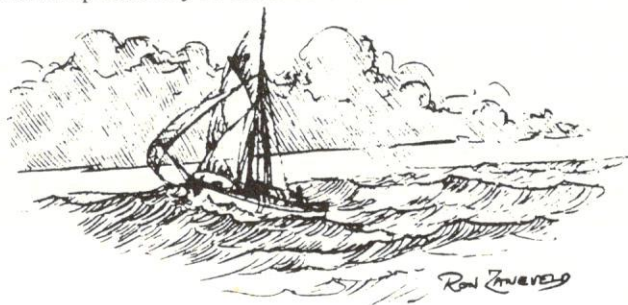
The loss of *SPIRIT* and of the lives of two of its crewmembers were tragedies. Unfortunately, the human factor may not be the most important aspect of this case. After the award of damages from Avon, and the subsequent reduction of the sum by the judge, the attorney for the defense filed two motions with the court. The first was for a "*judgement notwithstanding the verdict*" which in essence asks the judge to overturn the jury's verdict. Such motions are rarely successful so the defense also asked for a new trial.

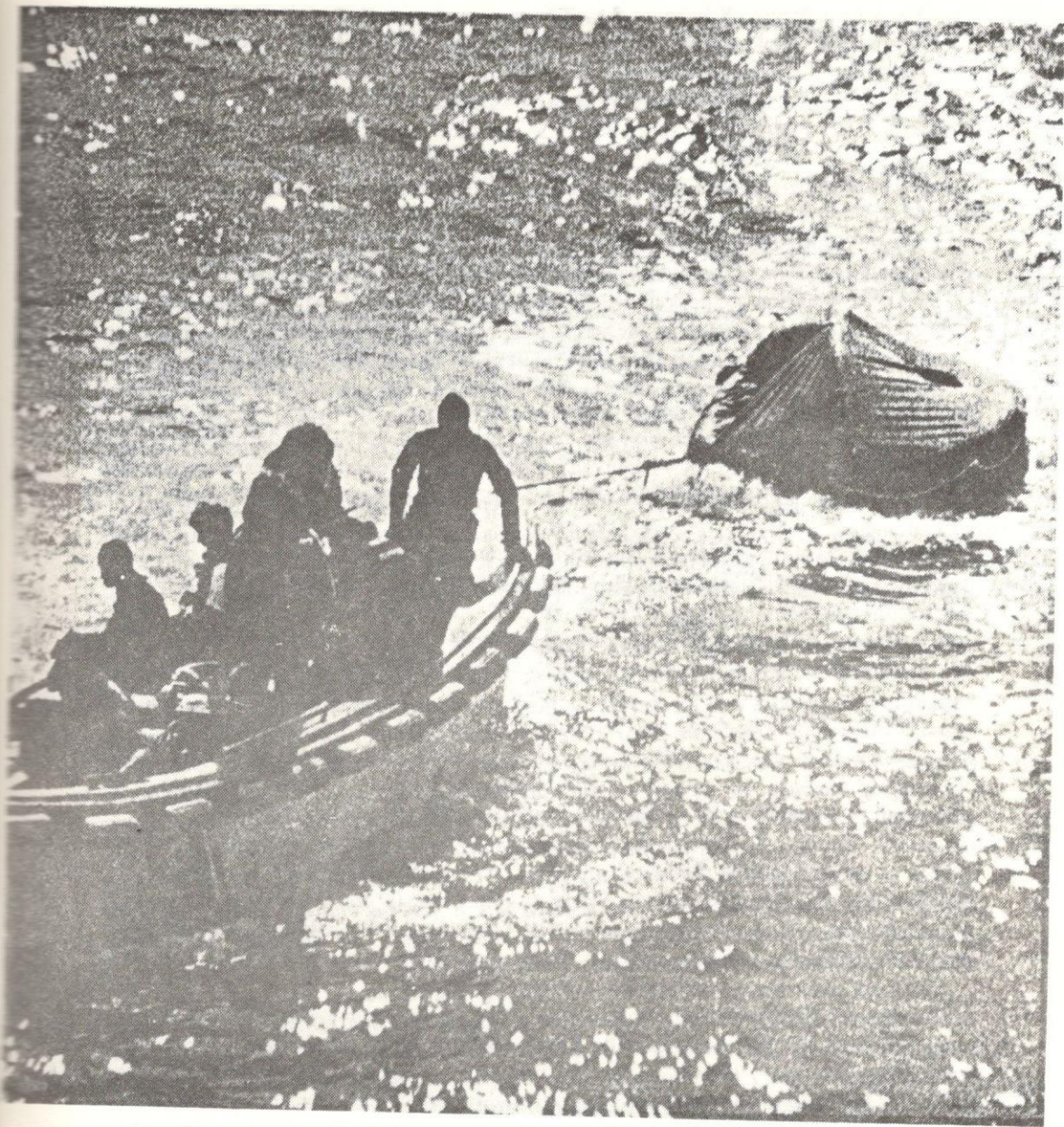
On December 15, 1980, the trial judge both overturned the jury's verdict and granted a new trial. Of course, had the defense known the judge was inclined to overturn the verdict they would not have also asked for a new trial but that is where the situation now stands. The plaintiffs have filed with the Court of Appeals and a long and expensive process is now under way. It is estimated that it will take two years before a decision is finally made.

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Why did the judge act as he did? Basically he felt that there was no evidence that the rafts were defective in design or manufacture; that there is no evidence that it is even proper to put an EPIRB in a liferaft (a major contention of the plaintiffs); that he himself had erred in giving instructions to the jury; and because the verdict of the jury "*was prompted out of sympathy*" for the plaintiffs. The judge also ordered that any monetary judgement granted in the future must have the \$70,000 out of court settlement with *SPIRIT*'s owners deducted.

Whatever the final outcome of the *SPIRIT* case, the potential for wideranging repercussions is great. The jury has indicated that a certain responsibility lies with the owners of a vessel, whether or not they are aboard. The jury, if not the judge, also indicated a responsibility on the part of virtually anyone connected with a vessel, in any capacity whatsoever. What they did not indicate, and what is an equally hard question, is what are the responsibilities of those who choose to sail offshore in the first place. Do they not have the responsibility of their own actions and decisions too?





U.S. Coast Guard Cutter CAMPBELL's small boat tows SPIRIT's raft with Bruce Collins aboard.

"That ugly looking monster had me more worried than the huge whale which followed me once at about 10m distance. His back was wider than any boat's."

Good-by, land; onward we go. Again sleeping, reading, checking the charts, etc., preparing his meals on his small methylated spirit stove. *"Since I had no 'fridge, I could not keep any perishable foodstuffs. Mostly I had rice and tinned meat and vegetables. I kept dreaming about fresh bread. I ate so much rice, I felt like a Chinese."*

"And how did you cook the rice?" I asked.

"It's simple," said Giora. *"A cup of rice, rinsed in the sea water, then you fry the rice in a bit of oil and add 2 cups of sea water. Cook on a small fire."*

"I also had some tinned fruit. By the way, I was never short of drinking water. Being an Eilati, I know too well one can survive for a while without food, but water is more important. But I did have a craving for a cool beer, oh, any kind of cold drink ..."

"So I could hardly wait to get to Seychelles Islands. I navigated to the main island, Mahe. You know, for the first time in my life I was aware of the beauty of colors. The deep green of palms, the different shades of colors in the vegetation. The smell of earth. We must be taking those things for granted ... Well, I thoroughly enjoyed myself there. By the way, there were quite a few topless sunworshippers there ... Unfortunately I had a stupid idea like visiting one of the smaller islands. It was a late afternoon and I anchored on the leeward side of an exotic looking island, little realizing that I was about to face the biggest crisis of my whole trip. Suddenly I realized that the anchor was dragging. Without an engine I was helpless. Like a magnet the land reached for BEN GUY and seconds later we were aground. The natives were really nice and did their best to push us back into the sea. Nothing. Anxiously I waited for high tide, but it was not enough. We tried to push a little bit more. The boat would not move one inch. I was completely exhausted and terribly depressed. I said to myself: Well, this is it. The end. The inspection early next morning showed the sides of the boat to be dented. BEN GUY was rocking painfully like a trapped animal. Later came some natives with a motor boat, put sinkers and the anchor in deep water and started working the boat winch. After some 4 hours of pushing and heaving, the boat suddenly moved and came free. Oh boy, was I happy. I will never be able to describe how I felt seeing BEN GUY afloat again. That the sailing was not over yet ..."

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"I decided to get on with the journey, instead of trying another island. Inside the boat was a terrible mess from the rocking, the bag of cinnamon bark I got on the main island was all over the floor."

"When I reached the equator, the winds went somewhere else. I was barely moving. A curious shark kept me company, an almost welcome diversion from the boredom. I made a big dent into the 1½m high stock of pocket books. I had a tape recorder, but I could not recharge the batteries, as I had to save the power for the navigation lights. It was terribly boring, sitting on the equator waiting for the winds to return. If God was watching me, he must have thought a couple of times that I was going crazy. You know why? To break the boredom, I kept recalling something I saw on the Cocos Island: In the middle of this barely inhabited island stood a blue portable toilet. A toilet. You simply can't imagine how grotesque it looked. A blue toilet sitting there in all its glory amongst the coconut trees. I was told that it had been placed there for the use of a UN delegation,

which visited the island for half a day, to make sure that the few Malays there aren't oppressed by the Australians. I was so sorry that my camera had been soaked and I could not take a picture."

"Five days later the wind returned and in front of me was the longest stretch of sailing, before I would put feet on land again. A few big ships passed by. Some of them tried to get closer to me; perhaps they thought I was in trouble, or maybe just curious. Had I had an engine, it would have been a different matter. But close contact to my boat spelled danger to my mast, so I had to move away from them."

"Giora, was there a time when you were really afraid?" The answer comes without hesitation. "Not only once." His voice is so soft, I can hardly hear. "At nights. When there was no wind and the ships were heading in my way. Then I was really scared. All I could do was pray they would see me on their radar."

It took a long, long month to reach the next destination -- Aden. Giora describes Aden as a depressing place. Plenty of shops from the days of British glory, but only a handful of them open. But plenty of red stars everywhere. It was in this port that he heard for the first time of the war between Iraq and Iran. Now he understood the heavy traffic on the sea lanes.

And finally -- Port Saud, the last port before Eilat; the last stop before reaching home. "I liked it better than Aden. The natives, very dark, tall and skinny, primitive, and sort of helpless, were very friendly in a dignified way. You don't get any special tourist or white man treatment there; kids don't beg; no one is forcing himself on you. And it was plentiful compared to Aden. Basic provisions are quite cheap. The town is exactly as the British left it, nothing changed, but everything rapidly deteriorating." Tired of the heat, Giora decided he could afford a short rest in a mountain resort. "It was fantastic, the place and buildings as British as you felt only existed in Agatha Christie books, unbelievable."

From Port Saud he recalls another story, which only now he finds amusing. "The harbor fees were officially 5 Sudan pounds. But they insisted on demanding hard currency of 10 dollars. I kept pointing out, that 10 dollar is already 7 Sudan pounds. I was really annoyed. But they would not listen. It was 10 dollars and no change."

"The Red Sea was not very friendly to me. Exactly opposite from welcoming. Almost all the time there was a strong north wind blowing and I had to zig-zag all the way, which slowed the sailing a great deal. I was thinking about my parents. It was a whole month later than I had calculated. But I was catching plenty of fish. That was lucky, because all I had left was rice and mustard spread. One early morning the boat was attacked by a 2m long sword fish. It tried to pry a chunk out of BEN GUY a few times before it gave up. I have read about them doing this but didn't believe it."

"How much money did you have left after you arrived in Eilat?" I asked, wondering about those rice and mustard meals.

"Fifty dollars. Perhaps I should mention that my log was spoiled in the middle of the trip, so from then on I could only guess how fast I was going, and when I would arrive where. Also, after the first 2 weeks I lost the compass light, so I had to steer at night by the stars."

Giora stretches in his chair. I can see there is still tiredness in this lean young body.

"Giora, I still have 3 questions. Would you do it again? And what are your plans for the future?"

"I don't know. Perhaps ... But definitely not without a reliable engine and decent instruments. What are my plans? First I am going North to see my sister and brother, friends ... Then I will fix BEN GUY and take my parents to Greek Islands in the spring. Didn't you say you had three questions?"

"Yes. How come you didn't return back to Australia when the engine konked out?"

Giora's voice is clear and strong. He leans forward to me and says: *"I will tell you something. Right from the start I was committed. I was on a point of no return to Australia. Even when there were moments that I was discouraged. And here I am. I made it."*

Editor's note: At last report, Giora was in Tel Aviv, writing a book about his voyage.

Charles Luppens and Golden Hind 31's

New member and Golden Hind owner **Charles Luppens** is interested in corresponding with other members who own Golden Hind 31's. His address is: Charles Luppens, #1 Palomino Lane, Rolling Hills Estates, CA 90274, U.S.A.

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Cruising Facilities in Singapore

Steve Hinge, who was stationed in Singapore for several years but who has now returned to his home in New Zealand, wrote us recently describing the cruising facilities in Singapore as of mid-1981. He said:

As a discerning cruising yachtsman, I was not impressed with cruising facilities available to any overseas yacht. Facilities are found at three locations:

1. Changi Yacht Club (more formally known as Republic Of Singapore Yacht Club or RSYC) has the best range of facilities, provided one is prepared to pay the excess club fees. There are, of course, liquid and dry refreshments, showers, a slipway, and plenty of moorings. I do not favour the location of the club moorings, as I feel they are too exposed to the elements. And, being located inside the eastern tip of Singapore, they are also subjected to the wash generated by the numerous supertankers which ply up the Jonre Straits. I cannot remember the cost of moorings, club fees or slipping, however the whole arrangement is not geared up for cruising yachts. The emphasis is on catering for the weekend racing yachtsman. I do not recommend the RSYC for cruising yachts.

2. Tanjong Irau Marina offers the best facilities for cruising yachts. It is located approximately 10 nm up the Johore Straits from RSYC. The current cost of a mooring there is S\$150 per month which also includes a passenger ferry service to your yacht. Facilities ashore include a restaurant offering French and Chinese/Malay dishes, water, liquid refreshments, and showers in the typically spartan Chinese style. This marina is owned by a Chinese gentleman named **Ongsay Kuan**. He offers an ordering service for

ship chanklery through his own shop on Orchard Road. BEWARE! His prices are very excessive and merchandise often takes considerable time to arrive. He is not popular with the yachties due to his apparent "rip off" nature. I feel that cruising yachts are better advised to order marine related parts through: (a) Motion Smith Marine situated at Marina House, Shenton Way, Singapore, 0207, or (b) Million Miles Marine Scientific Instruments Co, situated at 341 Syed Alwi Road, Block (6), Singapore 8.

It should also be noted that slipping facilities are not available at Tanjong Irau Marina. I feel that it is better protected from the monsoon winds than RSYC. It should be noted that about 95% of all overseas cruising yachts moor here.

3. A lesser known marina is located about 3 nm further upstream from Tanjong Irau Marina. It costs S\$50 per month for a mooring but no ferry service, slipping, or liquid refreshments and dry facilities are available. Absolutions and showers are available. At the time of writing, only 3 cruising yachts were moored there.

Singapore does not cater to the cruising yachts as well as I had hoped, but I still recommend Tanjong Irau Marina in spite of its spartan facilities. If I were to return, I would increase my boot-topping by six inches as passing ships really create rough seas, causing the polluted waters to gove one's vessel unsightly "tidemarks".

Sea Monsters, Ghost Ships and Other Hallucinations

by Richard Epstein

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People who challenge the oceans alone face considerable risks. Some of these risks are necessary, and are perhaps part of the reason for sailing alone. The unexpected hurricane, the equipment that won't work, the whale that smacks the hull without warning, the days becalmed, the unpredictable events of cruising – these, the lone voyager faces with courage and skill and, hopefully, conquers. But, the wise man minimizes risks: he brings good navigating equipment, repair kits, and supplies on board, and he carefully checks and rechecks everything before he sails. Until now, that was basically all the lone sailor could do to ensure his survival, or at least to increase the odds in his favor.

However, over the last few years a good deal of research has been done in the field of psychology, particularly in terms of the kinds of hallucinatory episodes that may afflict normal, healthy, people; this research can be used to further ensure the success of the lone sailor. In an earlier article ("*Imaginary Pirates and Other Phantoms*"), I suggested that given the fatigue resulting from the need to stay awake for long periods of time on board ship, the transition from one environment to another, and the isolation that many lone sailors experience, it would be surprising if normal, healthy, lone sailors did not occasionally experience hallucinations. I also suggested that some of the mysterious visions of sea monsters reported by sailors, and the strange disappearances of ships and sailors at sea, may have been the result of hallucinatory events. Most importantly, since research specifically on hallucinations at sea is limited, I asked readers to send descriptions of hallucinations they have experienced. That request was reprinted in a

United States Navy publication, in *The Spray*, as well as in a number of other journals. I received fascinating replies from American, English, Canadian, and Australian sailors, describing not only hallucinatory events but also describing specific techniques for preventing and handling hallucinations.

These responses confirmed that hallucinations do occur to normal, healthy, sailors at sea and, surprisingly, that they occur to both lone sailors and to mariners sailing with a crew. I would like to share several of these descriptions of hallucinatory events, and the conditions existing just prior to the hallucinations.

One Coast Guard officer wrote that while he was returning to port aboard a large Coast Guard cutter he saw a "*long, grassy, avenue*" stretched out in front of him on the ocean, with "*giant trees on either side, their branches touching overhead.*" Fortunately, the hallucination -- which lasted about 15 minutes -- did not result in tragedy, since the officer realized that what he was seeing was probably not real, and so kept to his original compass course. The officer had just experienced three days of storms during which he had not slept because of his duties.

The events preceding this hallucination tend to confirm that hallucinations can be caused on board ship by fatigue and lack of sleep.

Another respondent, an experienced amateur sailor, reported that he suffered hallucinations while sailing a small sloop across the English Channel to France. He had been sailing for a number of hours in rough seas, and he had taken several "*anti-seasick*" and "*anti-drowsiness*" pills during the night. In the morning -- several miles off the coast of France -- he took an additional "*anti-drowsiness*" pill. A few minutes later, he saw a "*flotilla of yachts directly ahead, tied bow and stern to mooring stakes.*" He changed course to go around the flotilla, and it disappeared as he passed it. Several hours later -- still off the coast of France -- he saw a "*bag of peanuts or candy ... on the lee side of the cockpit, while he ... sat on the windward side ... holding the tiller.*" He got up without his safety harness and "*stumbled about*", searching for the bag. Fortunately, he soon realized that he was in danger and that there was no candy, and went back to steering. Although there was another sailor aboard, he was not awakened.

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There are certainly occasions on which a sailor must stay awake even though he is tired, but staying awake beyond the point of exhaustion may result in hallucinatory episodes that, in some cases, can be life-threatening. The hallucination involving the bag of peanuts on deck might easily have led to a "*man-overboard*" situation. If it had, we would have then been presented with the classic sea mystery: the unexplained disappearance of a sailor from a ship that was in good sailing condition.

Another respondent, now an experienced sailor who has sailed the Atlantic, suffered a series of hallucinations on his first lengthy solo voyage. Midway across the ocean he saw a bridge and heard people talking. As a result of this and similar episodes, he found it difficult to navigate properly, and he nearly hit another ship.

Here, again, the hallucination followed exhaustion. The sailor had steered for three days without sleep or food. Interestingly, he reports that he has a suggestion regarding the prevention of hallucinations at sea (more of that later), and has since made many long solo sea voyages without experiencing hallucinations.

These descriptions of hallucinatory events at sea are typical of the letters received.

Each involved a situation in which a normal, healthy, person experienced a temporary hallucinatory event at sea. In each case, the event appeared to precipitated by lack of sleep and exhaustion, possibly exacerbated by the disorientation resulting from the difficult adjustment to life aboard ship.

As several letters pointed out, however, some people can sail thousands of miles, experience exhaustion numerous times, and yet never have an hallucination. It may be that some people are more susceptible to hallucinations than others, perhaps in the same way that some people are more susceptible to the flu or to colds. Most psychological research studies do indicate through, that given the right combination of sensory deprivation, exhaustion, isolation, and disorientation, we are all probably subject to the possibility of intense hallucinatory experiences. Given this, the important questions are, first, how to prevent hallucinations from occurring, and second, how to react if an hallucination does occur.

A number of readers wrote about the question of prevention. Many respondents, including the sailor mentioned earlier (the one who had seen the bridge in mid-ocean), expressed the feeling that the way to prevent hallucinations at sea is to establish routines and to "*pace yourself*", thus ensuring sufficient time for sleep on most days. This appears to correspond well with the available research, which indicates that lack of sleep may, in itself, be sufficient to produce hallucinatory experiences, and that adequate sleep helps to prevent the conditions that set the stage for such episodes.

Some research suggests, by the way, that sleep is not sufficient to prevent hallucinations unless the sleep includes at least one period of dreaming. Dreams seem to be essential to mental health, even when we don't remember dreaming, and seem particularly important in preventing hallucinations. To allow for dreams, most people seem to require a long period of uninterrupted sleep; the occasional naps that some sailors rely on do not always provide sufficient "*dream sleep*".

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One of the most interesting suggestions I received was that one way to prevent hallucinations is to be aware of the point at which hallucinations are likely and then, when that point is reached, to quickly get to sleep before the hallucinatory stage sets in. One reader suggested a "*test*" to determine when the "*moment to get to sleep*" had arrived. He proposed that a sailor planning a voyage answer the following questions several days before leaving port, and that he time the number of seconds needed to obtain the correct answers:

1. What is your name and address?
2. What is your telephone number?
3. Add up several columns of numbers (chosen at random).

Then, he advises, the sailor should time his answers to the same question on his third day at sea. He suggests that the time difference will be enormous, in spite of the usual periods of sleep and rest. When the time difference becomes even greater, it is time to get to sleep for a full eight hours.

If this "*test*" (or similar ones devised by other sailors) does indicate a large time difference in doing these and other mental tasks, and if this decrease in the ability to perform mental tasks is related to the onset of hallucinations, then it may be possible to determine the point at which hallucinations are most likely to occur, and thus to know

when immediate sleep is imperative.

There are obviously a lot of "Ifs" here since this is speculation, not fact. However, any reasonable approach that might lessen the dangers posed by hallucinations at sea is worth exploring.

I have read a number of other suggestions regarding the prevention of hallucinations. One frequent proposal is that physical exercise might keep sailors in good psychological shape. This is interesting, since there is clearly a direct relationship between mind and body. A daily exercise program aboard ship may have positive effects on physical well-being and may perhaps stimulate mental abilities. Perhaps a program of daily shipboard mental exercises can be devised, as well, that will directly stimulate the ability to perform tasks of memory and concentration.

Another suggestion that has been made in reference to the prevention of hallucinations involves nutrition. I do not know of any specific research that relates nutrition directly to hallucinations in normal people, nor do I know of any research regarding what foods are eaten (and in what quantities) by lone sailors, but this certainly bears examination. "Folk culture" tells us that certain foods are "brain foods", and should be eaten daily to ensure clear thinking. I do not know if this is so, but there appears to be some evidence for this view. One transatlantic sailor -- who has personally experienced severe hallucinations at sea -- has suggested that drinking milk is important to the maintenance of clear thinking. Perhaps there are certain foods that sailors ought to consume to help prevent hallucinations, just as sailors have learned to eat various foods to prevent scurvy.

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One obvious step in ensuring that hallucinations and health problems do not occur is to eat a well-balanced diet aboard ship whenever possible. In addition, it is safer to try out new foods, and new drugs, in port, before sailing.

Since sailors rightfully fear a medical catastrophe aboard ship -- appendicitis, accidental injury, disease -- they often bring a well-stocked first-aid kit on board, including a variety of drugs. Although drugs can be extremely useful, certain ones, may produce devastating side effects. This is particularly the case when drugs are combined with alcohol.

Specific foods have also been identified by sailors as the cause of hallucinations. Joshua Slocum, for example, reported that he suffered severe hallucinations as a result of eating a particular variety of plums and white cheese.

Two additional suggestions regarding the prevention of hallucinations require discussion. First, at least one researcher has suggested that since hallucinations may be caused in normal people by sensory deprivation, hallucinations might be prevented on board ship by keeping busy, and by doing a wide variety of tasks that tend to be stimulating rather than monotonous. I am not certain, however, if this conflicts with the advice of readers regarding establishing routines and procedures (discussed earlier) and, if it does, which approach is of greater value.

Second, I suggested in an earlier article that the regular use of taped messages, music, and the radio transmitter by lone sailors might reduce feelings of isolation and loneliness. One very experienced sailor, however, wrote in response that he felt the use of a tape recorder with pre-recorded taped messages might "accent the loneliness", and that radio

transmissions might produce feelings of "*acute self-pity and guilt*". I am not certain if this feeling is general or not since this is the only response I received directed to this particular issue. It may be that whether one feels better or worse after using the transmitter or playing pre-recorded tapes depends on the person, and on the point in the voyage that they are used.

If, despite precautions, a hallucination does occur at sea, the best procedure may be to avoid panic (since panic may interfere with the thinking process) by remembering that most hallucinations of this kind are temporary, to immediately put on a safety harness, to avoid making decision regarding course changes (unless you are convinced that the safety of the ship is really at stake), and to furl the sails, set the lanterns, and get to sleep for at least eight hours.

Even a temporary, mild, hallucinatory episode can be extremely dangerous, particularly when sailing alone. Hallucinations can make navigation difficult, if not impossible, can cause a sailor to change course and head in a useless or even dangerous direction in order to pursue a phantom ship or to avoid hitting a phantom bridge, and can cause one to fall overboard while stumbling about around the ship in pursuit of imaginary people or imaginary food. Given this, failing to take reasonable precautions to prevent hallucinations seems as inappropriate as failing to check the halyards or the radio transmitter before departure. Sailing alone across vast stretches of open water is challenge enough; the wise man does what he can to tip the odds in his favor before he goes.

Richard Epstein

P.O. Box 36

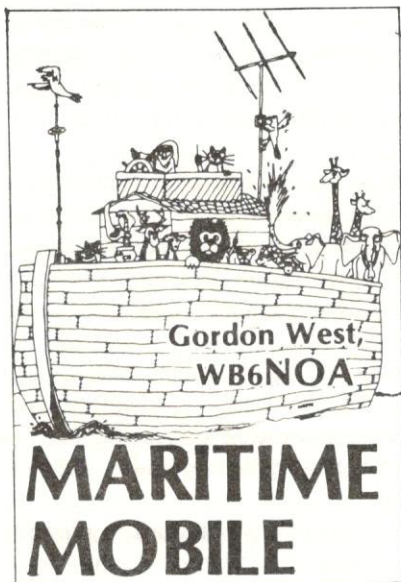
Oakland, New Jersey 07436

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Author's note:

I would like to thank the many sailors who took the time to send first hand descriptions of hallucinatory events at sea, or to send suggestions regarding preventing and dealing with such occurrences.





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There's good news and bad news this month for all you maritime mobile operators. The good news is that there are plenty of maritime mobile nets to satisfy your cruising communications needs. The bad news for the bootlegger is that the net operators are making an all-out effort to weed out mariners using their system who are not properly licensed.

"Who, me? Not licensed? I have a Panamanian call sign that . . ." "I use my Technician Class license on HF because I am in international waters and the FCC doesn't cover . . ." "These call signs were authorized by my friend who no longer uses his General Class . . ." "Good ol' Jerry died about six months ago and I am sure he would appreciate someone keeping his call sign active . . ." Yes, YOU!

CLAMMARO is going to get you. CLAMMARO stands for the Committee for Legal Maritime Mobile Amateur Radio Operations. Whew! A mouthful, but also a handful of concerned operators to keep our ham bands clean of marine bootleggers.

Let's face it, mariners are the worst abusers of the ham bands and marine nets.

"Our records and experience continue to indicate that 25 to 30 percent of all maritime mobiles checking into the nets

are unlicensed or underlicensed," comments Ramsey Armstrong, W6ELU. "It is our hope that marine net operators should be students of both International ITU regulations, and FCC regulations. He should also utilize CLAMMARO reports to supplement his studies of the regulations, and to report questionable call signs," adds the new CLAMMARO Chairman, Bill Hines, KA6HGU.

If you are presently using the maritime net to assist you in the process of patching in phone calls, double-check your license. If you do not hold a General Class license or higher, issued by the Federal Communications Commission (FCC), chances are your operation will be questioned publicly, right on the air when you attempt your next phone call. Needless to say, with all the hundreds of fellow marine amateurs listening in, it's going to be a bit embarrassing.

No, folks, CLAMMARO doesn't go by the Callbook. Callbooks are simply not up to date. Your local FCC field office contains up-to-date microfiche data that gives all the low-down on recent upgrades and license changes.

But let's not go overboard on this subject. If you have a true emergency aboard, you may use any means to call out for help and assistance. This would include Amateur Radio and any Amateur Radio net.

There is nothing illegal about having an operational piece of Amateur Radio equipment aboard, even though you don't have a license. There is no prohibition against someone installing an Amateur Radio aboard, even though you don't have a license. There is nothing illegal about you monitoring the maritime mobile net to get a "feel" of how they operate in case of an emergency.

And by God, if an emergency should strike, get on that maritime net and start calling out for help. No one will turn you down.

Maritime Mobile Nets

By Gordon West, WB6NOA

(In order by time)

| GMT Starting time | Frequency in kHz | Net name — area covered | Net control |
|-------------------|------------------|---|-------------|
| 0230 | 14313 | Seafarers Net - Pacific | WA6ZEL |
| 0530 | 14314 | (20M) Pacific Maritime Net-Pacific | KH6HEO |
| 0630 | 14320 | S. African Maritime Net - Atlantic, Caribbean | ZS5MU |
| 0700 + | 14313 | Int'l Maritime Net - Atlantic, Mediterranean | DK0SS |
| 1700 | | | |
| 0715 | 3820 | Bay of Islands Net - South Pacific, Australia | ZL1BKB |
| 0800 | 14315 | Pac Interisland Net - Pacific | KH6FV |
| 0800 + | 14303 | U.K. Maritime Net - Atlantic, Mediterranean, Caribbean | G8OS |
| 1800 | | | |
| 1030 | 3808 | Caribbean WX Net - Caribbean | VP2AYL |
| 1030 | 14265 | Barbados Cruising Net - Atlantic, Caribbean | 8P6JH |
| 1130 | 14320 | S. African M/M Net - Atlantic, Indian Ocean | PY1ZAK |
| 1200 | 7115 | Caribbean M/M Net - Caribbean | J61DZ |
| 1200 | 14320 | SEA Net - Southeast Asia, Indian Ocean, Australia | WB8JDR |
| 1245 | 21400 | Trans-Atlantic M/M Net - Atlantic, Mediterranean, Caribbean | WA1WTP |
| 1300 | 7268 | Waterway Net - US East Coast, Caribbean | WD4NLC |
| 1530 | 14295 | Cates Navy - Mexico Coast | WA6WGN |
| 1600 | 14313 | Coast Guard M/M Net - Atlantic, Caribbean, USA | K4CG |
| 1700 | 14340 | California-Hawaii Net - South Pacific | K6VDV |
| 1800 | 14313 | M/M Service Net - Pacific | KB5YX |
| 1800 | 7197 | South Pacific Sailing Net - South Pacific | WA2CPX |
| 1900 | 14340 | Manana Net - Mexico Coast | K6IKI |
| 1900 | 7285 | Shamaru Net - Hawaii | KH6SFF |
| 1900 | 21390 | Halo Net - North/South America | WB4YBA |
| 1930 | 14305 | Confusion Net - Pacific | W7GYR |
| 2100 | 21390 | Inter-American Traffic Net - North/South America | WB4ABW |
| 2300 | 21404 | (15M) Pacific Maritime Net - Pacific, Caribbean | KH6CO |
| 2400 | 14320 | SEA M/M Net - Asia, Japan, Australia | VS6BE |

Each net meets daily, except some not on weekends. The frequency 14.313 MHz is the unofficial maritime mobile international calling frequency in case of distress. There are usually fellow maritime mobile operators that guard this channel 24 hours a day.



Port Captains

From **Frank Mann** we heard: *"My designation as a Port Captain is a reprise of my last Coast Guard assignment -- When I retired, I was Captain of the Port of Buffalo, New York. Incidentally, on future listings it might be helpful to anyone contemplating a look-in with us to indicate that we are located just off the Rappahannock River. Our home is on Myer Creek, a tributary of the Corrotoman River which flows into the Rappahannock which flows into the lower Chesapeake Bay which flows into the Atlantic. We're twelve miles from the Bay and two miles from the Rappahannock. My first call as Port Captain came in a few weeks back. Alan Springer telephoned from Toronto, Canada. He was looking for a place on the Chesapeake Bay to keep his boat during the coming winter. I recommended a marina in Irvington. He called but made no definite decision, pending further developments."*

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"Unfortunately, just as your Port Captain program gains headway, I must inform you that I'll be out of town until late May, 1982," wrote our Key West-Port Captain, **Edmund Giles**. *"I'm leaving for Bremerton, WA to join the commissioning crew of the USS TAURUS (PHM 3), the US Navy's newest patrol combat and missile hydrofoil. My postoffice box in Key West, Florida remains the same during my absence and any requests for assistance received through the mail will be referred to a fellow member of the Key West Sailing Club."*

This is how the Port Captain program works. When planning a cruise, you can write to the Port Captains in areas you wish to visit asking questions about their locality. When visiting the port, Port Captains will hold mail for your arrival and then forward or return to sender any late arriving mail as you wish. Mail to be held for you should be addressed as follows:

| | |
|------------------------------------|--------------------------------------|
| Your Name (estimated arrival date) | (e.g.) Joshua Slocum (Oct. 10, 1896) |
| "Vessel Name" | "SPRAY" |
| c/o Port Captain Name | c/o Guenter Woyde |
| Port Captain Mailing | 20 Essington Crescent |
| Address | Sylvania 2224, Australia |

As residents of the area, Port Captains can direct visiting members to the various services and commercial enterprises available to yachtsmen as well as other attractions of the locality. And finally, Port Captains can help members keep in touch with the Slocum Society home base.

Any members situated in an area where cruising people may call, are urged to contact the secretary if they wish to volunteer their services as Port Captain. Here is the listing:

| COUNTRY | Port Captain Name |
|--|---|
| District/City | Mailing Address |
| | Telephone Number |
| AUSTRALIA New South Wales/Sydney | Guenter H. Woyde 20 Essington Crescent; Sylvania 2224, Australia 522-8978 |
| CANADA British Columbia/Victoria | Philip Hollywood & Sandra Hill 3134 Mars St.; Victoria, B.C. V8X 1B8, Canada (604) 382-8629 |
| ENGLAND Cornwall/Truro | Rev. Peter Rose The Vicarage; Feock; Truro, Cornwall, England Devon 862208 |
| FINLAND Helsinki | Tom Tigerstedt Pohjoisranta 12-A-5; 00170 Helsinki, Finland 90-632113 or 90-822148 – 925-66611 during summer months |
| NEW ZEALAND North Island/Tokoroa (inland) | Peter Dickason 1 Kea Place; Tokoroa, New Zealand |
| REPUBLIC OF SOUTH AFRICA Cape Town/Kenwyn | Konrad Eriksen 28 Benghazi Rd.; Kenwyn 7764; Cape Town, RSA Contact through Royal Cape Yacht Club |
| TUNISIA La Marsa Corniche | Luana & Lofti Rebai 8 Rue El Farbi; La Marsa Corniche, Tunisia 272-819 |
| USA Alaska/Kodiak | Lew & Elizabeth Santoro P.O. Box 31, Kodiak, AK, 99615, USA (907) 486-5673 |
| USA California/Los Angeles & Long Beach | Jan & Bill Massey Lighthouse Marina, Berth 205B; Wilmington, CA 90744, USA (213) 834-9595 |
| USA California/San Francisco | Charles J. Hendrickson (b) North Bay Electric Works, Inc. 42 Bay St., San Rafael, CA 94901, USA (h) 555 Larkspur Plaza, No. 6 Larkspur, CA 94939, USA (b) (415) 453-6132; (h) (415) 924-0598 Answering service at business phone no. |
| USA Florida/Miami | Tom & Judy Hodson 2010 N.W. 187th St.; Miami, FL 33056, USA (305) 621-9329 |

- USA**
Florida/Key West
Ed Giles
P.O. Box 4627; Key West, FL 33040, USA
(305) 296-3561, ext. 388, daytime – (305) 296-9184
evenings
- USA**
Maine/Vinalhaven
Gordon MacKenzie
Bridgehouse, Carvers Harbour; Vinalhaven, ME
04683, USA
- USA**
New York/Hudson River
Marshall Winchell
15 Brescia Blvd.; Highland, NY 12528, USA
(914) 691-7606
- USA**
Virginia/Chesapeake Bay
Frank Mann
RFD #2, Box 536; Lancaster, VA 22503, USA
(804) 462-7727
Has dock with minimum draft of 5½ ft. (1.7 m)
at low water.
- USA**
Virginia/Annapolis
Peter Wright
10904 Belmont Blvd.; Lorton, VA 22079, USA
(804) 339-5320
- USA**
Washington State/Port Townsend
Don Holm, Commodore Slocum Society Sailing Club
Cape George Colony; Rt. 3, Box 98; Port Townsend,
WA 98368, USA
(206) 385-2171
- WEST GERMANY**
Hamburg
Peter Kollmorgen
Tinsdaler Heideweg 6, D 2000 Hamburg 56
(040) 81 7863



Bureaucratic Reefs & Shoals



A disagreement over the meaning of the word “haul” in an insurance policy has left Slocum Society members **Jim** and **Annette Innes** of Victoria, Australia with no alternative but to go to court. Jim, a veterinarian, and Annette sold their home in order to buy *CORYPHAENA*, a **Bruce Roberts** version of **Captain Slocum’s SPRAY** made of steel. They hoped to cruise for a few years while someone else looked after Jim’s practice. Then a crane dropped the boat! Quibbling over the meaning of “haul”, the insurance carrier refused to pay for repairs and the Innes’ are hauling them into court. Meanwhile, they have hired professionals for the repair of the vessel while Jim resumes his practice and Annette studies “navigation for yachtsmen” at the Royal Melbourne Institute of Technology. The Innes’ have promised us the details of their legal hassle when it all is settled in the hopes that their troubles, if published, might help others avoid such insurance company loopholes. What they are not looking forward to is spending another cold winter in Melbourne instead of the planned cruise along the Great Barrier Reef.



From the Bookshelf

Books on Celestial Navigation

The best way to select a spouse, vessel or book on celestial navigation would be by comparison between alternatives. Yet, instead, many important decisions are made sequentially by an accept/reject method that is sure to leave an untried field of candidates.

Well, this reviewer can do nothing to aid in your selection of a spouse or vessel, however, perhaps I can shed some light on an intelligent approach to selecting a book from which to learn the mysteries of celestial navigation. Instead of just reviewing books individually, I look at all of the navigation books in the Slocum Society and my own library and compared them on the basis of 26 criteria. The summary of this analysis is shown in the adjoining table.

The books reviewed were:

Sky and Sextant, Practical Celestial Navigation, 2nd Ed., John P. Budlong, Van Nostrand Reinhold Company, New York, 1978.

The Yachtsman's Guide to Celestial Navigation, Stafford Campbell, Ziff-Davis Publishing Co., New York, 1979.

The Yachtsman's Guide to Calculator Navigation, Stafford Campbell, Ziff-Davis Publishing Co., New York, 1980.

Marine Navigation 2, Celestial and Electronic, Richard R. Hobbs, Naval Institute Press, Annapolis, 1974, reprinted 1977.

Navigation the Easy Way, Carl D. Lane and John Montgomery, W.W. Norton & Co., New York, 1949.

Self Contained Celestial Navigation with HO 208, John S. Letcher, Jr., International Marine Publishing Co., Camden, 1977.

Dutton's Navigation & Piloting, 13th Ed., Elbert S. Maloney, Naval Institute Press, Annapolis, 1978.

Primer of Navigation, 6th Ed., George W. Mixter, rev. by Donald McClench and Donald B. Millar, Van Nostrand Reinhold Co., New York, 1979.

Calculator Navigation, Mortimer Rogoff, W.W. Norton & Co., New York, 1979.

Ocean Yacht Navigator, Kenneth Wilkes, David McKay Co. Inc., New York, 1976.

Sail by the Sun & Stars, Walter E. Gleckler, Jim Hollywood, & Neal T. Walker, Passagemakers, 1980.

The criteria used as a basis of comparison were:

1. *Tables recommended.* One of the more important aspects of each book was the recommended set of tables described in the book. There are five sets of tables known to this reviewer to be available to most navigators, however, some of them are now available only through used marine book stores.

These tables are:

a) *HO 249 Vol. II and III* or *AP 3270 Vol. II and III, SIGHT REDUCTION TABLES FOR AIR NAVIGATION* for Lat. 0° - 39° /Decl. 0° - 29° and for Lat. 40° - 80° /Decl. 0° - 29° , respectively (*HO 249 II/III*). This set of precomputed tables offers a quick and dirty solution to the "navigational triangle". Don't let the "air navigation" throw you off. They are useful for yacht navigators shooting any celestial body with declination less than 30° and for latitudes as high as 80° north and south.

b) *HO 249 Vol. I* or *AP 3270 Vol. I, SIGHT REDUCTION TABLES FOR AIR NAVIGATION (SELECTED STARS CH 0249 I)*. This set of precomputed tables offers a similarly quick and dirty solution for star sights. It tells you the best seven stars to shoot from your DR position. Unfortunately each volume is good for only five years.

c) *HO 214, Vol. I* through *IX, TABLES OF COMPUTED ALTITUDE AND AZIMUTH* for Lat. 0° - 9° ; etc. (*HO 214*). This set of precomputed tables, out of print since 1975, was the forerunner of the *HO 229* series and offers comparable accuracy.

d) *HO 229* or *NP 401, Vol. 1 - 6, SIGHT REDUCTION TABLES FOR MARINE NAVIGATION* for Lat. 0° - 15° ; etc. (*HO 229*). This set of precomputed tables replaced *HO 214* and contains some improvement in format and a host of impossible solutions for mariners but which are possible solutions for astronauts (i.e., CHA's between $90 + 270$).

e) *HO 211, DEAD RECKONING ALTITUDE AND AZIMUTH TABLE*, by Ageton (*HO 211*). This set of tables, which consists essentially of log secants and cosecants in a doctored up format, was phased out at the end of 1972 but brought back in private printing. Because of its slim size (only 49 pages), it is very popular with some space conscious navigators. Due to its more complicated procedure, it never has gained much popularity with the majority of the small boat navigators. This book covers any latitude and any declination.

f) *HO 208, NAVIGATION TABLES FOR MARINERS AND AVIATORS*, by Dreisonstock (*HO 208*). This book of logs of various functions is about twice as thick as *HO 211* but offers a somewhat simple procedure. It was discontinued at the end of 1970 but was resurrected in 1977 as the principal table in Letcher's *SELF CONTAINED CELESTIAL NAVIGATION WITH HO 208*, one of the books reviewed. It, also, covers any latitude and any declination.

The next criteria covering the basic format of each book reviewed are:

2. *Problems and answers*. In this largely mathematical science, it was amazing to see the number of "text books" which did not have problems as part of the text.

3. *A Table of Contents* which fully describes each chapter.

4. *An Index* listing key words and phrases from the text.

5. *A list of abbrev.* used in the text.

6. *A complete Glossary* of navigational terms.

The criteria for the special navigational technique discussed in the books:

7. *Latitude by Meridian Passage.*

8. *Longitude by Meridian Passage.*

9. *Latitude by Polaris.*

10. *Back Sight*, i.e., Sextant angles greater than 90° , useful when the celestial body is fairly high above an obscure horizon but when the horizon behind the observers is acceptable.

11. *Perpetual sun almanac*.

12. *Perpetual star almanac*.

13. *Survival or lifeboat navigation*.

14. *High altitude navigation*. Not navigation from high altitudes but navigation when the celestial body's declination is almost the same as the latitude of the observer, i.e., it is almost overhead at noon.

15. *Checking the deviation of the vessels compass* as a by product of a celestial navigation sight.

16. *Time by lunar distances*. This technique, undoubtedly the one employed by Captain Slocum, fell into disuse with the introduction of fairly inexpensive chronometers.

17. *Electronic calculators* in the solution of the navigational triangle.

And finally:

18. The *book dimensions and number of pages*.

Now, let's talk about the ten books and how they stacked up against the criteria.

1. *SKY & SEXTANT*, Budlong. Consistent with common yachting practice, Budlong places the most emphasis on use of *HO 249 II/III* while mentioning most of the other sets of tables, *HO 249 I*, *HO 214*, *HO 229*, and *HO 211*. The book contains problems for the student and has a good table of contents, an index, and glossary, but no list of common navigational abbrev. Regarding the specific techniques discussed, he discusses determining latitude by noon sight and by Polaris but not longitude by noon sight. No mention is made of the back sight nor is there mention of high altitude navigation. He discusses a perpetual sun almanac but not one for stars. He is one of the few to discuss Survival Navigation, sanitizing it by calling the subject "Doing Without" (no sextant, no watch, no almanac, no tables, and finally, no nothin'). He mentions briefly the art of checking deviation by the Zn produced in the sun sight and mentions but does not explain how to tell time with lunar distances. As with most of the more recent books, he discusses the use of an electronic calculator in celestial navigation. The book is of moderate size (10 3/8" x 7 1/4" x 1") and has 223 pages, many of which have good sketches and photographs.

2. & 3. *THE YACHTSMAN'S GUIDE TO CELESTIAL NAVIGATION & T.Y.G. TO CALCULATOR NAVIGATION*, Campbell. This pair of books are here considered as a single unit. In the basic text, Campbell utilizes only *HO 249 II/III* and *HO 249 I*, and doesn't discuss the use of any other tables. Surprisingly, in neither text are there any problems for the student to work out. Although the book contains a table of contents there is no index in either volume, a major disadvantage. There is a list of abbrev. and a glossary in the basic text. Of the several techniques listed as criteria, the only one discussed is latitude by Polaris. This is particularly surprising with the calculator book since perpetual tables of sun and stars are available and are a logical use of the calculator in place of the annual Nautical Almanac. Both books are very small (8 1/2" x 5 3/4" x 1/2") and number only 120 and 90 pages, respectively. In this case, the small size reflects

directly on the dearth of information contained in these two books. One bright spot for the calculator book, however, is that it contains a pair of formulae for the direct calculation of latitude and longitude from two simultaneous sights and a DR. (pg. 75).

4. *MARINE NAVIGATION 2, CELESTIAL AND ELECTRONIC*, Hobbs. This abbreviated version of Bowditch discusses only three sets of tables, *HO 249 II/III*, *HO 249 I*, and *HO 229*, the only ones in print by the government when it was published. Surprisingly, it contains no problems and no glossary, but it does have a table of contents and an index. Of the several techniques listed as criteria, it discusses only checking compass deviation through use of the celestial sight and determining the vessels latitude by a Polaris sight. Aside from a brief mention of the use of a calculator in celestial navigation, there is no explanation of noon sights, back sights, high altitude sights, perpetual almanacs, survival navigation, nor lunar distances. What it does have is a fairly thick section on the mathematics of celestial navigation and one suspects that this book is aimed at the US Naval Academy students and not yachties. It is an average sized book (10 1/4" x 7 1/4" x 1") with 322 pages of tightly worded text. Not your "curl up on a cold night" type of book.

5. *NAVIGATION THE EASY WAY*, Lane & Montgomery. The first sentence of this book sets the tempo and provides a distinct contrast with the last book discussed and the next. It says: "*The authors of this book believe that anybody can navigate.*" They then set about to tell you how to do that, and just that. Relying solely on the now out of print *HO 214* (the book was published in 1949 before *HO 249* and *HO 229* were available) it only discusses sun, moon, planet and star sights and none of the frills. At the end it contains one problem but at the front you would look in vain for a table of contents. There is, however, an index and a glossary. It is a moderate sized book (9 1/2" x 6 1/4" x 5/8") and contains only 126 pages of easygoing text and lots of stick figure diagrams.

6. *DUTTON'S NAVIGATION AND PILOTING*, Maloney. The most recent printing of this book (1978) is still considered the authority on matters navigation. It thoroughly discusses the tables available from the US Government (*HO 249* and *HO 229*) as well as *HO 211*, now available from private publishers. It contains no problems, however, a separately published *PROBLEMS AND ANSWERS IN NAVIGATION AND PILOTING*, also by Maloney, contains enough to keep the avid student busy for some time. Although *DUTTON'S* doesn't explain the use of a perpetual almanac, it points out that such are available at the end of *HO 249 I* (GHA of Aries), *HO 249 II/III* (GHA & Decl. of the sun) and as Appendix H of Volume II of *Bowditch* (1975 ed.). Surprisingly, I couldn't find mention of back sights and lunar distance sights. It has a good section on survival navigation and, of course, a thorough discussion of the mathematics of celestial navigation. This weighty tome, heavy enough to prop open any supertanker chart house door, (10 1/4" x 7 1/2" x 2 1/2") tells just about everything you wanted to know about coastal and celestial navigation but were afraid to ask in its 910 pages.

7. *SELF-CONTAINED CELESTIAL NAVIGATION WITH HO 208*, Letcher. John Letcher has dug from the graveyard of abandoned navigational tables a simple, yet mathematical method which never caught on. What did catch on were the precomputed tabular versions which grace the bridges of the super tankers and small boats alike. If you like to figure out your checkbook, you'll love this method. This book, by the way, is not

intended for the novice navigator, but for the experienced navigator desiring a smaller text but without the complications of an *HO 211* solution. The tables, *HO 208*, are now out of print, however, Letcher's book carries a complete reprint of the tables. Other than casting a few aspersions, it hardly mentions the other types of tables. Most of the chapters have problems and answers at the end of the book. It has both a table of contents and an index but no list of abbrev. or glossary. Letcher spends a lot of time talking about time by lunar distances and time by lunar lines of positions. Apparently, he felt that subjects such as back sights, high altitude sights, survival navigation, and checking deviation were not unique to the use of *HO 208* and so they are not discussed. He has two chapters on latitude and longitude by noon sights, but nothing about latitude by Polaris for the sun and for the stars (through the year 2000) making his "system" quite self-contained; i.e., time by lunar distances and GHA/declination by perpetual almanacs. It is a moderate sized book (10 1/4" x 7 1/4" x 1") and has 229 pages, most of which I'll have to digest, someday.

75 8. *PRIMER OF NAVIGATION*, Mixter. This durable text was first copyrighted in 1940 by Mixter and relied on *HO 214* as the primary tables. The present version, revised by Donald McClench and Donald B. Miler, now uses *HO 229* as the preferred tables. They also discuss *HO 211* and *HO 214* solutions. The book has numerous problems and answers, a table of contents, index and a list of abbrev., but no glossary. It contains a whole chapter on latitude and longitude by a noon sight and another one on latitude by Polaris. It also discusses high altitude sights and calculator navigation, but is silent on the techniques of back sights, checking deviation, and time by lunar distances. It also doesn't discuss a perpetual almanac for sun or stars. There is a brief mention of survival navigation techniques. This moderately sized book (9 1/4" x 6 1/4" x 1 3/4") with its 551 pages will probably still be around for your grand children to scoff at.

9. *CALCULATOR NAVIGATION*, Rogoff. This book is another specialized book aimed at the experienced navigator who desires the freedom from dependance on a potentially soggy book of tables. Of course, it doesn't use any of the published tables, relying on the infinite tables electronically squeezed into those magic boxes with the digital readout. There are problems to whet your appetite, a table of contents, an index and even a list of abbrev. used in the text. All that is missing is a glossary. Of the special navigational techniques, the only ones Rogoff considers are latitude and longitude by the noon sight and the perpetual sun and star almanacs. The latter two, however, are only a description of how to use the information contained in *ALMANAC FOR COMPUTERS*, Leroy E. Doggett, George H. Kaplan, and Kenneth Seidelmann, (U.S. Naval Observatory, Nautical Almanac Office, Washington, DC) and not the tables themselves. As this is an advanced text, the other techniques, back sight, survival navigation, high altitude navigation, checking deviation, lunar distances, and latitude by Polaris, are no doubt, left to the more elementary texts. A moderate sized book, (9 1/2" x 6 1/2" x 1 1/2") it has 418 pages, many of which are crammed with gibberish for the uninitiated, or vital information for the practitioners of the black box art.

10. *OCEAN YACHT NAVIGATOR*, Wilkes. This book is typical of the "quick and dirty" approach to navigating a small boat. It utilizes the three volumes of *HO 249*, has

ample problems and answers, a table of contents, index, list of abbrev., and a glossary. But that's just about all. It does deal with latitude by noon sight and by Polaris and with checking the compass deviation but nothing more. No longitude by noon sight, perpetual almanacs, discussion of survival navigation, high altitude navigation, time by lunar distances, or even calculator navigation. It deals with the bare necessities and not much else in its slender format (8 1/2" x 7 3/4" x 3/4") and 183 pages.

11. *SAIL BY THE SUN & STARS*, Gleckler, Hollywood, Walker. As one of the three gentlemen just mentioned, the reviewer would be hard put to write here an objective evaluation. The book is mentioned only because it was the somewhat imperfect standard against which the others were compared. The primary tables used are the three volumes of *HO 249*. One chapter is devoted to the use of *HO 211* and *HO 229* and the three systems are compared. *HO 214* and *HO 208* are not mentioned, this latter to the detriment of the book. There are problems and answers for most chapters, a table of contents, an index, a list of abbrev. with the page containing the definition listed, and a glossary of the terms used in the book also with page listings. Regarding the special techniques used as criteria, it is the only one of the books reviewed to discuss a back sight (we didn't make it up, just copied it out of *Bowditch*). Perhaps that says something about how important that technique is. The book discusses latitude and longitude by noon sight and latitude by Polaris; a perpetual sun almanac but not one for stars (another deficiency); a whole chapter on survival navigation; high altitude navigation; and checking compass deviation. No mention is made of time by lunar distances nor is calculator navigation discussed. The format of the book is definitely inferior to all of the other books reviewed, typewritten on 8 1/2" x 11" pages with a soft cover. It has 241 pages. It is available only through two retail outlets and at the various community college bookstores in Southern California where it is used as a text in celestial navigation.

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Now, which book for you. I feel that the best all-round book of the first ten listed would be Budlong. It is written in a breezy manner and covers a fairly wide range of techniques necessary for the navigator. The second book purchased should be the venerable *DUTTONS*. For purposes of small boat navigation, an older version from a nautical used book store would be just as valuable, a lot smaller, and much cheaper. If you were into pocket calculators, the Rogoff book is far superior to the Campbell book. If you want to start all over again in the sight reduction process, Letcher's book on *HO 208* would be a good place to start, however by just purchasing the reprint of *HO 211* and with about an hour of work, you will be off and running with that somewhat more complicated procedure. The rest of the books, Campbell, Hobbs, Mixter, Lane, and Wilkes have too many weak points for use as a good text for delving into the fine art and science of celestial navigation.

Neal T. Walker



COMPARISON OF CELESTIAL NAVIGATION BOOKS REVIEWED

| | Budlong | Campbell | | Hobbs | Lane | Letcher | Maloney | Mixer | Rogoff | Wilkes | Gleckler |
|---------------------|---------|----------|---------|---------|--------|---------|---------|--------|--------|--------|----------|
| | | A | B | | | | | | | | |
| Tables HO249 II/III | X | X | | X | | | X | | | X | X |
| HO249 I | M | | | X | | | X | | | X | X |
| HO214 | M | | | | X | | | X | | | X |
| HO229 | M | | | X | | | X | X | | | X |
| HO211 | M | | | | | X | X | X | | | X |
| HO208 | | | | | | | | X | | | X |
| Problems/Answers | X | | | | | X | X | X | X | X | X |
| Contents | X | X | | X | | X | X | X | X | X | X |
| Index | X | | | X | X | X | X | X | X | X | X |
| Abbrev. | X | X | | X | | | X | X | X | X | X |
| Glossary | X | X | | | X | | X | X | X | X | X |
| Techniques: | | | | | | | | | | | |
| Lat. by noon st. | X | | | | | X | X | X | X | X | X |
| Long. by noon st. | | | | | | X | X | X | X | X | X |
| Lat. by Polaris | | X | | X | X | | | | | | |
| Back sight | | | | | | | | | | | |
| Perpetual sun | X | | | | | X | | | X | | X |
| Perpetual star | X | | | | | X | | | X | | X |
| Survival nav. | | | | | | | X | M | | | X |
| Hi alt. nav. | | | | X | | | M | X | | | X |
| Check dev. | | | | | | | X | | | X | X |
| Lunar distance | | | | | | | | | | | |
| Calculator nav. | X | | | M | | X | X | X | X | | |
| Bk. dimen: Height | 10 3/8" | 8 1/2" | 10 1/4" | 10 1/4" | 9 1/2" | 10 1/4" | 10 3/8" | 9 1/4" | 9 1/2" | 8 1/8" | 11" |
| Length | 7 1/4" | 5 3/4" | 7 1/4" | 7 1/4" | 6 1/4" | 7 1/4" | 7 1/2" | 6 1/4" | 6 1/2" | 7 3/4" | 8 1/2" |
| Width | 1" | 5/8" | 1" | 1" | 5/8" | 1" | 2 1/2" | 1 3/4" | 1 5/8" | 3/4" | 5/8" |
| Pages | 223 | 120 | 322 | 322 | 126 | 229 | 910 | 551 | 418 | 183 | 241 |

X = "Thorough discussion"

M = "Mentioned"

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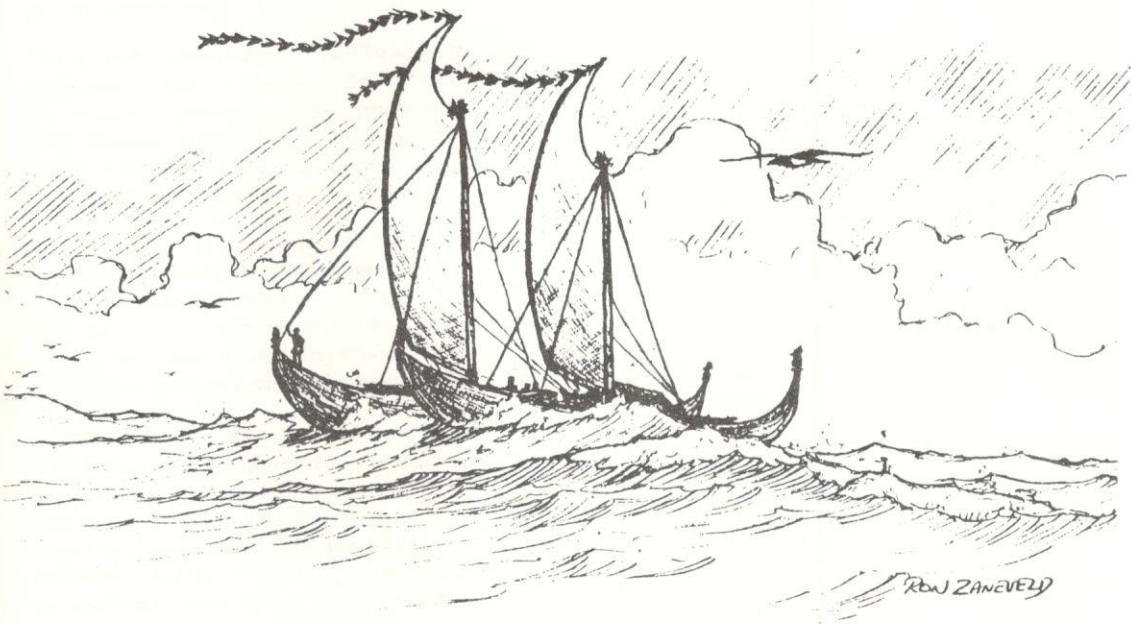
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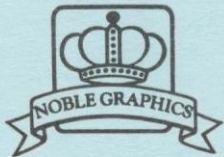
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