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FREQUENTLY ASKED QUESTIONS

#195

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The Bermuda Triangle

1. US Coast Guard and US Navy. "Bermuda Triangle Fact Sheet." (below)
2. US Navy. "The Bermuda Triangle: A Selective Bibliography."
3. Rosenberg, Howard, "Exorcising the Devil's Triangle," *Sealift* 24, No. 6, (June 1974) 11-15
4. Loss of Flight 19 FAQ
5. Photographs of USS *Cyclops* and crew NEW ITEMS!

Bermuda Triangle Fact Sheet

Prepared by the U.S. Coast Guard Headquarters and the Naval Historical Center

The U. S. Board of Geographic Names does not recognize the Bermuda Triangle as an official name and does not maintain an official file on the area.

The "Bermuda or Devil's Triangle" is an imaginary area located off the southeastern Atlantic coast of the United States, which is noted for a high incidence of unexplained losses of ships, small boats, and aircraft. The apexes of the triangle are generally accepted to be Bermuda, Miami, Fla., and San Juan, Puerto Rico.

In the past, extensive, but futile Coast Guard searches prompted by search and rescue cases such as the disappearances of an entire squadron of TBM Avengers shortly after take off from Fort Lauderdale, Fla., or the traceless sinking of USS *Cyclops* and *Marine Sulphur Queen* have lent credence to the popular belief in the mystery and the supernatural qualities of the "Bermuda Triangle."

Countless theories attempting to explain the many disappearances have been offered throughout the history of the area. The most practical seem to be environmental and those citing human error. The majority of disappearances can be attributed to the area's unique environmental features. First, the "Devil's Triangle" is one of the two places on earth that a magnetic compass does point towards true north. Normally it points toward magnetic north. The difference between the two is known as compass variation. The amount of variation changes by as much as 20 degrees as one circumnavigates the earth. If this compass variation or error is not compensated for, a navigator could find himself far off course and in deep trouble.

An area called the "Devil's Sea" by Japanese and Filipino seamen, located off the east coast of Japan, also exhibits the same magnetic characteristics. It is also known for its mysterious disappearances.

Another environmental factor is the character of the Gulf Stream. It is extremely swift and turbulent and can quickly erase any evidence of a disaster. The unpredictable Caribbean-Atlantic weather pattern also plays its role. Sudden local thunder storms and water spouts often spell disaster for pilots and mariners. Finally, the topography of the ocean floor varies from extensive shoals around the islands to some of the

deepest marine trenches in the world. With the interaction of the strong currents over the many reefs the topography is in a state of constant flux and development of new navigational hazards is swift.

Not to be under estimated is the human error factor. A large number of pleasure boats travel the waters between Florida's Gold Coast and the Bahamas. All too often, crossings are attempted with too small a boat, insufficient knowledge of the area's hazards, and a lack of good seamanship.

The Coast Guard is not impressed with supernatural explanations of disasters at sea. It has been their experience that the combined forces of nature and unpredictability of mankind outdo even the most far fetched science fiction many times each year.

We know of no maps that delineate the boundaries of the Bermuda Triangle. However, there are general area maps available through the Distribution Control Department, U.S. Naval Oceanographic Office, Washington, D.C. 20390. Of particular interest to students if mysterious happenings may be the "Aeromagnetic Charts of the U.S. Coastal Region," H.O. Series 17507, 15 sheets. Numbers 9 through 15 cover the "Bermuda Triangle."

Interest in the "Bermuda Triangle" can be traced to (1) the cover article in the August 1968 *Argosy*, "The Spreading Mystery of the Bermuda Triangle", (2) the answer to a letter to the editor of the January 1969 *Playboy*, and (3) an article in August 4, 1968 I, "Limbo of Lost Ships", by Leslie Lieber. Also, many newspapers carried a December 22, 1967 National Geographic Society news release which was derived largely from Vincent Gaddis' *Invisible Horizons: True Mysteries of the Sea* (Chilton Books, Philadelphia, 1965. OCLC# 681276) Chapter 13, "The Triangle of Death", in Mr. Gaddis' book, presents the most comprehensive account of the mysteries of the Bermuda Triangle. Gaddis describes nine of the more intriguing mysteries and provides copious notes and references. Much of the chapter is reprinted from an article by Mr. Gaddis, "The Deadly Bermuda Triangle", in the February 1964 *Argosy*. The article elicited a large and enthusiastic response from the magazine's readers. Perhaps the most interesting letter, which appeared in the May 1964 *Argosy*'s "Back Talk" section, recounts a mysterious and frightening incident in an aircraft flying over the area in 1944.

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This bibliography is intended to provide research assistance only, and does not imply any opinion concerning the subject on the part of the US Navy.

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"Exorcizing the Devil's Triangle"

By Howard L. Rosenberg
Sealift no. 6 (Jun. 1974): 11-15.

During the past century more than 50 ships and 20 aircraft sailed into oblivion in the area known as the Devil's Triangle, Bermuda Triangle, Hoodoo Sea, or a host of other names.

Exactly what happened to the ships and aircraft is not known. Most disappeared without a trace. Few distress calls and little, if any, debris signaled their disappearance.

Size of the triangle is dictated by whoever happens to be writing about it, and consequently what ships and the number lost depends largely on which article you read.

Vincent Gaddis, credited with putting the triangle "on the map" in a 1964 *Argosy* feature, described the triangle as extending from Florida to Bermuda, southwest to Puerto Rico and back to Florida through the Bahamas. Another author puts the apexes of the triangle somewhere in Virginia, on the western coast of Bermuda and around Cuba, Dominican Republic and Puerto Rico. Sizes of the areas described ranged from 500,000 to 1.5 million square miles.

Whatever the size or shape, there supposedly is some inexplicable force within it that causes ships and planes to vanish.

According to Richard Winer, who recently completed a TV film documentary on the area, one "expert" he interviewed claims the missing ships and planes are still there, only in a different dimension as a result of a magnetic phenomenon that could have been set up by a UFO (Unidentified Flying Object).

Winer is currently writing a book on the subject and has traveled most of the area in his sailboat. He confesses he "never saw anything unusual."

Winer's TV program dealt mostly with the strange disappearance in 1945 of five Navy TBM Avengers with 14 fliers who flew from Ft. Lauderdale into the triangle never to return. A PBM Mariner with a 13-man crew was sent out to search for the fliers. It too, never returned.

Few have really dug into all the aspects of this mystery, but many are content to attribute the loss of Flight 19 to some mysterious source, like UFOs. Michael McDonnel did do some digging. In an article he wrote for the June 1973 edition of *Naval Aviation News*, he suggested the most realistic answer to the loss of Flight 19 was simple, that after becoming lost, they ran out of gas. Many question that possibility by asking, "How could such experienced pilots get lost? How could all the compasses be wrong?"

If the planes were flying through a magnetic storm, all compasses could possibly malfunction.

Actually, man's knowledge of magnetism is limited. We know how to live with it and escape it by going into space, but, we really don't know what exactly it is.

As for the pilots' experience, Flight 19 was a training flight. Though advanced, it was still training. Even the most "experienced" pilots make mistakes.

McDonnel concludes his article with the statement, "Former TBM pilots that we questioned express the opinion that the crew of an Avenger attempting to ditch at night in a heavy sea would almost certainly not survive the crash. And this, we feel was the case with Flight 19. The aircraft most probably broke up on impact and those crewmen who might have survived the crash would not have lasted long in cool water."

The PBM Mariner was specifically designed as a rescue plane with the ability to remain aloft for 24 hours. But the Mariners
were nicknamed "flying gas tanks" by those who flew them. It was common for a pilot to search the crew members before each flight for matches or cigarette lighters because gas fumes often were present. After this Mariner disappeared, the Navy soon grounded all others.

Another mysterious disappearance that baffles researchers is that of the *SS Marine Sulphur Queen*. Bound for Norfolk, Va. from Beaumont, Texas, the tanker was last heard from on Feb. 3, 1963, when she routinely radioed her position. The message placed her near Key West in the Florida Straits.

Three days later, Coast Guard searchers found a solitary life jacket bobbing in a calm sea 40 miles southwest of the tanker's last known position. Another sign of the missing tanker or her 39-man crew has ever been found.

The absence of bodies might be explained by the fact that the waters are infested with sharks and barracuda. As for the tanker, she was carrying 15,000 long tons of molten sulphur contained in four metal tanks, each heated to 275 degrees Fahrenheit by a network of coils connected to two boilers.

No one knows for sure whether she blew up, but it is a possibility. If gas escaped from the tanks and poisoned the crew, the radio officer may have not had time to send a distress call before being overcome. The slightest spark could have set the leaking sulphur afire in an instant.

Writing in the Seamen's Church Institute of New York's magazine, *The Lookout*, Paul Brock said that officers on a Honduras flag banana boat "reported to the Coast Guard that their freighter ran into a 'strong odor' 15 miles off Cape San Antonia, the western tip of Cuba, just before dawn on February 3. The odor was acrid.'"

Brock speculates that they could have smelled the fumes coming from the *Sulphur Queen* "floating somewhere over the horizon, her crew dead and her cargo blazing."

According to Brock, T-2 tankers like the *Sulphur Queen* had a history of battle failure. He said that "during the preceding years, three T-2s had split in half." Brock also cites a case in December 1954 when a converted Navy LST, the *Southern District*, was heading up the North Carolina coastline when she disappeared without a trace or distress call. Her cargo was powdered sulphur.

One of the most celebrated stories of Devil's Triangle victims, is that of USS*Cyclops* which disappeared in March of 1918.

In his television program, Richard Winer indicated the captain of the *Cyclops* was rather eccentric. He was reputedly fond of pacing the quarterdeck wearing a hat, a cane and his underwear. Prior to the *Cyclops* disappearance there was a minor mutiny by some members of the crew which was promptly squelched by the captain and the perpetrators were sent below in irons. None of this really offers a clue to what happened to the collier *Cyclops*, but it suggests something other than a mysterious force might have led to her doom.

According to Marshall Smith writing in *Cosmopolitan*, September 1973, "theories ranged from mutiny at sea to a boiler explosion which carried away the radio shack and prevented any distress call." One magazine, *Literary Digest*, speculated that a giant octopus rose from the sea, entwined the ship with its tentacles and dragged it to the bottom. Another theory was that the shipped suddenly turned turtle in a freak storm, trapping all hands inside.

Fifty years later, novelist Paul Gallico used the idea as the peg for a novel called *The Poseidon Adventure* which was made into a successful movie in 1972.

Cyclops was assigned to the Naval Overseas Transportation Service, which became the Naval Transportation, which merged with the Army Transport Service to become the Military Sea Transportation Service and then Military Sealift Command. When she sailed she was loaded with 10,800 tons of manganese ore bound for Baltimore from Barbados in the West Indies.

Information obtained from Germany following World War I disproved the notion that enemy U-boats or mines sank the *Cyclops*. None were in the area.

Another story concerns the loss of the nuclear submarine USS *Scorpion* in the Devil's Triangle. It is impossible to stretch even the farthest flung region of the triangle to include the position of the lost sub.

Truth is, *Scorpion* was found by the MSC oceanographic ship USNS *Mizar* about 400 miles southwest of the Azores, nowhere near the Devil's Triangle. Its loss was attributed to mechanical failure, not some demonic denizen of the deep.

There are literally thousands of cases of lost ships ever since primitive man dug a canoe out of the trunk of a tree and set it in the water. Why all this emphasis on the Devil's Triangle? It's difficult to say.

It would seem that, historically, whenever man was unable to explain the nature of the world around him, the problems he faced were said to be caused by gods, demons, monsters and more recently, extra-terrestrial invaders.

Before Columbus set sail and found the Americas, it was believed that the world was flat and if you sailed too far west, you would fall off the edge. That reasoning prevails concerning the Devil's Triangle. Since not enough scientific research has been done to explain the phenomenon associated with the area, imagination takes over. UFOs, mystical rays from the sun to the lost Continent of Atlantis, giant sea monsters and supernatural beings are linked to the mysterious disappearances in the triangle.

To someone unprepared to take on the immense work of scientific research, supernatural phenomenon make for an easy answer. But, it is amazing how many supernatural things become natural when scientifically investigated.

There are a number of natural forces at work in the area known as the Devil's Triangle, any of which could, if the conditions were right, bring down a plane or sink a ship.

Many reputable scientists refuse to talk to anyone concerning the Devil's Triangle simply because they do not want their good names and reputations associated with notions they consider ridiculous.

One expert on ocean currents at Yale University, who asked not to be identified, exploded into laughter at the mention of the triangle and said, "We confidently, and without any hesitation, often go to sea and work in that area." Another scientist refused to talk about it.

Atmospheric aberrations are common to jet age travelers. Few have flown without experiencing a phenomenon known as clear air turbulence. An aircraft can be flying smoothly on a beautifully clear day and suddenly hit an air pocket or hole in the sky and drop 200 to 300 feet.

Lt. Cmdr. Peter Quinton, meteorologist and satellite liaison officer with the Fleet Weather Service

at Suitland, Md., said, "You can come up with hundreds of possibilities and elaborate on all of them and then come up with hundreds more to dispute the original ones."

"It's all statistical," he said, "there's nothing magical about it." According to Quinton, the Bermuda Triangle is notorious for unpredictable weather. The only things necessary for a storm to become a violent hurricane are speed, fetch (the area the wind blows over) and time. If the area is large enough, a thunderstorm can whip into a hurricane of tremendous intensity. But hurricanes can usually be spotted by meteorologists using satellite surveillance. It is the small, violent thunderstorms known as meso-meteorological storms that they can't predict since they are outside of normal weather patterns. These are tornadoes, thunderstorms and immature tropical cyclones.

They can occur at sea with little warning, and dissipate completely before they reach the shore. It is highly possible that a ship or plane can sail into what is considered a mild thunderstorm and suddenly face a meso-meteorological storm of incredible intensity.

Satellites sometimes cannot detect tropical storms if they are too small in diameter, or if they occur while the satellite is not over the area. There is a 12-hour gap between the time the satellite passes over a specific part of the globe until it passes again. During these 12 hours, any number of brief, violent storms could occur.

Quinton said, "Thunderstorms can also generate severe electrical storms sufficient to foul up communication systems." Speaking of meso-meteorological storms, which she dubbed "neutercanes," Dr. Joanne Simpson, a prominent meteorologist at the University of Miami, said in the Cosmopolitan article that "These small hybrid type storm systems arise very quickly, especially over the Gulf Stream. They are several miles in diameter, last a few minutes or a few seconds and then vanish. But they stir up giant waves and you have chaotic seas coming from all directions. These storms can be devastating."

An experienced sailor herself, Dr. Simpson said on occasion she has been "peppered by staccato bolts of lightning and smelled- the metallic odor of spent electricity as they hit the water, then frightened by ball lightning running off the yards." Sailors have been amazed for years by lightning storms and static electricity called "St. Elmo's Fire."

Aubrey Graves, writing in *This Week* magazine, August 4, 1964, quotes retired Coast Guard Capt. Roy Hutchins as saying, "Weather within the triangle where warm tropical breezes meet cold air masses from the arctic is notoriously unpredictable." "You can get a perfectly good weather pattern, as far as the big weather maps go, then go out there on what begins as a fine day and suddenly get hit by a 75-knot squall. They are localized and build up on the spot, but they are violent indeed."

Many boatmen, Hutchins said, lack understanding of the velocity of that "river within the ocean" (Gulf Stream) which at its axis surges north at four knots. "When it collides with strong northeast winds, extremely stiff seas build up, just as in an inlet when the tide is ebbing against an incoming sea."

"The seas out there can be just indescribable. The waves break and you get a vertical wall of water from 30 to 40 feet high coming down on you. Unless a boat can take complete submergence in a large, breaking sea, she can not live."

Last year, the Coast Guard answered 8,000 distress calls in the area, 700 a month or 23 a day. Most problems could have been avoided if caution had been used. The biggest trouble comes from small boats running out of gas. According to the Coast Guard, an inexperienced sailor is looking for trouble out there. A small boat could be sucked into the prop of a big tanker or swamped in a storm and never be seen again.

Another phenomenon common in the region is the waterspout. Simply a tornado at sea that pulls water from the ocean surface thousands of feet into the sky, the waterspout could "wreck almost anything" said Allen Hartwell, oceanographer with Normandeau Associates.

Hartwell explained that the undersea topography of the ocean floor in the area has some interesting characteristics. Most of the sea floor out in the Devil's Triangle is about 19,000 feet down and

covered with deposition, a fine-grained sandy material. However, as you approach the East Coast of the United States, you suddenly run into the continental shelf with a water depth of 50 to 100 feet. Running north along the coast is the Gulf Stream which bisects the triangle carrying warm tropical water.

Near the southern tip of the triangle lies the Puerto Rico Trench which at one point is 27,500 feet below sea level. It's the deepest point in the Atlantic Ocean and probably holds many rotting and decaying hulks of Spanish treasure galleons.

Many articles concerning the triangle have made the erroneous statement that the Navy formed Project Magnet to survey the area and discover whether magnetic aberrations do limit communications with ships in distress, or contribute to the strange disappearance of ships and aircraft.

Truth is that Navy's Project Magnet has been surveying all over the world for more than 20 years, mapping the earth's magnetic fields. According to Henry P. Stockard, project director, "We have passed over the area hundreds of times and never noticed any unusual magnetic disturbances."

Also passing through the Devil's Triangle is the 80th meridian, a degree of longitude which extends south from Hudson Bay through Pittsburgh then out into the Triangle a few miles east of Miami. Known as the agonic line, it is one of two places in the world where true north and magnetic north are in perfect alignment and compass variation is unnecessary. An experienced navigator could sail off course several degrees and lead
himself hundreds of miles away from his original destination.

This same line extends over the North Pole to the other side of the globe bisecting a portion of the Pacific Ocean east of Japan.

This is another part of the world where mysterious disappearances take place and has been dubbed the "Devil Sea" by Philippine and Japanese seamen. Noted for tsunami, the area is considered dangerous by Japanese shipping authorities. Tsunami, often erroneously called tidal waves, are huge waves created by underground earthquakes. These seismic waves have very long wave lengths and travel at velocities of 400 miles per hour or more. In the open sea they may be only a foot high. But as they approach the continental shelf, their speed is reduced and their height increases dramatically. Low islands may be completely submerged by them. So too may ships sailing near the coast or above the continental shelf.

Quite a bit of seismic activity occurs off the northern shoreline of Puerto Rico. Seismic shocks recorded between 1961 and 1969 had a depth of focus ranging from zero to 70 kilometers down. Relatively shallow seaquakes could create tsunamis similar to those in the Pacific Ocean, but few have been recorded.

A distinct line of shallow seaquake activity runs through the mid-Atlantic corresponding with the features of the continental shelf of the Americas.

Some claim we know more about outer space than we do about inner space, including the oceans. If that is true, much information has yet to be developed concerning the Devil's Triangle. As recently as 1957 a deep counter-current was detected beneath the Gulf Stream with the aid of sub-surface floats emitting acoustic signals. The Gulf Stream and other currents have proved to consist of numerous disconnected filaments moving in complex patterns.

What it all adds up to is that the majority of the supernatural happenings offered as explanations for the Devil's Triangle mysteries amount to a voluminous mass of sheer hokum, extrapolated to the *n*th degree.

Mysteries associated with the sea are plentiful in the history of mankind. The triangle area happens to be one of the most heavily traveled regions in the world and the greater the number of ships or planes, the greater the odds that something will happen to some.

Each holiday season the National Safety Council warns motorists by predicting how many will die

on the nation's highways. They are usually quite accurate, but, no monsters kill people on highways, only mistakes.

Seafarers and aircraft pilots also make mistakes. Eventually scientists will separate fact from the fiction concerning the Devil's Triangle. Until then, we can only grin and bear the ministrations of madness offered by triangle cultists.

If you happen to be passing through the triangle while reading this article, don't bother to station extra watches to keep a wary eye out for giant squids. Better to relax and mull over the words of poet Henry Wadsworth Longfellow:

"Wouldst thou," so the helmsman answered,
"Know the secret of the sea?"
Only those who brave its dangers,
Comprehend its mystery.

12 May 1996

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FREQUENTLY ASKED QUESTIONS

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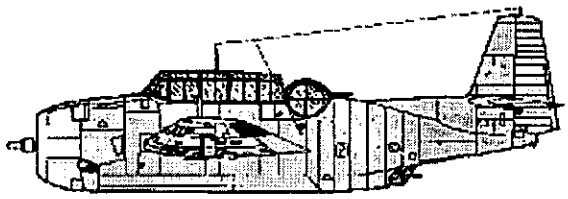
The Loss Of Flight 19

Related resources:

1. The Bermuda Triangle FAQ
2. McDonell, Michael, "Lost Patrol," NEW ITEMS! *Naval Aviation News* (Jun.1973): 8-16.

Prepared by the Operational Archives Branch, Naval Historical Center



Grumman TBM "Avenger"

At about 2:10 p.m. on the afternoon of 5 December 1945, Flight 19, consisting of five TBM Avenger Torpedo Bombers departed from the U. S. Naval Air Station, Fort Lauderdale, Florida, on an authorized advanced overwater navigational training flight. They were to execute navigation problem No. 1, which is as follows: (1) depart 26 degrees 03 minutes north and 80 degrees 07 minutes west and fly 091 degrees (T) distance 56 miles to Hen and Chickens Shoals to conduct low level bombing, after bombing continue on course 091 degrees (T) for 67 miles, (2) fly course 346 degrees (T) distance 73 miles and (3) fly course 241 degrees (T) distance 120 miles, then returning to U. S. Naval Air Station, Fort Lauderdale, Florida.

In charge of the flight was a senior qualified flight instructor, piloting one of the planes. The other planes were piloted by qualified pilots with between 350 and 400 hours flight time of which at least 55 was in TBM type aircraft. The weather over the area covered by the track of the navigational problem consisted of scattered rain showers with a ceiling of 2500 feet within the showers and unlimited outside the showers, visibility of 6-8 miles in the showers, 10-12 otherwise. Surface winds were 20 knots with gusts to 31 knots. The sea was moderate to rough. The general weather conditions were considered average for training flights of this nature except within showers.

A radio message intercepted at about 4 p.m. was the first indication that Flight 19 was lost. This message, believed to be between the leader on Flight 19 and another pilot in the same flight, indicated that the instructor was uncertain of his position and the direction of the Florida coast. The aircraft also were experiencing malfunction of their compasses. Attempts to establish communications on the training frequency were unsatisfactory due to interference from Cuba broadcasting stations, static, and atmospheric conditions. All radio contact was lost before the exact nature of the trouble or the location of the flight could be determined. Indications are that the flight became lost somewhere east of the Florida peninsula and was unable to determine a course to return to their base. The flight was never

heard from again and no trace of the planes were ever found. It is assumed that they made forced landings at sea, in darkness somewhere east of the Florida peninsula, possibly after running out of gas. It is known that the fuel carried by the aircraft would have been completely exhausted by 8 p.m. The sea in that presumed area was rough and unfavorable for a water landing. It is also possible that some unexpected and unforeseen development of weather conditions may have intervened although there is no evidence of freak storms in the area at the time.

All available facilities in the immediate area were used in an effort to locate the missing aircraft and help them return to base. These efforts were not successful. No trace of the aircraft was ever found even though an extensive search operation was conducted until the evening of 10 December 1945, when weather conditions deteriorated to the point where further efforts became unduly hazardous. Sufficient aircraft and surface vessels were utilized to satisfactorily cover those areas in which survivors of Flight 19 could be presumed to be located.

One search aircraft was lost during the operation. A PBM patrol plane which was launched at approximately 7:30 p.m., 5 December 1945, to search for the missing TBM's. This aircraft was never seen nor heard from after take-off. Based upon a report from a merchant ship off Fort Lauderdale which sighted a "burst of flame, apparently an explosion, and passed through on oil slick at a time and place which matched the presumed location of the PBM, it is believed this aircraft exploded at sea and sank at approximately 28.59 N; 80.25 W. No trace of the plane or its crew was ever found.

The Operational Archives Branch, Naval Historical Center, 901 M Street SE, Washington, DC 20374-5060 has placed the Board of Investigation convened at NAS Miami to inquire into the loss of the 5 TBM Avengers in Flight 19 and the PBM aircraft on microfilm reel, NRS 1983-37. To order a duplicate film for the fees indicated on the Naval Historical Center fee schedule, please complete the duplication order form and send a check or money order for the appropriate amount, made payable to the **DEPARTMENT OF THE NAVY**, to the **Operational Archives Branch, Naval Historical Center**, 901 M Street, SE, Washington, DC 20374-5060.

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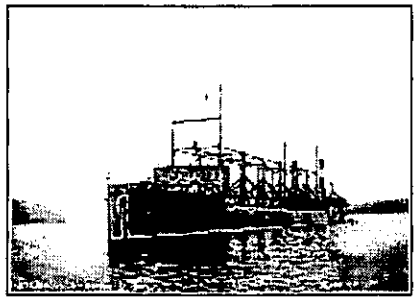
USS *Cyclops* (1910-1918)



USS *Cyclops* was the Navy's second ship of that name. A 19,360-ton collier, specially designed to keep a mobile battlefleet supplied with fuel, she was built in 1910 by William Cramp and Sons at Philadelphia, Pennsylvania. Prior to World War I, she supported U.S. warships in European waters, off the Atlantic seaboard and in the Caribbean as a unit of the Naval Auxiliary Force.

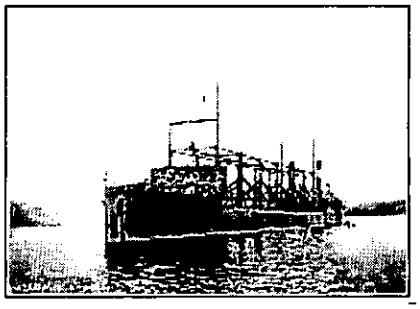
Cyclops entered commissioned service in 1917, and continued carrying coal and other cargo to facilitate the U.S. Navy's wartime operations. In early March 1918, while returning from a voyage to Brazil, USS *Cyclops* disappeared with all hands. Her wreck has never been found, and the cause of her loss remains unknown.

For related textual resources, see "Frequently Asked Questions": The Bermuda Triangle.

This page features a selection of views of USS *Cyclops* and of crewmen who were lost with her.

If higher resolution reproductions than these digital images are desired, see "How to Obtain Photographic Reproductions."

Click on the small photograph to prompt a larger view of the same image.

Photo #: NH 55549 **USS *Cyclops* (1910-1918)** Anchored in the Hudson River, off New York City, on 3 October 1911. Photograph was taken by the New York Navy Yard. *U.S. Naval Historical Center Photograph.* **Online Image: 55,732 bytes; 740 x 565 pixels**	
Photo #: 19-N-13451 **USS *Cyclops* (1910-1918)**	

Photographed by the New York Navy Yard, probably while anchored in the Hudson River, NY, on 3 October 1911.

Photograph from the Bureau of Ships Collection in the U.S. National Archives.

Online Image: 51,246 bytes; 740 x 540 pixels

Reproductions of this image may also be available through the National Archives' photographic reproduction system.

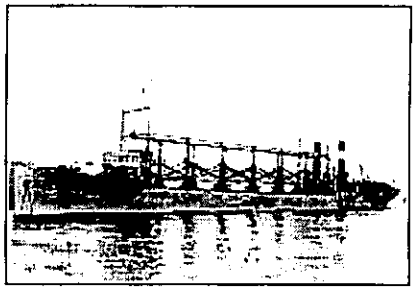


Photo #: NH 101063

USS *Cyclops* (1910-1918)

Photographed by Sargent, circa 1913.

Copied from the album of Francis Sargent, courtesy of Commander John Condon, 1986.

U.S. Naval Historical Center Photograph.

Online Image: 58,404 bytes; 740 x 485 pixels

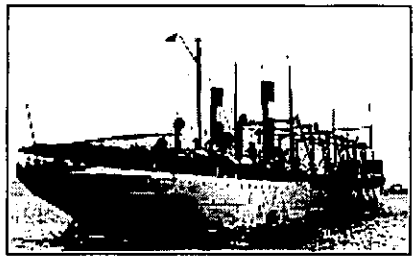


Photo #: NH 76012

USS *South Carolina* (BB-26)
and
USS *Cyclops* (1910-1918)

Engaged in an experimental coaling while under way at sea in 1914. Rigging between the two ships was used to transfer two 800-pound bags of coal at a time. The bags were landed on a platform in front of the battleship's forward 12-inch gun turret, and then carried to the bunkers.
The donor, who served as a seaman in *South Carolina* at the time, comments: "it showed that this was possible but a very slow method of refueling. Nothing was heard of the test afterwards."

Donation of Earle F. Brookins, Jamestown, NY, 1972.

U.S. Naval Historical Center Photograph.

Online Image: 57,797 bytes; 740 x 475 pixels

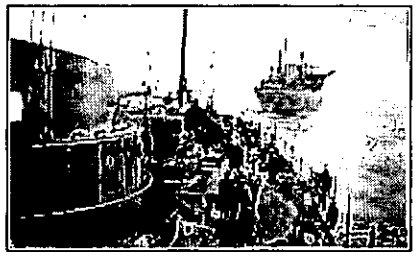


Photo #: NH 50636

Earnest Randolph Crammer,
Seaman, U.S. Navy

Who was lost with USS *Cyclops* in March 1918.
His cap band is from that ship.

U.S. Naval Historical Center Photograph.

Online Image: 41,143 bytes; 610 x 775 pixels

Photo #: NH 92095

Roy Stuart Merriam,
Coxwain, U.S. Navy

Who was lost with USS *Cyclops* in March 1918.
His cap band is from USS *San Diego* (ACR-6).

U.S. Naval Historical Center Photograph.

Online Image: 46,023 bytes; 470 x 775 pixels

Return to Naval Historical Center home page.

24 September 1998

BERMUDA TRIANGLE PACKET

1. Bermuda Triangle FACT SHEET prepared by the U.S.Coast Guard

2. Flight 19 Loss FACT SHEET prepared by the Office of Information

3. U S S CYCLOPS FACT SHEET prepared by the Office of Information

4. Article "Lost Patrol" by Michael McDonell from Naval Aviation News magazine of the Naval Air Systems Command June 1973 issue

5. Article "Exorcising the Devil's Triangle" by Howard L.Rosenberg from Sealift magazine of the Military Sealift Command June 1974

6. "The Bermuda Triangle, An Annotated Bibliography by Carol F. Stancil of the Reference Section College Library, U C L A, 1973.

#195

Prepared by U.S. Coast Guard Headquarters

The "Bermuda Triangle"

The "Bermuda or Devil's Triangle" is an imaginary area located off the southeastern Atlantic coast of the United States, which is noted for a high incidence of unexplained losses of ships, small boats, and aircraft. The apexes of the triangle are generally accepted to be Bermuda, Miami, Fla., and San Juan, Puerto Rico.

In the past, extensive, but futile Coast Guard searches prompted by search and rescue cases such as the disappearences of an entire squadron of TBM Avengers shortly after take off from Fort Lauderdale, Fla., or the traceless sinking of the Marine Sulpher Queen in the Florida Staits have lent credence to the popular belief in the mystery and the supernatural qualities of the "Bermuda Triangle."

Countless theories attempting to explain the many disappearances have been offered throughout the history of the area. The most practical seem to be environmental and those citing human error.

The majority of disappearances can be attributed to the area's unique environmental features. First, the "Devil's Triangle" is one of the two places on earth that a magnetic compass does point towards true north. Normally it points toward magnetic north. The difference between the two is known as compass variation. The amount of variation changes by as much as 20 degrees as one circumnavigates the earth. If this compass variation or error is not compensated for, a navigator could find himself far off course and in deep trouble.

An area called the "Devil's Sea" by Japanese and Filipino seamen, located off the east coast of Japan, also exhibits the same magnetic characteristics. As the "Bermuda Triangle" it is known for its mysterious disappearances.

Another environmental factor is the character of the Gulf Stream. It is extremely swift and turbulent and can quickly erase any evidence of a disaster. The unpredictable Caribbean-Atlantic weather pattern also plays its role. Sudden local thunder storms and water spouts often spell disaster for pilots and mariners. And finally, the topography of the ocean floor varies from extensive shoals around the islands to some of the deepest marine trenchs in the world. With the interaction of the stong currents over the many reefs the topography is in a state of constant flux and development of new navigational hazards is swift.

Not to be under estimated is the human error factor. A large number of pleasure boats travel the waters between Florida's Gold Coast and the Bahamas. All too often, crossings are attempted with too small a boat, insufficient knowledge of the area's hazards, and a lack of good seamanship.

The Coast Guard, in short, is not impressed with supernatural explanations of disasters at sea. It has been our experience that the combined forces of nature and unpredictability of mankind outdo even the most far fetched science fiction many times each year.

Specific case histories and conjecturnl explanations are available through the following sources:

ARGOSY, "The Spreading Mystery of The Bermuda Triangle," August 1968
THIS WEEK MAGAZINE, "Limbo of Lost Ships," Leslie Licher, August 1968
INVISIBLE HORIZONS: TRUE MYSTERIES OF THE SEA, Chilton Books, Philadelphia and New York, 1965
LIMBO OF THE LOST, Jack Wallace, 1968

We know of no maps that delineate the boundries of the Bermuda Triangle. However, there are general area maps available through the Distribution Control Department, U.S. Naval Oceanographic Office, Washington, D.C. 20390. Of particular interest to students of mysterious happenings may be the "Acromagnetic Charts of the U.S. Coastal Region," H.O. Series 17507, 15 sheets, $ .50 each. Numbers 9 through 15 cover the "Bermuda Triangle."

The "Bermuda Triangle"

The "Bermuda Triangle" is an imaginary area off the Atlantic coast of the United States noted for a high incidence of unexplained losses of ships and aircraft. The apexes of the triangle are generally accepted as Bermuda, Florida and Puerto Rico.

Interest in the "Bermuda Triangle" can be traced to (1) the cover article in the August 1968 Argosy, "The Spreading Mystery of the Bermuda Triangle", (2) the answer to a letter to the editor of the January 1969 Playboy, and (3) an article in August 4, 1968 This Week Magazine, "Limbo of Lost Ships", by Leslie Lieber. Also, many newspapers carried a December 22, 1967 National Geographic Society news release which was derived largely from Vincent Gaddis' Invisible Horizons: True Mysteries of the Sea (Chilton Books, Philadelphia and New York, 1965). Chapter 13, "The Triangle of Death", in Mr. Gaddis' book, presents the most comprehensive account of the mysteries of the Bermuda Triangle. Gaddis describes nine of the more intriguing mysteries and provides copious notes and references. Much of the chapter is reprinted from an article by Mr. Gaddis, "The Deadly Bermuda Triangle", in the February 1964 Argosy. The article elicited a large and enthusiastic response from the magazine's readers. Perhaps the most interesting letter, which appeared in the May 1964 Argosy's "Back Talk" section, recounts a mysterious and frightening incident in an aircraft flying over the area in 1944.

Additional references to the "Bermuda Triangle" are listed in bibliography form:

Jack Wallace Spencer, "Limbo of the Lost" 1968

Joe Maggio, Sun Staff Writer, "Mystery Lurks in the Bermuda Triangle", Miami Beach Sun, June 25, 1969

Paul Brock, "They Sailed into Oblivion", The Lookout, Seamen's Church Institute of New York, Vol. 62, No. 3 April 1971, pp. 3, 11

Andy Rosenblatt, Miami News Reporters, "Devil's Triangle; a new victim?" Miami News, June 19, 1972

Richard Winer, "Bermuda Triangle - UFO Twilight Zone", Saga, Vol. 44, No. 5, August 1972, p. 34

The U. S. Board of Geographic Names does not recognize the Bermuda Triangle as an official name and does not maintain an official file on the area.

We know of no maps depicting the Bermuda Triangle. However, charts of the area are available from: Distribution Control Department, U. S. Naval Oceanographic Office, Washington, D.C. 20390. Of particular interest to students of mysterious happenings may be the "Aeromagnetic Charts of U. S. Atlantic Coastal Region", H. O. Series 17507, 15 sheets (Nos. 9 through 15 cover the Bermuda Triangle area), $.50 each.

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THE LOSS OF FLIGHT 19

At about 2:10 p.m. on the afternoon of 5 December 1945, Flight 19, consisting of five TBM Avenger Torpedo Bombers departed from the U. S. Naval Air Station, Fort Lauderdale, Florida, on an authorized advanced overwater navigational training flight. In charge of the flight was a senior qualified flight instructor, piloting one of the planes. The other planes were piloted by qualified pilots with between 350 and 400 hours flight time of which at least 55 was in TBM type aircraft. The weather over the area covered by the track of the navigational problem consisted of scattered rain showers with a ceiling of 2500 feet within the showers and unlimited outside the showers, visibility of 6-8 miles in the showers, 10-12 otherwise. Surface winds were 20 knots with gusts to 31 knots. The sea was moderate to rough. The general weather conditions were considered average for training flights of this nature except within showers.

A radio message intercepted at about 4:00 p.m. was the first indication that Flight 19 was lost. This message, believed to be between the leader on Flight 19 and another pilot in the same flight, indicated that the planes were lost and that they were experiencing malfunction of their compasses. Attempts to establish communications and to reach the troubled flight were in vain. All radio contact was lost before the exact nature of the trouble or the location of the flight could be determined. Indications are that the flight became lost somewhere east of the Florida peninsula and was unable to determine a course to return to their base. However, the evidence is insufficient to determine exactly what did happen. The flight was

never heard from again and no trace of the planes found. It is assumed that they crashed at sea, possibly after running out of gas. It is known that the fuel carried by the aircraft would have been completely exhausted by 8:00 p.m. It is also possible that some unexpected and unforseen development of weather conditions may have intervened although there is no evidence of freak storms in the area at the time.

All available facilities in the immediate area were used in an effort to locate the missing aircraft and help them return to base. These efforts were not successful. No trace of the aircraft was ever found even though an extensive search operation was conducted until the evening of 10 December 1945, when weather conditions deteriorated to the point where further efforts became unduly hazardous. Sufficient aircraft and surface vessels were utilized to satisfactorily cover those areas in which survivers of Flight 19 could be presumed to be located.

One search aircraft was lost during the operation. A PBM patrol plane which was launched at approximately 7:30 p.m., 5 December 1945, to search for the missing TBM's. This aircraft was never seen nor heard from after take-off. Based upon a report from a merchant ship off Fort Lauderdale which sighted a "burst of flame, apparently explosion," and passed through an oil slick at a time and place which matched the presumed location of the PBM, it is believed this aircraft crashed at sea and sank. No trace of the plane or its crew was ever found.

Prepared by:
Office of Information,
U.S. Navy Department

FACT SHEET FOR USS CYCLOPS

USS CYCLOPS, Fuel Ship, Naval Overseas Transportation Service, 19,360 tons displacement; built by William Camp and Sons, Philadelphia; contract price $822,500; building authorized by Act of Congress, approved May 13,1908; keel laid June 2, 1909; launched May 7, 1910; commissioned November 7,1910; length overall 542 feet, between perpendiculars 520 feet; breadth 65 feet; depth of hold 36 feet, 9 inches; Engines: Two vertical triple expansion; Boilders: Three double-ended cylindrical, 1 auxiliary; Indicated horsepower estimated 6.750; Generating segs; two 15 kilowatts each, 125 volts, General Electric; Submarine signal sets; one receiving set, type "J"; designed mean draft 27 feet, 8 inches; deadweight capacity to designed draft; cargo fuel 10,500 tons; bunker fuel 2000 tons; reserve feed water 100 tons, other weights, total: 12,900 tons; draft 29 feet, 9 inches; maximum bunker capacity 2,275 tons; maximum cargo capacity for coal 11,600 tons, with maximum cargo capacity for oil, 2,925 tons, with maximum coal 1,275 tons; speed, loaded, 14.61 knots.

Prior to the CYCLOPS being assigned to the Naval Overseas Transportation Service, she was operating with the Train of the Atlantic Fleet basing at Hampton Roads, Va. On January 9, 1918, she was detached from this duty and assigned to the Naval Overseas Trahsportation Service. At this time, she was at Hampton Roads loading a cargo of 9,960 tons of coal. At completion of loading she sailed for Bahia, Brazil, arriving there January 22nd. She discharged her cargo and sailed on January 25th for Rio de Janeiro, Brazil, arriving there on the 28th. There she loaded a commercial cargo of 10,800 tons of manganese ore and sailed on February 16th, via the Barbadoes for Baltimore, Md., where she was due March 13th. She arrived at the Barbadoes March 3, 1918 for coal and left on March 4th. Since her departure there has been no trace of the vessel. The disappearance of this ship has been one of the most baffling mysteries in the annals of the Navy, all attempts to locate her having been proved unsuccessful. Many theories have been advanced, but none that satisfactorily accounts for her disappearance. There were no enemy submarines in the Western Atlantic at the time, and in December 1918 every effort was made to obtain information from German sources regarding the disappearance of the vessel. Information was requested from all attaches in Europe with the restult that it is definite that neither German U-boats nor German mines came into the question. The only German information regarding the loss of the CYCLOPS was that emanating from American sources which stated that the ship left the Barbadoes in March 1918 and has not been heard of since.

There have been many stories circulated giving supposed clues to the loss of CYCLOPS but all have failed of confirmation.

Lives lost on the USS CYCLOPS and declared dead as of June 14,1918:

Naval officers of the vessel	15
Naval enlisted men of the crew	221
Naval officers carried as passengers	6
Naval enlisted men carried as passengers	64
U.S. Marines carried as passengers	2
U.S. Consul at Rio de Janeiro carried as a passenger	1
	309

Prepared by:

Office of Information,
U.S. Navy Department

Reference File

NAVAL AVIATION NEWS

In this issue:

SIX PLANES AND 27 MEN DISAPPEARED ON THE FAMOUS

LOST PATROL

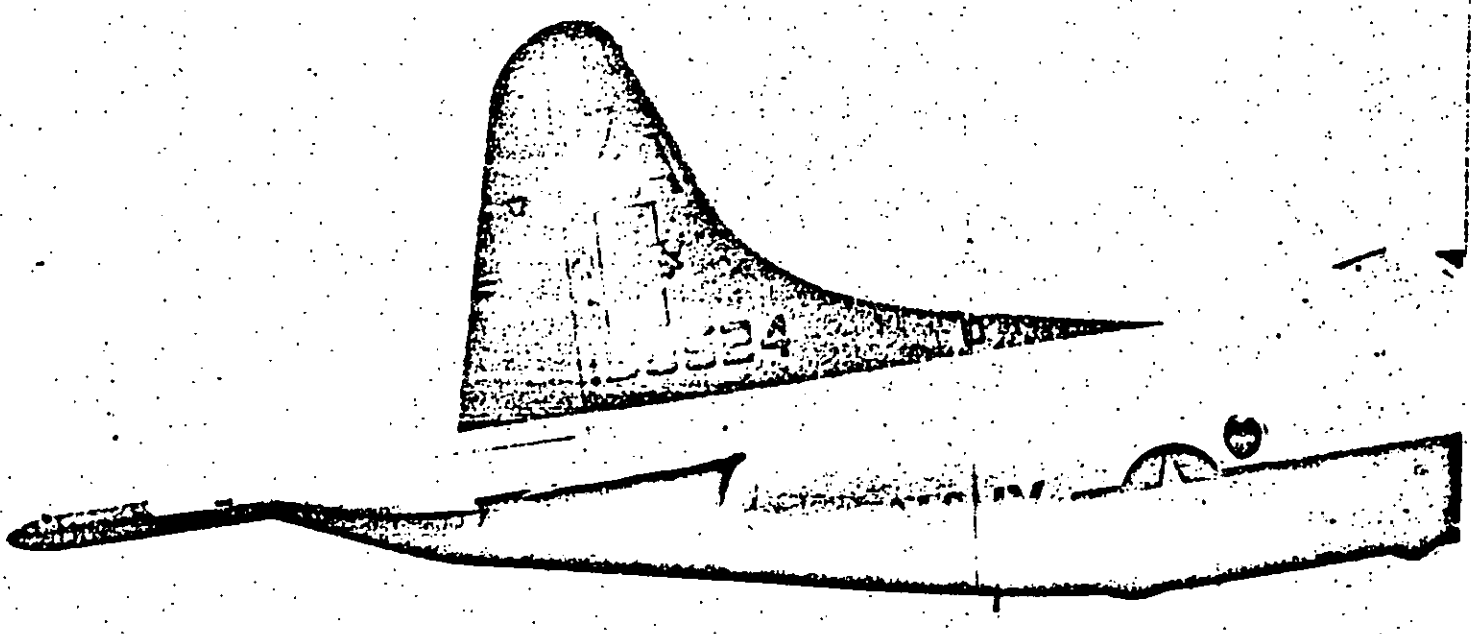
WHAT REALLY HAPPENED?

NAVAL AVIATION NEWS

FIFTY-FIFTH YEAR OF PUBLICATION

Vice Admiral William D. Houser
Deputy Chief of Naval Operations (Air Warfare)

Rear Admiral Thomas R. McClellan
Commander, Naval Air Systems Command



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LOST PATROL

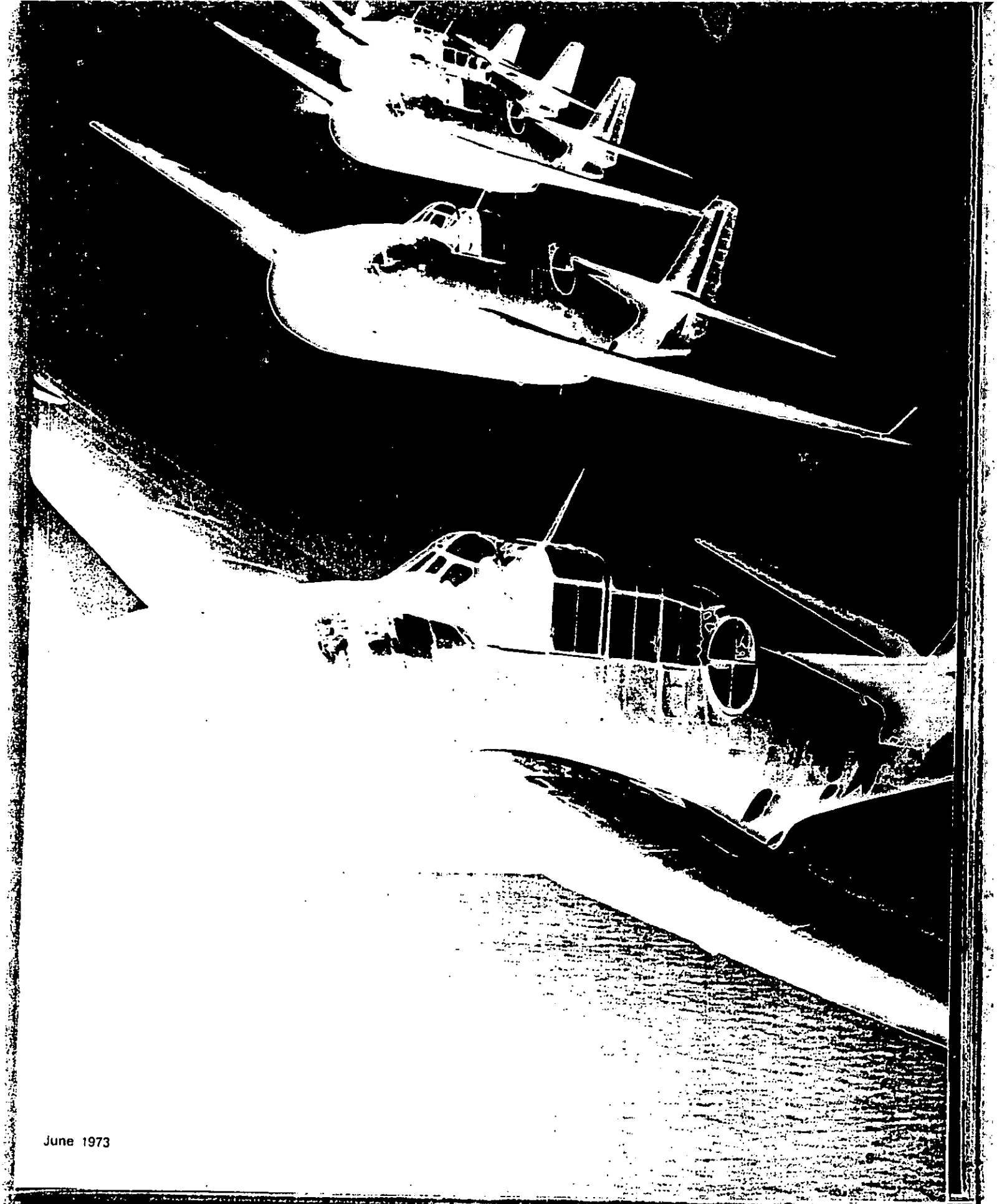
By MICHAEL McDONELL

At 1410 on December 5, 1945, five TBM Avengers *comprising Flight 19 rose into the sunny sky above NAS Fort Lauderdale, Fla. Turning east the formation headed out over the Atlantic on the first leg of a routine exercise from which neither the 14 men of Flight 19 nor the 13-man crew of a PBM* Mariner *sent out to search for them were ever to return.*

The disappearance of the five Avengers *and the PBM sparked one of the largest air and sea searches in history as hundreds of ships and aircraft combed over 200,000 square miles of the Atlantic Ocean and Gulf of Mexico, while, on land, search parties scoured the interior of Florida on the outside chance that the aircraft might have gone down there undetected.*

But nothing was ever found. No wreckage, no bodies, nothing. All that remained were the elements of mystery and a mystery it quickly and easily became. Flight 19 — "The Lost Patrol" — is now the central element of the legend of the infamous "Bermuda Triangle."

Much has been written and speculated about the Triangle, a stretch of ocean credited by some as being "the graveyard of the Atlantic," home of the forbidding Saragasso Sea. In actuality, the Triangle is no such geometric entity; it is an area whose northern boundaries stretch roughly from the southern Virginia coast to the Bermuda Islands, southward to the Bahamas and west to the Florida Keys. And within this area, it has been reported since 1840 that men, ships and even aircraft have disappeared with frequent regularity. Why? It depends on whom you talk to. Some claim that this Hoodoo Sea is a maritime Molech, that supernatural forces are at work there. Others assert that strange magnetic and natural forces unique to the area and unknown to modern science are responsible for the disappearances. Still more believe that with the heavy sea and air traffic moving through the area it is inevitable that some unexplained "incidents" are bound to happen. But no matter what the argument and rationale, there is something oddly provoking about these occurrences, particularly the "normal" circumstances which existed prior to each disaster. It is this writer's view that many a good tale would lie a-dying if all the facts were included.



June 1973

Take the Lost Patrol, for example. The popular version inevitably goes something like this:

Five Avengers are airborne at 2:00 p.m. on a bright sunny day. The mission is a routine two-hour patrol from Fort Lauderdale, Fla. — due east for 150 miles, north for 40 miles and then return to base. All five pilots are highly experienced aviators and all of the aircraft have been carefully checked prior to takeoff. The weather over the route is reported to be excellent, a typical sunny Florida day. The flight proceeds. At 3:45 Fort Lauderdale tower receives a call from the flight but, instead of requesting landing instructions, the flight leader sounds confused and worried. "Cannot see land," he blurts. "We seem to be off course."

"What is your position?" the tower asks.

There are a few moments of silence. The tower personnel squint into the sunlight of the clear Florida afternoon. No sign of the flight.

"We cannot be sure where we are," the flight leader announces. "Repeat: Cannot see land."

Contact is lost with the flight for about ten minutes and then it is resumed. But it is not the voice of the flight leader. Instead, voices of the crews are heard, sounding confused and disoriented, "more like a bunch of boy scouts lost in the woods than experienced airmen flying in clear weather." "We can't find west. Everything is wrong. We can't be sure of any direction. Everything looks strange, even the ocean." Another delay and then the tower operator learns to his surprise that the leader has handed over his command to another pilot, for no apparent reason.

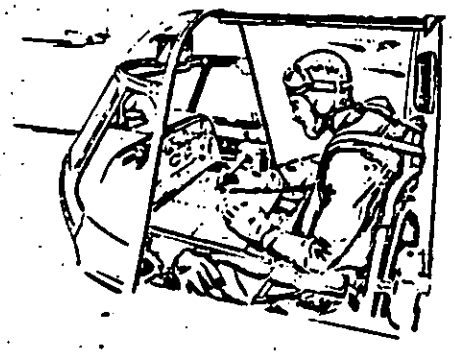
Twenty minutes later, the new leader calls the tower, his voice trembling and bordering on hysteria. "We can't tell where we are . . . everything is . . . can't make out anything. We think we may be about 225 miles northeast of base. . . ." For a few moments the pilot rambles incoherently before uttering the last words ever heard from Flight 19: "It looks like we are entering white water. . . . We're completely lost."

Within minutes a Mariner flying boat, carrying rescue equipment, is on its way to Flight 19's last estimated position. Ten minutes after takeoff, the PBM checks in with the tower . . . and is never heard from again. Coast Guard and Navy ships and aircraft comb the area for the six aircraft. They find a calm sea, clear skies, middling winds of up to 40 miles per hour — and nothing else. For five days almost 250,000 square miles of the Atlantic and Gulf are searched. Yet, not a flare is seen, not an oil slick, life raft or telltale piece of wreckage is ever found.

Finally, after an extensive Navy Board of Inquiry investigation is completed, the riddle remains intact. The Board's report is summed up in one terse statement: "We are not able to even make a good guess as to what happened."

Maybe not, but let's try. Popular versions of the story of the Lost Patrol such as the preceding tale bear striking resemblances to one another, so much so that, because of re-occurring passages in all of them, one is led to believe that a certain amount of borrowing and embellishing from a single source has been performed over the 28 years since the incident occurred. And let us say now that this article is not a debunking piece, but simply a perusal of an incident that has grown to the stature of a myth — a legend that begs to be more expertly examined.

The following account is based on the official Board of Inquiry report concerning the disappearance of Flight 19 and PBM-5, Buno 59225. The record consists of testimony of individuals, expert opinions and logs of the numerous radio transmissions.



To begin with, the Lost Patrol was not a patrol at all. It was an over-water navigation training hop composed of an instructor, 4 Naval Aviators undergoing VTB-type advanced training and nine enlisted aircrewmen who, with the exception of one, were all undergoing advanced combat aircrew training in VTB-type aircraft. The instructor was a combat veteran with 2509.3 hours of flying time; most of it in type, while his students had approximately 300 hours each, about 60 in the TBM/TBF. With the exception of the instructor, hardly a "highly experienced" lot.

The flight was entitled Navigation Problem No. 1 which ran as follows: (1) depart NAS Fort Lauderdale 26 degrees 03 minutes north and 80 degrees 07 minutes west and fly 091 degrees distance 56 miles to Hens and Chickens Shoals to conduct low level bombing and, after bombing, continue on course 091 for 67 miles, (2) fly course 346 degrees for 73 miles and (3) fly course 241 degrees for a distance of 120 miles, returning to NAS Fort Lauderdale. In short, a triangular route with a brief stop for some glide bombing practice on the first leg out.

Prior to the hop, the five *Avengers* were thoroughly preflighted. All survival gear was intact, fuel tanks were full, instruments were checked — but one mechanic commented that none of the aircraft had a clock. Of the 24-hour variety, clocks normally installed aboard aircraft were highly prized by souvenir hunters. Besides, everyone had his own personal wristwatch — or did he?

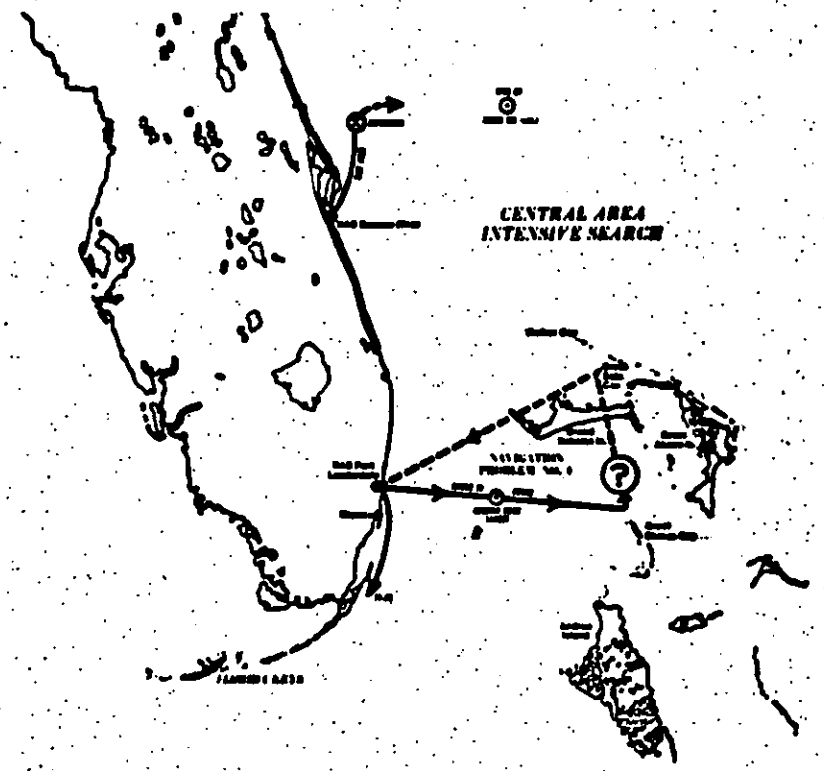
Inside the training office, the students of Flight 19 waited for their briefing; they were going to be late — takeoff time was set for 1345 and the instructor hadn't shown up. At 1315 he arrived and asked the aviation training duty officer to find another instructor to take his place. Giving no reason, he stated simply that he did not want to take this one out. His request was denied; he was told that no relief was available.

It was the instructor's first time on this particular syllabus hop. He had only recently arrived from NAS Miami (where he had also been a VTB-type instructor). But to the anxiously waiting students, it was the third and final navigational problem. The previous two had been in the same general area and now they were anxious to complete the phase.

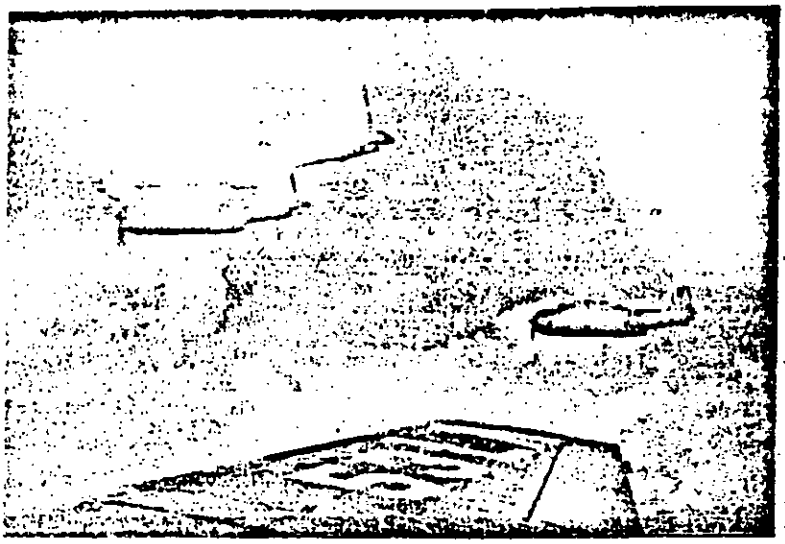
At last the briefing began. The weather for the area of the problem was described as "favorable." In the words of the training duty officer who attended the briefing, "The aerologist sends us a report in the morning. If weather conditions are unfavorable, he will inform us . . . and tell us about the condition. In the absence of any further information, I considered the weather favorable." This estimate was later confirmed by another TBM training flight performing the same problem an hour earlier than Flight 19: weather favorable, sea state moderate to rough.

At 1410 the flight was in the air, led by one of the students. The instructor, whose call sign was Fox Tare Two Eight (FT-28), flew the rear, in a tracking position. ETA was 1723 and the TBMs had enough fuel to remain aloft for five to five-and-a-half hours. Hens and Chickens Shoals, commonly called Chicken Rocks, the point at which they would conduct low level bombing, was only 56 miles away. If they cruised at 150 mph, they would arrive at the Rocks in about 20 minutes or so. Thirty minutes for bombing and then continue on the final 67 miles of the first leg.

At Fort Lauderdale, the tower picked up conversation from Flight 19: "I've got one more bomb." "Go ahead and drop it" was the response. A fishing boat captain working near the target area remembers seeing three or four airplanes flying east at approximately 1500.



LOST PATROL



'I don't know how to get to Fort Lauderdale.'

Assuming that the flight flew the rest of the first leg and then changed to course 346, they would have been near Great Sale Cay by 1540. But at about that time, FT-74, the senior flight instructor at Fort Lauderdale, was joining up his squadron around the field when he heard what he assumed were either some boats or aircraft in distress. "One man was transmitting on 4805 to 'Powers' [the name of one of the students]." The voice asked Powers what his compass read a number of times and finally Powers said, "I don't know where we are. We must have got lost after that last turn."

Upon hearing this, the senior flight instructor informed Fort Lauderdale that either a boat or some planes were lost. He then called, "This is FT-74, plane or boat calling 'Powers' please identify yourself so someone can help you." No response but, a few moments later, the voice came on again asking the others if there were any "suggestions." FT-74 tried again and the voice was identified as FT-28. "FT-28, this is FT-74, what is your trouble?" "Both my compasses are out and I am trying to find Fort Lauderdale, Fla. I am over land but it's broken. I am sure I'm in the Keys but I don't know how far down and I don't know how to get to Fort Lauderdale."

The Keys? Both compasses out? FT-74 paused and then told FT-28 to ". . . put the sun on your port wing if you are in the Keys and fly up the coast until you get to Miami. Fort Lauderdale is 20 miles further, your first port after Miami. The air station is directly on your left from the port." But FT-28 should have known if he was actually over the Keys; he had flown in that area for six months while stationed at Miami. He sounded rattled, confused.

"What is your present altitude? I will fly south and meet you." FT-28 replied, "I know where I am now. I'm at 2300 feet. Don't come after me."

But FT-74 was not convinced. "Roger, you're at 2300. I'm coming to meet you anyhow." Minutes later, FT-28 called again: "We have just passed over a small island. We have no other land in sight." How could he have run out of islands? How could he have missed the Florida peninsula if he was in the Keys? FT-74 was beginning to have serious doubts.

FT-28 came back on the air. "Can you have Miami or someone turn on their radar gear and pick us up? We don't seem to be getting far. We were out on a navigation hop and on the second leg I thought they were going wrong, so I took over and was flying them back to the right position. But I'm sure, now, that neither one of my compasses is working." FT-74 replied: "You can't expect to get here in ten minutes. You have a 30 to 35-knot head or crosswind. Turn on your emergency IFF gear, or do you have it on?" FT-28 replied that he did not.

At 1626 Air-Sea Rescue Task Unit Four at Fort Everglades heard FT-28: "I am at angels 3.5. Have on emergency IFF. Does anyone in the area have a radar

screen that could pick us up?" ASRTU-4 Rogered and, not having direction-finding gear, contacted Fort Lauderdale, who replied that they would notify NAS Miami and ask the other stations to attempt to pick up the lost flight on radar or with direction finders. In all, more than 20 land facilities were contacted to assist in the location of Flight 19. Merchant ships in the area were asked to be on the alert and several Coast Guard vessels were told to prepare to put to sea. But there were delays. Teletype communication with several locations was out and radio fixes were hampered by static and interference from Cuban broadcast stations.

At 1628, ASRTU-4 called FT-28 and suggested that another plane in the flight with a good compass take over the lead. FT-28 Rogered but, from fragmentary messages between the flight leader and the students concerning their estimated position and headings, it appears that no other plane took the lead at this time.

Meanwhile, FT-74 was having his own problems maintaining contact with the lost flight. "Your transmissions are fading. Something is wrong. What is your altitude?" From far away, FT-28 called, "I'm at 4500 feet." At this point FT-74's transmitter went out and he had no power to continue on the common frequency with the lost *Avengers*.

According to the senior instructor's later testimony, ". . . as his transmissions were fading, he must have been going away north as I headed south. . . . I believe at the time of his first transmission, he was either over the Biminies or Bahamas. I was about 40 miles south of Fort Lauderdale and couldn't hear him any longer."

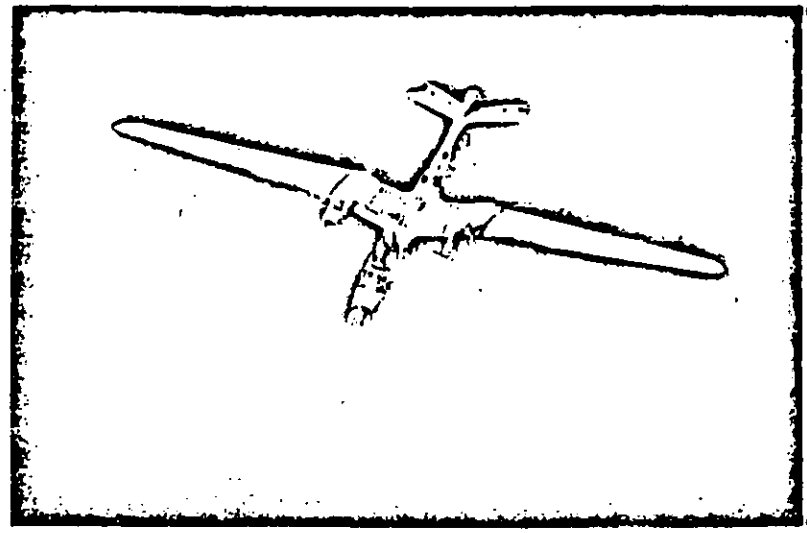
Did he remember any more? Yes, he recalled that at 1600, FT-28 had reported that he had a visibility of 10 to 12 miles. FT-74 further stated that while flying offshore at the time, he had observed a very rough sea covered with white caps and streamers. (The surface winds were westerly, about 22 knots, and visibility was very good in all directions except directly west.)

Upon returning to Fort Lauderdale, FT-74 went to operations and related as much as he could remember of the conversations with FT-28 to the duty officer and requested permission to take the duty aircraft out to search for the flight. Receiving no answer, the pilot then made the same request to the flight officer who replied, "Very definitely, no."

The flight officer had been notified of Flight 19's difficulty at 1630 by the duty officer. "I immediately went into operations and learned that the flight leader thought he was along the Florida Keys. I then learned that his first transmission revealing that he was lost had occurred around 1600. I knew by this that the leader could not possibly have gone on more than one leg of his navigation problem and still gotten back to the Keys by 1600. . . . I notified ASRTU-4 to instruct FT-28 to fly 270 degrees and also to fly towards the sun." (This was standard procedure for lost planes in the area and was drummed into all students.)

'He must have been heading north as I headed south.'

PBM MARINER



LOST PATROL

'Dammit, if we

At 1631, ASRTU-4 picked up FT-28. "One of the planes in the flight thinks if we went 270 degrees we could hit land."

At 1639, the Fort Lauderdale operations officer contacted ASRTU-4 by telephone. He concurred with FT-74 and felt that the flight must be lost over the Bahama Bank. His plan was to dispatch the Lauderdale ready plane, guarding 4805 kc, on a course 075 degrees to try to contact FT-28. If communications were received during the flight, the theory would be proved and a fix could be established.

Operations requested that ASRTU-4 ask FT-28 if he had a standard YG (homing transmitter card) to home in on the tower's direction finder. The message was sent but was not Rogered by FT-28. Instead, at 1645, FT-28 announced: "We are heading 030 degrees for 45 minutes, then we will fly north to make sure we are not over the Gulf of Mexico."

Meanwhile no bearings had been made on the flight. IFF could not be picked up. The lost flight was asked to broadcast continuously on 4805 kc. The message was not Rogered. Later, when asked to switch to 7700 kc, the search and rescue frequency, FT-28 called: "I cannot switch frequencies. I must keep my planes intact."

At 1656, FT-28 did not acknowledge a request to turn on his ZBX (the receiver for the YG) but, seven minutes later, he called to his flight, "Change course to 060 degrees for ten minutes." At approximately the same time, two different students were heard: "Dammit, if we would just fly west we would get home; I said west, dammit."

By 1700, the operations officer was about to send the duty plane out to the east when he was informed that a radio fix was forthcoming — the aircraft was held on the ground pending the fix. At 1716, FT-28 called out that they would fly 270 degrees "until we hit the beach or run out of gas."

In the meantime, Palm Beach was reporting foul weather and, at Fort Lauderdale, they waited for it to move in. At 1724, FT-28 called for the weather at Fort Lauderdale: clear at Lauderdale; over the Bahamas, cloudy, rather low ceiling and poor visibility.

By 1736, it was decided that the ready plane at Fort Lauderdale would not go out. According to the operations officer, the prospect of bad weather and the encouraging information that FT-28 was going to fly

would just fly west, we would get home!'

west until they hit the beach" prompted his decision. It was for this reason that the senior instructor's request was turned down.

The decision was logically correct; but, with hindsight, it was ironic and lamentable. To this day, FT-28 is convinced he *knew* where the lost flight *had to be*. He was denied the opportunity to prove his point. For reasons of safety and, perhaps, hopeful confidence, it was determined that the single-engine, single-piloted ready plane would not be risked on an arbitrary flight into the gathering darkness over winter seas.

At 1804, FT-28 called to his flight, "Holding course 270 degrees — we didn't go far enough east . . . turn around again . . . we may just as well turn around and go east again." The flight leader was apparently still vacillating between his idea that they were over the Gulf and the students' belief that they were over the Atlantic.

The Gulf and Eastern Sea Frontier HF/DF nets had now completed triangulation of bearings on FT-28 from six different radio stations, which produced a reliable fix: he was within an electronic 100-mile radius of 29 degrees north, 79 degrees west; Flight 19 was north of the Bahamas, east of the Florida coast. All stations were alerted and instructed to turn on field lights, beacons and searchlights. Unfortunately, *no one* thought to advise the activities assisting in the attempted recovery of Flight 19 to make open, or "blind," transmissions of the 1750 evaluated fix to any aircraft of the distressed flight!

At 1820 a PBY was airborne out of CGAS Dinner Key to try to contact the flight. No luck. Transmitter antenna trouble. But garbled messages were still coming in from FT-28. "All planes close up tight . . . will have to ditch unless landfall . . . when the first plane drops to ten gallons, we all go down together."

At about the same time, the master of the British tanker *Viscount Empire*, passing through the area northeast of the Bahamas en route to Fort Lauderdale, reported to ASRTU-4 that she encountered tremendous seas and winds of high velocity in that area.

More multi-engine search aircraft were dispatched by air stations up and down the Florida coast.

At NAS Banana River, two PBM-5s were being prepared to join the search, after being diverted from a regularly scheduled night navigation training [illegible]. Flight mech checked out one of the planes, PBM-5 [illegible] 59225, filled it with enough fuel for a 12-hour [illegible] and, as he later testified before the board, "I [illegible] to be A-1. I spent about an hour in the aircraft [illegible] there was no indication of any gas fumes. There was [illegible] discrepancy in any of the equipment and, when [illegible] started up the engines, they operated normally."

According to the pilot of the other PBM, [illegible] 1830, operations called the operations duty officer [illegible] regard to the five TBMs whose last position was reported as approximately 130 miles east of New Smyrna with about 20 minutes of fuel remaining. We received [illegible] position and were told to conduct a square search [illegible] were instructed to conduct radar and visual search [illegible] to stand by on 4805 kc, the reported frequency on which the TBMs were operating. At the time we were briefed, Lt(jg). Jeffrey, in Training 49, was to make the search plane in the search. No other planes were included.

Were any plans made for a joint conduct of the search mission? "Yes, I was to proceed to the reported position of the TBMs and conduct a square search. Lt. Jeffrey was to proceed to New Smyrna and track eastward to intercept the presumed track of the TBMs and then was to conduct an expanding square search at the last reported position of the TBMs."

What were the weather and sea conditions when you arrived in the vicinity of 29 degrees north, 79 degrees west?" ". . . the ceiling was approximately eight to twelve hundred feet overcast, occasional showers, estimated wind, west southwest about 25-30 knots. The air was very turbulent. The sea was very rough."

LOST PATROL

At 1927, PBM-5, Buno 59225, was airborne from Banana River with three aviators aboard and a crew of ten. At 1930, the aircraft radioed an "out" report to its home base and was not heard from again.

Cruising off the coast of Florida, the tanker S.S. *Gaines Mills* was sailing through the dark night when it sent the following message, "At 1950, observed a burst of flames, apparently an explosion, leaping flames 100 feet high and burning for ten minutes. Position 28 degrees 59 minutes north, 80 degrees 25 minutes west. At present, passing through a big pool of oil. Stopped, circled area using searchlights, looking for survivors. None found." Her captain later confirmed that he saw a plane catch fire and immediately crash, exploding upon the sea.

A message from USS *Solomons* (CVE-67), which was participating in the search, later confirmed both the merchantman's report and the fears of many at Banana River. "Our air search radar showed a plane after take-off from Banana River last night joining with another plane,* then separating and proceeding on course 045 degrees at exact time S.S. *Gaines Mills* sighted flames and in exact spot the above plane disappeared from the radar screen and never reappeared." No wreckage was sighted and according to witnesses there was little likelihood that any could have been recovered due to a very rough sea. The next day, water samples, taken in the area, developed an oily film. The area was not buoyed due to the heavy seas nor were diving or salvage operations ever conducted. The depth of the water was 78 feet and the site was close to the Gulf Stream.

During the Board's examination of the disappearance of the PBM, several witnesses were questioned concerning gas fumes and smoking regulations, which were reportedly well posted and rigidly enforced aboard all PBMs. Although the Board's report is not a verbatim record and no accusations were made, there seems to be enough inference present to cause one to suspect that the Board was aware of the PBM's nickname, "the flying gas tank."

What followed is essentially what has been reported by so many others: five days of fruitless searching which revealed numerous older wrecks but not so much as a scrap of wreckage from either the TBMs or the PBM. The fate of the latter seems confirmed — an inflight fire of unknown origin and subsequent crash/explosion. The former's disappearance still has the aura of mystery, however.

Why did FT-28 not want to go on the flight; what was his state of mind? How could *both* his compasses have gone out? Did he have a watch? One suspects he did not, as he repeatedly asked the other flight members *how long* certain headings had been flown. These are only some of the questions which can never be fully answered.

But some have been.

We now know that FT-28 took the lead sometime after the turn north on the second leg, thinking that his students were on a wrong heading. We know that FT-28 would not switch to the emergency radio frequency for fear of losing contact with his flight. We also know that there were strong differences of opinion between the instructor and the students about where they were. The instructor, familiar with the Florida Keys, with both compasses out and with evidently no concept of time, could very well have mistaken the cays of the northern Bahamas for the Keys and the water beyond for the Gulf of Mexico.

But the students, having flown the area before, appeared to know exactly where they were — and it was *not* the Keys or the Gulf. The lead passed back and forth between FT-28 and a student, and land was never reached as the flight zigzagged through the area north of the Bahamas.

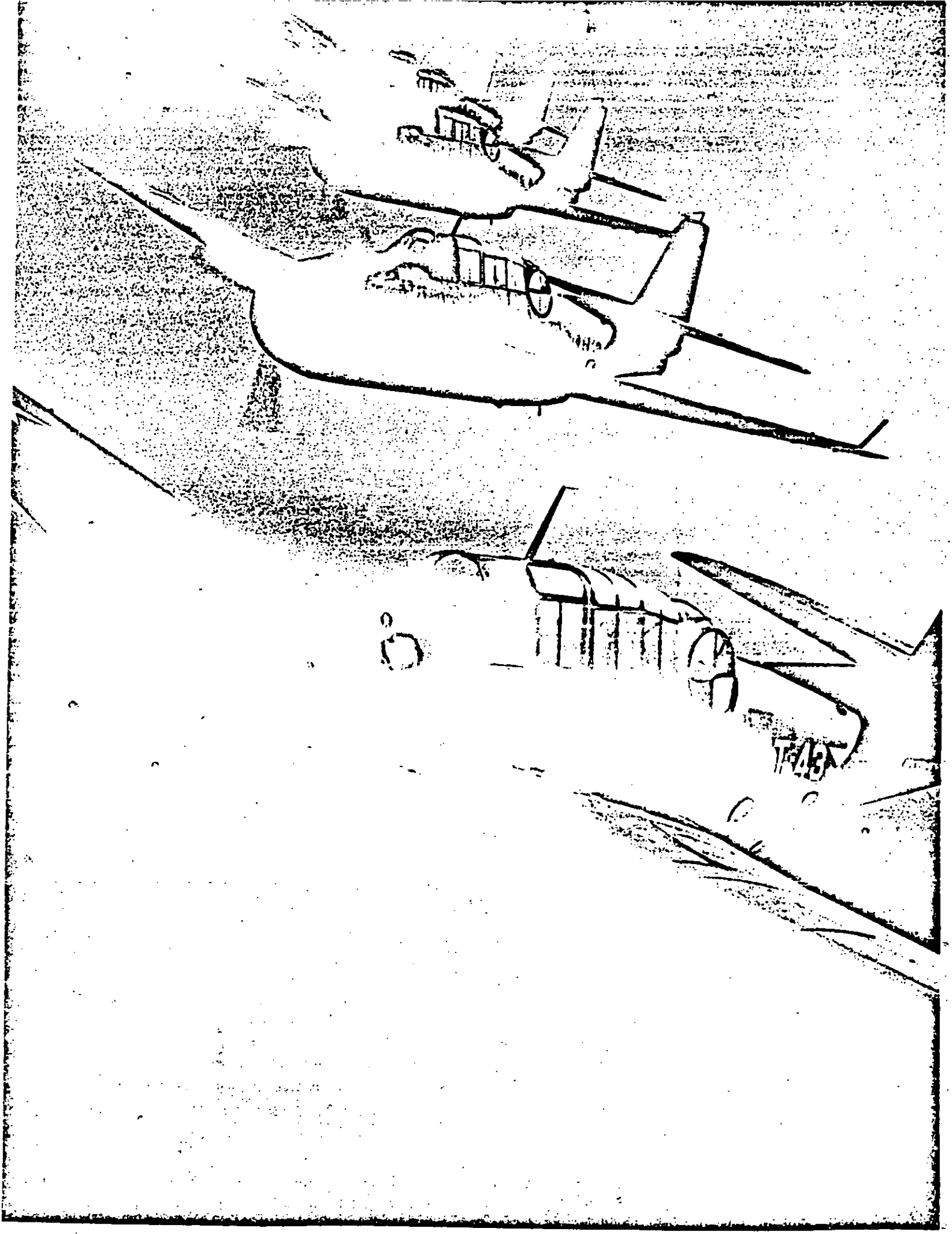
Toward the end, the low ceiling and daytime ten-mile visibility were replaced by rain squalls, turbulence and the darkness of winter night. Terrific winds were encountered and the once tranquil sea ran rough. They would "fly towards shore," the better to be rescued. Whether it was the Atlantic or Gulf Coast that they thought they were flying toward can never be known.

Valiantly trying to keep his flight together in the face of most difficult flying conditions, the leader made his plan: When any aircraft got down to ten gallons of fuel, they would all ditch together. When that fateful point was reached, we can only imagine the feelings of the 14 men of Flight 19 as they descended through the dark toward a foaming, raging sea and oblivion.

Former TBM pilots that we questioned express the opinion that an *Avenger* attempting to ditch at night in a heavy sea would almost certainly not survive the crash. And this, we feel, was the case with Flight 19, the Lost Patrol. The aircraft most probably broke up on impact and those crewmen who might have survived the crash would not have lasted long in cool water where the comfort index was lowered by the strong winds. This last element, while only an educated guess, seems to satisfy this strange and famous "disappearance."

On other matters, there have been equally strange *appearances* — or sightings — by experienced Naval Aviators. And the reasons for *them* have not yet been adequately explained. For the curious, examples are provided on the following pages.

* the second PBM



UNIDENTIFIED FLYING OBJECT

A PROVOCATIVE TALE

Crew members and passengers on an R5D (C-54) experienced a dramatic UFO sighting in the pre-dawn hours of a North Atlantic flight in the early 1950s. Details of the interesting occurrence, as told some years later by the pilot, Lt. "B," are excerpted here through the cooperation of the National Investigations Committee on Aerial Phenomena (NICAP).

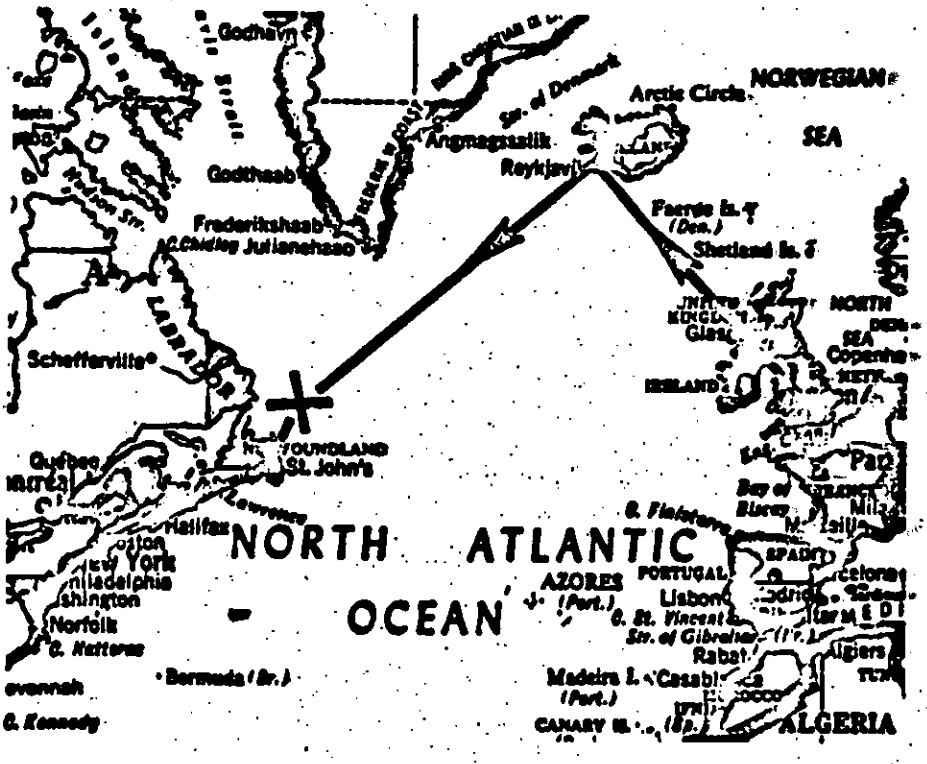
At the time of the event, Lt. B. was 30 years old, experienced in both North and South Atlantic flight, with qualifications in 38 types of aircraft.

The weather was excellent. The moon had set but visibility was good. Lt. B. and the plane commander, LCdr. K., who was in the copilot's seat, could make out the horizon clearly.

Asleep in the aircraft were two extra crews, one a relief for B.'s men, the other on board as passengers. The R5D was at 10,000 feet on a southwesterly course for Newfoundland, ground speed 200 knots. Three and a half hours out of Iceland, midpoint in the flight, they passed over a weather ship on station off the coast of Greenland. The ship reported normal conditions.

The aircraft was on autopilot. LCdr. K. and myself were on constant watch for other aircraft. I observed a yellow glow in the distance about 30 to 35 miles away, at about the one o'clock position and below the horizon. My impression was that there was a small city ahead, because it was the same glow you get from a group of lights on the surface before you get close enough to pick them out individually.

"Knowing that our course took us past the tip of Greenland, my first thought was that we hadn't yet reached it, that we were behind schedule and had drifted north, but remembering that we had passed over the weather ship, I realized this was not the case. I called K.'s attention to the glow and asked him what he thought it was. He said that it looked like we were approaching land. I asked our navigator to check our position. He did and replied that



we were on flight plan and on course.

"The lights were farther away than we thought because it took us eight to ten minutes to get close enough to where the lights had a pattern (our ground speed was over three miles per minute), about 15 or 18 miles away. At that time, due to the circular pattern of lights, I got the impression that possibly two ships were tied up together and that lights were strung between them for either transferring cargo from one to the other or that one was in some kind of trouble.

"I asked the navigator to check his ship plot. He replied that there were no ships plotted in this area and that we were not close to the shipping lanes anyway. The radioman also went on the air to the weather ship, which verified that there were no ships in the area.

"Since it was time for Lt. J.'s crew to relieve us, I had the plane captain awaken them. When Lt. J. and Lt. M. came up forward, I pointed the lights out to them. Their only comment was that it had to be a ship because it was on the water and we were overtaking it fast. By this time, we were five to seven miles away; it was about 30 degrees to our right; and we had to look down at about a 45-degree angle. The lights had a definite circular pattern and were bright white.

"Suddenly, the lights went out. There appeared a yellow halo on the water. It turned to orange, to a fiery red, and then started moving toward as at a fantastic speed, turning to a bluish red around the perimeter. Due to its high speed, its direction of travel and its size, it looked as though we were going to be engulfed. I quickly disengaged the autopilot and stood by to push the nose of the plane over in hopes that we could pass under it because of the angle at which it was ascending. The relief crew was standing behind us; everyone began ducking and a few heads were hit on objects.

"It stopped its movement toward us and began moving along with us about 45 degrees off the bow to the right, about 100 feet or so below us and about 200 to 300 feet in front of us. It was not in a level position; it was tilted about 25 degrees.

"It stayed in this position for a minute or so. It appeared to be from 200 to 300 feet in diameter, translucent or metallic, shaped like a saucer. A purple-red glow around the perimeter was the same type of glow you get around the commutator of an auto generator when you observe it at night.

"When the object moved away from us, it made no turns, as though it was backing up about 170 degrees from the direction from which it approached us, and was still tilted. It was only a few seconds before it was out of sight. (Speed estimated in excess of 1,500 mph.)

"All of our cameras were within reach, but no one was calm enough to think about taking a picture. Most of us were wondering what it was. Our impression was that this was a controlled craft. It had been either hovering over the water or sitting on it; then it detected us and came up to investigate.

"After Lt. J.'s crew had taken over, I proceeded aft and learned that most of the passengers had observed the same thing. Since I was unable to identify the object, I asked Dr. M., a commander in the Medical Corps, if he had observed the object. He replied that he had and that he did not look further because it was a flying saucer and he did not believe in such things. I immediately returned to the cockpit and informed the crew to keep quiet about what we observed because it might have been our first sighting of a flying saucer (during those years when you mentioned you had such a sighting, you were believed to be crazy). Lt. J. informed me that it was too late because he had called Gander Airfield in Newfoundland to see if the object could be tracked by radar.

"When we landed we were met by intelligence officers. It was obvious that there had been many sightings in the same area. . . . Subsequently, when we arrived in the United States, we had to make a full report and I found out a few months later than Gander radar did track the object in excess of 1,800 mph."

20 YEARS AGO IN NANEWS

MCAS CHERRY POINT — A [illegible] ready room conversation for [illegible] Marine Air Wing pilots has [illegible] story of the "flying saucer" [illegible] cently outsped an F9F [illegible] flying more than 500 mph.

The jet pilot, 1st Lt. [illegible] was on a local night flight [illegible] Edenton when alerted by [illegible] folk tower to watch for a [illegible] sighted from the ground [illegible] North Carolina-Virginia line.

Over Washington, N.C. [illegible] 22-4 pilot said, "I saw what [illegible] like an airplane with red lights [illegible] appeared to be below me. [illegible] from below me 10,000 feet [illegible] in a matter of seconds."

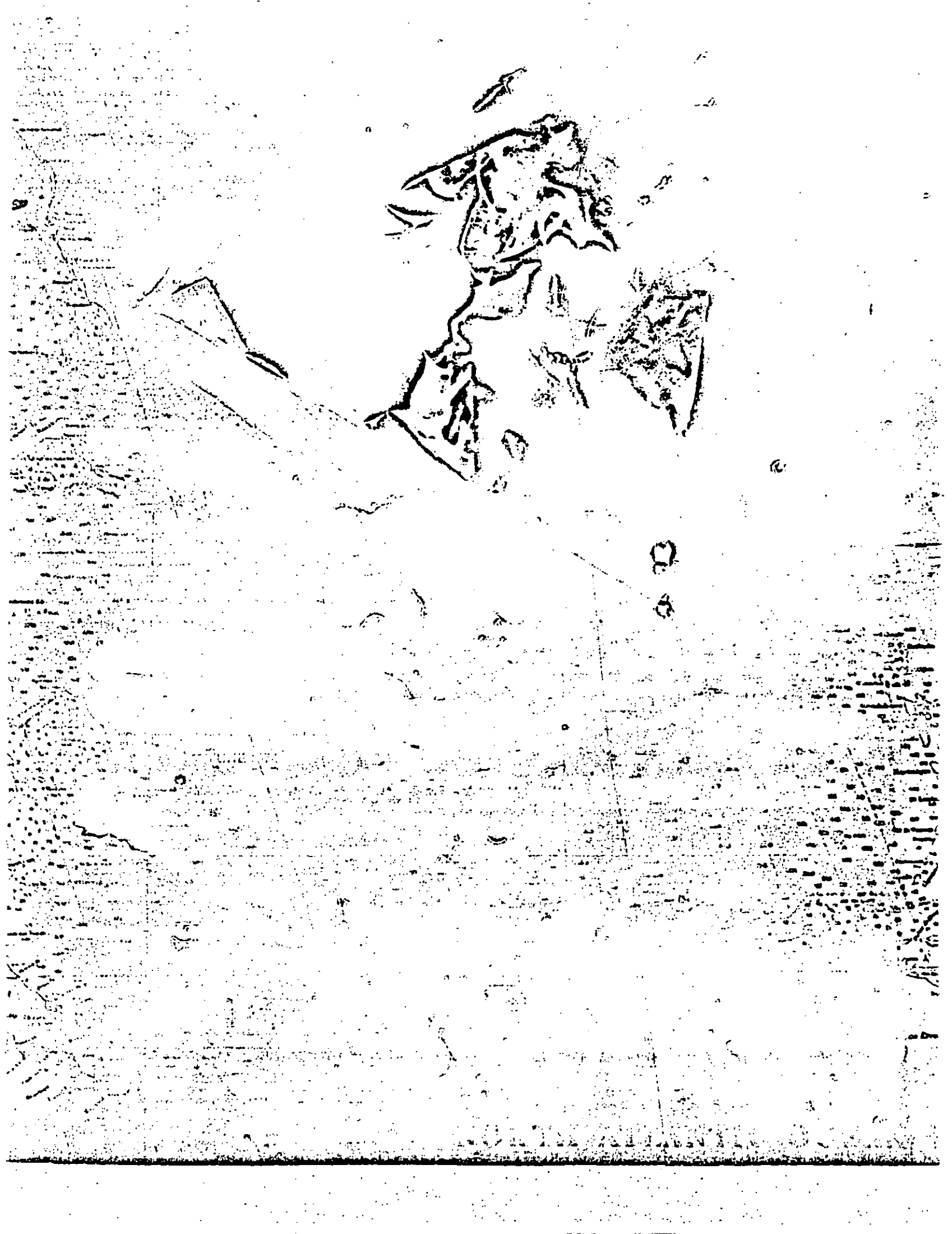
Baloceo said he poured on [illegible] and could not close on the [illegible] first, then closed rapidly. He [illegible] sidered it a "big" object, the [illegible] white heat and throwing off [illegible] It had what appeared to be [illegible] lights on the lefthand side. Then [illegible] bouncing off the end, inscribing [illegible]

As the object began pulling [illegible] again, the pilot radioed [illegible] in the area to help track [illegible] toward the spot where the [illegible] appeared. Baloceo thought [illegible] flash but was unable to see [illegible] By then he was joined by [illegible] Thomas W. Riggs of the same squadron, who sighted an object [illegible] the coastline but could not identify [illegible]

Similar flashes were reported [illegible] Navy pilot from Norfolk and [illegible] Midget of Oriental, N.C. Midget [illegible] of the flash being followed by a [illegible] fire but no explosion. Marine [illegible] copters later searched the area [illegible] found a small forest fire but no [illegible] of a crash.

The object was first reported by a helicopter at 1747. Ground control intercept radar failed to pick it up but Baloceo sighted it about 15 [illegible]

Baloceo, a veteran of 550 jet hours and 1,000 flying hours, said visibility was so good that from 20,000 feet at Washington he could see the lights at Norfolk and the Cherry Point beacon. He had the object in sight three or four minutes.



Exorcising the Devil's Triangle

By Howard L Rosenberg

During the past century more than 50 ships and 20 aircraft sailed into oblivion in the area known as the Devil's Triangle, Bermuda Triangle, Hoodoo Sea, or a host of other names.

Exactly what happened to the ships and aircraft is not known. Most disappeared without a trace. Few distress calls and little, if any, debris signaled their disappearance.

Size of the triangle is dictated by whoever happens to be writing about it, and consequently what ships and the number lost depends largely on which article you read.

Vincent Gaddis, credited with putting the triangle "on the map" in a 1964 Argosy feature, described the triangle as extending from Florida to Bermuda, southwest to Puerto Rico and back to Florida through the Bahamas. Another author puts the apexes of the triangle somewhere in Virginia, on the western coast of Bermuda and around Cuba, Dominican Republic and Puerto Rico. Sizes of the areas described range from 500,000 to 1.5 million square miles.

Whatever the size or shape, there supposedly is some inexplicable force within it that causes ships and planes to vanish.

According to Richard Winer, who recently completed a TV film documentary on the area, one "expert" he interviewed claims the missing ships and planes are still there, only in a different dimension as a result of a magnetic phenomenon that could have been set up by a UFO (Unidentified Flying Object).

Winer is currently writing a book on the subject and has traveled most of the area in his sailboat. He confesses he "never saw anything unusual."

Winer's TV program dealt mostly with the strange disappearance in 1945 of five Navy TBM Avengers with 14 fliers who flew from Ft. Lauderdale into the triangle never to return. A PBM Mariner with a 13-man crew was sent out to search for the fliers. It too, never returned.

Few have really dug into all the aspects of this mystery, but many are content to attribute the loss of Flight 19 to some mysterious source, like UFOs. Michael McDonnel did do some digging. In an article he wrote for the June 1973 edition of Naval Aviation News he suggested the most realistic answer to the loss of Flight 19 was simply, that after becoming lost, they ran out of gas. Many question that possibility by asking, "How could such experienced pilots get lost? How could all the compasses be wrong?"

If the planes were flying through a magnetic storm, all compasses could possibly malfunction. Actually, man's knowledge of magnetism is limited. We know how to live with it and escape it by going into space, but, we really don't know what exactly it is.

As for the pilots' experience, Flight 19 was a training flight. Though advanced, it was still training. Even the most "experienced" pilots make mistakes.

McDonnel concludes his article with the statement, "Former TBM pilots that we questioned express the opinion that the crew of an Avenger attempting to ditch at night in a heavy sea would almost certainly not survive the crash. And this, we feel was the case with Flight 19. The aircraft most probably broke up on impact and those crewmen who might have survived the crash would not have lasted long in cool water."

The PBM Mariner was specifically designed as a rescue plane with the ability to remain aloft for 24 hours. But, the Mariners also were nicknamed "flying gas tanks" by those who flew them. It was common for a pilot to search the crew members before each flight for matches or cigarette lighters because gas fumes often were present. After this Mariner disappeared, Navy soon grounded all others.

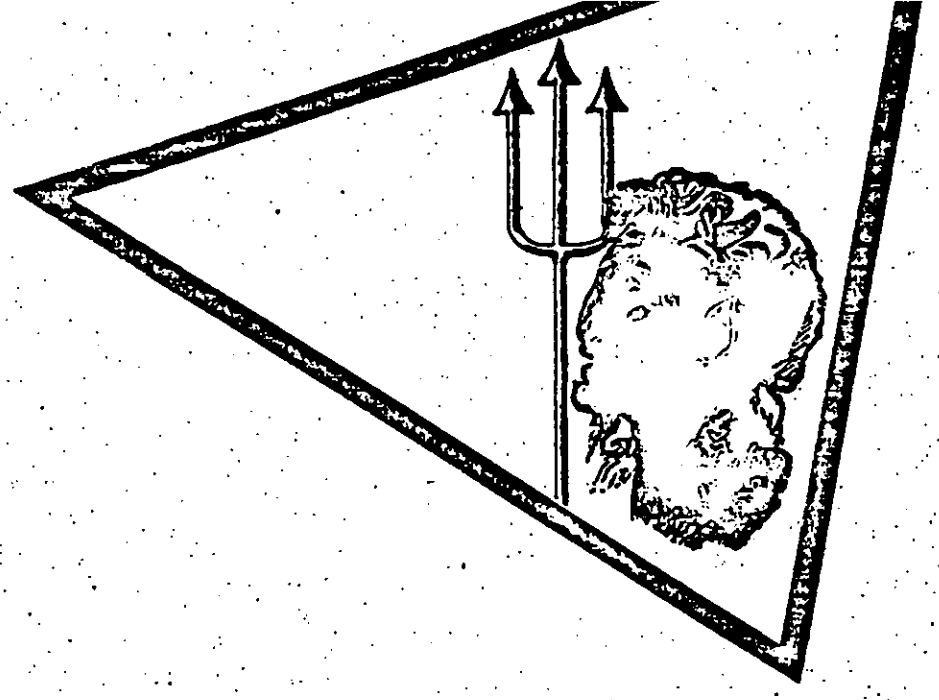
Another mysterious disappearance that baffles researchers is that of the SS Marine Sulphur Queen. Bound for Norfolk, Va. from Beaumont, Texas, the tanker was last heard from on Feb. 3, 1963 when she routinely radioed her position. The message placed her near Key West in the Florida Straits.

Three days later, Coast Guard searchers found a solitary life jacket bobbing in a calm sea 40 miles southwest of the tanker's last known position. No other sign of the missing tanker or her 39-man crew has ever been found.

The absence of bodies might be explained by the fact that the waters are infested with sharks and barracuda. As for the tanker, she was carrying 15,000 long tons of molten sulphur contained in four metal tanks, each heated to 275 degrees Fahrenheit by a network of coils connected to two boilers.

No one knows for sure whether she blew up, but it is a possibility. If gas escaped from the tanks and poisoned the crew, the radio officer may have not had time to send a distress call before being overcome. The slightest spark could have set the leaking sulphur afire in an instant.

Writing in the Seamen's Church Institute of New York's magazine, The Lookout, Paul Brock said that



officers on a Honduras flag banana boat "reported to the Coast Guard that their freighter ran into a 'strong odor' 15 miles off Cape San Antonia, the western tip of Cuba, just before dawn on February 3. The odor was 'acrid' ". Brock speculates that they could have smelled the fumes coming from the Sulphur Queen "floating somewhere over the horizon, her crew dead and her cargo blazing."

According to Brock, T-2 tankers like the Sulphur Queen had a history of battle failure. He said that "during the preceding 11 years, three T-2s had split in half." Brock also cites a case in December 1954 when a converted Navy LST, the Southern District, was heading up the North Carolina coastline when she disappeared without a trace or distress call. Her cargo was powdered sulphur.

One of the most celebrated stories of Devil's Triangle victims, is that of USS Cyclops which disappeared in March of 1918.

In his television program, Richard Winer indicated the captain of the Cyclops was rather eccentric. He was reputedly fond of pacing the quarterdeck wearing a hat, a cane and his underwear. Prior to the Cyclops disappearance there was a minor mutiny by some members of the crew which was promptly squelched by the captain and the perpetrators were sent below in irons. None of this really offers a clue to what happened to the collier Cyclops, but it suggests something other than a mysterious force might have led to her doom.

According to Marshall Smith writing in Cosmopolitan, September 1973, "theories ranged from mutiny at sea to a boiler explosion which carried away the radio shack and prevented any distress call." One magazine, Literary Digest, speculated that a giant octopus rose from the sea, entwined the ship with its tentacles and dragged it to the bottom. Another theory was that the ship suddenly turned turtle in a freak storm, trapping all hands inside.

Fifty years later, novelist Paul Gallico used the idea as the peg for a novel called The Poseidon Adventure which was made into a successful movie in 1972.

Cyclops was assigned to the Naval Overseas Transportation Service, which became the Naval Transportation Service, which merged with the Army Transport Service to become the Military Sea Transportation Service and then Military Sealift Command. When she sailed she was loaded with 10,800 tons of manganese ore bound for Baltimore from Barbados in the West Indies.

Information obtained from Germany following World War I disproved the notion that enemy U-boats or mines sank the Cyclops. None were in the area.

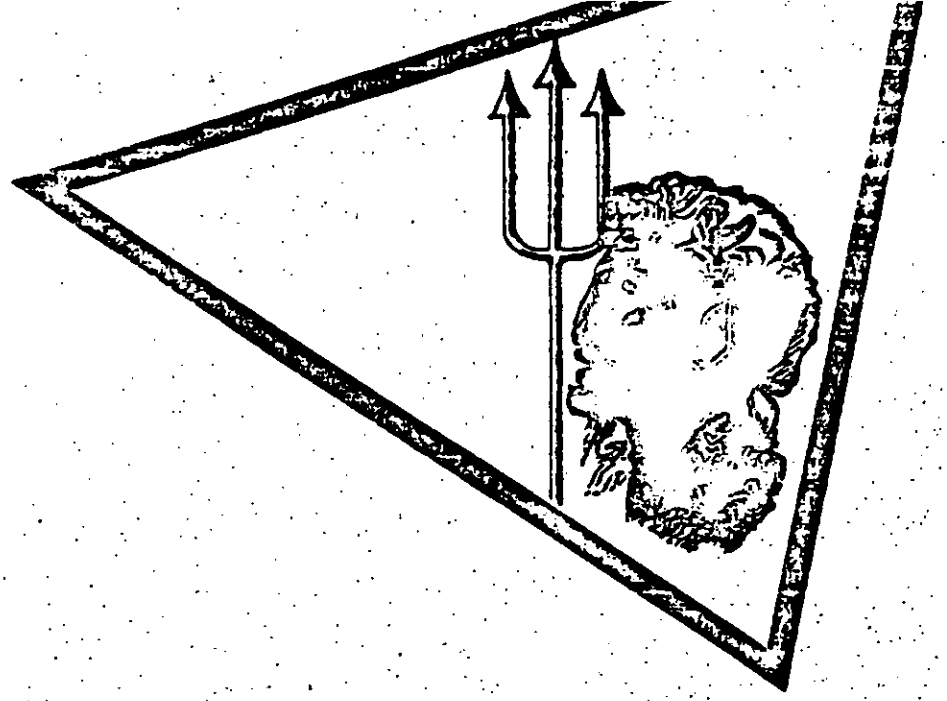
Another story concerns the loss of the nuclear submarine USS Scorpion in the Devil's Triangle. It is impossible to stretch even the farthest flung region of the triangle to include the position of the lost sub.

Truth is, Scorpion was found by the MSC oceanographic ship USNS Mizar about 400 miles southwest of the Azores, nowhere near the Devil's Triangle. Its loss was attributed to mechanical failure, not some demonic denizen of the deep.

There are literally thousands of cases of lost ships ever since primitive man dug a canoe out of the trunk of a tree and set it in the water. Why all this emphasis on the Devil's Triangle? It's difficult to say.

It would seem that, historically, whenever man was unable to explain the nature of the world around him, the problems he faced were said to be caused by gods, demons, monsters and more recently, extra-terrestrial invaders.

Before Columbus set sail and found the Americas, it



was believed that the world was flat and if you sailed too far west, you would fall off the edge. That reasoning prevails concerning the Devil's Triangle. Since not enough scientific research has been done to explain the phenomenon associated with the area, imagination takes over. UFOs, mystical rays from the sun to the lost Continent of Atlantis, giant sea monsters and supernatural beings are linked to the mysterious disappearances in the triangle.

To someone unprepared to take on the immense work of scientific research, supernatural phenomenon make for an easy answer. But, it is amazing how many supernatural things become natural when scientifically investigated.

There are a number of natural forces at work in the area known as the Devil's Triangle, any of which could, if the conditions were right, bring down a plane or sink a ship.

Many reputable scientists refuse to talk to anyone concerning the Devil's Triangle simply because they do not want their good names and reputations associated with notions they consider ridiculous.

One expert on ocean currents at Yale University, who asked not to be identified, exploded into laughter at the mention of the triangle and said, "We confidently, and without any hesitation, often go to sea and work in that area." Another scientist refused to talk about it.

Atmospheric aberrations are common to jet age travelers. Few have flown without experiencing a phenomenon known as clear air turbulence. An aircraft can be flying smoothly on a beautifully clear day—suddenly hit an air pocket or hole in the sky and drop 200 to 300 feet.

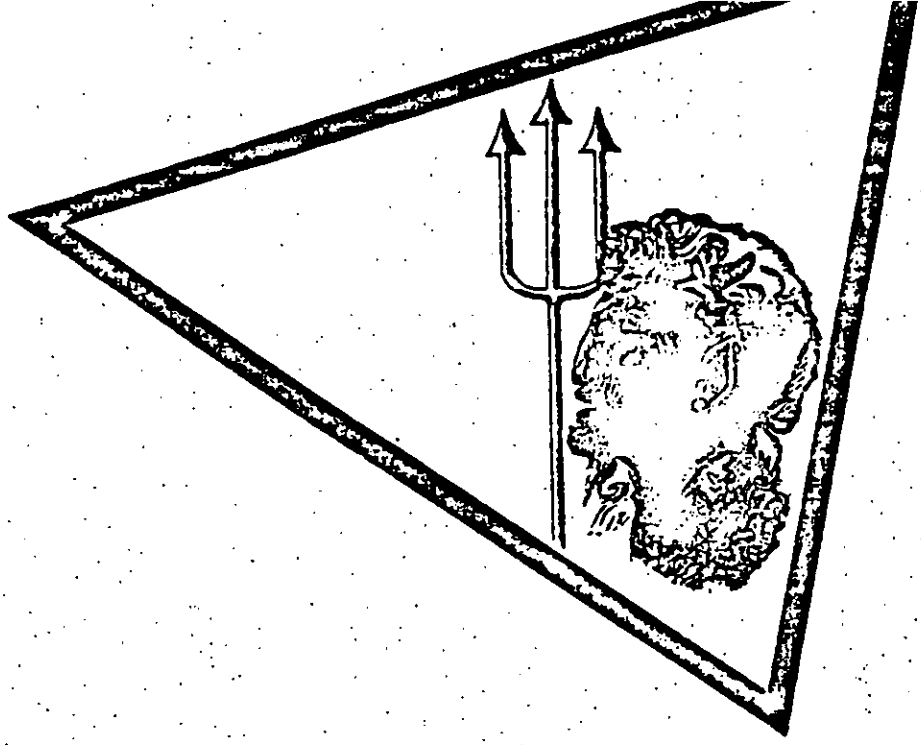
Lt. Cmdr. Peter Quinton, meteorologist and satellite liaison officer with the Fleet Weather Service at Suitland, Md., said, "You can come up with hundreds of possibilities and elaborate on all of them and then come up with hundreds more to dispute the original ones."

"It's al. statistical," he said, "there's nothing magical about it." According to Quinton, the Bermuda Triangle area is notorious for unpredictable weather. The only things necessary for a storm to become a violent hurricane are speed, fetch (the area the wind blows over) and time. If the area is large enough, a thunderstorm can whip into a hurricane of tremendous intensity. But hurricanes can usually be spotted by meteorologists using satellite surveillance. It is the small, violent thunderstorms known as meso-meteorological storms that they can't predict since they are outside of normal weather patterns. These are tornadoes, thunderstorms and immature tropical cyclones.

They can occur at sea with little warning, and dissipate completely before they reach the shore. It is highly possible that a ship or plane can sail into what is considered a mild thunderstorm and suddenly face a meso-meteorological storm of incredible intensity.

Satellites sometimes can not detect tropical storms if they are too small in diameter, or if they occur while the satellite is not over the area. There is a 12-hour gap between the time the satellite passes over a specific part of the globe until it passes again. During these 12 hours, any number of brief, violent storms could occur.

Quinton said, "Thunderstorms can also generate severe electrical storms sufficient to foul up communication systems." Speaking of meso-meteorological storms, which she dubbed "neutercanes," Dr. Joanne Simpson, a prominent meteorologist at the University of Miami, said in the Cosmopolitan article that "These small hybrid type storm systems arise very quickly, especially over the Gulf Stream. They are several miles in



diameter, last a few minutes or a few seconds and then vanish. But they stir up giant waves and you have chaotic seas coming from all directions. These storms can be devastating."

An experienced sailor herself, Dr. Simpson said on occasion she has been "peppered by staccato bolts of lightning and smelled the metallic odor of spent electricity as they hit the water, then frightened by ball lightning running off the yards." Sailors have been amazed for years by such lightning storms and static electricity called "St. Elmo's Fire."

Aubrey Graves, writing in This Week magazine, August 4, 1964, quotes retired Coast Guard Capt. Roy Hutchins as saying, "Weather within the triangle where warm tropical breezes meet cold air masses from the arctic is notoriously unpredictable."

"You can get a perfectly good weather pattern, as far as the big weather maps go, then go out there on what begins as a fine day and suddenly get hit by a 75-knot squall. They are localized and build up on the spot, but they are violent indeed."

Many boatmen, Hutchins said, lack understanding of the velocity of that "river within the ocean" (Gulf Stream) which at its axis surges north at four knots. "When it collides with strong northeast winds, extremely stiff seas build up, just as in an inlet when the tide is ebbing against an incoming sea."

"The seas out there can be just indescribable. The waves break and you get a vertical wall of water from 30 to 40 feet high coming down on you. Unless a boat can take complete submergence in a large, breaking sea, she can not live."

Last year, the Coast Guard answered 8,000 distress calls in the area, 700 a month or 23 a day. Most problems could have been avoided if caution had been used. The biggest trouble comes from small boats running out of gas. According to the Coast Guard, an inexperenced sailor is looking for trouble out there. A small boat could be sucked into the prop of a big tanker or swamped in a storm and never be seen again.

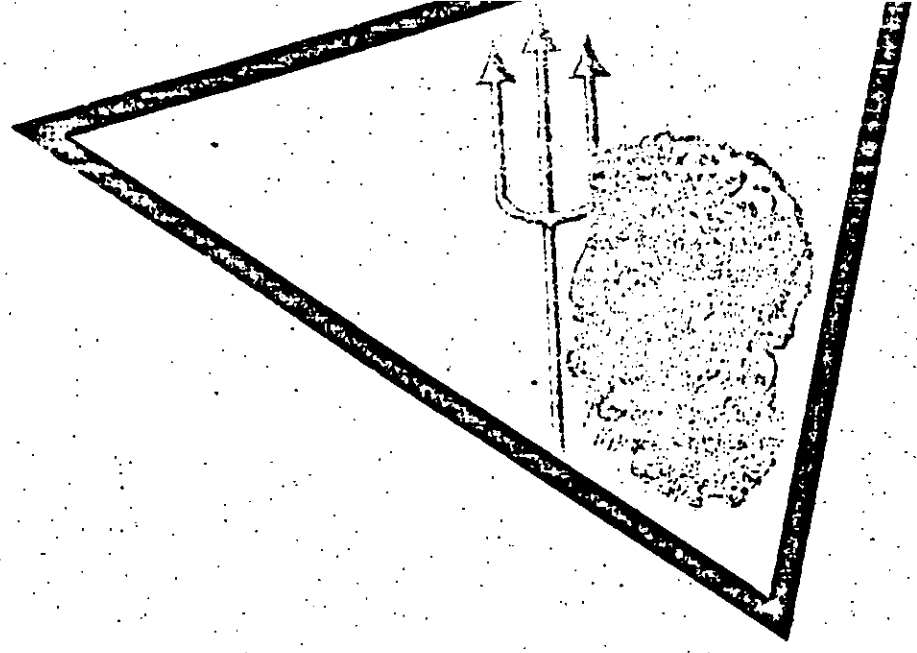
Another phenomenon common in the region is the waterspout. Simply a tornado at sea that pulls water from the ocean surface thousands of feet into the sky, the waterspout could "wreck almost anything" said Allen Hartwell, oceanographer with Normandeau Associates.

Hartwell explained that the undersea topography of the ocean floor in the area has some interesting characteristics. Most of the sea floor out in the Devil's Triangle is about 19,000 feet down and covered with deposition, a fine-grained sandy material. However, as you approach the East Coast of the United States, you suddenly run into the continental shelf with a water depth of 50 to 100 feet. Running north along the coast is the Gulf Stream which bisects the triangle carrying warm tropical water.

Near the southern tip of the triangle lies the Puerto Rico Trench which at one point is 27,500 feet below sea level. It's the deepest point in the Atlantic Ocean and probably holds many rotting and decaying hulks of Spanish treasure galleons.

Many articles concerning the triangle have made the erroneous statement that the Navy formed Project Magnet to survey the area and discover whether magnetic aberrations do limit communications with ships in distress, or contribute to the strange disappearance of ships and aircraft.

Truth is that Navy's Project Magnet has been surveying all over the world for more than 20 years, mapping the earth's magnetic fields. According to Henry P. Stockard, project director, "We have passed over the area hundreds of times and never noticed any unusual magnetic disturbances."



Also passing through the Devil's Triangle is the 80th meridian, a degree of longitude which extends south from Hudson Bay through Pittsburgh then out into the Triangle a few miles east of Miami. Known as the agonic line, it is one of two places in the world where true north and magnetic north are in perfect alignment and compass variation is unnecessary. An inexperienced navigator could sail off course several degrees and lead himself hundreds of miles away from his original destination.

This same line extends over the North Pole to the other side of the globe bisecting a portion of the Pacific Ocean east of Japan.

This is another part of the world where mysterious disappearances take place and has been dubbed the "Devil Sea" by Philippine and Japanese seamen. Noted for tsunami, the area is considered dangerous by Japanese shipping authorities. Tsunami , often erroneously called tidal waves, are huge waves created by underground earthquakes. These seismic waves have very long wave lengths and travel at velocities of 400 miles per hour or more. In the open sea they may be only a foot high. But as they approach the continental shelf, their speed is reduced and their height increases dramatically. Low islands may be completely submerged by them. So too may ships sailing near the coast or above the continental shelf.

Quite a bit of seismic activity occurs off the northern shoreline of Puerto Rico. Seismic shocks recorded between 1961 and 1969 had a depth of focus ranging from zero to 70 kilometers down. Relatively shallow seaquakes could create tsunamis similiar to those in the Pacific Ocean, but few have been recorded.

A distinct line of shallow seaquake activity runs through the mid-Atlantic corresponding with the features of the continental shelf of the Americas.

Some claim we know more about outer space than we do about inner space, including the oceans. If that is true, much information has yet to be developed concerning the Devil's Triangle. As recently as 1957 a deep counter-current was detected beneath the Gulf Stream with the aid of sub-surface floats emitting acoustic signals. The Gulf Stream and other currents have proved to consist of numerous disconnected filaments moving in complex patterns.

What it all adds up to is that the majority of the supernatural happenings offered as explanations for the Devil's Triangle mysteries amount to a voluminous mass of sheer hokum, extrapolated to the *n*th degree.

Mysteries associated with the sea are plentiful in the history of mankind. The triangle area happens to be one of the most heavily traveled regions in the world and the greater the number of ships or planes, the greater the odds that something will happen to some.

Each holiday season the National Safety Council warns motorists by predicting how many will die on the nation's highways. They are usually quite accurate, but, no monsters kill people on highways, only mistakes.

Seafarers and aircraft pilots also make mistakes. Eventually scientists will separate fact from the fiction concerning the Devil's Triangle. Until then, we can only grin and bear the ministrations of madness offered by triangle cultists.

If you happen to be passing through the trangle while reading this article, don't bother to station extra watches to keep a wary eye out for giant squids. Better to relax and mull over the words of poet Henry Wadsworth Longfellow:

"Wouldst thou," so the helmsman answered,
"Know the secret of the sea?"
Only those who brave its dangers,
Comprehend its mystery.

Brotherhood of Seagoing Men

By Howard L. Rosenberg

The sea can be an unmerciful taskmaster. An engine breaks down, a fire starts in one of the holds, or a shallow reef rips the side out of a ship as if the hull were made of paper. These and many other types of mishap could make the crew of an ocean-going vessel totally dependent on their own skills and resourcefulness. Often, that is not enough.

There is a feeling of insignificance and helplessness expressed by sailors who survive fires and accidents at sea, plus an overwhelming gratitude to those who helped save their lives.

Recently, crews of three chartered or government owned MSC ships came to the rescue of seamen in distress adding one more chapter to the story of the brotherhood of seagoing men.

The twenty-third of April was a dismal day in the Marshall Islands of the South Pacific. Winds were 30 knots and there were 12 foot waves with eight foot swells. Localized squalls had cut visibility to only 200 yards as the rain pelted anyone unlucky enough to be out in the weather.

LCU 59 (landing craft, utility) a World War II vintage ship given to the Trust Territories following the war, was making her way toward Maja Island from Eniwetok Island carrying 60 tons of dynamite.

The Micronesian crew did their best to keep the LCU on course as the heavy seas buffeted the 120 foot craft. But, at approximately 6:30 a.m., the LCU was swamped and started to roll over.

The crew abandoned ship and took to four liferafts. Using an ultra high frequency (UHF) emergency transmitter, some of the men started sending distress calls which were picked up at the communications station on Kwajalein Island. Kwajalein radiomen notified an Army aircraft in the area that was diverted to the position the LCU crew had given.

At 2:30 p.m., the MSC-chartered C-4 cargo ship SS American Racer was heading for Kwajalein when the master received a message from the island base to change course and pick up nine people in a liferaft.

After plotting an intercept course, the navigator of American Racer estimated they would reach the survivors within three hours if they continued at a top speed of 21.5 knots.

An hour later, the American Racer contacted the Army aircraft and learned that there were four liferafts and 14 survivors instead of nine. The survivors included a woman and baby. After learning of their new position, the navigator estimated the Racer would reach the rafts at 6:30 p.m.

At 5:20 p.m., the American Racer crew picked up the Army aircraft 11 miles away on the ship's radar. Thirteen minutes later they sighted the plane. The pilot flew directly over the liferafts and turned on the aircraft landing lights to show American Racer the exact position of the lifeboats since they were hidden by swells.

The American Racer crew hung a 40 foot net over the starboard side along with two Jacobs ladders, boat ropes and heaving lines. Capt. Lawrence Pagano maneuvered his ship windward of the rafts and drifted toward them. The aircraft crew informed the survivors of the captain's intentions and at 6:12 p.m. the crew started helping the survivors aboard.

"The only real problem we had," said Captain Pagano, "was that one of the survivors was an 18-month-old infant and quite naturally was terrified and clutching his mother, making it difficult to get him aboard."

"The problem was solved quickly when four able bodied seamen climbed down the pilot ladder and passed the baby man-to-man up to the deck."

The entire rescue took only 17 minutes. "No individual did anymore than his routine job and it was a beautiful team effort," said Captain Pagano. "Our greatest accomplishment was that there were no injuries or loss of life."

The captain praised the aircraft crew saying, "I can't give enough credit to that Army plane. They were like homing pigeons leading us directly to the liferafts. Without them, finding the survivors in that sea would have been just dumb luck."

According to Captain Pagano, when he related the story of the rescue to a Coast Guard official in Hawaii, the man remarked, "It sounds like a smooth exercise drill!"

"And that's how we performed," said Captain Pagano. "Heroics are caused by foul-ups," he said. "No one had to jump over the side to fight off sharks; the men performed as they had been trained to do and no one did anything more than what was expected, including myself. The crew worked like an effective, cohesive unit, and that's what we've been training for."

In a second incident, the MSC-chartered tanker, MS Falcon Duchess, was eight days out of Point Molate, Calif. bound for St. Croix in the Caribbean via the Panama when she too received an urgent distress call—at noon on March 31. The power cruiser Friendship was proceeding toward Panama, but was losing fresh water due to an engine failure.

Friendship signaled that she had

The Bermuda TRIANGLE

An Annotated Bibliography

by Carol F. Stancil

NAVY DEPARTMENT
NOV 21 1974
LIBRARY

Reference Section College Library, UCLA 1973

The forty-four sources listed in this bibliography have been personally verified. While it is not an exhaustive list of everything in print on the subject, I believe it to contain the best of the essential information that exists. Other sources which either repeat what has already been presented or fail to offer anything new are not included. My primary objectives were to find whatever was obtainable in print about the Bermuda Triangle, to learn if any genuine scientific research has been done or is planned on the subject, and to collect both the factual and the theoretical materials that were available.

I would like to give credit to D. Blouin and L. Kuhe of the Arizona State University Library, who provided a preliminary bibliography; the Southern California Answering Network (SCAN); and the Encyclopaedia Britannica Research Service, which also provided sources of information used in this bibliography.

Carol F. Stancil
Reference Section, College Library
University of California, Los Angeles

Items 1-16 Books
Items 17-24 Periodical Articles
Items 25-33 Newspaper Articles
Items 34-40 Correspondence
Items 41-44 Government Publications

BOOKS

1. Burgess, Robert F. Sinkings, Salvages, and Shipwrecks. New York: American Heritage Press, 1970. Chapter 13: "The Mystery of the Deadly Bermuda Triangle," pp. 175-189. Bibliography. Illustrated.

The chapter, one of the most interesting items on the Bermuda Triangle, mentions possibilities usually found only in science fiction, such as "disintegration rays from a 30,000 year old Atlantean power plant" and a "hole in the sky" where planes go in but do not come out. Burgess propounds the theory that some atmospheric aberration is the cause of the disappearances, and he supports this with reports from people who have experienced violent turbulence in the area where there was clear weather and no storm in sight. He explains that the depth of the ocean in the Bermuda Triangle (nearly 21,000 feet, over three miles) makes the salvage and recovery of sunken wreckage impossible. He concludes by mentioning some projects underway to investigate atmospheric aberrations. The work is especially useful because it is one of the few sources that offers any reasonable explanation.

2. Charroux, Robert. Forgotten Worlds. New York: Walker and Company, 1971. Chapter 3: "The Bermuda Triangle," pp. 31-37.

One of the few sources I have found which investigates such far-out possibilities as myths from the second century about disappearing ships and Celtic legends about magic lands is this book, which also brings up the idea of a different chemical composition of the water in the Bermuda Triangle. The rest of the chapter consists mostly of

excerpts of newspaper reports, but it is a worthwhile source in that it brings up possibilities not mentioned elsewhere.

3. Edwards, Frank. Stranger than Science. New York: Stuart, 1959. Chapter 19: "Sky Traps," pp. 82-85.

In a short chapter, the author, a former radio news analyst, discusses Flight 19 and the Star Ariel. No mention is made of why the chapter is entitled "Sky Traps," and he makes no conjectures.

4. Gaddis, Vincent. Invisible Horizons: True Mysteries of the Sea. Philadelphia: Chilton Book Company, 1965. Chapter 13: "The Triangle of Death," pp. 173-189; Notes, pp. 232-233. Bibliography. Illustrated.

Mr. Gaddis is the most quoted source on the Bermuda Triangle, and he was the first writer to collect data on the subject. While offering no explanations for the mysterious aberrations that have taken place, his research provides excellent documentation concerning the losses at sea, giving case histories of some twenty airplanes and ships that have vanished in the area.

5. Godwin, John. This Baffling World. New York: Hart, 1968. "The Hoodoo Sea," pp. 235-259. Illustrated. (Also, New York: Bantam Books, 1973. Paperback. Volume 2, pp. 105-134.) A newspaper article taken from the chapter contains essentially the same information: "They Never Came Back from the HooDoo Sea," Chicago Tribune Magazine, March 19, 1969, p. 60. (Also available from Encyclopaedia Britannica, Library Research Service.)

In a well-illustrated and documented study of vanished planes and ships, Mr. Godwin makes the point that repeatedly, in good weather and daylight, people and their craft disappear in the same area without trace, and that several offical boards of inquiry cannot guess what happened to them. He compares the Bermuda Triangle with other places where unusual occurrences have taken place, and concludes that "phenomena unknown to today's science" must exist.

6. Jessup, Morris K. The Case for the UFO. New York: The Citadel Press, 1955. Part III: "History Speaks--Disappearing Ships and Crews," pp. 119-133; "Disappearing Planes," pp. 162-167.

While it never specifically mentions the Bermuda Triangle, the book discusses several of the losses that happened there. Jessup's premise is that intelligent life from space "kidnaps" human beings for "study, food, or experiments..." The author is described as "a noted astronomer." All sorts of anomalies are included to support his theory, and his explanation is shared by others with whom he has spoken while writing the book.

7. Keyhoe, (Major) Donald E. Flying Saucer Conspiracy. New York: Holt, 1955. Chapter 19: "The Vanishing Planes," pp. 288-299.

The book suggests that the Flight 19 airplanes were "grabbed" and snatched out of the sky by visitors from space, who patrol the earth in

The book suggests that the Flight 19 airplanes were "grabbed" and snatched out of the sky by visitors from space, who patrol the earth in flying saucers, in order to study them. A retired Marine Major, Keyhoe interviews several pilots and other people, and discusses the military implications of the situation.

8. Sanderson, Ivan T. Invisible Residents: A Disquisition upon Certain Matters Maritime, and the Possibility of Intelligent Life under the Waters of This Earth. New York: World Publishing Co., 1970. Chapter 8: "An Eighth Mystery: The Bermuda Triangle," pp. 115-142; notes and references, pp. 189-239. See also chapter 13: "A Suggestion - Under-Water Civilizations," pp. 189-203, and chapter 14: "A Concept - Who and Where are the OINTs?" pp. 204-216.

Ivan Sanderson heads an organization known as the Society for the Investigation of the Unexplained, and he is the author of numerous books, among them several on the subject of UFO's, missing persons, and other related anomalies. This book is "Dedicated to our publishers, for having the guts to publish it." He presents in it a historical account of unexplained disappearances of ships in the Bermuda Triangle, to support and endorse the argument that there is no known natural cause of the losses. He refers to OINTs, which is his expression for "other intelligencies" on earth, and suggests that their activities are possibly responsible for the disappearances; how, why, and where are not clearly explained. The chapter contains a useful list of lost or missing ships and ships found deserted in the Bermuda Triangle from 1840 to 1969, giving dates, names, and numbers of persons aboard. It is, again, one of the few sources which offers any kind of explanation for the events which have taken place.

9. Spencer, John Wallace. Limbo of the Lost. Westfield, Mass.: Phillips Publishing Co., 1969. (Paperback.)

In this book, which is entirely devoted to the Bermuda Triangle mystery, the author, a "former investigator for the world famous National Investigations Committee on Aerial Phenomena," gives thorough reports on losses of both planes and ships, and discusses such theories as piracy and sea monsters. The Sargasso Sea legend is explained, and appendices list the names of persons who have been lost in the Bermuda Triangle. A factual and well-documented piece, the book presents evidence that a mystery exists, but does not really offer an explanation.

10. Stewart, Oliver. Danger in the Air. New York: Philosophical Library, 1958. "Unsolved Riddle," pp. 121-130.

The author, concerned with the loss in the Bermuda Triangle of the British Star Ariel, a large aircraft with twenty persons aboard, carefully examines every possibility to explain the disappearance. He concludes only that it is a "baffling mystery" and that it "seems it will never be solved." The plane, flying in perfect weather on a routine flight, disappeared, leaving behind no trace or distress message.

11. Titler, Dale. Wings of Mystery: Riddles of Aviation History. New York: Dodd, 1966. Chapter 14: "The Mystery of Flight 19," pp. 254-271.

Mr. Titler discusses one of the most famous of the Bermuda Triangle disappearances, that of five Navy planes and twenty-seven fliers in 1945, as well as some of the other losses. He refers to the "Threat" of "The unpredictable whims of this strange force" responsible for the disappearance, but like the U.S. Navy he concludes that "there are no conjectures."

12. Wilkins, Harold T. Strange Mysteries of Time and Space. New York: The Citadel Press, 1958. Pp. 155-159.

Mr. Wilkins states in his preface that in writing this book he "...has found that it is essential, where possible, to visit in person the location of the mystery." He seems to have done this. In discussing the Bermuda Triangle, he puts forth the idea that underwater vortices, "Anti-Gravity warps," or magnetic disturbances may be responsible.

ON THE CHRISTOPHER COLUMBUS STORY...

A matter frequently mentioned in discussions of the Bermuda Triangle is the account of the experiences of Christopher Columbus in 1492. These are supposedly the first reports of strange happenings in the area. While many items in this bibliography mention the story, the following two may be considered the primary sources:

13. Columbus, Christopher. Journal of First Voyage to America. New York: Albert & Charles Boni, 1924. P. 9 (September 15th) through p. 11 (September 17th).

14. Irving, Washington. The Life and Voyages of Christopher Columbus. New York: Bedford Co., 1890. Chapter III: "Continuation of the Voyage - Various Terrors of the Seamen," pp. 96-101.

AND CONCERNING THE SARGASSO SEA...

Located between 20° and 30° north latitude and 38° and 60° west longitude is a huge tract of seaweed known as the Sargasso Sea. Myths and legends abound concerning ships trapped and lost in the seaweed meadow, sea monsters, and strange creatures found in the area. Since it is sometimes mentioned in discussions of the Bermuda Triangle, even though it is not in the same area, the following two items are included:

15. O'Donnell, Elliott. Strange Sea Mysteries. London: John Lane, 1925. Chapter 41: "The Sargasso Sea," pp. 267-271.

16. Snow, Edward Rowe. Unsolved Mysteries of Sea and Shore. New York: Dodd, Mead, 1963. Chapter 18: "Sargasso Sea," pp. 176-191.

PERIODICAL ARTICLES

17. "Bermuda Triangle Revisited." All Hands: The Bureau of Naval Personnel

Career Publication, No. 641 (June, 1970), c. 51.

The editor of the magazine checked with the Naval History Division in response to a letter from a reader concerning the Bermuda Triangle, and reports that "Its notoriety is largely the result of dramatization... the accident (or disappearance) rate in the Triangle is no higher than that of any other area with equally heavy air and sea travel." He adds that "The Navy considers the case closed."

18. Chance, Paul. "Parapsychology Is an Idea Whose Time Has Come." Psychology Today, VII (October, 1973), pp. 105-120.

The article, subtitled "A conversation with Stanley Krippner about precognition, psychokinesis, clairvoyance, telepathy, Kirlian and psychic photography, and the Bermuda Triangle," discusses natural vortexes and defines them as locations "where people and other living things and objects do not behave as they ordinarily would." Mt. Shasta is named as one example and the Bermuda Triangle as another. Krippner says that they have never been scientifically studied, but perhaps will be studied in the future development of parapsychology.

19. Eckert, Allan W. "The Mystery of the Lost Patrol." The American Legion Magazine, LXXII (April, 1962), pp. 12-13, 39-41.

The writer's account of Flight 19 includes the transcript of the final radio communication, which contains a warning that something had gone wrong, if not a real distress signal. Also included is an interview with a commercial pilot on his reactions to the Bermuda Triangle disappearances.

20. Gaddis, Vincent. "The Deadly Bermuda Triangle." Argosy, CCCLVIII (February, 1964), pp. 29, 116-118. Reprinted in Flying Saucer Review, X (July-August, 1964), pp. 14-17.

The article was taken from the author's Invisible Horizons (cited above as item 4) and it contains essentially the same information. It is also available from Encyclopaedia Britannica, Library Research Service.

21. Miller, J. Earle. "Mysteries of the Sea." Popular Mechanics, XLVI (July, 1926), pp. 7-10.

The article discusses the Cyclops, as well as several other missing ships from all over the world. It suggests that the loss was caused by a fault in construction that caused it to sink, which was discovered when an accident at sea happened to an identical sister ship which finally made it back to port.

22. "The Mystery of the Cyclops." Scientific American, CL (May, 1934), pp. 272-273.

Quoting an article from the magazine Our Navy, this item offers the proposal that the Cyclops was taken over and sunk by mutineers, comprised of ex-convicts and thugs who joined the Navy during the war to

avoid the Army draft.

23. Sanderson, Ivan T. "The Spreading Mystery of the Bermuda Triangle." Argosy, CCCLXVII (August, 1963), pp. 36-37, 71-72.

The author of Invisible Residents reports that there are six areas on the earth, all located in a geometrical pattern over various oceans, where ship and airplane disappearances, such as those in the Bermuda Triangle, occur with regularity.

24. Smith, Marshall. "The Devil's Triangle." Cosmopolitan, CLXXV (September, 1973), pp. 198-202.

Mr. Smith reports the circumstances of the losses in the Bermuda Triangle which cause them to be such a mystery, and divides the "theories of explanation" into three categories: The Atlantis myth, the concept of magnetic space warps in the sky, and the flying saucer theory. He discusses the ideas of many Miami personalities, who claim some knowledge and understanding of the situation, and the testimony of others who have had experiences there is included. This interesting article examines some new explanations and events.

NEWSPAPER ARTICLES

25. Cocoa, Florida. Today. May 20, 1973, p. D1. Amy Clark, "Bob Marx Follows Lure of Sunken Treasure."

The article concerns the adventures of a diver who has searched for years for a treasure-laden Spanish galleon that sank in the Bermuda Triangle in 1656. He finally found it, and relates some of the strange events that have happened to him during his search and salvage operation.

26. Los Angeles, California. Los Angeles Times. September 6, 1973, part A-1, p. 6. "Disappearance of USS Cyclops Still a Mystery After 55 Years."

Basic information about the Cyclops is recapitulated in this article, which refers to the recent search begun by David Dawes for the wreckage, and mentions some attempted theories and pranks, such as fake notes in bottles from supposed survivors.

27. Miami, Florida. Miami Herald. September 17, 1950, p. 6F. (Sunday Magazine Section.) E. V. W. Jones, "Round-up of Bermuda Triangle Disappearances." Map.

The author describes five different Bermuda Triangle losses; the article includes a map showing the routes of ships and planes which disappeared.

28. New York. The New York Times

A long list of articles, almost entirely press releases concerning various disappearances, can be readily compiled by consulting the New York Times Index under the headings "Ships - Accidents" and "Airplanes -

Accidents" and under the names of individual ships or airplanes. (A complete list of names and dates can be found in Sanderson, item 8 above.) Most of them are news reports and do not mention the Bermuda Triangle specifically or make conjectures.

29. San Diego, California. San Diego Union. June 23, 1973, p. A6. "Cyclops Hulk? Mystery Lurks in Murky Water."

A retired Navy diver is convinced that he has located the wreck of the Cyclops off the coast of Virginia; salvage operations are to take place under the direction of the Navy. The unusual design of the Cyclops makes it readily distinguishable. The authorities hope that the mystery of its loss can now be solved.

30. San Diego, California. Evening Tribune. December 21, 1971, p. A2. "Action Line."

A question and answer column, "Action Line" delivers a succinct and factual summary of the Bermuda Triangle situation, from 1492 to the present.

31. Santa Ana, California. Register. January 23, 1972, p. A15. Robert Betts, "Countless Ships Vanish in Bermuda Triangle."

"A strange thing happened to Christopher Columbus on his way to discover American," begins this article, which goes on to relate an interesting history of the Bermuda Triangle. The author concludes that, for what little has been found, the lost craft may "have slipped off the edge of the world."

32. Washington, D. C. Evening Star. August 2, 1968, p. 7. (This Week magazine.) Leslie Lieber, "Limbo of Lost Ships."

The article discusses the loss of the U.S. submarine Scorpion in the Bermuda Triangle. Lieber quotes a Navy spokesman as saying, "It's been a real mystery. Nobody in the Navy sneers at this thing. We've always known there's something strange about this Bermuda Triangle. But nobody has ever found out what it is. There doesn't seem to be any physical or logical reason..."

33. Washington, D. C. The Washington Post. December 29, 1968, p. E7. Map (inaccurate). "Devil's Triangle Takes Grim Toll of Sailboats Crossing It in Winter," in column: "Boat Hooks...and Baggywrinkle."

Winter weather conditions are treated in what meteorologists call the "Devil's Triangle," where warm tropical air meets cold arctic air, a region termed "notoriously unpredictable." According to the author, that is the only problem in traveling through the Bermuda Triangle.

CORRESPONDENCE

The following letters were received in response to an advertisement, requesting that, if readers had information on the Bermuda Triangle,

they get in touch with us; others were answers to letters written to agencies asking if they were aware of any genuine scientific research that has been done or is planned on the subject, and if they could suggest any sources of information.

34. Department of the Navy. Office of Information. Research and Public Inquiries Branch. Washington, D.C. 20350.

From this source are available Fact Sheets on Flight 19 and the Cyclops. They are, apparently, the only statements that the Navy will make on the subject. The lengthy report of the Board of Investigation concerning the loss of Flight 19 is also available on microfilm for $5.00. Write to: Department of the Navy, Director of Naval History, the Pentagon, Washington, D.C. 20350.

35. Harrer, Gustave A., Director, University of Florida Libraries, Gainesville, Florida.

Mr. Harrer contributed a newspaper article concerning the Bermuda Triangle, and sent a note to say that he owns a plane, often flies over the area, and has never observed anything out of the ordinary.

36. National Geographic Society. Washington, D.C. 20036.

The Society has issued a two-page release as a National Geographic News Bulletin, entitled "Bermuda Triangle Adds to Baffling Sea Lore" (no date), and an article on the subject in the National Geographic School Bulletin, entitled "Maritime Zone Spins Mystery," dated February 26, 1968. (Also available from Encyclopaedia Britannica.) Both are interesting articles that briefly summerize the story. Copies are available by writing to the Society. No articles on the Bermuda Triangle have appeared in the magazine itself, and they were unable to tell me if any study has been done.

37. Smithsonian Institution. Washington, D.C. 20550. Attn: Assistant Secretary for Public Service.

One of the more interesting responses came from the Smithsonian's Assistant Secretary for Public Service, who wrote that he had questioned several of the institution's scientists, all of whom were aware of "the saga" and were agreed "that no documented evidence proved that more planes and ships disappeared in this area than in any other. It is a romanticized fairy tale like the Abominable Snowman, said one scientist."

38. Society for the Investigation of the Unexplained. R.D. 1, Columbia, New Jersey 07832.

The organization founded by Ivan Sanderson, now deceased, is headed by his widow, who reports that staff members of the Society are investigating the Bermuda Triangle, but have no results to report to date.

39. U.S. Department of Commerce. National Oceanic and Atmospheric Administration. National Ocean Survey, Rockville, Maryland 20852. Attn: Scientific Data and Services Division.

The NOAA, the most helpful of the government agencies consulted, responded with a long factual letter which suggested possible sources of information from other government agencies.

40. Mr. Dudley Glass III, Attorney at Law. 437 South Cochran Avenue, Number 12, Los Angeles, California 90036.

Mr. Glass wrote, in response to an advertisement, that a relative of his was lost with the U.S.S. Dorado in the Bermuda Triangle. As a member of the Navy's Office of General Counsel, he was able to suggest possible sources of information.

GOVERNMENT PUBLICATIONS

41. U.S. Department of Commerce. National Oceanic and Atmospheric Administration. Nautical Chart Catalog. June, 1973.

The agency provides nautical charts, for $1.00-$2.00, of the Bermuda Triangle area, showing currents and other features. For a catalogue of those available, write to: National Oceanic and Atmospheric Administration, Rockville, Maryland 20852.

42. U.S. Department of the Navy. Naval Oceanic Office. Project Magnet: Worldwide Airborne Geomagnetic Survey. N.d.

Several sources mentioned a scientific government program to study disturbances at sea, especially those thought to be caused by the earth's magnetic field, which is often said to be responsible for the Bermuda Triangle losses. Information on the program is available from a pamphlet published by the Navy. Write to: U.S. Naval Oceanographic Office, Washington, D.C. 20373.

43. U.S. Department of the Navy. Office of Information. "Bermuda Triangle: The Loss of Flight 19." N.d.

A Fact Sheet issued by the Navy gives official data on weather, equipment, and events related to the disappearance of five Navy planes in the Bermuda Triangle. It states the official Navy viewpoint: "The evidence is insufficient to determine exactly what did happen. The flight was never heard from again and no trace of the planes found. It is assumed that they crashed at sea, possibly after running out of gas." For a copy, write to: Department of the Navy, Office of Information, Washington, D. C. 20350.

44. U.S. Department of the Navy. Office of Information. "Fact Sheet for U.S.S. Cyclops." N.d.

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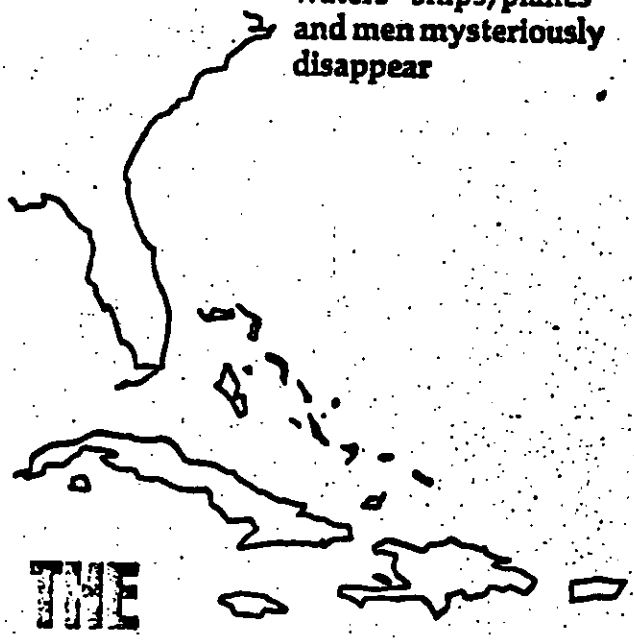

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by Lawrence David Kusche

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