

HISTORY OF UNITED STATES VOYAGES OF DISCOVERY AND EXPLORATION IN THE INDIAN OCEAN 1783-1960*

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ABSTRACT

American presence in the Indian Ocean from its early colonial days, to the recent times has been traced.

INTRODUCTION

ALTHOUGH the American presence in the Indian Ocean was antedated many centuries by other nations, its eventual arrival presaged a veritable flood of ships and men. This development can be attributed to three basic drives: the buccaneering spirit, the inherent vigor of colonists, and sheer economic desperation. This ocean saw Americans, or more accurately English colonists, during the latter half of the 17th century. Many of these should not rightfully be labelled as colonists, for they were the buccaneers who had been roving the western tropical Atlantic, but if they had any affiliation and home ports these were American. Unfortunately, on moralistic grounds and in light of contemporary problems, but undeniably, colonial America first was attracted to the western part of the Indian Ocean from the mid-17th century on by the availability of slaves in East Africa and Madagascar. Piracy and privateering grew in frequency as a vocation of Americans in this region as the buccaneers were attracted by the irresistible lure of the cargo of the Indiamen. Some sailed from the new land strictly as pirates, others first set out as nationally acceptable privateers. Many of these were destined to turn to piracy as the more lucrative of the two 'trades'.

The beginnings of mercantilism may have started during this early period when slave-ship captains saw the opportunity to supplement their income. They purchased booty from pirates of any nationality and sold it clandestinely upon returning to America. Real trade involving the Indian Ocean had to wait the cessation of America's War for Independence and its complete achievement of that status in 1783. By then the economic drain of the approximately 20 years of turbulence and the new political inaccessibility of the West Indies for trade had created a financial crisis in the new nation. Lacking a significant manufacturing base or the capital to build one, there was but one option left to take to the seas eastward and southward for money-making trade, whaling and sealing.

It is doubtful, and evidence is lacking, that any of this activity was productive of a discovery of international significance. Word of mouth information between

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ship captains and occasional notations in logbooks concerning currents, shoals at harbour entrances, and headings for various landfalls probably were all that were forthcoming.

The earliest exploration, per se, by Americans was the role of the whalers and sealers commencing in the last decade of the 18th century. These early analogs of the post-World War II tuna fishermen were the first of their countrymen, and in some areas of any nationality, to venture into the higher latitudes of this ocean. Of the two—whalers and sealers—the latter had the greater motivation and opportunity to discover and explore new land. The whalers were basically pelagic, and while they criss-crossed great areas, their prey was at sea. That of the sealers, conversely, was hunted ashore, and it was they who ferretted out islands, bays, and beaches throughout the entire southern half of the ocean in search of the fur seal and elephant seal. It was one of them who made the first authenticated discovery of land by an American in the Indian Ocean.

Exploration, in its own right, followed the development of trade, whaling, and sealing. As is generally the practice today most of the exploring expeditions were conducted or financed by the government. With all of the non-military vessels heavily devoted to trade or fisheries, it was the Navy that carried the scientists for the national effort. Most outstanding, undoubtedly, of the American ventures was the United States Exploring Expedition under Lieutenant Charles Wilkes from 1838-1842. Purely scientific endeavours in this ocean by the United States were non-existent between then and 1911, when the non-magnetic ship *CARNEGIE* passed through on its first round-the-world cruise. The third passage of this ship in 1920 saw the end of American investigations in the region for about twenty-six years. The excursion into the Indian Ocean in January 1947 of the Western Task Group of Task Force 68 participating in Operation *HIGHJUMP* inaugurated a post-war era that witnessed the activities of the International Geophysical Year and the International Indian Ocean Expedition.

THE COLONIAL PERIOD — THE BOOTY SEEKERS

The major activities by the American colonists in the Indian Ocean from the mid-17th century until the start of the American Revolution had little, if anything, to offer to the history of exploration and discovery. They do, however, represent the birth and growth of interest and presence by Americans in this ocean. Although most of these activities can elicit no encomiums for either the colonists or later for the citizens of the United States; in the milieu of the period they were at least tolerated and at most of great importance to the national economy.

It is quite apparent that the backbone of this interest was the trade in slaves. No newcomer to the post-medieval times, slavery, with its undeniable economics, was the contemporary promise for tapping the then unlimited potential for vast plantations in the West Indies and the southern colonies of America. Ships from the American colonies were among those of other nations in this supply line from the latter half of the 17th century on. It was during this period of tainted trade that the beginnings of true mercantile activities arose. The shrewd Yankee skippers of the slave ships were all aware of the high profit items in demand in their country—silks, tea, and spices. They came into close proximity with successful pirates who had all of these goods and more for sale, and they could always find room for some personally profitable cargo, even if it meant giving up some of their stateroom space

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for it. Upon reaching the coast of America this 'deck cargo' always could be disposed of over a beach at night before making port for discharge of the main cargo. Actually, by the end of the 17th century, a considerable number of merchant ships from New York and Philadelphia were making the round trip to Madagascar.

The other parts of these purely mercenary ventures were privateering and piracy. Privateering, which grew to its greatest degree during the Revolutionary War, constituted the chartered Navy of the colonists. Piracy was carried on against Indiamen of the East India Company and Arab dhows by former buccaneers from the western Atlantic and privateers turned pirate.

Although, as previously pointed out, probably none of these Americans made any significant discoveries, they undoubtedly brought back to their fellow mariners and left for later ship captains nautical lore that would be useful in later voyages to these waters.

THE 1763-1783 HIATUS

The approximately twenty years (1763-1783) of fulminations and finally of war with the home country at first slowly stalled the accelerating American maritime activities and finally brought them almost to a standstill. About 200 commissioned privateers were all that kept the colonies from being swept from the seas. Obviously this period was not one of exploration.

THE POST-WAR PERIOD—THE TRADE SEEKERS

There was little choice for the new nation but to look seaward for fiscal solvency, if not for the survival of its newly won freedom. The sea could provide at least three props for this shaky structure as well as some of the materials for a firm foundation: food in the form of fish, molasses, and sugar; goods and supplies in the form of cloth, hardware, and whale oil; and capital from the profits of world trade. Most of these were available to the Americans, but at least with respect to the West Indies, no longer within the more profitable British colonial system. The attraction was from the south-eastward. The Americans had been on this route before the War, at least to the western Indian Ocean. The China trade, already reasonably well established by the Europeans, was profitable.

It was probably only fitting that the financier of the Revolution, Robert Morris of New York, sent the first American merchant ship, the *EMPRESS OF CHINA*, to China in 1784. This ship, as did many that followed, wore blinders to the Indian Ocean and steered a straight course from Cape Agulhas to Sunda Strait. Others, however, criss-crossed the northern half of this ocean, stopping at many of its ports, before eventually pointed toward Canton. Their logbooks and narratives do reveal some notations on meteorological conditions, oceanographic phenomena, and geographical features. Still, all of this journeying was with trade in mind and generally sailed on centuries-old tracks.

THE NEW CENTURY—THE MAMMAL SEEKERS

Not so with the whalers. As Alexander Starbuck in 1878 put it:

'Few interests have exerted a more marked influence upon the history of the United States than that of the fisheries. The pioneers of the seas, whale-

men were the advanced guard, the forlorn hope of civilization. Exploring expeditions followed after to glean where they had reaped.'

But the prey of the whalers basically was an open-sea animal, and this was where it was hunted. Of course, it cannot be denied that many of the swarm of whalers traversed large areas of previously unsailed waters and even landed either briefly or to establish shore bases at several localities around the ocean. However, no claim was put forth nor has any notation been found in a logbook pointing toward the discovery of new land by whalers.

An almost equally prized group of animals was the Pinnepedia : the fur seals, sea lions, and sea elephants. These creatures, though pelagic during part of their life-cycle, are littoral and terrestrial during the other. It was during the latter stage that they were taken by the sealers.

So they came from the east and west. Early in these ventures, that is in 1803, certain New York ship owners had received a manuscript by Crozet (historian of the Marion-Dufresne expedition) which included the narrative of the discovery in 1772 of the islands to which his name was given. These owners directed Captain Isaac Pendleton in 1803 or 1804 to take the brig UNION to the Indian Ocean and rediscover these islands. Pendleton could not find them and continued on to Australia, where his vessel was believed to be the first American to sail through Bass Strait. While there they took many skins on Kangaroo Island. Prior to sailing for Australia, however, Pendleton had buried a letter in the Prince Edward Islands, according to prior agreement, describing his lack of success. In 1804 Captain Henry Fanning of the ship CATHRINE was sent south-eastward to follow up on Captain Pendleton's hopes for success. He first proceeded to the reported vicinity of the Crozets but had no more luck than Pendleton. He then sailed to the Prince Edward Islands and was further disappointed upon digging up the buried letter to read of Pendleton's failure. Trying once more that season without success, he returned to the Cape of Good Hope where he overwintered. As soon as weather permitted he returned to the area and after several more weeks of search finally came upon them. The year was 1805 and they landed. According to Fanning (1833) they were the first, for apparently he believed that no one with the Marion-Dufresne expedition in 1772 had gone ashore. This belief appears incorrect, since an officer of that expedition reportedly was put ashore, leaving a document claiming the islands for the King of France (Thomson 1885). They explored the two islands, took their cargo capacity in sea elephant and fur-seal skins and oil, and returned to the Prince Edward Islands, where Fanning also left hidden directions. He had, by the way, found the Crozets to be almost 100 miles south of the latitude reported by their discoverer. The secret was not kept for long, but an account of the passing of Fanning's directions to the next captain is not without humour. The other sealers on the island were aware that he had hidden directions to the new sealing ground, and they apparently rearranged a substantial portion of the island's terrain in their search for them. The search was a failure, but Fanning's successor, to their chagrin, reportedly went straight to the spot. They were to be even more chagrined when despite their close surveillance, the captain and his ship slipped away unseen toward the Crozet's a few nights later. Artful dodging could not be successful forever, and by the 1840's the islands had become one of the more important centers of sealing.

The sealers did not descend upon the Kerguelen Islands, called Desolation Island by them, until the mid-1840's. These had been discovered by the French navigator, Kerguelen, in 1772-1773. They also saw Captain Cook in 1776, who had suggested the name that was used by the whalers and sealers.

The last of the undiscovered Islands in the main body of ocean was finally added to the list of the known in November 1853 by a Captain Heard of the American ship *ORIENTAL* who came upon it three hundred miles south of Kerguelen on a voyage to Australia. This island, later to bear his name, apparently was not landed upon until 1856 when Captain Erasmus Darwin Rogers of New London, Connecticut in the ship *CORINTHIAN* came looking for seals. He found them in abundance and, between the slaughtering, he and his men explored the island.

In closing this brief account of the wanderings and discoveries of American sealers, two unassociated events might be noted as further outlining their omnipresence. The following account appeared in Starbuck, 1878 :

' A similar experience [that is as happened with Bellinghausen and Palmer in the South Atlantic] awaited the English ship *CARIBOU*, Captain Cubbins, who came in sight of Hurd's [sic] Island, and like the Russian, thought it hitherto unknown land. The similarity was carried still further by the appearance of the schooner *OXFORD* of Fairhaven [Massachusetts] (tender to the *ARAB*), the captain of which informed him that the island was discovered by them eighteen months before.' [The captain's name or the year was not given by Starbuck]

The second occurrence involved Captain Benjamin Morrell (1832) of the schooner *WASP* who in company with Captain Robert Johnson of the schooner *HENRY* sailed for a 'sealing, trading, and discovery voyage' from New York in June 1822. They reached Kerguelen in December and left in January 1823, sailing south-eastward. Eventually they came upon and threaded their way through ice fields until they 'crossed the Antarctic Circle' at 69° 11'S, 48° 15'E—this occurring, 17 years before the United States Exploring Expedition sailed in these latitudes.

This ocean, in the first half of the 19th century, saw three other American vessels that were neither merchantmen, whalers, nor sealers.

In 1832 the U.S. Frigate *POTOMAC* passed eastward through the ocean (Reynolds, 1835) stopping briefly at Ile St. Paul, where observations on hydrographic conditions, weather, and animal life were recorded. Six years later the U.S. Frigate *COLUMBIA* and her consort the Sloop-of-War *JOHN ADAMS*, together designated as the East India Squadron, made a more leisurely transit through the northern part of the ocean (Taylor, 1848). Oceanographic and meteorological observations were recorded, and stops at Madagascar, Muscat, Bombay, Goa, and Colombo were made.

NATIONAL AWAKENING—THE KNOWLEDGE SEEKERS

J. E. Nourse, writing in 1884, pointed out that the first Arctic explorations had their origin in a commercial objective, that is, finding a passage around the northern boundaries of America and Asia. For Antarctic exploration, however, he said that the earliest objective could be simply to determine what lay within the vast space to the south of the known. The unknown had been shifted southward by Van Dieman's exploration of Australia and Tasman's of New Zealand. Later, Captain Cook referred to a southern continent in his narrative of his round the world voyage.

National assistance for expeditions to the southern latitudes was scarce for more than a half a century after Cook's voyage. Nourse's statement with regard

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to the objective of Antarctic exploration was not quite true as seen in the official statement of purpose of the United States Exploring Expedition from 1838-1842. For, as the Congress stated in part in its act authorizing the expedition (Wilkes, 1845):

'... for the purpose of exploring and surveying in the great Southern Ocean in the important interests of our commerce, embarked in the whale fisheries... as well as to determine the existence of all doubtful islands and shoals...'

This expedition, commanded by Lieutenant Charles Wilkes (Pl. IA) and consisting of six ships (Pl. IB), entered the Indian Ocean south of Australia in January 1840. At this time it was skirting the ice edge and exploring ice-rimmed bays. Navigation was extremely dangerous; gales were almost constant; and entrapment and crushing by bergs were an ever present possibility. Of these days Wilkes (1845) wrote:

'It was tantalizing, with the land in sight, to be again and again blocked out.'

Later, his ship, the Sloop-of-War VINCENNES, came upon a bay formed partly by rocks and partly by ice-islands. It approached within a half mile of 'the dark volcanic rocks' and saw the land gradually rising beyond the ice to a height of three thousand feet. I quote Lieutenant Wilkes, 'It could be distinctly seen extending to the east and west of our position fully sixty miles. I make this bay in longitude 14° 02' 30"E, latitude 66° 45'S; and now that all were convinced of its existence, I gave the land the name of the Antarctic Continent.' The bay, he named Piner's Bay. In a later entry in his narrative he notes that for the whole distance he explored, upwards of 1,500 miles, no open strait was found, and

'I am satisfied that it exists in one uninterrupted line of coast from Ringgold's Knoll, in the east, to Enderby's Land in the west...'

It may be of interest to note here that an American sealer, Captain John Davis, reportedly had written in the log of his ship HURON on February 1821 after sailing along a coast south of the Shetlands in the shallop CECILIA,

'I think this Southern land to be a Continent' (Stackpole, 1955).

The U.S. Exploring Expedition did much more than aid commercial ventures, at least on the Indian Ocean leg of the cruise. Beyond the importance of its geographical observations and conclusions, many observations were made on natural phenomena, and hypotheses on such subjects as currents and temperature structure of the water were put forth. For example, Wilkes reasoned that in one portion of the Antarctic waters an 'under current' existed. How else could massive bergs move with the observed speed when no clear evidence of a surface current could be had and the effect of wind could be discounted. In this regard, the existence of water at 850 fathoms, 4° warmer than the surface, whereas at other stations such as off Cape Horn it was as cold, led Wilkes to believe that some changes were going on, as he put it.

A most significant legacy of the cruise was the large collection of specimens, which was to form the basis of the U.S. National Museum.

American scientific efforts in this ocean ceased after this expedition until 1911. In April of this year the non-magnetic ship CARNEGIE (Pl. II A) entered the ocean

via the Cape of Good Hope. The ship was on its first round-the-world cruise (Pl. II B), studying magnetic variation, atmospheric phenomena, and a wide variety of other scientific subjects. On this cruise Colombo was visited and intercomparisons of land and sea instruments were made at the Meteorological Observatory. The continuation of the cruise from Colombo was directed southward to intersect the track of the GAUSS to determine what changes had occurred in the intervening years.

The fourth cruise by this vessel in 1915-1916 was a circumnavigation of the Antarctic continent (Pl. II B), the Indian Ocean portion lasting from January 26 to March 25, 1916. Excursions north of 50° S were made only to intersect the track of the 1911 cruise. Many errors in declination were found in the available charts. South of Kerguelen, abstracts of the accumulated results were set adrift in a copper box fixed to a float and bearing a request to mail to the Carnegie Institution. It was never returned. In this area also, a macabre sighting was recorded in the log: the only human sign between South Georgia and New Zealand was a floating corpse. It is not recorded in the narrative of the cruise (Ault *et al.*, 1926) what, if anything was done about this.

The sixth and last cruise of the CARNEGIE sailed in the ocean from May until October 1920 (Fig. 4). Colombo and Freemantle were its two ports of call. A look at a portion of the description of shore stations (Ault, *et al.*, 1926) provides this information.

Colombo, Ceylon 1920

'C.I.W. Stations A & C of 1911 were reoccupied, in the western part of grounds of Colombo Observatory, in Cinnamon Gardens of Buller's Road, etc. True bearings: north-west corner of lunatic asylum, 55° 41' 2" etc.'

Although preceded in the Indian Ocean by several ships that made magnetic measurements, the contributions of the CARNEGIE to scientific knowledge of this region were outstanding. Its magnetic work in this ocean is summarized in Table 1:

TABLE 1. *Summary of Ocean Magnetic Work, CARNEGIE Cruises II, IV and VI in Indian Ocean*

No. of nautical miles	Number of Observed Values		Cruise inter sections used for annual change data
	Declination	Inclination & horizontal intensity	
43,060	3,316	282	7

THE DRIVE TOWARD SCIENTIFIC PARITY AND THE IIOE

The departure from this ocean in October 1920 of the ill-fated CARNEGIE, soon to explode and burn to the waterline at Apia, Samoa, drew the curtain on scientific endeavours by the United States here until the end of World War II. Some of the energies and logistics know-how that had been learned and expended by this country during that conflict were diverted during the first post-war year (1946)

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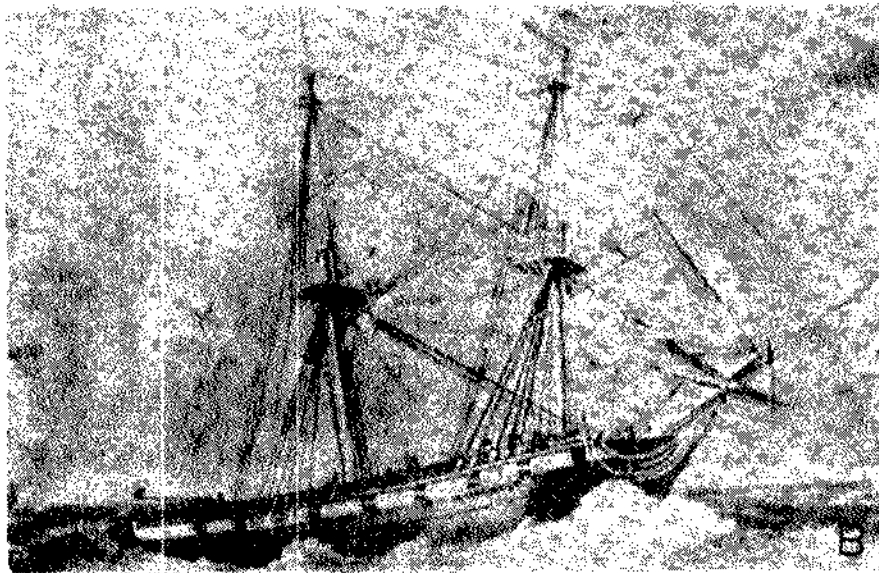


PLATE I A. Charles Wilkes (as Captain) and B. The Brig Porpoise, one of Wilkes ships.

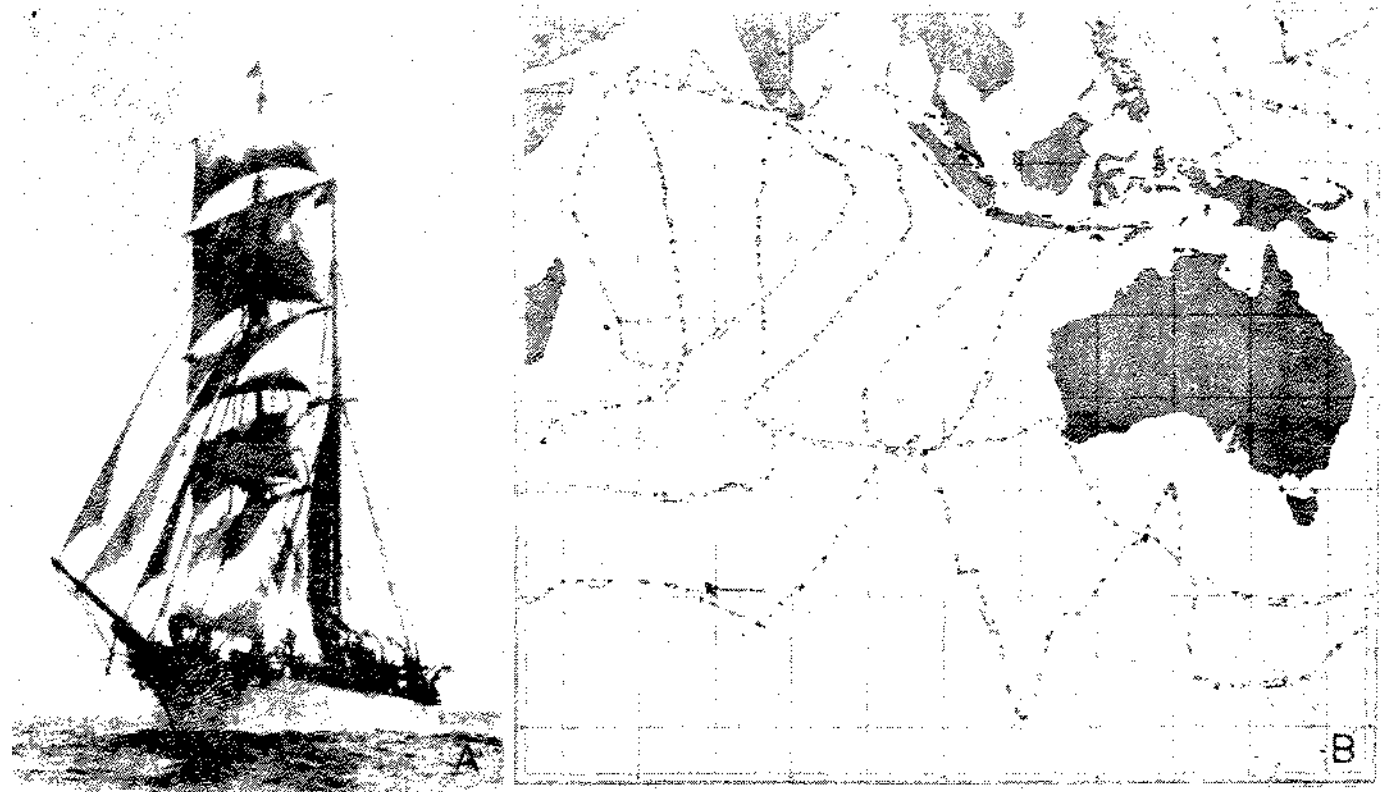


PLATE II. A. The CARNIGIE and B. tracks of CARNIGIE Indian Ocean Cruises



PLATE III A. USS EDISTO (AG-89) from USS BURTON ISLAND (AG-88), and B. Hydrographic base camp, Bungee Lakes, January 1948.

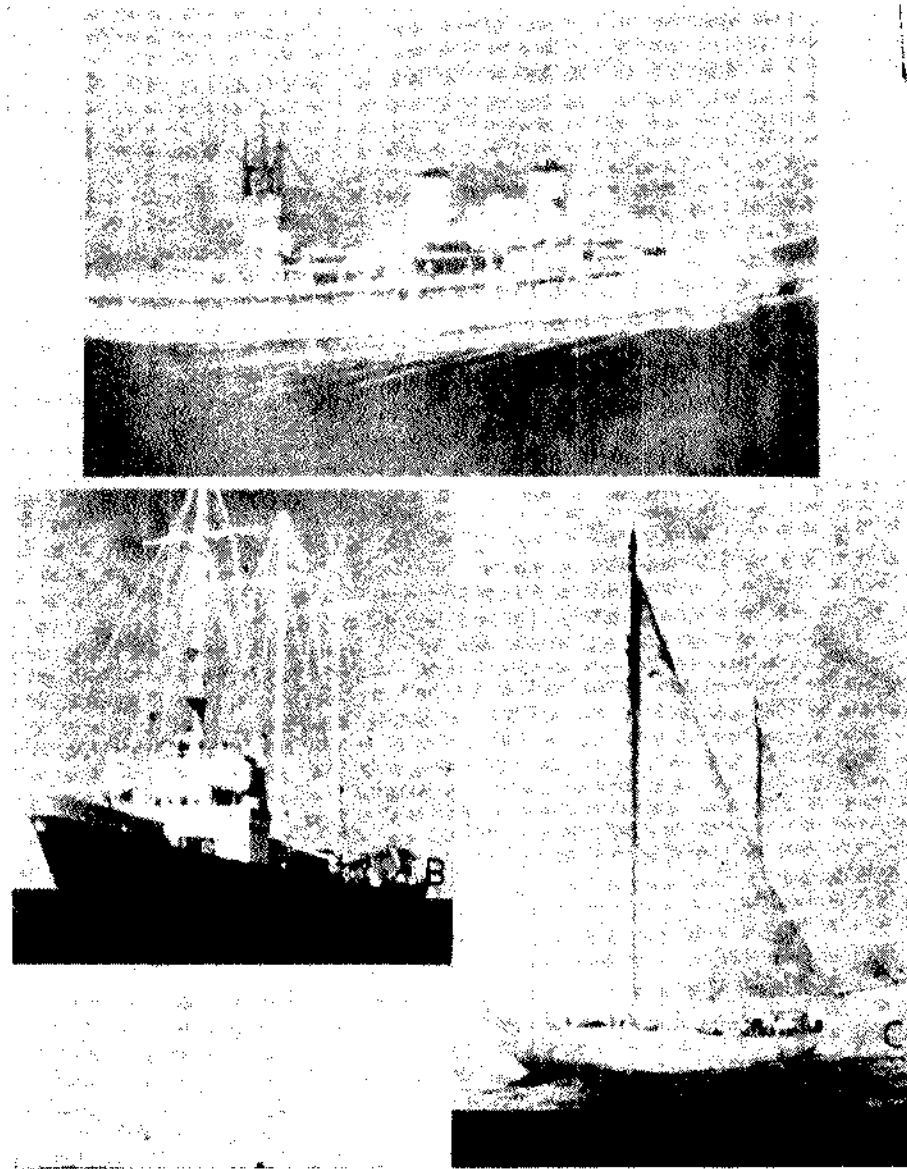


PLATE IV A. *USS Maury* (AGS-16); B. *R.F. Vema*, and C. *R.F. Atlantis*.

toward the penultimate frontier on earth—Antarctica. The first American ships to enter the ocean on a scientific, rather than a military mission, were rather unlikely oceanographic platforms—a fleet oiler the USS CACOPAN (AO 52) and a destroyer the USS HENDERSON (DD 785). They were designated as the Western Task Group of Task Force 68 on Operation HIGHJUMP. Appropriately enough they first penetrated the Indian Ocean, skirting the ice edge westwardly, as did the last expedition to be borne by the U.S. Navy 106 years before—to the month. Inappropriate for oceanographic work as the ships were, they were outfitted to take the then basic oceanographic observations: temperature vs. depth, transparency, salinity, and plankton hauls. What undoubtedly was the first study of the Deep Scattering Layer (DSL) in the Indian Ocean was also part of the first long distance study of it since its discovery in 1942. The ships cruised as far westward as about 30°E, then backtracked and sailed northeastward to Sydney. Along this sector of the Antarctic indications of layers of deep scatterers were recorded only for short intervals until January 21. For eight days after this date the DSL again was well developed and displayed the typical diurnal cycle. It was theorized that this change might have resulted from the return of a day-night regime.

The chief scientist aboard the HENDERSON was the now internationally known marine geologist Dr. Robert S. Dietz, then with the Navy Electronics Laboratory. His special interest resulted in records being made of such observations as one that concerned the Continental Slope of Antarctica at about 73° E as it appeared on the echo sounder. He noted (Dietz, 1948) that it displayed a remarkably long, smooth, and gentle profile with a maximum declivity of two degrees and a minimum of about one-fourth of one degree.

A seaplane tender, the USS CURRITUCK, which followed these two ships into the ocean, mothered planes that flew over and photographed, among other features, two extensive ice-free areas. One was named Bunger's Oasis after the captain of the aircraft. These areas, with their unique lakes, were to receive considerable later investigation.

The southern summer of 1947-1948 saw ships of the second post-war Navy Antarctica Operation in the southern continental waters of the Indian Ocean. These were two ice breakers, the USS EDISTO (AG 89) and USS BURTON ISLAND (AG 88) (Pl. III A). Having an ice breaking capability permitted more coastal work than was possible to accomplish with the HIGHJUMP ships. Thus, the ships not only carried a representative of the Smithsonian Institution, who made considerable collections ashore, but a hydrographic party of the U.S. Navy Hydrographic Office (now the Naval Oceanographic Office). The work of this party consisted of establishing geodetic positions to control mapping and limited triangulation nets around these positions (Pl. III B).

These two expeditions were the forerunners of a continuing annual series of operations around and on the continent, going under the code name of DEEPFREEZE. The man who had started it all for the United States, with the possible exception of Captain Palmer, and for the Navy was honored by that Navy during Operation DEEPFRERZE II in 1956-57 when men, materials, and supplies were unloaded on Clark Peninsula on the Budd Coast, and Wilkes Station was commissioned on February 16, 1957.

The northern summer of 1948 saw the U.S. Navy entering the Indian Ocean far to the north-west of this activity. Task Force 128 consisting of an aircraft carrier

and several other ships passed through the Suez Canal in August, cruised in the Persian Gulf, and returned to the Mediterranean in September. Meteorological and some basic oceanographic observations were recorded by members of an aerology unit aboard each of the ships. This force preceded a hydrographic surveying operation conducted by the U.S. Navy Hydrographic Office aboard the USS MAURY (AGS-16) (Pl. IV A), the USS DUTTON (T-AGS-22), and several support ships. Bathymetric surveys were conducted into 1949 on the Arabian side of this gulf to gather data for the improved nautical charts needed by the increasing traffic of tankers in this area. Oceanographic and marine geological data also were collected from these ships. As pointed out by Emery (1956) in reporting on the results of the cruise, despite the centuries of commerce and navigation in the Persian Gulf, very few studies had been made of its sediments and oceanography. However, about 3,600 notations of bottom sediments in the Gulf existed on nautical charts and, when combined, provided a general picture of the distribution of these sediments. Eight short cores and 90 bottom samples comprised the marine geological sampling in the Gulf during the cruise. These were later analyzed for grain-size distribution, mineralogy, chemistry, and geographic distribution of sediment types. Short-term sampling of dust deposited on the deck was conducted to get some contemporary indication of the rate of windborne sedimentation. Earlier reports on this source had been made by Andréé (1920). Analysis of the data led Emery to conclude that the recent sediments are controlled by their environment of deposition as well as by their areas of derivation.

The late 1950's saw the return to the Indian Ocean of purely scientific vessels operated by non-profit organizations. The principal initial motivation for this was the programs of the International Geophysical Year (IGY). It was probably to be expected that ships from two of the largest or most active oceanographic laboratories of the nation would be the first to represent it in this era the R. V. VEMA (Pl. IV B) of the Lamont Geological Observatory in 1958, the VEMA again, and the R. V. ATLANTIS (Pl. IV C) of the Woods Hole Oceanographic Institution in 1959. These years, which were the opening scene for undoubtedly the greatest play of science in the United States, if not the entire world, produced among other major plans and programs the concept of an international scientific attack on the poorly known Indian Ocean. For, despite the fact that it had first given up information to a scientific vessel over a century before, research cruises subsequently had been made in it far less frequently than in the Atlantic and Pacific.

The United States' participation in the International Indian Ocean Expedition was significant and varied. All groups and a multitude of scientists with interests in the sea availed themselves of this opportunity of a truly multinational, multiship, multiyear study. The opening year of the decade and of the effort saw hydrographic-oceanographic ships of the U.S. Navy and of a third prominent oceanographic laboratory, the Scripps Institution of Oceanography in the MONSOON Expedition, conducting research cruises in the ocean. The entire program of the United States in this expedition should be the subject of separate account and has been well documented. Post-expedition activities by the U.S. dropped off, as could be expected, but scientific interest remains significantly high and may foster further cruises in the Indian Ocean which is recognized as being an integral part of the global ocean.

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