



ArchivesSpace

Woodcock, Alfred H.; Papers

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M.E. Grenander Department of Special Collections & Archives

Table of Contents

Summary Information	3
Biographical Sketch	3
Scope and Contents	6
Arrangement of the Collection	7
Administrative Information	7
Controlled Access Headings	8
Collection Inventory	9
Correspondence	9
Scientific Research	13

Summary Information

Repository:	M.E. Grenander Department of Special Collections & Archives
Title:	Alfred H. Woodcock Papers
ID:	ua902.028
Date [inclusive]:	1930-1995
Physical Description:	7.25 cubic ft.
Physical Location:	The materials are located onsite in the department.
Language of the Material:	English .
Abstract:	Atmospheric researcher and oceanographer from Woods Hole Oceanographic Institution (WHOI) and the University of Hawaii, Woodcock collaborated with Duncan Blanchard and the U.S. Navy on research such as Project Shower, atmospheric sea salt and volcanic mountain breathing.

Preferred Citation

Preferred citation for this material is as follows:

Identification of specific item, series, box, folder, Alfred H. Woodcock Papers, 1930-1995. M.E. Grenander Department of Special Collections and Archives, University Libraries, University at Albany, State University of New York (hereafter referred to as [shortened name]).

[^ Return to Table of Contents](#)

Biographical Sketch

Alfred H. Woodcock was born on September 7, 1905 in Atlanta, Georgia. His formal education ended very early as his father had very little regard for school and Woodcock went to work in a wide variety of jobs in the seasonal economy of the southeastern United States after dropping out of high school. After moving to Massachusetts and resuming his education at a local agricultural school, he worked on farms and did odd jobs. Woodcock heard the research vessel Atlantis was looking for hands to sign on for a research cruise under the command of Columbus Iselin. The Atlantis was the first deep-water research ship of the fledgling Woods Hole Oceanographic Institution (WHOI). Under the direction of Dr. Henry Bigelow of Harvard University, WHOI was formed in 1930 and funded by a Rockefeller

Foundation grant of 3 million dollars. Woodcock signed on and became a valued member of the crew, rising to the position of chief scientist in 1935. Woodcock had found his calling in atmospheric research and oceanography, and he began his research into the soaring patterns of marine birds, sailing patterns of jellyfish and the ways that dolphins and porpoises ride along the bow of sailing ships. Woodcock continued to conduct experiments aboard the Atlantis until 1942.

During the Second World War, Woodcock worked with the U.S. Navy to develop smoke screens that could be used to camouflage allied vessels at sea. After the end of the war, Woodcock continued to work in conjunction with the Navy to study wind patterns at sea. Beginning in 1942 he was employed at the Woods Hole Oceanographic Institute in Massachusetts, first as a research associate and then as an oceanographer. He conducted research into oceanography and atmospheric science, studying sea salt and its affect on precipitation. From 1949 to 1953 Woodcock published a series of groundbreaking scientific papers about the research he had conducted into atmospheric sea salt. In 1951, he met and began to work with one of his primary collaborators, Duncan Blanchard. Woodcock and Blanchard would collaborate on atmospheric research and carry on a long running correspondence.

In the early 1950s Woodcock was involved in Project Shower, which investigated the physics and chemistry of warm rain in Hawaii. This was a cooperative project involving WHOI and the Pineapple Research Institute and funded by the Office of Naval Research (ONR). The data and final report of Project Shower was published in 1957 in the journal *Tellus*. Woodcock also published a paper in 1958 which dealt with the behavior of atmospheric sea salt in hurricanes. In this period Woodcock collaborated with Duncan Blanchard and also with chemist James Lodge and meteorologist E.G. "Taffy" Bowen among others. In 1961 Woodcock was awarded an honorary PhD from Long Island University as a doctor of science. It was not long after (1962) that Dr. Woodcock moved to Hawaii, where he concentrated on the study of atmospheric sea salt in Hawaii from 1962 to 1965.

From 1963 to 1972 Woodcock was a research associate in the Department of Oceanography at the University of Hawaii and a research associate at the Hawaiian Institute of Geophysics. In Hawaii, Woodcock conducted atmospheric studies at the dormant volcano Mauna Kea and also did research on Lake Waiau, an alpine lake that is near the summit of Mauna Kea. He developed a theory of "mountain breathing" where gasses entered and exited the mountain. Woodcock conducted research into the movement patterns of the Portuguese Man 'o War, *Physalia*, and continued research into Sargassum and studies of Hawaiian cloud physics. His primary collaborator during this period continued to be Duncan Blanchard, but he also conducted research with James Hughes of ONR, as well as researchers Jack Warner and Sean Twomey in Australia.

Woodcock was retired from the University of Hawaii in 1972, but continued to work on projects relating to atmospheric science. Woodcock became interested in fog formation and conducted research into fog in Alaska and Woods Hole, MA. He continued the research begun in the 1960s by further investigating the phenomenon of mountain breathing at Mauna Kea and did further research in Lake Waiau. Much of the funding for Woodcock's research came from the Office of Naval Research and his primary contact was James Hughes, in the Atmospheric Research department of the Office of Naval Research. Woodcock's ONR funding began with Project Shower and was terminated in 1984. In 1988, Woodcock was named Scientist Emeritus by the Woods Hole Oceanographic Institute and in 1994 he was presented with a lifetime achievement award by the American Meteorological Society.

Chronology of Events

1905 September 7	Born in Atlanta, GA
1931	Joins the research vessel Atlantis, under the command of Columbus Iselin
1931	1942 Technician, Woods Hole Oceanographic Institute
1935	Sole scientist on the Atlantis' North Atlantic voyage
1938	Publishes a paper in <i>The Atlantic Monthly</i> on the flight patterns of birds
1940	Publishes a paper on soaring gulls in <i>The Journal of Marine Research</i>
1941	Chief scientist aboard the Atlantis
1941	Smoke screen project begins in conjunction with the U.S. Navy
1942	1946 Research Associate, Woods Hole Oceanographic Institute
1944	Begins research into Physalia/Portuguese Man o' War
1946	1963 Oceanographer, Woods Hole Oceanographic Institute
1947	Wyman/Woodcock report released on the temperature lapse rate in clouds
1947	1949 Woodcock studies the seaweed genus Sargassum
1949	Begins research into atmospheric sea salt
1949	1953 Publishes a series of groundbreaking papers on atmospheric sea salt.
1951	Begins working with Duncan Blanchard at Woods Hole

1954	Project Shower begins (study of the physics and chemistry of warm rain)
1957	Publishes results of Project Shower in <i>Tellus</i>
1958	Publishes a paper about the behavior of atmospheric sea salt in hurricanes
1961	Awarded honorary PhD from Long Island University
1962	Moves to Hawaii
1962	1965 Peak of Woodcock's research into atmospheric sea salt
1963	1972 Research affiliate, Dept. of Oceanography, University of Hawaii
1963	1972 Research associate, Hawaiian Institute of Geophysics
1974 (ca.)	Conducts research into fog formation in Alaska and Woods Hole
1975	Revisits gull research
1988	Emeritus Scientist, Woods Hole Oceanographic Institute
1994	Receives American Meteorological Society's Lifetime Achievement Award

[^ Return to Table of Contents](#)

Scope and Contents

The material in this collection documents the correspondence and scientific research of Alfred H. Woodcock. Correspondence files date from 1930-1995 and consist of correspondence from the scientists

that Woodcock worked and collaborated with, along with carbons of his original correspondence, as well as journal articles and a small amount of personal correspondence. Most of the correspondence is related to science and the topics that Woodcock was investigating. There is very little correspondence for the years 1930-1950. Woodcock's major collaborators were atmospheric scientist Duncan Blanchard, U.S. Navy scientist James Hughes, chemist James Lodge, and atmospheric researcher Sean Twomey. The scientific research files date from 1937-1986 and consist of original data collected by Woodcock as well as journal articles, record books, and photographs. Information about the scientists Woodcock collaborated with can be found in the correspondence files. Information about the scientific projects that Woodcock researched can be found in the scientific research files. Major projects and research covered by the collection includes the study of the soaring patterns of marine birds, 1931-1942, 1975; Woodcock's study of atmospheric sea salt, 1950-1965; Project Shower, a major study of warm rain in Hawaii, 1954-1957; the study of the alpine environment on the volcano Mauna Kea and Lake Waiau, 1956-1975. Also covered are Woodcock's study of the seaweed Sargassum, 1944-1949; and the Portuguese man 'o war Physalia, 1944-1970. Research pertaining to Woodcock's fog studies dates from 1977-1981. Note that in some files the topic can cover many years with significant gaps, and that occasionally multiple topics are covered within one folder. The dates of research are those in which the primary research was conducted; other material in the files such as journal articles and background material may predate the primary research.

[^ Return to Table of Contents](#)

Arrangement of the Collection

The collection is organized as follows:

[^ Return to Table of Contents](#)

Administrative Information

Publication Statement

M.E. Grenander Department of Special Collections & Archives

Revision Description

EAD file created Encoded in EAD by Conversion and encoding by ArchProteus 2014 2015

Processing Information

Processed in 2000 by Timothy Niland (Fall 2000).

Acquisition Information

All items in this manuscript group were donated to the University Libraries, M.E. Grenander Department of Special Collections and Archives, by Alfred H. Woodcock in October, 1999.

Access

Access to this record group is unrestricted.

Copyright

The researcher assumes full responsibility for conforming with the laws of copyright. Whenever possible, the M.E. Grenander Department of Special Collections and Archives will provide information about copyright owners and other restrictions, but the legal determination ultimately rests with the researcher. Requests for permission to publish material from this collection should be discussed with the Head of Special Collections and Archives.

[^ Return to Table of Contents](#)

Controlled Access Headings

- Conservation and the Environment
- Atmosphere -- Research -- Hawaii.
- Atmosphere -- Research -- Massachusetts.
- Cloud physics.
- Ecology -- Research -- Hawaii.
- Fog -- Research -- Massachusetts.
- Geography -- Research -- Hawaii.
- Geography -- Research -- Massachusetts.
- Geology -- Research -- Hawaii.
- Geology -- Research -- Massachusetts.
- Oceanographic research ships -- Massachusetts.
- Oceanography -- Research -- Hawaii.
- Oceanography -- Research -- Massachusetts.
- Precipitation (Meteorology) -- Measurement..
- Smoke screens.
- Volcanoes -- Hawaii.
- Weather.
- UAlbany Faculty & Alumni Papers
- Woodcock, Alfred H.
- Bigelow, Henry B. (Henry Bryant), 1879-
- Blanchard, Duncan C. (Duncan Cromwell), 1924-
- Bowen, E. G.

- Duce, Robert A., 1935-
- Eriksson, Erik, 1917-
- Faller, Alan J.
- Friedman, Irving, 1920-2005.
- Hughes, James A.
- Iselin, Columbus O'Donnell, 1904-
- Knight, Charles A. (Charles Alfred), 1936-
- Lodge, James P.
- Iselin, Columbus O'Donnell, 1904-
- Renn, Charles E. (Charles Easterday), 1905-
- Schaefer, Vincent J.
- Twomey, Sean A. (Sean Andrew), 1928-
- American Meteorological Society.
- State University of New York. Atmospheric Sciences Research Center.
- C.S.I.R.O. Radiophysics Laboratory.
- Hawaii Institute of Geophysics.
- International Meteorological Institute in Stockholm.
- Massachusetts Institute of Technology. Department of Geology and Geophysics.
- United States. Department of Defense.
- National Science Foundation (U.S.)
- University of Hawaii (System). School of Ocean and Earth Science and Technology.
- Colorado. Office of State Geologist.
- Naval Research Laboratory (U.S.)
- Woods Hole Oceanographic Institution.

Collection Inventory

Correspondence, 1930-1995

Physical Description: 3.0 cubic ft.

Scope and Contents

Types of material include letters, carbon copies, journal articles, photographs and scientific research. Correspondence arranged chronologically pertaining to Woodcock's work aboard the research vessel Atlantis, 1930-1939, and work with the Navy on the smoke screens at sea project, 1944-45. Research into atmospheric sea salts and sea salt nuclei 1947-1986; Project Shower research into warm rain in Hawaii, 1954-1957; and Hawaiian cloud physics, 1952-1965. Also included is correspondence pertaining to Woodcock's study of Hawaiian rainfall, 1967-1972; atmospheric studies at the volcano Mauna Kea, 1965-1977; permafrost at Mauna Kea, 1969-1977; "mountain breathing" at Mauna Kea, 1976-1979; and Lake Waiau, 1965-1985. Correspondence dealing with Woodcock's research into sea salt, and studies of canal fog, 1979-1986. Other topics of correspondence include: physalia, 1944-1970; soaring gulls, 1937-1938; wave riding dolphins, 1946-1953; sargassum, 1947-1949; bursting bubbles, 1976; hail, 1976; Woodcock's research into his CIA file, 1977; hurricanes, 1985; slush and ice on lakes and ponds, 1987; rain droplet formation in clouds, 1990, study of Hawaiian trade winds, 1991; Woodcock's reception of the American Meteorological Society's lifetime achievement award, 1994; and budgetary matters. Correspondents include Columbus Iselin, director of the Atlantis research project, 1930-39, atmospheric scientist and meteorologist Duncan Blanchard, 1955-1995; U.S. Navy atmospheric scientist James Hughes, 1955-1984; chemist James Lodge, 1955-1965; meteorologist and atmospheric scientist E.G. "Taffy" Bowen 1955-1965; and atmospheric researcher

Erik Eriksson, 1955-1965; oceanographer Robert Duce 1965-1977; researchers Jack Warner and Sean Twomey, 1969-1977; Charles Penn, 1981-1985; Irving Friedman, 1977-1979; Charles Knight, 1989-1991; as well as Vincent Schaefer, Allen Faller and Irving Friedman. See the box and folder list for a detailed description of the contents of the containers.

Arrangement

Arranged chronologically.

Title/Description	Instances
Correspondence, 1930-1939	Box 1 (1- Folder 1 Correspondence)
Correspondence, 1941	Box 1 (1- Folder 2 Correspondence)
Correspondence, 1942	Box 1 (1- Folder 3 Correspondence)
Correspondence, 1943	Box 1 (1- Folder 4 Correspondence)
Correspondence, 1944	Box 1 (1- Folder 5 Correspondence)
Correspondence, 1945	Box 1 (1- Folder 6 Correspondence)
Correspondence, 1946	Box 1 (1- Folder 7 Correspondence)
Correspondence, 1947	Box 1 (1- Folder 8 Correspondence)
Correspondence, 1948	Box 1 (1- Folder 9 Correspondence)
Correspondence, 1949	Box 1 (1- Folder 10 Correspondence)
Correspondence, 1950	Box 1 (1- Folder 11 Correspondence)
Correspondence, 1951	Box 1 (1- Folder 12 Correspondence)
Correspondence, 1951-1952	Box 1 (1- Folder 13 Correspondence)
Correspondence, 1952	Box 1 (1- Folder 14 Correspondence)
Project Shower Correspondence, 1952	Box 1 (1- Folder 15 Correspondence)

Scope and Contents

(Correspondence relating to Project Shower, the study of warm rain in Hawaii).

Correspondence, 1953

	Box 1 (1- Correspondence)	Folder 16
Project Shower correspondence, 1953	Box 1 (1- Correspondence)	Folder 17
Correspondence, 1954	Box 1 (1- Correspondence)	Folder 18-19
Project Shower correspondence, 1954	Box 1 (1- Correspondence)	Folder 20-22
Correspondence, 1955	Box 1 (1- Correspondence)	Folder 23-24
Correspondence, 1956	Box 1 (1- Correspondence)	Folder 25
Correspondence, 1957	Box 1 (1- Correspondence)	Folder 26
Correspondence, 1958	Box 1 (1- Correspondence)	Folder 27
Correspondence, 1959	Box 1 (1- Correspondence)	Folder 28
Correspondence, 1960	Box 1 (1- Correspondence)	Folder 29-30
Correspondence, 1961	Box 1 (1- Correspondence)	Folder 31
Correspondence, 1962	Box 1 (1- Correspondence)	Folder 32-33
Correspondence, 1963	Box 1 (1- Correspondence)	Folder 34
Correspondence, 1964	Box 1 (1- Correspondence)	Folder 35-36
Correspondence, 1965	Box 2 (1- Correspondence)	Folder 1-3
Correspondence, 1967	Box 2 (1- Correspondence)	Folder 4-5
Correspondence, 1968	Box 2 (1- Correspondence)	Folder 6-7
Correspondence, 1969	Box 2 (1- Correspondence)	Folder 8
Correspondence, 1970	Box 2 (1- Correspondence)	Folder 9-10
Correspondence, 1971	Box 2 (1- Correspondence)	Folder 11-12
Correspondence, 1972		

	Box 2 (1- Correspondence)	Folder 13-14
Correspondence, 1973	Box 2 (1- Correspondence)	Folder 15-16
Correspondence, 1974	Box 2 (1- Correspondence)	Folder 17-18
Correspondence, 1975	Box 2 (1- Correspondence)	Folder 19-20
Correspondence, 1976	Box 2 (1- Correspondence)	Folder 21-22
Correspondence, 1977	Box 3 (1- Correspondence)	Folder 1-2
Correspondence, 1978	Box 3 (1- Correspondence)	Folder 3-4
Correspondence, 1979	Box 3 (1- Correspondence)	Folder 5
Correspondence, 1980	Box 3 (1- Correspondence)	Folder 6-7
Correspondence, 1981	Box 3 (1- Correspondence)	Folder 8
Correspondence, 1982	Box 3 (1- Correspondence)	Folder 9-10
Correspondence, 1983	Box 3 (1- Correspondence)	Folder 11
Correspondence, 1984	Box 3 (1- Correspondence)	Folder 12
Correspondence with James Hughes, 1964-1984	Box 3 (1- Correspondence)	Folder 13
Correspondence, 1985	Box 3 (1- Correspondence)	Folder 14
Correspondence, 1986	Box 3 (1- Correspondence)	Folder 15
Correspondence, 1987	Box 3 (1- Correspondence)	Folder 16
Correspondence, 1988	Box 3 (1- Correspondence)	Folder 17
Correspondence, 1989	Box 3 (1- Correspondence)	Folder 18
Correspondence, 1990	Box 3 (1- Correspondence)	Folder 19
Correspondence, 1991		

	Box 3 (1- Correspondence)	Folder 20
Correspondence, 1992	Box 3 (1- Correspondence)	Folder 21
Correspondence, 1993	Box 3 (1- Correspondence)	Folder 22
Correspondence, 1994-1995	Box 3 (1- Correspondence)	Folder 23

[^ Return to Table of Contents](#)

Scientific Research, 1937-1986

Physical Description: 4.25 cubic ft.

Scope and Contents

This series collects journal articles, correspondence, data, record books, photographs, notes, monographs, diagrams and tables. Alfred H. Woodcock's research into a variety of topics including Lake Waiau, 1965-1970, 1978, 1982; salt spray in hurricanes, 1956-1958, 1962-1968, 1974; mountain breathing, 1974-1978; sea salt, 1959-1966; soaring flight data, 1937-1938, 1945, 1952, 1966; porpoise and wave riding dolphins, 1940, 1946-1953, 1960; glacier studies, 1960, 1962, 1969-1976, 1979; ice melt patterns, 1961, 1981-1982; ice melt data, 1946-1950, 1959, 1962, 1965; fog studies, 1981; Mauna Kea/Lake Waiau studies, 1965-1975; telescope studies, 1974, 1982; atmospheric research, 1946-1956, 1971-1982; deuterium, 1951, 1961-1963; sargassum, 1947-1949; physalia, 1944-1970; volcano steam cloud, 1960; smoke screen at sea, 1944-1946; declassified, 1973. See the box and folder list for a detailed description of the contents of the containers.

Arrangement

Arranged chronologically.

Title/Description	Instances	
Soaring data - convective, 1937-1938	Box 4 (2- Scientific Research)	Folder 1
Soaring data - dynamic, 1937-1938	Box 4 (2- Scientific Research)	Folder 2
Porpoise bow and wave riding 1940, 1948-1953/1960	Box 4 (2- Scientific Research)	Folder 3
A theory of surface water deduced, etc, 1941-1963	Box 4 (2- Scientific Research)	Folder 4
A holy smoke, 1944	Box 4 (2- Scientific Research)	Folder 5
A smoke, 1944-1945		

	Box 4 (2-Scientific Research)	Folder 6
Final report on the behavior of smoke screens at sea, 1944-1945	Box 4 (2-Scientific Research)	Folder 7-8
Tests on the behavior of smoke screens at sea, 1944-1945	Box 4 (2-Scientific Research)	Folder 9
Tests on the behavior of smoke screens at sea, 1944-1945	Box 4 (2-Scientific Research)	Folder 10-11
Physalia, 1944-1963	Box 4 (2-Scientific Research)	Folder 12
a. Notebook, "Spring 1961 P-p trip data and rough log of P-p experiments in Florida", 1961		
b. a graph of observations of Physalia in the Florida Straits, 1961 March		
c. a reprint with some penciled notes of Woodcock's publication, "Dimorphism in the Portuguese Man-Of-War", Nature, Vol 178, 253-255, 1956 August 4		
d. a reprint of Everet C. Jones, "Tremoctopus violaceus Uses Physalia Tentacles as Weapons, Science, Vol 139, No 3556, 764-66, 1963 February 22		
e. P-p dipping and sailing abs. notes, 1963 July <u>Physical Description</u> : 3 pages		
f. 5 three x five cards with citations and brief notes on articles		
g. <u>Physical Description</u> : 2 pages of notes		
Scope and Contents		
One page on ships reports, 1882-1903, one page labeled Pensacola-Santa Rosa, observations, on float lengths.		
h. a chart titled Fig 47 "Idealized Drawings of Wind-Induced Helical Motions in surface waters, with an illustration of the possible effects of asymmetrical vortices upon the drift of bottles and of physalia		
i. reprint of Woodcock, "A theory of surface water motion deduced from the wind-induced motion of the Physalia" <i>Sears Foundation: Journal of Marine Research</i> , Vol. 5, No. 3, pp. 196-205;, 1944 October 20		
j. Map of Trinidad and Tobago		

Log book no.4 WHOL, 1945-1950	Box 4 (2-Scientific Research)	Folder 13
Hawaiian Data, 1946	Box 4 (2-Scientific Research)	Folder 14
Note on physalia symmetry, 1946	Box 4 (2-Scientific Research)	Folder 15
Vertical motion exchange of heat and water between the air and sea, 1946 <u>Physical Description</u> : 2 folders	Box 4 (2-Scientific Research)	Folder 16-17
The preparation and use of water sensitive coatings for sampling cloud particles, 1946	Box 4 (2-Scientific Research)	Folder 18
Grass pond area, 1946-1947	Box 4 (2-Scientific Research)	Folder 19
Marine studio experiment on porpoise density, 1946-1948-1950	Box 4 (2-Scientific Research)	Folder 20
Sargassum pressure tests Bermuda bio. station St. Georges, Bermuda, 1947-1948	Box 4 (2-Scientific Research)	Folder 21
Sargassum studies, 1947-1948	Box 4 (2-Scientific Research)	Folder 22
Subsurface sargassum, 1947-1948	Box 4 (2-Scientific Research)	Folder 23
Sargassum notebook, 1948	Box 4 (2-Scientific Research)	Folder 24
Salt spray data, 1948	Box 4 (2-Scientific Research)	Folder 25
Sea and lake boundary, layer conditions, bubbles and foaming, 1948-1950-1952-1960	Box 4 (2-Scientific Research)	Folder 26
Wave riding dolphins, 1948-1949	Box 4 (2-Scientific Research)	Folder 27
The swimming of dolphins, 1948-1950-1960		

	Box 4 (2-Scientific Research)	Folder 28
Subsurface sargassum manuscript, 1949	Box 4 (2-Scientific Research)	Folder 29
Melting patterns in shallow ponds, 1949-1950	Box 4 (2-Scientific Research)	Folder 30
Grass Pond-Long Island, 1949-1962	Box 4 (2-Scientific Research)	Folder 31
Data book impact sampling 1950, Nassau trip 1960, Woods Hole, MA, USA, 1950, 1960	Box 4 (2-Scientific Research)	Folder 32
Original data June 1951, Olan, TH, 1951	Box 4 (2-Scientific Research)	Folder 33
December 1951-Summer 1954	Box 4 (2-Scientific Research)	Folder 34
Hawaii, 1952	Box 4 (2-Scientific Research)	Folder 35
Cloud paper tables, 1953	Box 4 (2-Scientific Research)	Folder 36
Salt induced convection and clouds "bits and pieces", 1953-1956	Box 4 (2-Scientific Research)	Folder 37
Bubbles from melting snow, 1953-1957-1971-1974	Box 4 (2-Scientific Research)	Folder 38
Project shower, Kilauea "Kapoho" eruption 1954, 1960	Box 4 (2-Scientific Research)	Folder 39
Contribution to the study of the origin of nitrogen in atmospheric precipitation, 1955	Box 5 (2-Scientific Research)	Folder 1
Atmospheric salt sampling, 1955-1956	Box 5 (2-Scientific Research)	Folder 2
Flight and field data, 1955-1961-1963-1965	Box 5 (2-Scientific Research)	Folder 3
Ideas for further physalia studies, 1956		

	Box 5 (2- Scientific Research)	Folder 4
<p>a. One page titled: "Tentative suggestions for Physalia studies, emphasizing their sailing habits", 1956 August 5</p> <p>Scope and Contents</p> <p>an outline in pencil.</p>		
<p>b. Seven pages ripped out of a small notebook with observations, 03/24/194603/26/194603/31/194604/06/1946</p>		
Dimorphism in the Portuguese Man-of-War, 1956	Box 5 (2- Scientific Research)	Folder 5
<p>a. Article "Dimorphism in the Portuguese Man-of-War", 1956 March 28</p> <p>Scope and Contents</p> <p>Typescript inscribed 2nd corrected copy, of 7 pages including bib & notes, & three pages of graphs accompanying the article & two tables (one draft, on final) of observations of right and left handed Physalia seen on the surface of the open sea.</p>		
<p>b. Correspondence with MacMillan & Co.</p> <p>Scope and Contents</p> <p>re the submission, two pages, two post cards dated March 1956.</p>		
<p>c. A second set of the three figures which appear the same but are not numbered</p>		
<p>d. Three pages of penciled drafts of figure 1 & 2, and of table 1</p>		
Salt spray in hurricanes, 1956-19581974	Box 5 (2- Scientific Research)	Folder 6
Factors affecting the distribution of villia - Dr. G.O. Mackie, ca. 1957	Box 5 (2- Scientific Research)	Folder 7
Physalia data, 1957-1958	Box 5 (2- Scientific Research)	Folder 8
Atmospheric salt sampling, 1957-1960	Box 5 (2- Scientific Research)	Folder 9
<p>Pluiston of the Western Pacific - A.J. Savilov, 1958</p>		

	Box 5 (2- Scientific Research)	Folder 10
Physalia sailing, 1959-1970	Box 5 (2- Scientific Research)	Folder 11
a. Robert Bieri, "Dimorphism and Size Distribution in Velelia and Physalia" <i>Nature</i> , 1333-1334, 1959 October 24		
b. Lisbeth Francis, "Design of a Small Cantilevered Sheet: The Sail of Velella velella" <i>Pacific Science</i> , vol. 39, no. 1, 1-15, 1985		
c. A Russian publication of A. N. Cabnob?? In cyrilic, CCCP 1958		
d. A Note to Dick Backus from A. H. Woodcock, 1961 March 1		
Scope and Contents		
Marked corrected copy, Subject: "Making Observations of the Sailing Direction of Physalia on the Next Chain cruise", three pages & two incomplete drafts of same.		
e. G. O. Mackie from the Pacific Marine Station, California, titled "Factors affecting the distribution of Velella" <u>Physical Description</u> : 12 pages & 2 graphs		
f. A graph of Woodcock's labeled "Observations of Physalia physalis dipping rate as a function of wind speed, Straits of Florida, March 1961 with ink and pencil notations		
g. Reprint article, Charles E. Lane and Eleanor Dodge, "The toxicity of Physalia Nematocysts" <i>Biological Bulletin</i> , Vol 115, No. 2, 219-226, 1958 October		
h. Reprint article, R. V. Southcott, "Venomous Jelly Fish" <i>Good Health</i> , South Australia, 1-6, 1960 January		
i. Reprint article, C. W. Kingston and R. V. Southcott, "Skin Histopathology in Fatal Jellyfish Stinging" <i>Transactions of the Royal Society for Tropical Medicine and Hygiene</i> , Vol. 54, No. 4, 373-384, 1960		
j. A Rejection letter from <i>Nature</i> for a mss, 1970 December 17		
k. Reprint, J. B. Wittenberg, J. M. Noronah and M. Silverman, "Folic Acid Derivatives in the Gas Glands of <i>Physalia physalis</i> L". <i>Biochem. J.</i> 85, 9, 9-15, 1962		
l. Proof with hand written corrections in pencil by Woodcock, "Note Concerning Physalia Behavior at Sea" <i>Limnology and Oceanography</i> , V. 16 (3), 551-552, 1971 May		
m.		

Scope and Contents

Two drafts of the Notes (17 pages) article above (see 12) & correspondence (2 pages) with Dr. Yvette H. Edmondson, two of the letters are very amusing one from Woodcock to Edmondson explaining his difficulty in getting more data for the Note "The research vessel crew thought I was mad as it was" for spending that much time on the observations in a small boat, and Edmondson's note with reviewers comments concluding "I am amused to note that one of these referees apparently thinks of you as a meteorologist and the other as a biological oceanographer. It's always been my understanding of the legend that you're really a pomologist".

n. A negative and black & white photo of Physalia probably for use as an illustration if needed in the Notes article 12 above but not dated & negatives and four color photos of Physalia again probably taken during the observations for the Notes article

o. Article by Dorothy H. Miles, "The Left-handed Jellyfish" Sunday Star Bulletin & Advertiser, for release Sunday, 1972 March 19

Scope and Contents

5 pages double spaced with hand written comments in Woodcock's ??? hand.

p. Two note cards with article citations & comments

Comparison of isopiestic and flame photometer methods, 1960	Box 5 (2-Scientific Research)	Folder 12
Photo micrographs of steam cloud sample #15, 1960	Box 5 (2-Scientific Research)	Folder 13
Steam cloud samples, 1960	Box 5 (2-Scientific Research)	Folder 14
Scope and Contents		
November 2-3, slide 4 November 3-4, 1960.		
Schults counts of particles in steam cloud, 1960 November 8	Box 5 (2-Scientific Research)	Folder 15
Lab steam cloud sampling, 1960 November 17	Box 5 (2-Scientific Research)	Folder 16
Particles from hot lava using saturated sea salt solution, 1960	Box 5 (2-Scientific Research)	Folder 17

Comments about sustained swimming speeds of dolphins, 1960

	Box 5 (2-Scientific Research)	Folder 18
Volcano steam cloud study Hawaii, 1960	Box 5 (2-Scientific Research)	Folder 19
Steam cloud particles photographs slide #15, 1960	Box 5 (2-Scientific Research)	Folder 20
Steam cloud particles slides #1 and #19 photo micrographs, ca. 1960	Box 5 (2-Scientific Research)	Folder 21
Glacier variations and climate, 1960-1962	Box 5 (2-Scientific Research)	Folder 22
Ice melt patterns, 1960-1965	Box 5 (2-Scientific Research)	Folder 23
Record book no. 1, 1961	Box 5 (2-Scientific Research)	Folder 24
New note about physalia, 1961	Box 5 (2-Scientific Research)	Folder 25
Physalia chain observations, 1961	Box 5 (2-Scientific Research)	Folder 26
a. Two note cards on Sailing of P-p		
b. Chart of Chain observations (cruise 17) Dr. R. H. Backus - pencil. 1 page		
c. "Notes on Physalia, Chain Cruise 17 abstracted from journal of R. H. Backus <u>Physical Description</u> : 4 pages		
d. Ian A.E. Bayly to A. H. Woodcock, 1967 October 8 Scope and Contents Letter, discussing his research interests.		
e. Advertising flyer with notes by Woodcock for <i>Australian Inland Waters and their Fauna Eleven Studies</i> Edited by A. H. Weatherly		
f. Pencil equipment list and observations on sea surface and in tank, Undated <u>Physical Description</u> : 1 page		

g. Pen notes titled Chain 35 St. Thomas - Recipe, Brazil (Leg #1) P.M. O'W observations R. H. Backus, 1 page

h. Two note cards of citations on Edwards '66 and Savilov '67

i. 1 page note that information about Physalia work can be found in file "Data re Papers"

j. Reprint, Sammy M. Ray, "Gymnodinium breve: Induction of Shellfish Poisoning in Chicks", Science, Vol 148, No. 3678, 1748-49, 1965 June 25

k. 1 page double sided of notations in pencil, California, Japan, South Atl?, etc. some with totals

l., 1943 November 15

Physical Description: 1 page

Scope and Contents

With name Clara Shoemaker (American Museum of Natural History) and counts for New Zealand "1 left", between Cook and Marshall Islands at Marembold "1 left" and a few other notations.

Rain recorder records, 1961 October 22-1961 November 30	Box 5 (2-Scientific Research)	Folder 27
HDO, 1961-1962	Box 5 (2-Scientific Research)	Folder 28
HDO in raindrops, 1961-1962	Box 5 (2-Scientific Research)	Folder 29
Deuterium in raindrops Hawaii, 1961-1962	Box 5 (2-Scientific Research)	Folder 30
Record book no. 2, 1962	Box 5 (2-Scientific Research)	Folder 31
Salt induced convection and clouds, 1962-1959	Box 5 (2-Scientific Research)	Folder 32
Salt spray in hurricanes, 1962-1968	Box 5 (2-Scientific Research)	Folder 33
Rain recorder paper, 1963	Box 5 (2-Scientific Research)	Folder 34
Salt + Copters, 1963-1965		

	Box 5 (2-Scientific Research)	Folder 35
Atmospheric sea salt, 1963-1966	Box 5 (2-Scientific Research)	Folder 36
Smoke experiment pictures, 1964	Box 6 (2-Scientific Research)	Folder 1
Salt convection, preliminary report on salt convection experiment results, 1964	Box 6 (2-Scientific Research)	Folder 2
Lake sediment, radiocarbon dating, 1965-1967	Box 6 (2-Scientific Research)	Folder 3
Melt patterns in ice over shallow waters, 1965	Box 6 (2-Scientific Research)	Folder 4
Record book no. 3, 1965-1966	Box 6 (2-Scientific Research)	Folder 5
Carbon 14 analysis proposal etc. (Waiiau core), 1965-1966	Box 6 (2-Scientific Research)	Folder 6
Older Lake W. reports, etc., 1965-1967	Box 6 (2-Scientific Research)	Folder 7
L. Waiiau sediment TC, 1965-1967	Box 6 (2-Scientific Research)	Folder 8
Waiiau Data, 1965-1967/1970	Box 6 (2-Scientific Research)	Folder 9
Waiiau data, 1965-1968	Box 6 (2-Scientific Research)	Folder 10
Waiiau core, patterned ground in Waiiau core, stone drift, unidentified photos, 1965/1968/1975	Box 6 (2-Scientific Research)	Folder 11
Geochron laboratories, inc. (Waiiau cores), 1966	Box 6 (2-Scientific Research)	Folder 12
Record book no. 4, 1966-1967	Box 6 (2-Scientific Research)	Folder 13
Soaring flight studies, 1966/1952/1945		

	Box 6 (2-Scientific Research)	Folder 14
Waiau photos, 1966-1978	Box 6 (2-Scientific Research)	Folder 15
Record book no. 5, 1967-1968	Box 6 (2-Scientific Research)	Folder 16
Latest version of Waiau paper, 1967-1969	Box 6 (2-Scientific Research)	Folder 17
Record book no. 6, 1968-1969	Box 6 (2-Scientific Research)	Folder 18
Patterned ground MK Hawaii, drill hole, plant biology, 1968-1977	Box 6 (2-Scientific Research)	Folder 19
Waiau photos, 1968-1978	Box 6 (2-Scientific Research)	Folder 20
Lichen trace mineral results, Mauna Loa Mauna Kea saddle area, 1969	Box 6 (2-Scientific Research)	Folder 21
Record book no. 7, 1969-1971	Box 6 (2-Scientific Research)	Folder 22
Glacier variations and climate, 1969-1976	Box 6 (2-Scientific Research)	Folder 23
Lake Waiau, 1969-1970-1978-1982	Box 6 (2-Scientific Research)	Folder 24
Glacier variations and climate, 1970-1978	Box 6 (2-Scientific Research)	Folder 25
Glacier variations and climate, 1970-1978	Box 6 (2-Scientific Research)	Folder 26
Record book no. 9, 1971	Box 6 (2-Scientific Research)	Folder 27
Record book no. 8, 1971	Box 6 (2-Scientific Research)	Folder 28
Mauna Kea Juniper news note Lake W., 1971		

	Box 6 (2- Scientific Research)	Folder 29
Record book no. 10, 1971-1972	Box 6 (2- Scientific Research)	Folder 30
Record book no. 11, 1972-1973	Box 6 (2- Scientific Research)	Folder 31
Record book no. 12, 1973-1975	Box 7 (2- Scientific Research)	Folder 1
Mauna Kea "breathing", 1974-1978	Box 7 (2- Scientific Research)	Folder 2
Snow ablation forms, "nine perritente", patterned ground, 1975	Box 7 (2- Scientific Research)	Folder 3
Record book no. 13, 1975-1976	Box 7 (2- Scientific Research)	Folder 4
Record book no. 14, 1976	Box 7 (2- Scientific Research)	Folder 5
Mountain breathing MK, water vapor from drill hole, deuterium, 1976	Box 7 (2- Scientific Research)	Folder 6
Record book no. 15, 1976-1978	Box 7 (2- Scientific Research)	Folder 7
Cape Cod canal fog, 1977-1982, 1959-1962	Box 7 (2- Scientific Research)	Folder 8
Lake Waiiau core photos- 1978, old photos of sargassum lines and rain showers, 1978	Box 7 (2- Scientific Research)	Folder 9
Record book no. 16, 1978-1982	Box 7 (2- Scientific Research)	Folder 10
Geological Society of America Bulletin, pt. 2, 1979	Box 7 (2- Scientific Research)	Folder 11
Cape Cod canal fog data, 1981	Box 7 (2- Scientific Research)	Folder 12
Ice melt patterns, 1981-1982		

	Box 7 (2-Scientific Research)	Folder 13
Hawaiian telescope project- environmental impact statement, 1982	Box 7 (2-Scientific Research)	Folder 14
Mauna Kea summit area, September 1982, UK drill hole temp. data, 1982	Box 7 (2-Scientific Research)	Folder 15
Cape Cod Canal, Buzzards Bay, MA [record book no. 18], 1982	Box 7 (2-Scientific Research)	Folder 16
September 1982 latest "ice patterns" work Woodcock and Lucas, 1982	Box 7 (2-Scientific Research)	Folder 17
Hawaiian astronomy station- environmental impact study, 1982	Box 7 (2-Scientific Research)	Folder 18
U. Hawaii Mauna Kea science reserve master plan	Box 7 (2-Scientific Research)	Folder 19
MB (mountain breathing), 1966-1980	Box 8 (2-Scientific Research)	Folder 1
Mountain breathing revisited, 1966-1980	Box 8 (2-Scientific Research)	Folder 2
MB (mountain breathing) [folder 2], 1967-1986	Box 8 (2-Scientific Research)	Folder 3

[^ Return to Table of Contents](#)