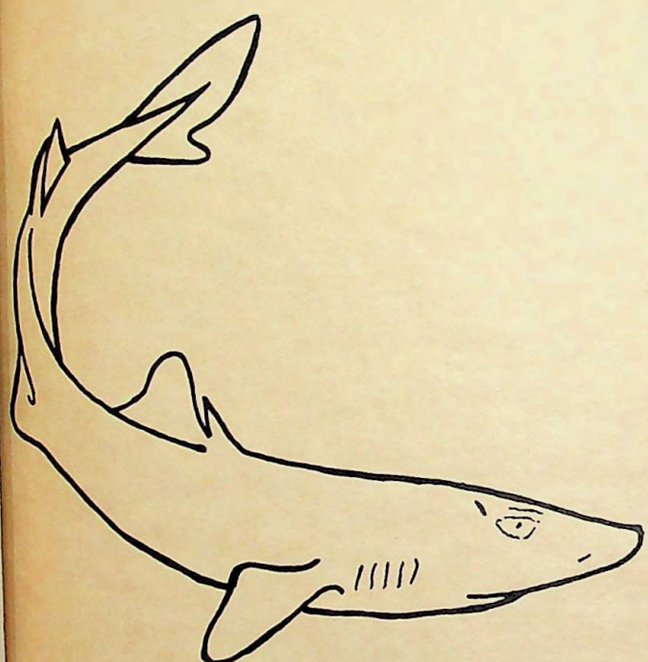
THE BULLETIN

Volume 14

Mount Desert Island Biological Laboratory

Salsbury Cove, Maine



1974

VOLUME 14
1974

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THE MOUNT DESERT ISLAND BIOLOGICAL LABORATORY SALSBURY COVE, MAINE

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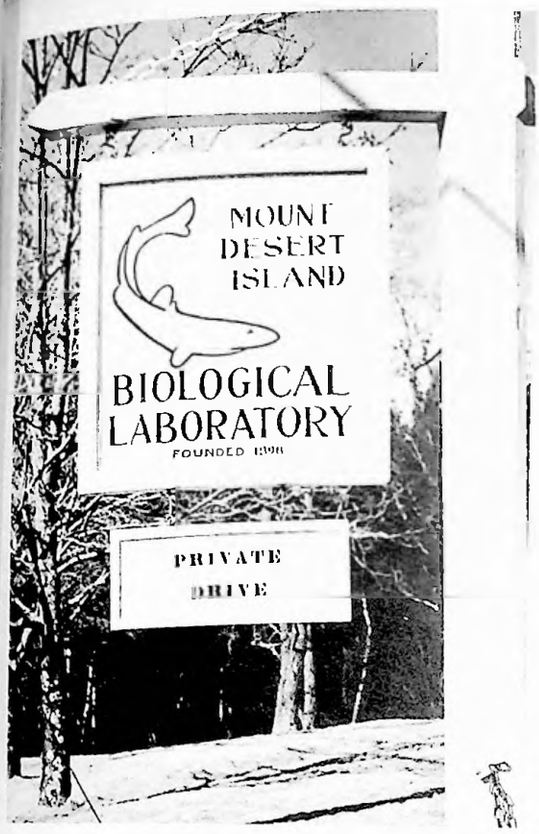

Picture taken by
George C. McKay, Jr.
Jackson Laboratory
Bar Harbor, Maine

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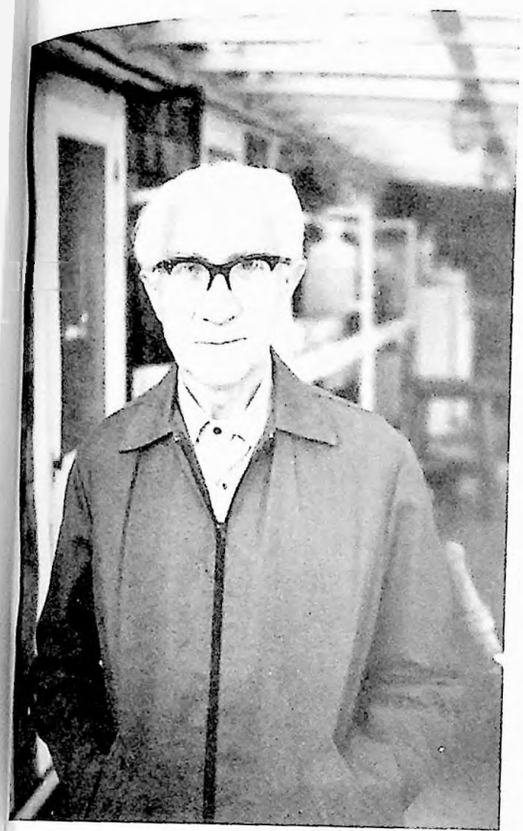

Visiting Scientist 1974

THADDEUS MANN
Director of the Animal Research Station
Cambridge University - England

ALVIN F. RIECK
1919-1973

Director 1959-1964

DESCRIPTION OF FACILITIES

The Mount Desert Island Biological Laboratory is an independent marine biological station on the coast of Maine near the mouth of the Bay of Fundy which provides a research facility for investigations on local flora and fauna. There is basic laboratory space for 36 research programs. Certain specialized equipment is available. During 1974 there were 124 scientific personnel in 32 research groups representing 54 institutions both here and abroad. There were 62 professional scientists and 62 students, technicians and staff in the 1974 programs. The work of the laboratory is basically physiological and has been described as "comparative Physiology in the interest of Medicine."

No formal courses are offered, but some advanced undergraduate, graduate, medical, and post doctoral students spend the summer as assistants to senior investigators, thereby gaining research training. Most of these students are selected by the investigators from their home institutions. Effective September, 1971 the laboratory established year-round programs with two investigator groups.

History and Organization

The Laboratory was founded in 1898 by J. S. Kingsley of Tufts College, and its original location was at South Harpswell, Maine. The site at Salsbury Cove was donated to the Laboratory by the Wild Gardens of Acadia, a group instrumental in the establishment of Acadia National Park, and removal to this location was completed in 1921. The first laboratory buildings, the original salt water system, and some of the residential cottages were constructed or obtained by the gifts of local summer residents.

The Mount Desert Island Biological Laboratory was incorporated in 1914 under the laws of the State of Maine as a nonprofit scientific and educational

institution, and it is owned and operated by the Trustees and members of the Corporation. At present there are 359 members of the Corporation. It functions without full-time professional administrative personnel and in most ways it is a cooperative enterprise. Income is derived from membership dues, laboratory fees, cottage rentals, investments, private and corporate donations, and grants. The business and scientific management of the Laboratory is in the hands of the Director and the Board of Trustees.

The Directors have been: Ulrich Dahlgren, Princeton University (1920-26); H. V. Neal, Tufts College (1926-31); William H. Cole, Rutgers University (1931-40); Roy P. Forster, Dartmouth College (1940-47); J. Wendell Burger, Trinity College (1947-50); Warner F. Sheldon, University of Pennsylvania (1950-56); Raymond Rappaport, Jr., Union College (1956-59); Alvin F. Rieck, Marquette University (1959-64); William L. Doyle, University of Chicago (1964-67); Charles E. Wilde, Jr., University of Pennsylvania (1967-70); H. V. Murdaugh, Jr., University of Pittsburgh (1970-75).

Location

Mount Desert Island lies in the Gulf of Maine about 150 miles northeast of Portland, Maine, and is connected to the mainland by a short bridge. Year-round air service is available to Bangor, Maine with seasonal service to Bar Harbor Airport. The island has an area of more than 100 square miles and is traversed east to west by a range of glaciated mountains and north to south by a narrow fiord six miles long that partially divides the east and west halves. Among the mountains lie several deep fresh water lakes and shallow ponds. Much of the mountainous area is a part of Acadia National Park. The Island is separated from the mainland and adjacent island by narrow deep bays. Spring tides average 13.2 feet and neap tides 8.7 feet.

The many varied biological resources of the Acadian area are readily available. In summer, the cold waters of the Gulf of Maine are rich in marine life. The rocky shores, mud flats and strong tidal currents provide a variety of habitats. Fresh water lakes and ponds and the mixed terrain give further diversity to the forms available. Certain of these are abundant, others are scarce. The research abstracts in past Bulletins will give a good indication of the common forms. The director will be glad to furnish an estimate of the availability of any special forms. Special arrangements may be made for collections in Acadia National Park.

Physical Plant

The Laboratory is situated on a tract of about 150 acres fronting on Frenchman Bay at Salsbury Cove in the Township of Bar Harbor. In addition to shore frontage, the Laboratory owns part of a fresh water pond and brook, and its land varies from meadow and forest to sphagnum bog. Investigation is carried on in single story buildings of frame construction located along the shore. These buildings are as follows:

(1) *Neal Laboratory*. This, the oldest and largest of the laboratory buildings, was remodeled in 1955 and now contains eight laboratories: four large rooms that will each accommodate 3 to 4 persons, and four small rooms suitable for single investigators. All rooms are provided with gas, and fresh and salt water. Water troughs, aquaria, and larger tanks are located along the north wall outside.

(2) *Halsey Laboratory* was remodeled in 1961 and consists of four rooms each capable of accommodating 3 to 4 persons. The rooms all have gas, fresh and salt water. Refrigerators, ovens and aquaria are located on a common terrace at the entrance to the building.

(3) *Marshall Laboratory*, a new year-round facility containing four laboratories and a common instrument room, and a full basement.

(4) *The Kidney Shed* is a single large laboratory. It accommodates two research groups.

(5) *Hegner Laboratory* contains 9 laboratory rooms provided with salt and fresh water each accommodating 1 to 2 persons.

(6) *Karnofsky Laboratory*, constructed in 1970, contains 4 large laboratories, one large enough to accommodate 2 research groups. This lab has been recently winterized and is now a year-round facility.

(7) *The Darkroom-Laboratory* erected in 1962 contains two laboratories each suitable for 2 to 3 persons and is equipped with salt and fresh water, and a photographic darkroom for general use.

(8) *The Instrument Room* was renovated in 1955 for the purpose of housing equipment used in common by members of the Laboratory. In 1969 one-half of this space was equipped as a research laboratory.

(9) *Biophysics Building*. This air-conditioned building was erected in 1965. It houses isotope counting systems, ultracentrifuges, spectrophotometers, and a chemical hood.

(10) *Shop and Stockroom*. The shop contains power and hand tools for woodworking; the stockroom has a few chemicals and analytical balances.

(11) *Office and Library*. A separate building was constructed in 1955 to contain the Director's Office and to house the business records and library. The library is small, comprising reference texts for biology and medicine, a few complete journals (Biological Abstracts, Biological Bulletin and the Journal of the Marine Biological Association), as well as monographs.

(12) *Dahlgren Hall*, the former village schoolhouse, was purchased and converted to use as a meeting hall; it houses a reprint collection. The single

large room can seat about 120 persons. It is equipped with projectors for regular lantern slides, 35 mm slides, and 16 mm silent motion pictures.

(13) *The Dining Hall.* This dining hall and living room for about 20 junior investigators and students was built in 1963. It is operated by a cook-manager. A small general library of books and records, and a record player have been furnished by private donation.

(14) *Bowen Hall* is one of the finest remaining examples of early 19th century Island architecture. It now serves as one of two dormitories and has a common room for young women.

(15) *Dock.* The dock consists of two floats with livewells and attached live cars for storage of specimens. It is attached to the shore by an inclined ramp and a bridge and abutment.

(16) *Collecting Boats.* A 32' gasoline powered collecting boat, the *Squalus*, was built in 1958. It is provided with a circulating water tank for the transportation of specimens. Arrangements can be made with local fishermen for offshore specimens. A Nova Scotia skiff with an outboard motor is also used for collecting and skiffs are available to investigators.

Housing

Sixteen cottages suitable for families with children stand on land owned by the Laboratory and are within easy walking distance of it. The cottages are rented by the season, or occasionally for shorter periods. Occupants must supply their own blankets, linen, and silver, pay for utilities (electricity and gas), and pay the Laboratory for the use of the cottage (including water rent and garbage disposal). Rent is $520 to $890 per season, depending upon the size of the cottage. A few privately owned cottages are also available for rental near the Laboratory, and in other communities on the island. An

automobile is essential for family mobility in the area.

Single investigators, student assistants, and couples without children rent rooms in the village or in laboratory dormitories and take their meals in the Laboratory Dining Hall. The weekly charge for meals is based on self-sustaining nonprofit operation.

In order to encourage private construction and ownership of cottages by workers, the Laboratory has a policy of issuing leases on certain plots of laboratory land. Provision is made for sale or rental of the cottages to other workers in case their owner finds it impossible to continue to work at the Laboratory. In this way, the Laboratory is able to encourage capital investment by individuals and at the same time ensure that the land will remain under its own jurisdiction. At present seven cottages are privately owned in this way.

Recreational Activities

Mount Desert Island has long been known to have one of America's most desirable summer climates. The ocean, rocky shores, and mountains provide scenery of unexcelled beauty. The distance from large metropolitan areas has so far helped to keep it relatively unspoiled. Swimming, hiking, mountain climbing, picnicking, boating and sailing, tennis, golf, and other sports are readily available. Acadia National Park with its excellent naturalists' program contributes to the general interest. There are small museums of Indian and local lore, public gardens, a good public library and cultural exhibits. Proximity to the Jackson Laboratory adds scientific interest and resources. Salsbury Cove is an old fishing and farming community on the northern shore of the Island near the main road from Bar Harbor to Ellsworth. It has one general store and Post Office. The Laboratory colony comprises

about 100 adults and 60 children of assorted ages, and forms a considerable portion of the summer population of the village. Bar Harbor, the largest town on Mount Desert Island, is about six miles from the Laboratory and provides many of the services of a city including excellent shopping facilities and a good hospital.

Acknowledgements

The Mount Desert Island Biological Laboratory is indebted to the National Science Foundation for substantial support during the past decade. Funds for renovations of buildings and new construction have permitted the laboratory to expand and upgrade its facilities. Contributions to operating costs and for specialized research equipment have greatly improved the efficiency of research activities. The individual research projects which have been served by this laboratory are variously funded by private and government agencies and by individuals and all of these projects have benefited from the National Science Foundation grants to the laboratory. Current support under grant GB 8662 is gratefully acknowledged.

Applications

Fees for research space vary according to the demand made on the facilities. They range from $100 to $900 depending on the space assigned and the number of workers. Special arrangements may be made for facilities beyond the summer season (June 15 - September 15). All investigators have the use of the general facilities, but special arrangements are necessary if unusual demands are anticipated. Investigators are urged to bring their own specialized equipment and chemicals. On occasion, the Laboratory may be able to provide apparatus which would have long-term usefulness for other workers. Isotope counting systems and ultracentrifuges are available on a fee basis.

Persons planning to use isotopes must make prior arrangements in conformity with our Radiation Safety Committee requirements.

Limited fellowships are supported by funds from the Ulrich Dahlgren Memorial Fund (a gift from the American Philosophical Society) and other memorial funds.

Application and inquiries should be addressed to the Laboratory Director:

	Dr. H. V. Murdaugh, Jr.
July 1 - August 31	Mount Desert Island Biological Laboratory
	Salsbury Cove, Maine 04672
September 1 - June 30	Department of Medicine
	University of Pittsburgh
	School of Medicine
	Pittsburgh, Pennsylvania 15213

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*Until September 1974 #As of September 1974

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SEMINAR SCHEDULE - SUMMER, 1974 - DAHLGREN HALL

8:00 p.m. TUESDAY EVENINGS

July 5 (Friday) M.A. Venkatachalam, Department of Pathology, Harvard Medical School

"Structural Differences in Thin Limbs of Henle: Physiological Implications from Electron Microscopy"

July 9 Thaddeus Mann, Unit of Reproductive Physiology and Biochemistry, Cambridge University

"Current Trends in Male Reproductive Biology"

July 16 Peter F. Curran, Department of Physiology, Yale University School of Medicine

"The possible role of protein phosphorylation in the action of antidiuretic hormone on toad bladder"

July 23 David B. Peakall, Section of Ecology and Systematics, Cornell University

"The Peregrine as an indicator of environmental pollution"

July 30 James W. Campbell, Department of Biology, Rice University

"Cellular Mechanisms of Ammonia Detoxication"

August 5 (Monday) David Epel, Department of Marine Biology, Scripp's Institute of Oceanography, University of California, San Diego

"Molecular Mechanisms of Fertilization and Metabolic Activation of the Sea Urchin Egg"

August 13 David E. Goldman, Department of Physiology, Medical College of Pennsylvania

"Excitable Membranes as an Interdisciplinary Study"

August 20 Thomas H. Wilson, Department of Physiology, Harvard Medical School

"The Role of Protons in Membrane Transport by Microorganisms"

THURSDAY NOON SEMINARS
(except as noted!)

July 25 — J. Larry Renfro, David S. Miller, Karl Karnaky, Jr. and William B. Kinter

"A combined physiological, enzymatic, and autoradiographic study of sodium transport by the flounder urinary bladder"

August 1 — Charles E. Wilde, Jr.

"The Theoretical Basis of Current Embryology"

August 9 (Friday) — James L. Boyer

"Bile: Its significance for excretion of organic anions in Elasmobranchs"

August 15 — John R. Bend

"In vitro and in vivo metabolism of foreign organic chemicals (xenobiotics) by selected marine species"

August 22 — M. Morad

"Electromechanical Experiments on Single Cell-layered Heart of Sea Potato: A Progress Report"

xwi

REPORTS

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