

THE BULLETIN



Mount Desert Island
Biological Laboratory

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MAY 1953

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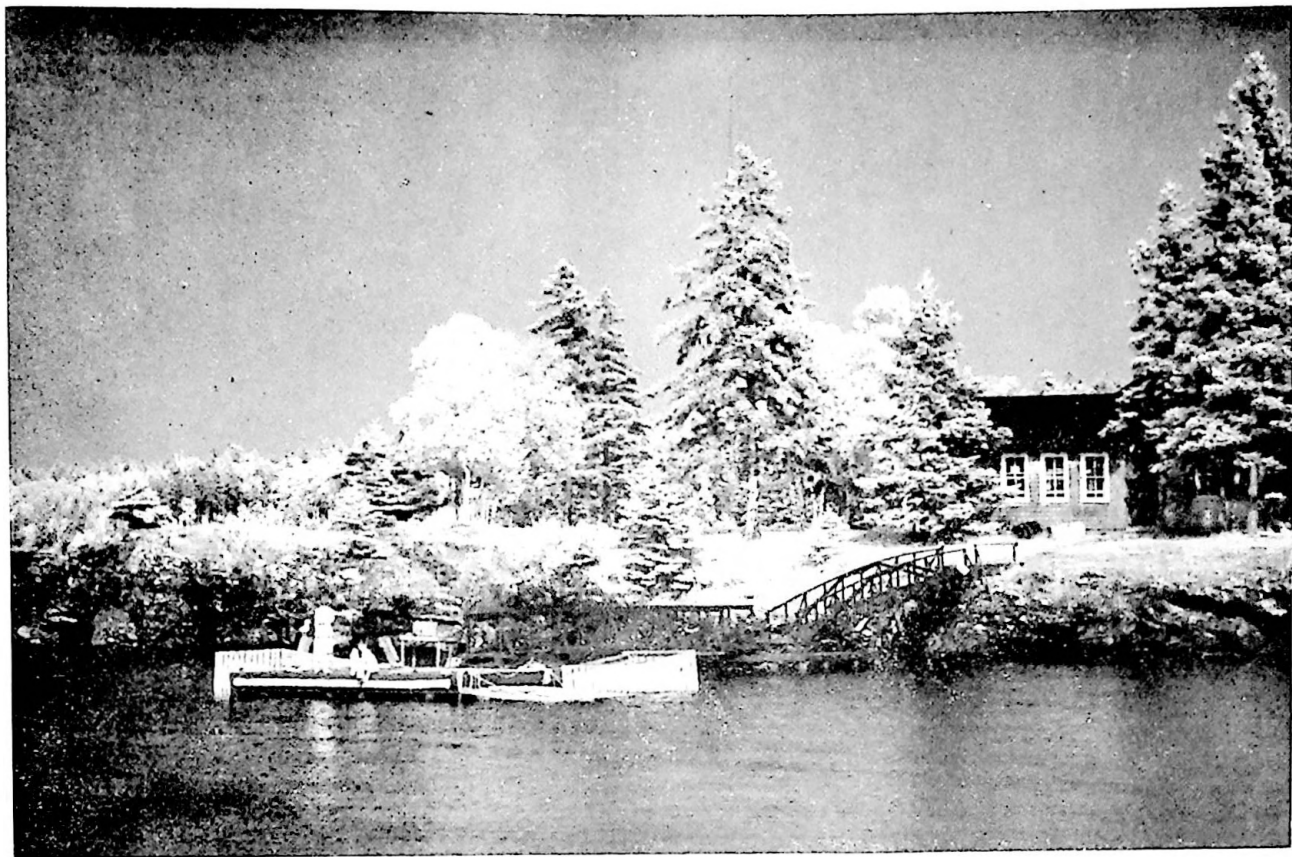
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(Continued inside back cover.)

NOTE: Volume III of the Contributions of the Mount Desert Island Biological Laboratory was completed with the publication of the 1950 Bulletin. No Bulletins were issued in 1951 or 1952. Volume IV begins with this issue.

Submitted for publication June 1, 1953.

Warner F. Sheldon, M. D., Director.



Laboratory Point and Floating Dock

THE MOUNT DESERT ISLAND
BIOLOGICAL LABORATORY
1953

The Mount Desert Island Biological Laboratory is a marine laboratory located on the coast of Maine. It is an institution owned and operated by an association of scientists for the purpose of providing basic research facilities for investigators who wish to work in a summer laboratory. All scientists, teachers, or advanced students are welcome. The bulk of the personnel are drawn from the biological and medical fields and many types of scientific backgrounds are represented. This diversity of scientific training, interests, and skills is a prime asset. The relaxed unhurried atmosphere of the summer laboratory provides unusual opportunities for discussion, consultation, and co-operative research. The tangible benefits of these collaborative efforts are evidenced by the research progress reports to be found in this and previous Bulletins.

These are only the more obvious tangible results of the work of scientific institutions of this type. Other, more profound benefits to science in general, and to the participating investigator in particular, result from the broadening of outlook and thought occasioned by the easy interchange of ideas, information and philosophy. In the laboratory or at play, all discussions inevitably come back to "science", its broad aspects or its infinite detail. The opportunities presented by institutions of this type make more complete scientists and better investigators of those with the good fortune to be able to participate.

In the past the Laboratory has ventured sporadically into the field of formal undergraduate teaching. While these efforts have been eminently successful, the present members of the Laboratory feel that our best educational work can be done by training in research, graduate students who plan careers in biology or medicine. The student serves as a member of a team, learning research techniques and methods through actual participation in the work of a small group led by experienced investigators. Special seminars are held but no formal courses are given.

History and Organization.

The Laboratory was founded at South Harpswell, Maine in 1898, as The Harpswell Laboratory, by Dr. J. S. Kingsley of Tufts College. In 1913 it was incorporated in the State of Maine as a non-profit scientific and educational institution. In 1921,

the Laboratory was moved to its present location on Mt. Desert Island and its present name was adopted in 1923. The original land at Salisbury Cove, known as the Weir Mitchell Tract, was a gift from the Wild Gardens of Acadia. The present development in land, buildings, and equipment has been the result of many generous contributions by summer residents of the Island. Operating revenue derives from laboratory fees, cottage rentals, membership dues, and scientific grants from governmental and private sources. Capital improvements are usually dependent upon the receipt of special gifts. The business and scientific management of the Laboratory is in the hands of the Director and the Executive Committee. The Directors have been: Ulric Dahlgren (1920-26), H. V. Neal (1926-31), William H. Cole (1931-40), Roy P. Forster (1940-47), J. Wendell Burger (1947-50), Warner F. Sheldon (1950-to date). The By-Laws of the Corporation are to be found in the 1934 Bulletin.

Location.

Mount Desert Island has long been world famous for its scenic beauty and agreeable summer climate. The Island lies in the Gulf of Maine about 150 road miles east of Portland, Me. and is connected to the mainland by a short bridge. The land area of more than 100 square miles, is featured by a range of bold, ice-eroded mountains that form a belt across the center and a narrow natural fiord 6 miles deep that partly divides the east and west halves. Between the mountains lie numerous deep fresh water lakes and shallow ponds. Much of the mountainous area is a part of Acadia National Park and is protected against human depredations. The Island lies near the mouth of the Bay of Fundy and is separated from the mainland and adjacent islands by narrow deep bays. Strong tides average 10-12 feet.

The many varied biological resources of the Acadian area are readily available. In summer the cold waters of the Gulf of Maine are extremely rich in marine life. The rocky shores, mud flats and strong tidal currents provide a large variety of unusual forms. Proximity to fresh water lakes and ponds, and the mixed terrain give further diversity to the forms available for experimental purposes. As in every region certain forms are abundant, others are scarce or absent. Perusal of the research abstracts in past Bulletins will often give a good indication of forms that are easily available. The Director will be glad to furnish a candid estimate about any special forms that investigators may propose to use.

Physical Plant.

The Laboratory itself is a tract of about one hundred fifty acres, fronting on Frenchman Bay at Salisbury Cove, in the Township of Bar Harbor. This rural village is in the more level open part of the north shore of the Island. Besides shore frontage, the Laboratory owns part of a good-sized fresh water pond and brook, and its land varies from meadow to forest to bog.

Laboratory buildings are equipped with the basic facilities for research. There is running salt and fresh water, electricity, Pyrofax gas, distilled water, compressed air, tanked O_2 , a marine dock, aquaria, live-cars, dark room, clinical centrifuges, chain-o-matic balance, electric ovens and refrigerators, incubators, Beckman pH meter, colorimeter, basic chemicals, glassware, smaller apparatus, and collecting equipment. Investigators are urged to bring their own specialized equipment and chemicals. In special cases the Laboratory occasionally can provide apparatus which might be expected to have a long-term general usefulness for other workers. Since the Laboratory is closed nine months of each year the care of delicate or especially valuable equipment is a hazardous undertaking.

Laboratory Buildings.

1. **Neal Laboratory** (Main Laboratory). This building contains ten old style cubicles or research rooms, each suitable for one or two people, and stock rooms for chemicals and apparatus. Certain rooms are used to set up special apparatus being shared by several investigators. Water troughs with fresh and salt water aquaria are located outdoors along the north wall.
2. **Hegner Laboratory**. This building is occupied principally by investigators utilizing tissue culture techniques (see Special Programs) but other workers are assigned as space is available. It is a self-contained unit with eight laboratories in addition to stock, preparation, and other general purpose rooms.
3. **Halsey Laboratory**. This building contains four large rooms, with individual salt water troughs, each capable of providing working space for 2 - 4 people.
4. **Fresh-water Laboratory**. This structure consists of two adjacent one-room buildings, each large enough to accommodate as many as four people.
5. **Kidney Shed**. A single large one room laboratory has been used for many years by Dr. Homer W. Smith and his group.

6. **Office and Library.** A building with a single room contains the Director's Office and houses the business records and library. The library is small, comprising reference texts for biology and medicine, with only a few complete journals (notably Biological Abstracts, Biological Bulletins, and the Journal of the Marine Biological Association as well as monographs and a large reprint collection).
7. **Dark-room Laboratory.** A one room structure with running salt and fresh water.
8. **Marine Dock.** An excellent double-float dock contains built-in live wells, and has attached live cars. Row boats and a motor boat are available for collecting trips.
9. **Shop.** A one room structure with simple tools.
10. **Dahlgren Hall.** The former village school house has been converted to use as a meeting hall. The single large room is capable of seating about 100 people.
11. **Bowen Hall.** This is one of the finest examples of "colonial-type" architecture on the island. It is used as a recreation center and dining hall by the Co-op group — i.e. those who occupy rooms in the village. It contains also a two-room "apartment", a single room for the Co-op manager, lavatories and showers.

Special Programs.

1. Renal and Cardiovascular Physiology.

Studies of renal function carried out at the Mt. Desert Island Biological Laboratory by Drs. E. K. Marshall, Homer W. Smith, Roy P. Forster and many others over the last 30 years have won world renown. In many instances the basic research has been uniquely indebted to the opportunities presented at this Laboratory. These studies have culminated in the development of methods for measuring the rate of glomerular filtration, renal blood flow, and tubular function in man as well as in experimental animals.

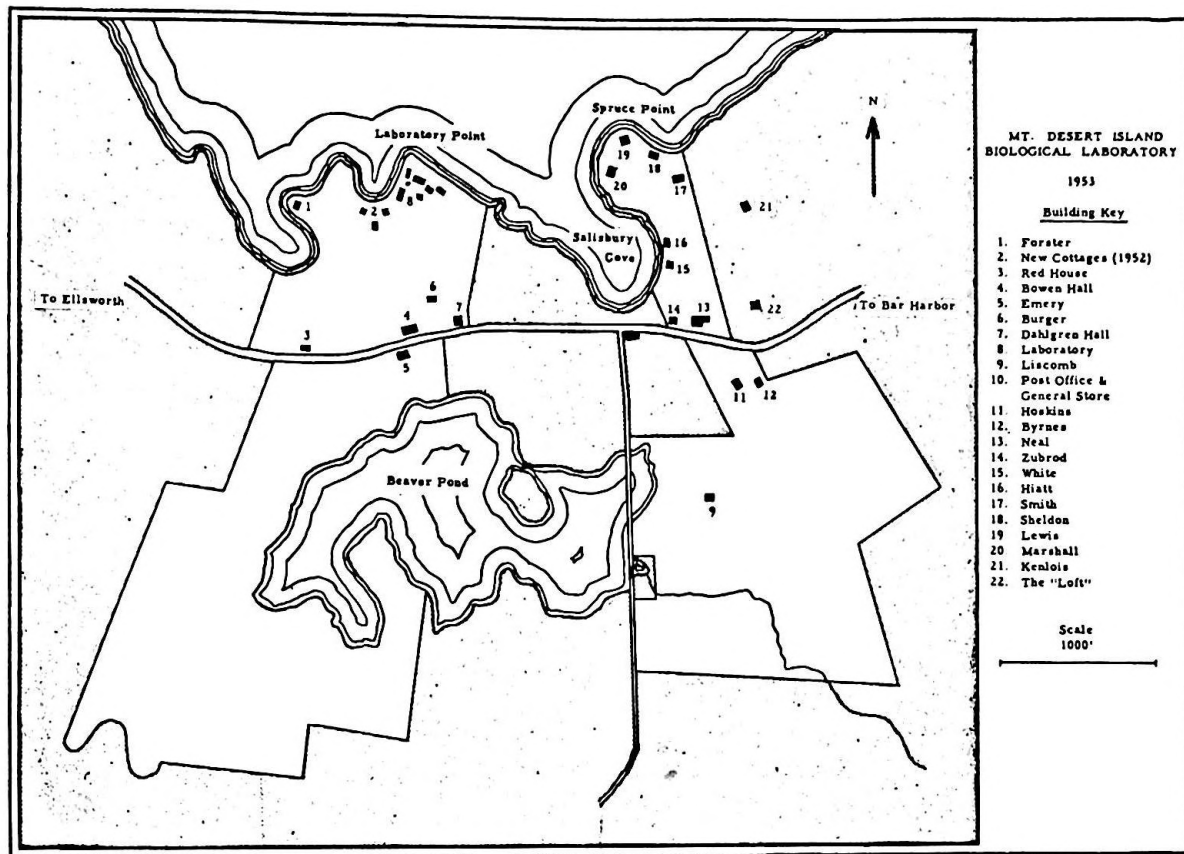
In recent years more than half of the total laboratory personnel have been working in this field. Leaders in a variety of allied fields are easily available for consultation or cooperative research. They also provide a unique opportunity for the young research worker to get advice and help. Informal seminars of special interest to workers in this field are held each week.



Of Fish and Physiology



High Tide In Salisbury Cove



2. Tissue Culture.

This program, initiated at the Mt. Desert Island Biological Laboratory about 25 years ago by Warren H. and Margaret R. Lewis of the Carnegie Embryological Laboratories, Johns Hopkins University, is now under the supervision of Philip R. White of the Jackson Memorial Laboratory, Bar Harbor, Maine. The program consists of a series of independent problems (eight to twelve investigators work singly or in groups) in all of which the techniques of tissue culture are used for the cultivation of excised tissues, organs and embryos of animals and plants. The general purpose of this program is aimed toward the development of completely defined (synthetic) nutrients and procedures suitable for maintaining continuous growth. The program is a recognized complement of the Cooperstown program of the Tissue Culture Association.

In 1947 the Hegner Laboratory was remodeled and equipped for research in this field through a special grant from the Women's Auxiliary of the Lankenau Hospital. Rooms are available for approximately eight investigators or students who wish to work on individual problems or learn techniques under Dr. White's guidance. Inquiry about the scientific aspects of this program may be addressed to Philip R. White, Jackson Memorial Laboratory, Bar Harbor, Maine.

Housing.

Eleven cottages suitable for families with children stand on land owned by the Laboratory. All are within easy walking distance of the Laboratory Point itself. These cottages are available for rent to workers by the season, half-season, or occasionally for shorter periods. Occupants supply their own blankets, linen, and silver and pay for utilities (electricity, gas, and water).

Single investigators and couples without children, rent rooms in the village and take their meals in the Laboratory Co-operative Dining Hall.

Land Lease Policy.

In order to encourage private construction or ownership of cottages by workers, the Laboratory has a policy of issuing lifetime leases on certain plots of valuable laboratory land at a nominal charge. Under such leases provision is made for sale or rental of the cottage to other laboratory workers in case the owner should find it impossible to come back to Mt. Desert. In

this way the Laboratory is able to encourage capital investments by individual laboratory workers and at the same time insure that the property will remain under Laboratory jurisdiction. Three privately owned cottages stand on land leased to members by the Laboratory. These are held by Drs. Forster, Sheldon, and Zubrod.

Recreational Activities.

Besides notable scientific resources the Island provides many other features of interest for laboratory workers. Mt. Desert Island has long been known as one of America's most desirable summer regions. The cold waters of the Gulf of Maine make the summer climate superb. The ocean, rocky shores and mountains give unexcelled scenic beauty. The rather considerable distances from the large metropolitan areas have served to keep it relatively unspoiled.

Swimming, hiking, mountain climbing, picnicking, boating and sailing, ocean or fresh water fishing and many other sports are easily available. Acadia National Park with its excellent naturalist's program contributes to the general interest. In addition there are small museums of Indian and local lore, public gardens, and cultural exhibits. The Island serves as the summer home or vacation site for many well known scientists. Proximity to the two divisions of the larger year-around Jackson Memorial Laboratory adds to the scientific interest and resources.

Salisbury Cove itself is an old fishing and farming hamlet on the north shore of the Island. It lies on the main road between Bar Harbor and Ellsworth, the railroad terminus on the mainland. The atmosphere here is quietly rural. The Laboratory colony itself usually comprises about 75 adults and 50 children of assorted ages, the whole numbering a considerable proportion of the summer population of the village.

Bar Harbor proper, about six miles from the Laboratory, contains most of the services of a city, including excellent shopping facilities and a good hospital. The widely publicized fire of 1947 did no damage to the Laboratory area, nor were its visible effects on the Island as a whole as marked as might be supposed. For a biologist the ecological changes produced by this fire are of great interest.

MILESTONES

1950 - 1953

- 1950-52 Research and Teaching grant for \$20,044 received from the National Heart Institute of the United Public Health Service. This award constituted a major step in the Laboratory's post-war rehabilitation and expansion program. The money was utilized largely for renovation and repair of buildings, purchase of new scientific equipment and supplies, a new truck and motor boat.
- 1951 The large tracts of land contiguous with the Weir Mitchell Station on the west, gifts from the Wild Gardens of Acadia in 1949 but held under life lease by William Procter, came under full Laboratory control.
- 1951 The former Procter "laboratory" building was sold to Roy P. Forster. This structure was remodeled as a cottage in June 1952.
- 1952 Purchase of cottage built by P. R. White.
- 1952 Sale of Cole Cottage to Charles G. Zubrod.
- 1952 Three new cottages were built near the shore on Laboratory Cove. The cost was financed, in part, by investment of Dahlgren Fund capital.
- 1952 Red House (formerly leased to Procter) was remodeled as a cottage.
- 1952 Office of Naval Research Contract for \$9,000 received for year July 1, 1952 — June 30, 1953.
- 1952 Purchase of Wheeler (formerly Hegner) cottage and land by Laboratory. Subsequently the cottage was bought by Warner F. Sheldon. Title to the Sheldon Cottage (formerly Hiatt) passed to the Laboratory in partial payment.
- 1953 Gift of more than \$1100 from Mr. and Mrs. Dulaney Logan, Louisville, Kentucky.
- 1953 Grant from American Cyanamid Company (Lederle Laboratories Division) of \$500 per year for the three years 1953 - 55.
- 1953 Grant from Eli Lilly and Company of \$550 per year for the three years 1953 - 55.

APPLICATIONS

Individual research rooms rent for \$100 - \$250 for the season, June 15th to September 15th. This fee is ordinarily paid by the investigator's home University, Department, or from a Grant. In special circumstances reduced rates may be arranged. Each worker is entitled to the general facilities of the Laboratory but special arrangements are necessary if unusual demands are anticipated. All workers are requested to bring their own specialized equipment.

Several Fellowships supported by the Ulric Dahlgren Memorial Fund and by the Navy Contract are awarded annually to research workers or their assistants. Awards are used to assist workers to meet laboratory fees, living and traveling expenses.

Eleven cottages owned by the Laboratory are available for rental to families by the season, half-season, or occasionally for shorter periods. Several other privately owned cottages are also available to laboratory workers. Rates for cottage rental are about \$300 - \$350 per season depending on size and the location.

Single investigators or couples without children may rent rooms in nearby private homes. This group (usually 15 - 20) organizes the Cooperative Dining Association in Bowen Hall. A competent cook-manager is hired by the Laboratory Director. The rest of the domestic chores are apportioned equally among the participants.

All applications and inquiries should be addressed to the Laboratory Director:

Dr. Warner F. Sheldon,
Department of Pathology,
U. of P. School of Medicine,
Philadelphia 4, Pa.

Scientific Activities.

The following sections of the Bulletin are devoted to recording the scientific activities of the Laboratory during the years 1950, 1951 and 1952. Each section contains a list of scientific personnel, staff, seminar program and brief reports of the results of investigations. These have been edited to insure uniformity of arrangement but otherwise are essentially in the form in which they were submitted by the author.