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DEMELLO, MR. JOHN
DI BERARDINO, DR. MARIE A.
DICKSON, DR. WILLIAM A.
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<td>MASTROIANNI, DR. AND MRS. LUIGI, JR.</td>
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MEMBERS OF THE CORPORATION

Pendergast, Mrs. Claudia
Penleton, Dr. and Mrs. Murray E.
Pennington, Miss Anne H.
Perkins, Mr. and Mrs. Courtland D.
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Valois, Mr. and Mrs. John
Van Buren, Mrs. Harold
III. CERTIFICATE OF ORGANIZATION

(On File in the Office of the Secretary of the Commonwealth)

No. 3170

We, Alpheus Hyatt, President, William Stanford Stevens, Treasurer, and William T. Sedgwick, Edward G. Gardiner, Susan Mims and Charles Sedgwick Minot being a majority of the Trustees of the Marine Biological Laboratory in compliance with the requirements of the fourth section of chapter one hundred and fifteen of the Public Statutes do hereby certify that the following is a true copy of the agreement of association to constitute said Corporation, with the names of the subscribers thereto:

We, whose names are hereunto subscribed, do, by this agreement, associate ourselves with the intention to constitute a Corporation according to the provisions of the one hundred and fifteenth chapter of the Public Statutes of the Commonwealth of Massachusetts, and the Acts in amendment thereof and in addition thereto.

The name by which the Corporation shall be known is THE MARINE BIOLOGICAL LABORATORY.

The purpose for which the Corporation is constituted is to establish and maintain a laboratory or station for scientific study and investigations, and a school for instruction in biology and natural history.

The place within which the Corporation is established or located is the city of Boston within said Commonwealth.

The amount of its capital stock is none.

In Witness Whereof, we have hereunto set our hands, this twenty seventh day of February in the year eighteen hundred and eighty-eight, Alpheus Hyatt, Samuel Mills, William T. Sedgwick, Edward G. Gardiner, Charles Sedgwick Minot, William G. Farlow, William Stanford Stevens, Anna D. Phillips, Susan Mims, B. H. Van Vleck.
ARTICLES OF AMENDMENT

That the first meeting of the subscribers to said agreement was held on the thirteenth day of March in the year eighteen hundred and eighty-eight.

In Witness Whereof, we have hereunto signed our names, this thirteenth day of March in the year eighteen hundred and eighty-eight, Alpheus Hyatt, President, William Stanford Stevens, Treasurer, Edward G. Gardiner, William T. Sedgwick, Susan Mims, Charles Sedgwick Minot.

(Approved on March 20, 1888 as follows:

I hereby certify that it appears upon an examination of the within written certificate and the records of the corporation duly submitted to my inspection, that the requirements of sections one, two and three of chapter one hundred and fifteen, and sections eighteen, twenty and twenty-one of chapter one hundred and six, of the Public Statutes, have been complied with and I hereby approve said certificate this twentieth day of March A.D. eighteen hundred and eighty-eight.

CHARLES ENDICOTT
Commissioner of Corporations)

IV. ARTICLES OF AMENDMENT

(On File in the Office of the Secretary of the Commonwealth)

We, James D. Ebert, President, and David Shepro, Clerk of the Marine Biological Laboratory, located at Woods Hole, Massachusetts 02543, do hereby certify that the following amendment to the Articles of Organization of the Corporation was duly adopted at a meeting held on August 15, 1975, as adjourned to August 29, 1975, by vote of 444 members, being at least two-thirds of its members legally qualified to vote in the meeting of the corporation:

VOTED: That the Certificate of Organization of this corporation be and it hereby is amended by the addition of the following provisions:

"No Officer, Trustee or Corporate Member of the corporation shall be personally liable for the payment or satisfaction of any obligation or liabilities incurred as a result of, or otherwise in connection with, any commitments, agreements, activities or affairs of the corporation.

"Except as otherwise specifically provided by the Bylaws of the corporation, meetings of the Corporate Members of the corporation may be held anywhere in the United States.

"The Trustees of the corporation may make, amend or repeal the Bylaws of the corporation in whole or in part, except with respect to any provisions thereof which shall by law, this Certificate or the bylaws of the corporation, require action by the Corporate Members."

The foregoing amendment will become effective when these articles of amendment are filed in accordance with Chapter 180, Section 7 of the General Laws unless these articles specify, in accordance with the vote adopting the amendment, a later effective date not more than thirty days after such filing, in which event the amendment will become effective on such later date.

In Witness whereof and Under the Penalties of Perjury, we have hereunto signed our names this 2nd day of September, in the year 1975, James D. Ebert, President; David Shepro, Clerk.
I hereby approve the within articles of amendment and, the filing fee in the amount of $10 having been paid, said articles are deemed to have been filed with me this 24th day of October, 1975.

PAUL GUZZI
Secretary of the Commonwealth

V. BYLAWS OF THE CORPORATION OF THE MARINE BIOLOGICAL LABORATORY

(Revised August 16, 1985)

I. (A) The name of the Corporation shall be The Marine Biological Laboratory. The Corporation's purpose shall be to establish and maintain a laboratory or station for scientific study and investigation, and a school for instruction in biology and natural history.

(B) Marine Biological Laboratory admits students without regard to race, color, sex, national and ethnic origin to all the rights, privileges, programs and activities generally accorded or made available to students in its courses. It does not discriminate on the basis of race, color, sex, national and ethnic origin in employment, administration or its educational policies, admissions policies, scholarship and other programs.

II. (A) The members of the Corporation ("Members") shall consist of persons elected by the Board of Trustees, upon such terms and conditions and in accordance with such procedures, not inconsistent with law or these Bylaws, as may be determined by said Board of Trustees. Except as provided below, any Member may vote at any meeting either in person or by proxy executed no more than six months prior to the date of such meeting. Members shall serve until their death or resignation unless earlier removed with or without cause by the affirmative vote of two-thirds of the Trustees then in office. Any member who has attained the age of seventy years or has retired from his home institution shall automatically be designated a Life Member provided he signifies his wish to retain his membership. Life Members shall not have the right to vote and shall not be assessed for dues.

(B) The Associates of the Marine Biological Laboratory shall be an unincorporated group of persons (including associations and corporations) interested in the Laboratory and shall be organized and operated under the general supervision and authority of the Trustees.

III. The officers of the Corporation shall consist of a Chairman of the Board of Trustees, President, Director, Treasurer and Clerk, elected or appointed by the Trustees as set forth in Article IX.

IV. The Annual Meeting of the Members shall be held on the Friday following the Second Tuesday in August in each year at the Laboratory in Woods Hole, Massachusetts, at 9:30 a.m. Subject to the provisions of Article VIII(2), at such meeting the Members shall choose by ballot six Trustees to serve four years, and shall transact such other business as may properly come before the meeting. Special meetings of the Members may be called by the Chairman or Trustees to be held at such time and place as may be designated.

V. Twenty five Members shall constitute a quorum at any meeting. Except as otherwise required by law or these Bylaws, the affirmative vote of a majority of the Members voting in person or by proxy at a meeting attended by a quorum (present in person or by proxy) shall constitute action on behalf of the Members.
VI. (A) Inasmuch as the time and place of the Annual Meeting of Members are fixed by these Bylaws, no notice of the Annual Meeting need be given. Notice of any special meeting of Members, however, shall be given by the Clerk by mailing notice of the time and place and purpose of such meeting, at least 15 days before such meeting, to each Member at his or her address as shown on the records of the Corporation.

(B) Any meeting of the Members may be adjourned to any other time and place by the vote of a majority of those Members present or represented at the meeting, whether or not such Members constitute a quorum. It shall not be necessary to notify any Members of any adjournment.

VII. The Annual Meeting of the Trustees shall be held promptly after the Annual Meeting of the Corporation at the Laboratory in Woods Hole, Massachusetts. Special meetings of the Trustees shall be called by the Chairman, the President, or by any seven Trustees, to be held at such time and place as may be designated. Notice of Trustees' meetings shall be given orally, by telephone, telegraph or in writing; and notice given in time to enable the Trustees to attend, or in any case notice sent by mail or telegraph to a Trustee’s usual or last known place of residence, at least one week before the meeting shall be sufficient. Notice of a meeting need not be given to any Trustee if a written waiver of notice, executed by him before or after the meeting is filed with the records of the meeting, or if he shall attend the meeting without protesting prior thereto or at its commencement the lack of notice to him.

VIII. (A) There shall be four groups of Trustees:

1. Trustees (the “Corporate Trustees”) elected by the Members according to such procedures, not inconsistent with these Bylaws, as the Trustees shall have determined. Except as provided below, such Trustees shall be divided into four classes of six, one class to be elected each year to serve for a term of four years. Such classes shall be designated by the year of expiration of their respective terms.

2. Trustees (“Board Trustees”) elected by the Trustees then in office according to such procedures, not inconsistent with these Bylaws, as the Trustees shall have determined. Except as provided below, such Board Trustees shall be divided into four classes of three, one class to be elected each year to serve for a term of four years. Such classes shall be designated by the year of expiration of their respective terms. It is contemplated that, unless otherwise determined by the Trustees for good reason, Board Trustees shall be individuals who have not been considered for election as Corporate Trustees.

3. Trustees ex officio, who shall be the Chairman, the President, the Director, the Treasurer, and the Clerk.

4. Trustees emeriti who shall include any Member who has attained the age of seventy years (or the age of sixty five and has retired from his home institution) and who has served a full elected term as a regular Trustee, provided he signifies his wish to serve the Laboratory in that capacity. Any Trustee who qualifies for emeritus status shall continue to serve as a regular Trustee until the next Annual Meeting whereupon his office as regular Trustee shall become vacant and be filled by election by the Members or by the Board, as the case may be. The Trustees ex officio and emeriti shall have all the rights of the Trustees, except that Trustees emeriti shall not have the right to vote.

(B) The aggregate number of Corporate Trustees and Board Trustees elected in any year (excluding Trustees elected to fill vacancies which do not result from expiration of a term) shall not exceed nine. The number of Board Trustees so elected shall not exceed three and unless otherwise determined by vote of the Trustees, the number of Corporate Trustees so elected shall not exceed six.

(C) The Trustees and Officers shall hold their respective offices until their successors are chosen in their stead.

(D) Any Trustee may be removed from office at any time with or without cause, by vote of a majority of the Members entitled to vote in the election of Trustees; or for cause, by vote
of two-thirds of the Trustees then in office. A Trustee may be removed for cause only if notice of such action shall have been given to all of the Trustees or Members entitled to vote, as the case may be, prior to the meeting at which such action is to be taken and if the Trustee so to be removed shall have been given reasonable notice and opportunity to be heard before the body proposing to remove him.

(E) Any vacancy in the number of Corporate Trustees, however arising, may be filled by the Trustees then in office unless and until filled by the Members at the next Annual Meeting. Any vacancy in the number of Board Trustees may be filled by the Trustees.

(F) A Corporate Trustee or a Board Trustee who has served an initial term of at least two years duration shall be eligible for re-election to a second term, but shall be ineligible for re-election to any subsequent term until two years have elapsed after he last served as Trustee.

IX. (A) The Trustees shall have the control and management of the affairs of the Corporation. They shall elect a Chairman of the Board of Trustees who shall be elected annually and shall serve until his successor is selected and qualified and who shall also preside at meetings of the Corporation. They shall elect a President of the Corporation who shall also be the Vice Chairman of the Board of Trustees and Vice Chairman of meetings of the Corporation, and who shall be elected annually and shall serve until his successor is selected and qualified. They shall annually elect a Treasurer who shall serve until his successor is selected and qualified. They shall elect a Clerk (a resident of Massachusetts) who shall serve for a term of four years. Eligibility for re-election shall be in accordance with the content of Article VIII(F) as applied to corporate or Board Trustees. They shall elect Board Trustees as described in Article VIII(B). They shall appoint a Director of the Laboratory for a term not to exceed five years, provided the term shall not exceed one year if the candidate has attained the age of 65 years prior to the date of the appointment. They may choose such other officers and agents as they may think best. They may fix the compensation and define the duties of all the officers and agents of the Corporation and may remove them at any time. They may fill vacancies occurring in any of the offices. The Board of Trustees shall have the power to choose an Executive Committee from their own number as provided in Article X, and to delegate to such Committee such of their own powers as they may deem expedient in addition to those powers conferred by Article X. They shall from time to time elect Members to the Corporation upon such terms and conditions as they shall have determined, not inconsistent with law or these Bylaws.

(B) The Board of Trustees shall also have the power, by vote of a majority of the Trustees then in Office, to elect an Investment Committee and any other committee and, by like vote, to delegate thereto some or all of their powers except those which by law, the Articles of Organization or these Bylaws are prohibited from delegating. The members of any such committee shall have such tenure and duties as the Trustees shall determine; provided that the Investment Committee, which shall oversee the management of the Corporation's endowment funds and marketable securities, shall include the Chairman of the Board of Trustees, the Treasurer of the Corporation, and the Chairman of the Corporation's Budget Committee, as ex officio members, together with such Trustees as may be required for not less than two-thirds of the Investment Committee to consist of Trustees. Except as otherwise provided by these Bylaws or determined by the Trustees, any such committee may make rules for the conduct of its business; but, unless otherwise provided by the Trustees or in such rules, its business shall be conducted as nearly as possible in the same manner as is provided by these Bylaws for the Trustees.

X. (A) The Executive Committee is hereby designated to consist of not more than ten members, including the ex officio Members (Chairman of the Board of Trustees, President, Director and Treasurer); and six additional Trustees, two of whom shall be elected by the Board of Trustees each year, to serve for a three-year term.

(B) The Chairman of the Board of Trustees shall act as Chairman of the Executive Committee, and the President as Vice Chairman. A majority of the members of the Executive
Committee shall constitute a quorum and the affirmative vote of a majority of those voting at any meeting at which a quorum is present shall constitute action on behalf of the Executive Committee. The Executive Committee shall meet at such times and places and upon such notice and appoint such sub-committees as the Committee shall determine.

(C) The Executive Committee shall have and may exercise all the powers of the Board during the intervals between meetings of the Board of Trustees except those powers specifically withheld from time to time by vote of the Board or by law. The Executive Committee may also appoint such committees, including persons who are not Trustees, as it may from time to time approve to make recommendations with respect to matters to be acted upon by the Executive Committee or the Board of Trustees.

(D) The Executive Committee shall keep appropriate minutes of its meetings and its action shall be reported to the Board of Trustees.

(E) The elected Members of the Executive Committee shall constitute as a standing “Committee for the Nomination of Officers,” responsible for making nominations, at each Annual Meeting of the Corporation, and of the Board of Trustees, for candidates to fill each office as the respective terms of office expire (Chairman of the Board, President, Director, Treasurer, and Clerk).

XI. A majority of the Trustees, the Executive Committee, or any other committee elected by the Trustees shall constitute a quorum; and a lesser number than a quorum may adjourn any meeting from time to time without further notice. At any meeting of the Trustees, the Executive Committee, or any other committee elected by the Trustees, the vote of a majority of those present, or such different vote as may be specified by law, the Articles of Organization or these Bylaws, shall be sufficient to take any action.

XII. Any action required or permitted to be taken at any meeting of the Trustees, the Executive Committee or any other committee elected by the Trustees as referred to under Article IX may be taken without a meeting if all of the Trustees or members of such committee, as the case may be, consent to the action in writing and such written consents are filed with the records of meetings. The Trustees or members of the Executive Committee or any other committee appointed by the Trustees may also participate in meeting by means of conference telephone, or otherwise take action in such a manner as may from time to time be permitted by law.

XIII. The consent of every Trustee shall be necessary to dissolution of the Marine Biological Laboratory. In case of dissolution, the property shall be disposed of in such a manner and upon such terms as shall be determined by the affirmative vote of two-thirds of the Board of Trustees then in office.

XIV. These Bylaws may be amended by the affirmative vote of the Members at any meeting, provided that notice of the substance of the proposed amendment is stated in the notice of such meeting. As authorized by the Articles of Organization, the Trustees, by a majority of their number then in office, may also make, amend, or repeal these Bylaws, in whole or in part, except with respect to (a) the provisions of these Bylaws governing (i) the removal of Trustees and (ii) the amendment of these Bylaws and (b) any provisions of these Bylaws which by law, the Articles of Organization or these Bylaws, requires action by the Members.

No later than the time of giving notice of the meeting of Members next following the making, amending or repealing by the Trustees of any Bylaw, notice thereof stating the substance of such change shall be given to all Corporation Members entitled to vote on amending the Bylaws.

Any Bylaw adopted by the Trustees may be amended or repealed by the Members entitled to vote on amending the Bylaws.
XV. The account of the Treasurer shall be audited annually by a certified public accountant.

XVI. Except as otherwise provided below, the Corporation shall, to the extent legally permissible, indemnify each person who is, or shall have been, a Trustee, director or officer of the Corporation or who is serving, or shall have served, at the request of the Corporation as a Trustee, director or officer of another organization in which the Corporation directly or indirectly has any interest, as a shareholder, creditor or otherwise, against all liabilities and expenses (including judgments, fines, penalties and reasonable attorneys' fees and all amounts paid, other than to the Corporation or such other organization, in compromise or settlement) imposed upon or incurred by any such person in connection with, or arising out of, the defense or disposition of any action, suit or other proceeding, whether civil or criminal, in which he or she may be a defendant or with which he or she may be threatened or otherwise involved, directly or indirectly, by reason of his or her being or having been such a Trustee, director or officer.

The Corporation shall provide no indemnification with respect to any matter as to which any such Trustee, director or officer shall be finally adjudicated in such action, suit or proceeding not to have acted in good faith in the reasonable belief that his or her action was in the best interests of the Corporation. The Corporation shall provide no indemnification with respect to any matter settled or compromised, pursuant to a consent decree or otherwise, unless such settlement or compromise shall have been approved as in the best interests of the Corporation, after notice that indemnification is involved, by (i) a disinterested majority of the Board of Trustees or of the Executive Committee or, (ii) a majority of the Corporation's Members.

Indemnification may include payment by the Corporation of expenses in defending a civil or criminal action or proceeding in advance of the final disposition of such action or proceeding upon receipt of an undertaking by the person indemnified to repay such payment if it is ultimately determined that such person is not entitled to indemnification under the provisions of this Article XVI, or under any applicable law.

As used in this Article, the terms "Trustee," "director" and "officer" include their respective heirs, executors, administrators and legal representatives, and an "interested" Trustee, director or officer is one against whom in such capacity the proceeding in question or another proceeding on the same or similar grounds is then pending.

To assure indemnification under this Article of all persons who are determined by the Corporation or otherwise to be or to have been "fiduciaries" of any employee benefit plan of the Corporation which may exist from time to time, this Article shall be interpreted as follows: (i) "another organization" shall be deemed to include such an employee benefit plan, including, without limitation, any plan of the Corporation which is governed by the Act of Congress entitled "Employee Retirement Income Security Act of 1974," as amended from time to time ("ERISA"); (ii) "Trustee" shall be deemed to include any person requested by the Corporation to serve as such for an employee benefit plan where the performance by such person of his or her duties to the Corporation also imposes duties on, or otherwise involves services by, such person to the plan or participants or beneficiaries of the plan; (iii) "fines" shall be deemed to include any excise taxes assessed on a person with respect to an employee benefit plan pursuant to ERISA; and (iv) actions taken or omitted by a person with respect to an employee benefit plan in the performance of such person's duties for a purpose reasonably believed by such person to be in the interest of the participants and beneficiaries of the plan shall be deemed to be for a purpose which is in the best interests of the Corporation.

The right of indemnification provided in this Article shall not be exclusive of or affect any other rights to which any Trustee, director or officer may be entitled under any agreement, statute, vote of members or otherwise. The Corporation's obligation to provide indemnification under this Article shall be offset to the extent of any other source of indemnification or any otherwise applicable insurance coverage under a policy maintained by the Corporation or any other person. Nothing contained in this Article shall affect any rights to which employees and corporate personnel other than Trustees, directors or officers may be entitled by contract, by vote of the Board of Trustees or of the Executive Committee or otherwise.
VI. REPORT OF THE DIRECTOR

“The cook was a good cook, as cooks go; and as cooks go she went.”
— Saki

Transition

It may be a violation of the best taste, but I believe that I should begin this report, my last from the Director's office of the MBL, on a personal note. I do so not because personal matters are worthy of the first position, but because a change of the Directorship of the MBL is. Since a good many Corporation Members have only the Annual Report in The Biological Bulletin as a source of comprehensive information on the Laboratory’s work of the prior year, this seems to me the proper place and position for a statement on the change.

I wrote the Director’s Report for 1985–6 in the Candle House. The window before which the computer monitor was placed overlooks an angle of Great Harbor and Vineyard Sound that I know as well as I know the shape of my hand. This report is being written in Charlottesville, Virginia, overlooking Thomas Jefferson’s Academical Village, the heart of the University of Virginia. In June of 1986 I announced to the Executive Committee, and later that summer to the Trustees and the MBL community as a whole, that I would be leaving the Directorship and the Laboratory at the end of October, 1986. I had accepted, just prior to the first announcement, appointment in November as Vice President and Provost at the University of Virginia.

My effort was at the time, as it is now for readers not reached by the earlier one, to urge that this decision was made for reasons wholly positive as regards the MBL and my relationship with it—as of course it has been for Virginia. I found the Laboratory in—and no self-congratulation is intended—a much stronger position that might have been expected at the time of my coming to the Directorship. It now had enhanced administrative resources, vastly better physical facilities, a development and public relations program that was the envy of larger and richer institutions, heightened national and international recognition for the quality of its research and instructional programs, and a renewed loyalty of its Corporation membership.

I had never intended to remain a full-time (or better, double-time) administrator—for that is what, given the limits of my talents, the MBL job quickly became—beyond the end of a second term, which would have been in 1988. But I had no reason to be ashamed of what had been accomplished in nine years of tenure of the office. I would have stayed out the term and no more. But the offer from Virginia was a very attractive one, and it came from a University I had already served in other capacities and for whose intellectual life, Jeffersonian traditions, and physical place I have deep admiration. It had always been my intention to return to university life after fulfilling a deeply felt obligation to the MBL (where, in reality, I had become a biologist). In those circumstances the result of a cost/benefit analysis was clear: no great harm would be done to the Laboratory by my leaving it at that time, provided that a good transition of leadership could be managed and the Centennial planning could be kept on track; and the chances of another university place like as the one at Virginia appearing would diminish after 1988.

Thus it is that I am here and the MBL is there. I miss the Laboratory much more than I miss being its Director. There is every reason to believe that, given good health and some luck, opportunities to serve it in other ways will arise. I shall take advantage of them.
Key to the decision was a judgment as to the effectiveness with which a transition to new leadership could be made in 1986–7. Although I had as yet no way of identifying the eventual actors therein, my judgment was that the thing could and would be done. And so it proved. Fellow embryologist Richard Whittaker agreed generously to an infringement of his productive research in order to serve as acting Director. No better-qualified person could have been found for this role.

A distinguished search committee was quickly empaneled, fulfilled its responsibility for an exhaustive national search, and was able eventually to recruit as the MBL’s next Director Harlyn O. Halvorson. His contributions to microbiology are recognized worldwide, and his activities at the MBL—as Trustee, Executive Committee Member, Course Director, and advisor to earlier Directors—comprise an unmatched record of dedicated and effective service.

The Centennial Committee, already in place at the time of my decision, was obviously off to a good start, and its programs for the Centennial year, which begins now (August, 1987), are a fine amalgam of high scientific standards, good taste, and potential outreach to a larger public.

I miss very much, in short, the view out my window from Candle House 301, but I feel justified in having had no fears for the health of the institution to which I had devoted so much physical and emotional energy in the vicinity of that view.

Management

Changing governance and management in an essentially academic institution such as the MBL is difficult in principle. It is made more difficult when there is a hundred-year history of outstanding achievement; and the difficulties multiply further when the organization is as idiosyncratic (or “horizontal,” as Chairman Gifford likes to describe it) as is ours. Change was and remains necessary, nevertheless, as I have urged in earlier Director’s Reports and before what seem to me now numberless meetings of Trustees and committees. Nothing that has happened during the last, transition-preoccupied year has interfered—I am delighted to report—with the processes of orderly management change set in motion several years ago.

The Trustees—Board and Corporate—have been brought much more closely into touch with operations management and decision making than ever before. Indeed, this change has accelerated since the last Director’s Report was published. The new Audit Committee, and other Trustees’ committees functioning under revised charges, have rendered invaluable service to the Laboratory and its paid administration. As a consequence, our financial and political positions have been strengthened visibly, even since August of 1986. The Committee on Laboratory Goals, chaired conscientiously by Gerald Fischbach and charged a year ago, has produced a short but forceful report on those goals—on what they should be, and on what steps should be taken toward their accomplishment.

I support their recommendations with enthusiasm. This was an accomplished, critical, and independent committee: it is a great pleasure to note that had I written the report (to succeed my very solo effort of 1979), it might have been in a different prose style, but its content would have been indistinguishable from what is now before the MBL community for analysis, debate, and—action.

Treasurer David Currier, who served the Laboratory so handsomely in that position and whose banking skills made possible the splendid new MBL cottage development, retired with the well-earned thanks of the community and has been replaced by Robert Manz. Mr. Manz brings to the treasurer’s responsibilities more than outstanding education, technical, and personal credentials: he is a former officer of Coo-
pers and Lybrand, our external auditors for many years, and was a leading member of the team assigned to the MBL account. He knows the Laboratory as well as—perhaps better than—any full-time employee. The Treasurer’s being another of those critical jobs for which the MBL must depend upon volunteers, i.e., upon good will, we are doubly lucky to have the good will of Robert Manz.

Two new management positions were designed, funded, and filled in the course of the year. Richard D. Cutler became the Laboratory’s first Facilities, Project, and Services Manager, and LouAnn D. King accepted appointment as Coordinator of Conferences and Housing. These attractive and experienced people have taken on challenging responsibilities subdivided and redefined from among the host of such carried by former General Manager Homer Smith.

Mr. Smith’s retirement could certainly be described by the cliche, “The End Of An Era,” and a pretty long era at that. But the description would fail. Homer has left his job, to be sure, but he has not left Woods Hole nor the MBL. There is no reason to believe that the “era” of his involvement with the Laboratory has ended; and we wish him and Cynthia Smith a retirement—if that word may be used—of continued good health and undiminished activity. That, I am sure, is the way they want it to be.

Donald Ayers, finally, now directs the fully functional Development Office, and we can be confident that his programs, aided and additionally monitored by Lisa Thimas (formerly Assistant to the Director), will flourish during the Centennial Year before us.

Remarkably, these are a mere sample, not the totality of appointments and change processes that took place during the transition year. Let no one be concerned about a let-down of effort or a diminution of those management skills of which the MBL has been so much in need. All that we need to be concerned about is the means of increasing further the rate of positive change.

Systems

In that connection it is noteworthy that three of the critical systems upon which those who must operate, and make decisions for, the MBL have been changed and improved during the year past. Most important, the many roadblocks, internal as well as external, impeding progress toward a rational system of overhead recovery have been eliminated. The system is now in operation, and although it works no better than those of our peer institutions, it is no worse. The high optimism implicit in such a negative statement will be understood by all who have grappled in decades past with the problem of reimbursing the Laboratory for its costs in housing and supporting research.

A job classification system was designed, discussed widely, and put in place for all MBL employees. This had been the majority wish for many years, and its fulfillment has indeed brought a measure of regularity and central accountability to the management of operations and personnel. The system includes not only a set of objective job descriptions and grades, but also processes for the hearing and adjudication of disputes and grievances. Already called upon for service in that connection has been the Classification Review Board established for the purpose and chaired, ably as always, by Joan Howard.

Last but not least, the Controller’s department now has a greatly improved system of accounts and data management, aided by the appointment of an Assistant Controller with excellent accounting skills and a resident specialist in electronic data processing. It is not amiss to note that these changes are a direct consequence of the enhanced Trustee oversight initiated two years ago, to which I have referred above.
Research and education

Summer research activities and accomplishments were at their now accustomed high levels in the summer of 1986 and, as will be evident to readers of this report by the time it has been published, so will they be in 1987. There are very few laboratories or library accommodations unspoken for in summer at the MBL. The only concern I have heard expressed from time to time is that not enough applicants are rejected, or, to put it in the way it is usually phrased, that the MBL ought to have more of a choice among potential summer scientists. Perhaps so; but the financial realities and demography of those disciplines practiced by MBL summer investigators speak differently to me. I believe that we do very well to have a significant percentage of the most honored neuroscientists, cell biologists, developmental biologists, microscopists, and the like here at the MBL every summer, and it is insurance against stagnation that we can admit most of those others, not yet so honored perhaps, who have legitimate research to perform here. And lest the reader believe what is sometimes—unfairly and untruthfully—asserted, that the MBL is a club for its “regulars” and nothing more, let him inspect the roster of last summer’s MBL Fellows and independent investigators for the new and the still-young. The evidence is heartening. No other organization can boast so large and so diverse an assembly of biologists engaged upon serious research for a meaningful part of the year.

The year-round research program, focus of the plan presented by the Committee on Laboratory Goals, ended the year in about the same configuration as at the beginning. It was as large an enterprise as the MBL can accommodate within existing buildings; it was well-funded; and it was steadily productive. As I have said elsewhere, there is no university for which such a group, collected together as a Biology Department, would not be a prize.

There are, however, changes imminent. The National Institute for Neurological and Communicative Diseases and Stroke has decided, for what are considered in Bethesda to be good reasons, on an eventual recall of at least the bulk of its on-location program at the MBL. It is possible that a part of this effort will remain for several years, but under the existing directives, most of the program will revert to permanent residence on the NIH campus, with summer research at the MBL. Balancing this, there have been selections from among excellent applicant investigators for year-round accommodation, so that the size of the resident research program will not change very much in the near term, nor will its very high quality overall.

If, however, the Corporation and Trustees elect to implement the recommendations of the Fischbach committee, there will be major change indeed, and it will have to be accompanied by new methods of funding and supporting year-round scientists, new programs, a net increase in size, and large additions to the inventory of research space and general-use facilities.

The instructional program, whose unique contribution to the scientific manpower of this nation has been recognized by astonishingly (for these times) generous support from government and private agencies, fared well in 1986 and will clearly continue thus in 1987. In no small part this is due to the far-sighted support of such private donors as the Markey Trust, the Pew Memorial Trust, the Grass Foundation, and the Klingenstein Fund. But success and a tough-minded maintenance of the highest standards of quality are also testimony to the very spirit of the MBL, inherited and still vigorous, as established in its teaching programs by the Founders. In no small measure the smooth operation of our complex instructional enterprise—much more complex, in important ways, than the mounting of courses in a university—has depended, and will probably continue to depend, upon three things: (1) the flow of financial support for indirect as well as direct costs from private donors; (2) the collab-
oration, especially via equipment loans, of the world's leading manufacturers of scientific instruments; and (3) wise, artful, and minimally intrusive management of the courses and their people, as exemplified in the work of Joan Howard and her ever-helpful staff in the Office of Sponsored Programs.

Successful a story as this is, it will not remain so without continuous effort. It was a principle of the last administration, as it was of the MBL's first, that the instructional program shares the first priority with research, and that the teaching is as much on the moving frontier of our science as is the research of any particular laboratory. The principle will continue, I hope, to be held. Thus far the signs are good. By way of example, I might cite an unusual and already noteworthy collaboration of the MBL and the University of Georgia in the teaching of Plant Cell and Molecular Biology. And if the current plans for the next version of Embryology are implemented, it will be a further signal to the effect that curricular and organizational adventurousness need not be absent from teaching by an eminent faculty, to the world's most able classes of young biologists.

If all the above has the scent of hyperbole, I apologize but also deny any such purpose. The MBL is a very remarkable organism: the bare facts upon which this summary is based are printed in the accompanying pages of the Annual Report and in other MBL publications. I have simply written a summary, with a few laudatory adjectives where they are clearly justified. We tend easily to forget, as intimates of quality, how special a thing it is in the world. We do not forget problems with the same celerity: those, like the crying of a baby, evolve a sound that cannot be ignored.

*Albert Szent-Györgyi*

Among the score of Nobelists associated with the Laboratory during the two or three decades past, none made such a mark upon the day-to-day life of the place as did Albert Szent-Györgyi, who died at a ripe old age during the year. Of course that mark was to some extent a consequence of Szent-Györgyi's year-round residence in Woods Hole and at the MBL, from a time when his Institute for Muscle Research was virtually the only active group during the non-summer months until a few years ago, when it was well-eclipsed, in size and in visibility, by other year-round laboratories. But his influence did not depend solely upon presence. Prof's was a mind and a personality of most unusual strength. His intellectual power and personal charm were merely facets of the whole man, who was also possessed of moral power, a remarkable persuasiveness, an abundance of love and good cheer, and overlying all, an aesthetic imperative that drove him to the still-unexplored for its beauty first, and is utility second. During the height of his career, when I was a student here, he was for many of us the paradigm of the scientist as the spearhead of culture. Throughout his long life, even at the very end, when he and I could converse only in shouts, he was for me and, I know, for many others, the very model of a man.

*Coda*

The MBL nurtures us all, as men and women, as extenders of culture, as investigators, as teachers of the best science to the best students. Long may it flourish; and to it a happy hundredth birthday!

VII. REPORT OF THE TREASURER

This is my first report to you as Treasurer. Although I have been at the job for almost a year now, this is my first chance to say that I am privileged and honored to have an opportunity to contribute to this excellent and exciting institution. I look
forward to working with the staff, Executive Committee, Trustees, and Corporation as we move into the Laboratory's Second Century.

The financial statements of the Laboratory for the year ended December 31, 1986, follow this report. Before I comment on the financial results for the year, I must discuss some changes in presentation that have been made to the financial statements to reflect actions taken by the Corporation and the Executive Committee in the last year and to more clearly present the financial position of the Laboratory.

In the Statement of Support, Revenues, Expenses, and Changes in Fund Balances (Statement of Support), a separate column has been provided for the newly established Housing Enterprises Fund within the Current Unrestricted Fund. The Balance of Operations for this fund of $112,294 has been transferred to a Reserve for Repairs and Replacements restricted to expenditure on housing. This is a major step forward for the Laboratory in providing for its financial future; I applaud the wisdom of your decision to establish this fund.

The financial statements no longer show the assets or results of operations of the Retirement Funds. These funds are not actually assets of the MBL but are owned by the Laboratory's pension plan, so they should not appear in the Laboratory's financial statements but in those of the Plan. To date there have been no separately issued financial statements of the Retirement Plan because of its size. The Plan has now grown large enough that provisions of the Employees' Retirement Income Security Act require separate financial statements of the Plan; these have been prepared, and the Retirement Fund has been removed from the Laboratory's financial statements.

Also affecting pension accounting, the Laboratory has adopted the new requirements of the Financial Accounting Standards Board on accounting for pension expense of the Laboratory (i.e., its obligation to contribute to the plan). The new requirements seek to more accurately reflect the impact of changes in investment and annuity market conditions as well as employment and actuarial expectations of the employer's pension obligation. For the Laboratory this has meant a reduction in pension expense from $142,833 in 1985 to $82,682 in 1986, chiefly because of the favorable performance of the Retirement Plan’s investment portfolio.

The Balance Sheet now reflects the market value of the Laboratory's invested funds, rather than their book value. I have recommended this change so that you will always have before you the actual market value of the endowment rather than a book number which reflects only the timing of past donations and the results of past investment activity.

I trust that these comments will assist you as you examine the Laboratory's Financial statements.

The results of operations for 1986 show a picture of continued current operating strength, with some fluctuations that bear watching. They suggest some significant improvements in the long-term strength of the Laboratory—if trends begun this year can be sustained and expanded—and they point to an agenda for future actions.

Total support and revenues increased from 1985 to 1986 by $272,488 while expenses increased by $269,648.

Within support and revenues, gains in gifts, recovery in indirect costs from the summer program (laboratory fees), and dormitory and dining fees were offset by declines in direct support for year-round research and the associated recovery of indirect costs, and slight declines in the income of Research Services and Marine Resources. It is encouraging to see some strength in fee income—it suggests that the Laboratory renders a measurable service which can be directly supported by the users of that service—but for the same reason it is discouraging to see the declines in Research Services and Marine Resources income. I have recommended to the Director that a
careful examination of all the fee for service income of the Laboratory be made in order to make the best possible match between service and income, and to guarantee the future economic viability of our services.

Gifts increased by more than $200,000 in 1986. We have continued to receive strong support from the Pew and Markey foundations for the instructional program; we made significant strides in the Mellon match gift for Library endowment; and we received a $200,000 gift from the Monsanto Corporation in anticipation of our Centennial celebration. Such dedicated support allows your laboratory to maintain the excellence of its programs. As your Treasurer, I must point out, however, that we are perilously dependent on the generosity of donors of gifts for current use. In order to achieve the assurance of continued excellent programs, we need to seek a dramatic increase in our endowment.

Within the expense categories, I call your attention to the increases in housing and depreciation expense, that in aggregate, amount to almost $250,000. Of this amount, approximately $133,000 is attributable to the additional housing units at Memorial Circle and an additional $76,000 was expensed as administrative costs, thus completing our planned "full costing" of the separate Housing Enterprises Fund. More significantly, if you look down the column entitled "Housing Enterprises Fund," you will note that for the first time, the MBL, as projected and previously mentioned, has funded $112,294 in depreciation costs associated with the housing enterprise. These funds are being set aside to help finance major future capital improvements in the housing facilities.

We again ended the year with an excess of revenues over expenses in the current unrestricted fund ($70,590). You should thank your Controller, John Speer, for his role in achieving this result. The Laboratory is well served by John's vigilance over the operating budget and his ability to see clouds on the financial horizon and recommend a course long before the storm strikes.

As your Treasurer, I will never use the word "surplus" in connection with an excess of revenues over expenses until the Laboratory has been able to use that excess to fund depreciation on its plant. As I told the Trustees last winter and hope to demonstrate to the rest of the Corporation, the annual "surpluses" of the Laboratory are wiped out when depreciation is taken into account. We have in fact been able to maintain the quality of our physical plant through the generosity of our donors, but this means that the heroic capital fund raising efforts of our directors in the last ten years have been required to maintain rather than to improve the quality of our plant.

I believe we must set as a goal the funding of a significant portion of our depreciation expense from operating revenues. This year we took a modest first step towards that goal and transferred $33,650 from the current unrestricted fund to a reserve for replacements. We must do much more in the future.

In this report I have tried to indicate those aspects of our financial condition that merit our attention and will require concerted action. I have no doubt left some of your questions on the financial performance of 1986 unanswered here, but I welcome them directly and will do my best to respond.
To the Trustees of  
Marine Biological Laboratory  
Woods Hole, Massachusetts

We have examined the balance sheet of Marine Biological Laboratory as of December 31, 1986 and the related statement of support, revenues, expenses and changes in fund balances for the year then ended. Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We previously examined and reported upon the financial statements of the Laboratory for the year ended December 31, 1985, which condensed statements are presented for comparative purposes only.

In our opinion, the financial statements referred to above present fairly the financial position of Marine Biological Laboratory at December 31, 1986 and its support, revenues, expenses and changes in fund balances for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year, except for the changes, with which we concur, in the method of accounting for investments as described in Note C, the method of accounting for pension expense as described in Note E and the method of accounting for pension funds as described in Note J.

Very truly yours,

Coopers & Lybrand

Boston, Massachusetts  
April 18, 1987
# MARINE BIOLOGICAL LABORATORY

## Balance Sheets

**December 31, 1986 and 1985**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and savings deposits</td>
<td>$238,120</td>
<td>$197,668</td>
<td>Accounts payable and accrued expenses</td>
<td>$333,859</td>
<td>$594,534</td>
</tr>
<tr>
<td>Money market securities (Note 1)</td>
<td>50,000</td>
<td>225,000</td>
<td>Deferred income</td>
<td>117,282</td>
<td>124,932</td>
</tr>
<tr>
<td>Accounts receivable, net of allowance for uncollectible accounts</td>
<td>425,840</td>
<td>374,301</td>
<td>Construction accounts payable</td>
<td>—</td>
<td>58,496</td>
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<tr>
<td>Receivables due for costs incurred on grants and contracts</td>
<td>562,375</td>
<td>741,206</td>
<td>Current portion of long-term debt</td>
<td>73,001</td>
<td>100,000</td>
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<tr>
<td>Other assets</td>
<td>8,663</td>
<td>11,859</td>
<td>Total current liabilities</td>
<td>524,142</td>
<td>877,962</td>
</tr>
<tr>
<td><strong>Total current assets</strong></td>
<td>1,284,998</td>
<td>1,550,034</td>
<td>Mortgage and note payable (Note H)</td>
<td>1,249,182</td>
<td>—</td>
</tr>
<tr>
<td>Investments, at market (Notes C and I)</td>
<td>10,093,443</td>
<td>8,989,633</td>
<td>Current unrestricted fund balances:</td>
<td>55,890</td>
<td>44,586</td>
</tr>
<tr>
<td>Land, buildings and equipment (Notes D and H)</td>
<td>19,193,896</td>
<td>17,805,051</td>
<td>Current unrestricted funds</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Less accumulated depreciation</td>
<td>(7,143,565)</td>
<td>(6,579,654)</td>
<td>Housing enterprise funds</td>
<td>55,890</td>
<td>44,586</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td>23,428,772</td>
<td>21,765,064</td>
<td><strong>Endowment fund balances (Note C):</strong></td>
<td>745,392</td>
<td>648,669</td>
</tr>
<tr>
<td><strong>Income for unrestricted purposes:</strong></td>
<td>2,658,967</td>
<td>2,399,077</td>
<td><strong>Quasi-endowment fund balances (Note C):</strong></td>
<td>4,525,638</td>
<td>4,340,721</td>
</tr>
<tr>
<td><strong>Income for restricted purposes:</strong></td>
<td>2,592,671</td>
<td>1,941,644</td>
<td><strong>Unrestricted</strong></td>
<td>826,455</td>
<td>1,072,186</td>
</tr>
<tr>
<td><strong>Total liabilities and fund balances</strong></td>
<td>5,251,628</td>
<td>4,340,721</td>
<td><strong>Restricted</strong></td>
<td>3,385,526</td>
<td>3,639,700</td>
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<tr>
<td><strong>Quasi-endowment fund balances:</strong></td>
<td>4,661,981</td>
<td>4,711,886</td>
<td><strong>Plant fund balances:</strong></td>
<td>10,940,547</td>
<td>11,141,240</td>
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<tr>
<td><strong>Unrestricted</strong></td>
<td>10,770,932</td>
<td>11,084,571</td>
<td><strong>Unrestricted</strong></td>
<td>—</td>
<td>56,669</td>
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<tr>
<td><strong>Restricted</strong></td>
<td>169,615</td>
<td>—</td>
<td><strong>Repairs and replacement reserve</strong></td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Total liabilities and fund balances</strong></td>
<td>$23,428,772</td>
<td>$21,765,064</td>
<td><strong>Restricted</strong></td>
<td>11,141,240</td>
<td>—</td>
</tr>
</tbody>
</table>

The accompanying notes are an integral part of the financial statements.
## MARINE BIOLOGICAL LABORATORY

### Statement of Support, Revenues, Expenses, and Changes in Fund Balances

for the year ended December 31, 1986

(with comparative totals for 1985)

#### Current Funds

<table>
<thead>
<tr>
<th></th>
<th>Current Unrestricted Fund</th>
<th>Current Restricted Fund</th>
<th>Total Unrestricted Fund</th>
<th>Total Restricted Fund</th>
<th>Current Endowment Funds</th>
<th>Current Quasi-endowment Funds</th>
<th>Plant Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support and revenues:</td>
<td>Grant reimbursement of</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>direct costs:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instruction</td>
<td>$37,913</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>3,327,603</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recovery of indirect costs related to research and instruction:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer program</td>
<td>$525,924</td>
<td>$525,924</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year-round program</td>
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<td>1,699,208</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Other</td>
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<td>32,107</td>
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<tr>
<td>Instruction</td>
<td>358,814</td>
<td>358,814</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition</td>
<td>287,415</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support activities:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dormitory</td>
<td>$679,378</td>
<td>679,378</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dining hall</td>
<td>441,564</td>
<td>441,564</td>
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</tr>
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<td>Library</td>
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<td>240,315</td>
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<tr>
<td>Biological Bulletin</td>
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<td>172,676</td>
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<td>390,460</td>
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<td></td>
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<tr>
<td>Marine resources</td>
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<td>158,539</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
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<td>500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investment income</td>
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<td>385,253</td>
<td>136,570</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additions to fund</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gifts</td>
<td>125,416</td>
<td>125,416</td>
<td>1,168,633</td>
<td>$404,300</td>
<td>$200,750</td>
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<tr>
<td>Miscellaneous revenue</td>
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<td>119,404</td>
<td>31,286</td>
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<td>—</td>
<td>$3,039</td>
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<td>Total support and revenues</td>
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<td>679,378</td>
<td>5,329,558</td>
<td>4,989,420</td>
<td>404,300</td>
<td>$200,750</td>
<td>10,927,067</td>
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</table>

#### Expenses:

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<tr>
<th></th>
<th>Current Unrestricted Fund</th>
<th>Current Restricted Fund</th>
<th>Total Unrestricted Fund</th>
<th>Total Restricted Fund</th>
<th>Current Endowment Funds</th>
<th>Current Quasi-endowment Funds</th>
<th>Plant Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
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<td>25,727</td>
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<td>Scholarships and stipends</td>
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<td>Support activities:</td>
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<td></td>
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<tr>
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<td>491,551</td>
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<tr>
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<tr>
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<td>528,103</td>
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<tr>
<td>Biological Bulletin</td>
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<td>150,551</td>
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<td></td>
<td></td>
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<tr>
<td>Research services</td>
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<td>772,553</td>
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<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>1986 Total</th>
<th>1985 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repairs and replacement of repairs and services</td>
<td>171,084</td>
<td>3,508,303</td>
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<tr>
<td>All Funds</td>
<td>525,924</td>
<td>468,262</td>
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<tr>
<td>Reserve</td>
<td>32,107</td>
<td>66,226</td>
</tr>
<tr>
<td>All Funds</td>
<td>358,814</td>
<td>208,820</td>
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<tr>
<td>1986 Total</td>
<td>287,415</td>
<td>270,237</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>1986 Total</th>
<th>1985 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support and revenues:</td>
<td>Grant reimbursement of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>direct costs:</td>
<td></td>
</tr>
<tr>
<td>Instruction</td>
<td>$37,913</td>
<td>$3,327,603</td>
</tr>
<tr>
<td>Research</td>
<td>3,327,603</td>
<td>3,508,303</td>
</tr>
<tr>
<td>Recovery of indirect costs related to research and instruction:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer program</td>
<td>525,924</td>
<td>468,262</td>
</tr>
<tr>
<td>Year-round program</td>
<td>1,699,208</td>
<td>1,722,521</td>
</tr>
<tr>
<td>Other</td>
<td>32,107</td>
<td>66,226</td>
</tr>
<tr>
<td>Instruction</td>
<td>358,814</td>
<td>208,820</td>
</tr>
<tr>
<td>Tuition</td>
<td>287,415</td>
<td>270,237</td>
</tr>
<tr>
<td>Support activities:</td>
<td></td>
<td></td>
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<tr>
<td>Dormitory</td>
<td>679,378</td>
<td>581,515</td>
</tr>
<tr>
<td>Dining hall</td>
<td>441,564</td>
<td>396,952</td>
</tr>
<tr>
<td>Library</td>
<td>240,315</td>
<td>215,348</td>
</tr>
<tr>
<td>Biological Bulletin</td>
<td>172,676</td>
<td>156,245</td>
</tr>
<tr>
<td>Research services</td>
<td>390,460</td>
<td>415,830</td>
</tr>
<tr>
<td>Marine resources</td>
<td>158,539</td>
<td>173,860</td>
</tr>
<tr>
<td>Other</td>
<td>500</td>
<td>(3,483)</td>
</tr>
<tr>
<td>Investment income</td>
<td>385,253</td>
<td>136,570</td>
</tr>
<tr>
<td>Additions to fund</td>
<td>—</td>
<td>29,381</td>
</tr>
<tr>
<td>Gifts</td>
<td>125,416</td>
<td>1,662,818</td>
</tr>
<tr>
<td>Miscellaneous revenue</td>
<td>119,404</td>
<td>112,716</td>
</tr>
<tr>
<td>Total support and revenues</td>
<td>4,650,180</td>
<td>10,654,579</td>
</tr>
</tbody>
</table>
### Marine resources 363,496 363,496 363,496
Administration 979,629 75,533 1,055,162 1,055,162 986,811
Sponsored projects 291,624 291,624 291,624 266,784
adminstration 1,005,570 1,005,570 1,005,570 1,023,293
Plant operations Depreciation 563,911 489,517
Disposal 63,519 63,519 —
Other 5,650 5,650 175,115 180,765 72,750
Total expenses 4,579,590 567,084 5,146,674 5,248,038 627,430 11,022,142 10,752,494
Excess (deficit) of support and revenues over expenses 70,590 112,294 182,884 (238,618) 404,300 200,750 (624,391) (95,075) (97,915)

**Transfers among funds:**
- Transfer to endowment (123,634) 50,636 72,998 — —
- Acquisition of fixed assets (5,566) $ (113,761) 119,327 — —
- Mellon match transfers (25,000) 25,000 — —
- To support ecosystems operations 445,903 445,903 — —
- To support Homestead project (132,111) 191,425 $(59,314) — —
- Repair/replacement (25,636) (25,636) 87,309 — —
- Other transfers (145,944) (23,671) (64,318) — —
- Total transfers among funds (59,286) (112,294) (171,580) 355,341 75,636 (310,190) (372,905) 310,752 (56,669) 169,615 — —
- Realized gains on investments $ 179,820 89,311 33,021 225,454 527,606 70,818
- Unrealized gains (losses) on investment (Note C) — — — — 80,070 81,780 31,438 142,527 — — — 335,815 1,119,957
- Net change in fund balances 11,304 11,304 96,723 259,890 651,027 (245,731) 195,826 (313,639) 56,669 169,615 768,346 1,092,860
- Fund balances, beginning of year, as previously reported 20,725,761
- Cumulative effect of change in reporting of retirement fund (Note J) (1,607,727)
- Cumulative effect of change in accounting for investments (Note C) 676,208
- Fund balances, beginning of year, as restated 44,586 44,586 648,669 2,399,077 1,941,644 1,072,186 3,639,700 11,084,571 56,669 — 20,887,102 19,794,242
- Fund balances, end of year $ 55,890 $ 55,890 $ 745,392 $ 2,658,967 $ 2,592,671 826,455 $ 3,835,526 $ 10,770,932 — $ 169,615 $ 21,655,448 $ 20,887,102

The accompanying notes are an integral part of the financial statements.
A. Purpose of the Laboratory:
The purpose of Marine Biological Laboratory (the “Laboratory”) is to establish and maintain a laboratory or station for scientific study and investigations, and a school for instruction in biology and nature history.

B. Significant Accounting Policies:

Basis of Presentation—Fund Accounting
In order to ensure observance of limitations and restrictions placed on the use of resources available to the Laboratory, the accounts of the Laboratory are maintained in accordance with the principles of “fund accounting.” This is the procedure by which resources are classified into separate funds in accordance with specified activities or objectives.

Externally restricted funds may only be utilized in accordance with the purposes established by the donor or grantor of such funds. However, the Laboratory retains full control over the utilization of unrestricted funds. Restricted gifts, grants, and other restricted resources are accounted for in the appropriate restricted funds. Restricted current funds are reported as revenue when received and as related costs are incurred. Unrestricted current funds are reported as revenue when earned.

Endowment funds are subject to restrictions requiring that the principal be invested with income available for use for restricted or unrestricted purposes by the Laboratory. Quasi-endowment funds have been established by the Laboratory for the same purposes as endowment funds; however, the principal of these funds may be expended for various restricted and unrestricted purposes.

Fixed Assets
Fixed assets are recorded at cost. Depreciation is computed using the straight-line method over estimated useful lives of fixed assets.

Reclassifications
The financial statements for 1986 reflect certain changes in classification of revenue, expenses and changes in fund balances. Similar reclassifications have been made to amounts previously reported in order to provide consistency of the financial statements. In addition, the financial statements reflect in 1986 the segregation of the current unrestricted fund balance into two components: the current unrestricted and the housing enterprise fund balances.

Contracts and Grants
Revenues associated with contracts and grants are recognized in the statement of support, revenues, expenses and changes in fund balances when received and as related costs are incurred. The Laboratory reimbursement of indirect costs relating to government contracts and grants is based on negotiated indirect cost rates with adjustments for actual indirect costs in future years. Any over- or under-recovery of indirect costs is recognized through future adjustments of indirect cost rates.

Investments
Investments purchased by the Laboratory are carried at market value (Note C). Money market securities are carried at cost which approximates market value. Investments donated to the Laboratory are carried at fair market value at the date of the gift. For determination of gain or loss upon disposal of investments, cost is determined based on the average cost method. The Laboratory is the beneficiary of certain endowment investments which are held in trust by others. These investments are reflected in the financial statements. Every ten years the Laboratory's status as beneficiary is reviewed to determine that the Laboratory's use of these funds is in accordance with the intent of the funds.
**Investment Income and Distribution**

The Laboratory follows the accrual basis of accounting except that investment income is recorded on a cash basis. The difference between such basis and the accrual basis does not have a material effect on the determination of investment income earned on a year-to-year basis.

Investment income includes income from the investments of specific funds and from the pooled investment account. Income from the pooled investment account is distributed to the participating funds on the basis of their proportionate share at market value adjusted for any additions or disposals to pooled funds.

**C. Change in Accounting Method for Investments:**

Effective January 1, 1986, the Laboratory adopted the accounting policy of reporting investments and the related fund balances at market value to more clearly reflect the financial impact of the Laboratory's investment policies. Investments and the related fund balances in prior years were reported at cost. The cumulative increase in the fund balances at December 31, 1986 and 1985 is as follows:

<table>
<thead>
<tr>
<th>Current Restricted Funds:</th>
<th>1986</th>
<th>1985</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unexpended gifts</td>
<td></td>
<td>$ 11,782</td>
</tr>
<tr>
<td>Endowment funds:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrestricted</td>
<td>$ 80,070</td>
<td>329,166</td>
</tr>
<tr>
<td>Restricted</td>
<td>81,780</td>
<td>215,763</td>
</tr>
<tr>
<td>Quasi-endowment funds:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrestricted</td>
<td>31,438</td>
<td>126,333</td>
</tr>
<tr>
<td>Restricted</td>
<td>142,527</td>
<td>436,913</td>
</tr>
<tr>
<td>Increase in unrealized appreciation and related fund balances</td>
<td>$335,815</td>
<td>$1,119,957</td>
</tr>
</tbody>
</table>

This change has been retroactively applied to the fund balances as of the beginning of the year ended December 31, 1985 as follows:

<table>
<thead>
<tr>
<th></th>
<th>1986</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unexpended gifts</td>
<td></td>
<td>$ (364)</td>
</tr>
<tr>
<td>Endowment funds:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrestricted</td>
<td>263,969</td>
<td></td>
</tr>
<tr>
<td>Restricted</td>
<td>311,892</td>
<td></td>
</tr>
<tr>
<td>Quasi-endowment funds:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrestricted</td>
<td>(3,747)</td>
<td></td>
</tr>
<tr>
<td>Restricted</td>
<td>104,458</td>
<td></td>
</tr>
<tr>
<td>Cumulative unrealized gain/loss</td>
<td></td>
<td>$ 676,208</td>
</tr>
</tbody>
</table>

**D. Land, Buildings, and Equipment:**

The following is a summary of the unrestricted plant fund assets:

<table>
<thead>
<tr>
<th></th>
<th>1986</th>
<th>1985</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>$ 689,660</td>
<td>$ 689,660</td>
</tr>
<tr>
<td>Construction in progress</td>
<td>140,826</td>
<td>140,826</td>
</tr>
<tr>
<td>Buildings</td>
<td>16,333,358</td>
<td>14,861,244</td>
</tr>
<tr>
<td>Equipment</td>
<td>2,170,878</td>
<td>2,113,321</td>
</tr>
<tr>
<td></td>
<td>19,193,896</td>
<td>17,805,051</td>
</tr>
<tr>
<td>Less accumulated depreciation</td>
<td>(7,143,565)</td>
<td>(6,579,654)</td>
</tr>
<tr>
<td></td>
<td><strong>$12,050,331</strong></td>
<td><strong>$11,225,397</strong></td>
</tr>
</tbody>
</table>
E. Retirement Fund:

During 1986, the Laboratory elected early application of Statement of Financial Accounting Standard No. 87, "Employer's Accounting for Pensions." This Statement establishes standards of financial accounting and reporting for an employer that offers pension benefits to its employees and supersedes earlier standards. The early election reduced the actuarially determined pension expense from $132,866 to $82,682.

The Laboratory has a noncontributory defined benefit pension plan for substantially all employees. Contributions are intended to provide for benefits attributed to the service date, but also those expected to be earned in the future.

Actuarial present value of benefit obligations:
Accumulated benefit obligation including vested benefits of $1,484,283 1,686,685
Projected benefit obligation 2,561,619
Plan assets at fair value 2,608,987
Projected benefit obligation less than plan assets 47,368
Unrecognized net (gain) or loss 186,054
Prior service cost not yet recognized in net periodic pension cost —
Unrecognized net obligation at March 1, 1986 (316,104)
Prepaid pension cost (pension liability) recognized in the statement of financial position $ (82,682)

Net pension cost for fiscal year ending December 31, 1986:
Service cost—benefits earned during the period 138,391
Interest cost on projected benefit obligation 142,381
Actual return on plan assets (319,877)
Net amortization and deferral 121,787
Net periodic pension cost $ 82,682

The actuarial present value of the projected benefit obligation was determined using a discount rate of 7.3% and rates of increase in compensation levels of 6%. The expected long-term rate of return on assets was 8%.

In addition, the Laboratory participates in the defined contribution pension program of the Teachers Insurance and Annuity Association. Expenses amounted to $106,535 in 1986 and $95,858 in 1985.

F. Pledges and Grants:

As of December 31, 1986 and 1985, the following amounts remain to be received on gifts and grants for specific research and instruction programs, and are expected to be received as follows:

<table>
<thead>
<tr>
<th>December 31, 1986</th>
<th>December 31, 1985</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestricted</td>
<td>Restricted</td>
</tr>
<tr>
<td>1987  $20,000</td>
<td>$615,027</td>
</tr>
<tr>
<td>1988  10,000</td>
<td>40,764</td>
</tr>
<tr>
<td>1989  —</td>
<td>5,764</td>
</tr>
<tr>
<td>$30,000</td>
<td>$661,555</td>
</tr>
</tbody>
</table>

G. Interfund Borrowings:

Interfund balances at December 31 are as follows:

<table>
<thead>
<tr>
<th>1986</th>
<th>1985</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Funds</td>
<td></td>
</tr>
<tr>
<td>Due to plant funds $(169,615) $ (56,669)</td>
<td></td>
</tr>
<tr>
<td>Due to endowment funds (115,909) (156,622)</td>
<td></td>
</tr>
<tr>
<td>Due to restricted quasi-endowment funds (200,750) —</td>
<td></td>
</tr>
<tr>
<td>$(486,274)</td>
<td>$(213,291)</td>
</tr>
</tbody>
</table>
H. Mortgages and Notes Payable:

The mortgage note payable with a term of 26 years is in the amount of $1.3 million bearing interest based on the bank’s prime rate plus three quarters percent (0.75%) on a floating basis for the initial five year period with a floor of 7.50% and a ceiling of 13.00%. The interest rate at December 31, 1986 was 9.00%. The mortgage loan is collateralized by a first mortgage on the land and properties known as Memorial Circle, with recourse in the event of default limited to this land and property and the related revenue. Principal and interest payments of $15,000 are due and payable monthly commencing January 19, 1987.

Other notes payable consist of the following:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsecured note with interest at 7.90% with monthly principal payments of $221.20 plus interest</td>
<td>$9,194</td>
</tr>
<tr>
<td>Unsecured note with interest at 6.90% with monthly principal payments of $394.71 plus interest</td>
<td>12,990</td>
</tr>
<tr>
<td></td>
<td><strong>$22,184</strong></td>
</tr>
</tbody>
</table>

At December 31, 1986, these mortgages and notes payable had aggregate future annual principal payments as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>$73,001</td>
</tr>
<tr>
<td>1988</td>
<td>78,654</td>
</tr>
<tr>
<td>1989</td>
<td>83,899</td>
</tr>
<tr>
<td>1990</td>
<td>86,492</td>
</tr>
<tr>
<td>1991</td>
<td>94,127</td>
</tr>
<tr>
<td>Thereafter</td>
<td>906,010</td>
</tr>
<tr>
<td></td>
<td><strong>1,322,183</strong></td>
</tr>
</tbody>
</table>

Less current portion

<table>
<thead>
<tr>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>73,001</td>
</tr>
</tbody>
</table>

**$1,249,182**
I. Investments:

The following is a summary of the cost and market value of investments at December 31, 1986 and 1985 and the related investment income and distribution of investment income for the years ended December 31, 1986 and 1985.

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
<th>Market</th>
<th>Investment Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endowment and Quasi-endowment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Government securities</td>
<td>$2,278,843</td>
<td>$1,974,662</td>
<td>$2,384,842</td>
</tr>
<tr>
<td>Corporate fixed income</td>
<td>947,287</td>
<td>897,145</td>
<td>933,749</td>
</tr>
<tr>
<td>Common stocks</td>
<td>4,069,893</td>
<td>3,699,334</td>
<td>6,101,973</td>
</tr>
<tr>
<td>Preferred stock</td>
<td>9,611</td>
<td>2,860</td>
<td>17,975</td>
</tr>
<tr>
<td>Money market securities</td>
<td>639,155</td>
<td>603,718</td>
<td>639,155</td>
</tr>
<tr>
<td>Real estate</td>
<td>15,749</td>
<td>15,749</td>
<td>15,749</td>
</tr>
<tr>
<td>Total</td>
<td>7,960,538</td>
<td>7,193,468</td>
<td>10,093,443</td>
</tr>
<tr>
<td>Less custodian fees</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Unrestricted Current Fund

|                     |            |            |                   |                   |
| Money market securities | 50,000     | 225,000    | 50,000            | 225,000           |
| Total investments     | $8,010,538 | $7,418,468 | $10,143,443       | $9,214,633        |

1. Change in Reporting of Retirement Fund:

Effective January 1, 1986, the Laboratory eliminated the reporting of its Retirement Fund (pension plan) as a separate fund in its financial statements to conform with the reporting practices of other nonprofit organizations. This change has been retroactively applied as of the beginning of the year ended December 31, 1985, with the following reductions in reported amounts for:

<table>
<thead>
<tr>
<th></th>
<th>1986</th>
<th>1985</th>
<th>1984</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investments (at cost)</td>
<td>$1,879,410</td>
<td>$1,688,670</td>
<td>$1,713,055</td>
</tr>
<tr>
<td>Due to/from other funds</td>
<td>(82,628)</td>
<td>(146,253)</td>
<td>(105,328)</td>
</tr>
<tr>
<td>Retirement fund balance</td>
<td>1,962,038</td>
<td>1,834,923</td>
<td>1,607,727</td>
</tr>
</tbody>
</table>
VIII. REPORT OF THE LIBRARIAN

Our serial titles are now all entered into the On-Line OCLC catalog which is based in Ohio. The number of requests for copies of articles in our periodical collection has doubled since this project was completed. Over 350 libraries and laboratories sent requests during 1986, and we now serve a larger scientific community than we did before our collection was included in this database.

In preparation for the Centennial we have prepared a computer program for the records in the Archives. Lists of all scientists, students, lecturers, employees, and others who have been at the MBL since 1888 will be placed in an archival database. This information will be valuable to science historians, our public information office, and the library reference staff. Most of this material will be entered by Ruth Davis and her volunteer staff. Photographs held in the Rare Books and Archives area are being cataloged. Negatives are being made of a number of the rare ones. Many of these photographs will be used in a Centennial book that is being planned for 1988.

We gave one-day tours of the Library in June to two groups of librarians. One was a group from the Boston meeting of the Special Librarians Association and the other was a group named the “Rte. 128 Librarians” from the Hi-Tech libraries in that area.

Binding increased this year since we picked up a number of volumes where one or two issues were missing. We bound these noting the “lacks” on the spine. Over 3000 volumes were sent to the binders during the winter months.

IX. EDUCATIONAL PROGRAMS

SUMMER

BIOLOGY OF PARASITISM

Course directors
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SHER, ALAN, NIAID/NIH

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HART, GERALD W., Johns Hopkins University
HERELD, DALE, Johns Hopkins University
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HOWARD, RUSSEL, NIAID/NIH
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JOINER, KEITH, NIAID/NIH
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OTTESON, ERIC, NIAID/NIH
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PFPEFFERKORN, ELMER, Dartmouth Medical School
RIBEIRO, JOSE, Harvard University
ROCK, THEODORE, Howard Hughes Medical Institute
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SCOTT, PHILLIP, NIAID/NIH
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SHEVACH, ETHAN, NIAID/NIH
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STRAND, METTE, Johns Hopkins University
SUPLICK, KATHY, Hahmemann University
TURNER, MERYN J., Merck Sharp and Dohme Research Laboratories
WALLIKER, D., University of Edinburgh, UK
WANG, CHING C., University of California, San Francisco
WARD, DAVID, Yale University
WARD, SAMUEL, Carnegie Institute
WARREN, KENNETH, Rockefeller Foundation
WASSOM, DONALD, University of Wisconsin

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EID, JOSIANE E., Johns Hopkins University
HARYANA, SOFIA M., Gadjah Mada University, Indonesia
LOMBARDI, GEORGE V., Washington University
LUCIUS, RICHARD H. C., University of Heidelberg, FRG
MORZARIA, SUBHASH P., International Laboratory for Research on Animal Diseases, Kenya
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SAMARAS, NICHOLAS, Walter and Eliza Hall Institute of Medical Research, Australia
SHONEKAN, OPEOLU A., University of Ibadan, Nigeria
SINNIS, PHOTINI, Dartmouth Medical School
STUCKY, PAMELA D., University of California, San Francisco
TALAMAS, PATRICIA R., Centro de Investigacion y de Estudios Avanzados del IPN, Mexico
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ZIMMERMAN, RONALD J., Vanderbilt University

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EMERSON, CHARLES, University of Virginia
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HILLE, MERRILL, University of Washington
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JAFFE, LIONEL, Marine Biological Laboratory
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RICHTER, JOEL, Worcester Foundation for Experimental Biology
ROBERTS, JAMES, Hutchinson Cancer Center
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SCHATTEN, HEIDI, Florida State University
SLUDER, GREENFIELD, Worcester Foundation for Experimental Biology
WESSEL, GARY, M. D. Anderson Hospital
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WILT, FRED, University of California, Berkeley
WINKLER, MATTHEW, University of Texas, Austin
WORMINGTON, MICHAEL, Brandeis University

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HARDIN, SUSAN H., Indiana University
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KIRBY, COLLEEN M., Cornell University
KOENIG, GERD, Max Planck Institut fur Entwicklungsbiologie, FRG
KUBIAT, JACEK Z., Warsaw University, Poland
RUBACHA, ALICE, Rice University

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SCHROETER, SALLY J., University of Michigan
SMOLICH, BEVERLY D., University of Virginia
SYMES, KAREN, National Institute of Medical Research, England, UK
TALEVI, RICCARDO, University of Naples, Italy
VARNUM, SUSAN M., Brandeis University
VELLECA, MARK A., Yale University
VITES, ANA M., University of Connecticut Health Center
WHARTON, L. LYNN, University of Massachusetts Medical School

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CARON, DAVID A., Woods Hole Oceanographic Institution
CASWELL, HAL, Woods Hole Oceanographic Institution
CAVANAUGH, COLLEEN, Harvard University
COLE, JON, Mary Flagler Cary Arboretum
DAVIS, CABELL, Woods Hole Oceanographic Institution
DELAND, M., Environmental Protection Agency
DEUSER, WERNER G., Woods Hole Oceanographic Institution
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FREADMAN, MARVIN, Marine Biological Laboratory/BUMP
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GALLAGHER, EUGENE, University of Massachusetts
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GIBLIN, ANN, Marine Biological Laboratory
GRASSE, J. FREDERICK, Woods Hole Oceanographic Institution
GRASSE, JUDITH, Marine Biological Laboratory
HARBISON, G. RICHARD, Woods Hole Oceanographic Institution
HOBIE, JOHN E., Marine Biological Laboratory
HUSTON, MICHAEL, Oak Ridge National Laboratory
JEFFERIES, ROBERT L., University of Toronto, Canada
MANN, KENNETH H., Bedford Institute of Oceanography, Canada
MARRY, MARIBEL, Smith College
MURCHELLANO, ROBERT, National Marine Fisheries Service
OSMAN, RICHARD, Academy of Natural Sciences of Philadelphia
PASCUAL-DUNLAP, M. MERCEDES, Cornell University
PETERSON, CHARLES HENRY, University of North Carolina
PETERSON, BRUCE R., Marine Biological Laboratory
PREGNALL, MARSHALL, University of Massachusetts
RICE, MICHAEL, University of Massachusetts
RHODS, DONALD, Yale University
RUBLEE, PARKE A., Whitman College
SANDERS, HOWARD L., Woods Hole Oceanographic Institution
SEBENS, KENNETH, Northeastern University
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WELSCHMEYER, NICHOLAS, Harvard University
WIEBE, PETER H., Woods Hole Oceanographic Institution

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DICKENS, VIRGINIA A., Goucher College
DIIOGENE, GEORGES F., University of Barcelona, Spain
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FALK, KATHLEEN, University of Massachusetts, Boston
FREY, IRIS J. F., Philipps-University Marburg, FRG
HART, ROBERT A., University of California, Berkeley
KASMER, JOHN M., University of Vermont
MORUCCI, CARLO, University La Sapienza of Rome, Italy
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O'HARA, ELLEN MARGARET, Villanova University
SPANO, ANNAMARIA, Istituto Superiore de Sanita of Rome, Italy
SVENDSEN, BETTY-ANN E., University of Dallas
THIVAKARAN, ALAGIRI G., Annamalai University, India
THOMAS, CECelia R., Hinds Jr. College
ZAPATA, FERNANDO A., University of Arizona

MICROBIOLOGY: MOLECULAR ASPECTS OF CELLULAR DIVERSITY

Course directors

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KAPLAN, SAMUEL, University of Illinois
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KROPINSKI, ADAM, Marine Biological Laboratory
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DOBBS, FRED C., Florida State University
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Kelley, Darcy, Columbia University

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Bass, Andrew, Cornell University
Borst, Axel, Max Planck Institut fur Cell Biologie, FRG
Burd, Gail, University of Arizona
Byrne, John, University of Texas Medical School
Calabrese, Ronald, Harvard University
Carroll, Leslie, Thomas Jefferson University
Casagrande, Vivian, Vanderbilt University
Cleary, Leonard, University of Texas
Elliot, Ellen, University of North Carolina
Frank, Jillian, New York University
Goldman-Rakic, Patricia, Yale University Medical School
Gorlick, Dennis, Columbia University
Harris-Warrick, Ronald, Cornell University
Hoskins, Sally, Columbia University
Jacobs, Gwen, University of California, Berkeley
Johnson, Bruce, Cornell University
Levine, Richard, Rice University
Macagno, Eduardo, Columbia University
Marder, Eve, Brandeis University
McRobert, Scott, Temple University
Moiseff, Andrew, University of Connecticut
Northcutt, Glenn, University of Michigan
Nusbaum, Michael, Brandeis University
Pearson, Keir, University of Alberta
Simmons, James, Brown University
Squire, Larry, University of California, San Diego
Tobias, Martha, Columbia University
EDUCATIONAL PROGRAMS

TOMPKINS, LAURIE, Temple University
WEEKS, JANIS, University of California, Berkeley

Students

APPLEGATE, APRIL V., Johns Hopkins School of Medicine
CLOWER, ROBERT P., Cornell University
DODD, FRANK, Cornell University
EDMONDS, BRIAN W., University of Virginia
ELIOT, LISE SUZANNE, Columbia University
GARCIA CABRERA, INMACULADA, University of Bergen, Norway
HAMMER, MARTIN, Freie Universitat Berlin, FRG
HARRINGTON, MARY E., Dalhousie University, Canada
HIRANO, ARLENE A., The Rockefeller University
KIEHN, OLE, The Panum Institute, Denmark
KNOWLTON, BARBARA, Stanford University
LOTURCO, JOSEPH J., Yale University
LUSTIG, CORNEL, Weizmann Institute, Israel
MENCIO, TRACEY L., Rutgers University
MORGAN, MICHAEL M., University of California, Los Angeles
NIKANOV, JONATHAN, University of Colorado
ROBERTS, SETH D., University of California, Berkeley
STREICHERT, LAURA D., Stanford University
WEAVER, DEBORA J., University of Maryland, Baltimore County

NEUROBIOLOGY

Course director

KARLIN, ARTHUR, Columbia University

Other faculty, staff, and lecturers

ADAMS, PAUL, SUNY, Stony Brook
AGNEW, WILLIAM, Yale University
ANDERSON, DAVID, Columbia University
ANDREWS, BRIAN, NINCDS/NIH
ARMSTRONG, KATIE, Rice University
BRETT, ROGER, SUNY, Stony Brook
CLAUDIO, TONI, Yale University Medical School
CONNER, JOHN, Bell Laboratories
DIPAOLA, MARIO, Columbia University College of Physicians and Surgeons
EHRlich, BARBARA, Albert Einstein College of Medicine
FISCHBACH, GERALD, Washington University School of Medicine
GURNEY, ALISON, California Institute of Technology
HALL, LINDA, Albert Einstein College of Medicine
HATTEN, MARY E., New York University Medical Center
HEUSER, JOHN, Harvard University
INOUE, TOMO, McGill University, Canada
JESSELL, THOMAS, Columbia University
JONES, STEVEN, SUNY, Stony Brook
KHAN, SAHID, Marine Biological Laboratory
LANDER, ARTHUR, Columbia University
LANDIS, DENNIS, Massachusetts General Hospital
LESTER, HENRY, California Institute of Technology
LEVITAN, IRWIN, Brandeis University
MACKINNON, RODERICK, Brandeis University
MARGULIES, DAVID, Columbia University College of Physicians and Surgeons
MATSUMOTO, STEVEN, Harvard University
MCNIVEN, MARK, University of Maryland
MILLER, CHRISTOPHER, Brandeis University
MOOSEKER, MARK, Yale University
MURRAY, JOHN, University of Pennsylvania
PAULSEN, HENRY, Yale University Medical School
RAVIOLA, EUO, Harvard Medical School
ROLE, LORNA, NINCDS/NIH/Marine Biological Laboratory
ROWLAND, L., Columbia University
SCHNAPP, BRUCE, Marine Biological Laboratory
SHEETZ, MICHAEL, Washington University School of Medicine
SILMAN, ISRAEL, Weizmann Institute of Science, Israel
SPUDICH, JOHN, Albert Einstein College of Medicine
STERNWEIS, PAUL, University of Texas Health Center
WILLARD, ALAN L., University of North Carolina

Students
BLEY, KEITH R., Yale University
CARLBERG, MATS, University of Lund, Sweden
FEDEROFF, HOWARD J., Massachusetts General Hospital
FERNANDEZ-VALLE, CRISTINA, University of Miami
HALPERN, MARNIE E., Yale University
HORRIGAN, FRANK T., Stanford University
LEW, DANIEL J., The Rockefeller University
PLEASURE, SAMUEL J., University of Pennsylvania
PORTER, DEVRA, Vanderbilt University
SUPATTAPONE, SURACHAI, Johns Hopkins School of Medicine
ZUMBOICH, THOMAS J., University of Oxford, Oxford, UK

PHYSIOLOGY

Course director
GOLDMAN, ROBERT, Northwestern University

Other faculty, staff, and lecturers
ALBRECHT-BUEHLER, G., Northwestern University
BECKERLE, MARY, University of North Carolina
BENDER, WELCOME, Harvard University
BLOOM, KERRY, University of North Carolina
CHISHOLM, REX, Northwestern University
DEROSIER, DAVID, Brandeis University
DESSEV, GEORGE N., Northwestern University
FILETI, LISA, Boston University
FUJII, YOHSHIO, Osaka University, Japan
GOLDMAN, ANNE, Northwestern University
GOLDSTEIN, LARRY, Harvard University
HAN, PETER, Earlham College
HAY, ELIZABETH D., Harvard University
HOLM, CONNIE, Harvard University
EDUCATIONAL PROGRAMS

HOPKINSON, SUSAN, Northwestern University Medical School
HORVITZ, H. ROBERT, Massachusetts Institute of Technology
HYAMS, JEREMY, University College, UK
JONES, JONATHAN, Northwestern University
KIEHART, DAN, Harvard University
LEINWAND, LESLIE, Albert Einstein College of Medicine
LINDBERG, UNO, University of Stockholm, Sweden
MAYRAND, SANDRA, Worcester Foundation for Experimental Biology
MATTAX, ANDREW, Marine Biological Laboratory
MCNALLY, ELIZABETH, Albert Einstein College of Medicine
MORELAND, ROBERT, Dana Farber Cancer Institute
OLMSTED, JOANNA, University of Rochester
PARYSEK, LINDA, Northwestern University Medical School
PEDERSON, THORU, Worcester Foundation for Experimental Biology
PTASHNE, MARK, Harvard University
RICH, ALEXANDER, Massachusetts Institute of Technology
RUDERMAN, JOAN, Duke University
RUSHFORTH, ALICE, Earlham College
RUSKIN, BARBARA, Harvard University
SCHWARTZ, LAWRENCE M., University of North Carolina
SHAPIRO, LUCY, Albert Einstein College of Medicine
SINGER, REBECCA, Albert Einstein College of Medicine
SOHN, REGINA LEE, Albert Einstein College of Medicine
SPUDICH, JAMES, Stanford University
STEVENSON, BRUCE, Yale University
SZENT-GYÖRGYI, ANDREW, Brandeis University
TARDIFF, JILL, Albert Einstein College of Medicine
TAYLOR, MARK, Northwestern University Medical School
VALE, RON, Marine Biological Laboratory
VALLEE, RICHARD, Worcester Foundation for Experimental Biology
WARNER, CECELIA, Northwestern University Medical School
WARNER, JONATHAN, Albert Einstein College of Medicine
WEINSTEIN, RONALD, Rush Medical Center
WIEBEN, ERIC D., Mayo Foundation
YEH, ELAINE, CIBA-GEIGY

Students

AKINS, JR., ROBERT E., University of Pennsylvania
BEEMAN, ANNE M., Dartmouth Medical School
BISWAS, SURAJIT K., University of Pennsylvania
BLACK, KRISTIN, University of California, Berkeley
BRADLEY, DAVID, University of Pennsylvania
CAULEY, KEITH A., University of Michigan
DABORA, SANDRA L., University of Connecticut
DAHL, STEPHEN C., Wesleyan University
DASSO, MARY C., Cambridge University, England, UK
DEVST, KATHERINE A., Tufts University
ERIKSSON, ULF J., Uppsala University, Sweden
FOLTZ, KATHLEEN R., Purdue University
GANNON, PAMELA M., Tufts University-Sackler School
GELLES, JEFF, California Institute of Technology
GUDEMAN, DAVID M., Kansas University
HARPER, DAVID S., University of Illinois, Chicago
HORNE, MARY C., University of California, San Francisco
KATZ, KENNETH S., Amherst College
Kenna, Margaret A., University of North Carolina
Kenney, Linda J., University of Pennsylvania
Laermer, Tod W., Johns Hopkins University
Meinhof, Carl-Georg, University of California, San Diego
Meluh, Pamela B., University of Maryland
Mohl, Virginia K., Washington State University
Reginato, Antonio M., University of Pennsylvania
Rudolph, Karen M., Dartmouth College
Sardet, Claude C. S., Centre National de la Recherche Scientifique, France
Segre, Gino V., Massachusetts General Hospital/Harvard Medical School
Symons, Marc H. C., Weizmann Institute of Science, Israel
Thaler, Catherine D., University of California, Riverside
Troxell, Cynthia L., University of Colorado
Wadsworth, William G., University of Missouri
Watson, Cornelius A., Wesleyan University
Yanagihara, Richard, National Institute of Neurological and Communicative Disorders and Strokes/NIH
York, Karen Pickwick, University of Pennsylvania
Zand, Martin S., Northwestern University Medical School

SREAT

ANALYTICAL AND QUANTITATIVE LIGHT MICROSCOPY IN BIOLOGY, MEDICINE, AND MATERIALS SCIENCE
April 3–10, 1986

Course director
Inoué, Shinya, Marine Biological Laboratory

Other faculty, staff, and lecturers

Akins, Robert, University of Pennsylvania
Ellis, Gordon W., University of Pennsylvania
Knudson, Robert A., Marine Biological Laboratory
Lanni, Frederick, Carnegie Mellon University
Luby-Phelps, Katherine, Carnegie Mellon University
Lutz, Douglas, Harvard University
Salmon, Edward A., University of North Carolina
Taylor, D. Lansing, Carnegie Mellon University
Walker, Richard, University of North Carolina

Commercial faculty

Abramowitz, Mortimer, Olympus Corporation of America
Alexander, Scott, Nikon, Inc.
Beach, Dan, Carl Zeiss, Inc.
Breen, Bill, Interactive Video Systems
Demian, Jeffrey, Nikon, Inc.
Esser, Herman, Ikegami Electronics (USA), Inc.
Foster, Barbara, Carl Zeiss, Inc.
Grace, John, Crimson Camera Technical Sales, Inc.
Hannaway, Wyndham, G. W. Hannaway Associates
Hinsch, Jan, E. Leitz, Inc.
Jones, Jeffrey, Olympus Corporation of America
Keller, Ernst, Carl Zeiss, Inc.
Kimura, T., Olympus Corporation of America
EDUCATIONAL PROGRAMS

KLEIFGEN, GERRY, Dage-MIT
KNUTRUD, PAUL, Interactive Video Systems
ORWELL, PATTY, E. Leitz, Inc.
PARKER, MEL, Quantex Corporation
PRESLEY, PHIL, Carl Zeiss, Inc.
REGAN, ANN, Ikegami Electronics (USA), Inc.
RUBINOW, JERRY, Universal Imaging Corporation
SCHERER, KURT, Nikon Inc.
SCOTT, ERIC, Ikegami Electronics (USA), Inc.
TAYLOR, RICHARD, Colorado Video
THOMAS, PAUL, Dage-MIT
VRATNEY, MELANA, Nikon Inc.

Students

ANDERSON, DONALD M., Woods Hole Oceanographic Institution
ARONSON, JOHN F., Wistar Institute
BARI, DANIEL, Universidad Nacional de Cuyo-Conicet, Argentina
CAVICCHIA, JUAN CARLOS, Universidad Nacional de Cuyo-Conicet, Argentina
CHAMBERS, EDWARD L., University of Miami School of Medicine
DUBINSKY, JANET M., Washington University School of Medicine
FEIGENSON, GERALD W., Cornell University
GALLAGER, SCOTT M., Woods Hole Oceanographic Institution
GLANZMAN, DAVID L., Howard Hughes Medical Institute
KLEITMAN, SHAHID M. M., Albert Einstein College of Medicine
KLEITMAN, NAOMI, Washington University School of Medicine
MCCULLOH, DAVID H., University of Miami School of Medicine
MILLER, PAUL, Bell Laboratories
NORRIS, CAROLYN, Bardeen Labs
PALAZZO, ROBERT E., University of Virginia
REESE, TOM, Marine Biological Laboratory
RUSSELL, JAMES T., NIH
SCHULZE, ERIC, University of California, San Francisco
SHEEHY, PAUL A., NIH
VALE, RONALD D., Marine Biological Laboratory
VOYVODIC, JAMES, Washington University School of Medicine
WIGSTON, DONALD, Emory University School of Medicine
WOMACK, MARY, Howard Hughes Medical Institute
YEAGER, MARK D., Cornell University

SHORT COURSES

CELL AND MOLECULAR BIOLOGY OF PLANTS
August 4–14, 1986

Coordinators

DURE, LEON, The University of Georgia
KEY, JOE L., The University of Georgia

Lecturers

AUSUBEL, FRED, Massachusetts General Hospital
CHUA, NAM, Rockefeller University
CLEGG, MICHAEL, University of California, Riverside
CROUCH, MARTHA, Indiana University
FRALEY, ROB, Monsanto Company
BASIC IMMUNOCYTOCHEMICAL TECHNIQUES IN TISSUE SECTIONS AND WHOLE MOUNTS

October 19–25, 1986
EDUCATIONAL PROGRAMS

KRUSZEWSKA, BARBARA, University of Texas, Austin
LAUFER, HANS, University of Connecticut
ROSS, LINDA S., University of Texas, Austin
SASAVAGE, NANCY L., Bethesda Research Laboratories
TILSON, HUGH A., National Institute of Environmental Health Sciences
WHITE, JOEL, The Florida State University
WOOD, SUSAN F., Marine Biological Laboratory/BUMP
ZIGMOND, RICHARD E., Harvard Medical School

X. RESEARCH AND TRAINING PROGRAMS

SUMMER

PRINCIPAL INVESTIGATORS

ALLEN, NINA S., Wake Forest University
ALLEN, LABORATORY, Dartmouth College
ANDERSON, WINSTON A., Hunter College
ARMSTRONG, CLAY M., University of Pennsylvania
ARMSTRONG, PETER B., University of California, Davis
ATWOOD, KIM, Marine Biological Laboratory
AUGUSTINE, GEORGE, University of Southern California
BARRY, DANIEL, University of Michigan
BARLOW, ROBERT B., Syracuse University
BARRY, M., Albert Einstein College of Medicine
BARRY, SUSAN R., University of Michigan
BEAUGE, LUIS ALBERTO, Instituto de Investigacion Medica, Argentina
BEGENISICH, TED, University of Rochester Medical Center
BENNETT, MICHAEL V. L., Albert Einstein College of Medicine
BEZANILLA, FRANCISCO, University of California, Los Angeles
BLUNDON, JAY A., University of Maryland
BODZENICK, DAVID, Wesleyan University
BORGIESE, THOMAS A., Lehman College
BORON, WALTER F., Yale University
BOYER, BARBARA C., Union College
BRADY, SCOTT T., University of Texas Health Science Center
BREHM, PAUL, Tufts University School of Medicine
BROWN, JOEL E., Washington University
BURDICK, CAROLYN J., Brooklyn College
BURGER, MAX M., University of Basel, Switzerland
CARMELJET, PETER, University of Leuven, Belgium
CHANG, DONALD C., Baylor College of Medicine
CHAPPELL, RICHARD L., Hunter College
CHARLTON, MILTON P., University of Toronto, Canada
CLEVELAND, MARK V. B., Braintree Laboratories
COHEN, LAWRENCE B., Yale University
COHEN, WILLIAM D., Hunter College
CONDOURS, GEORGE A., New Jersey Medical School
COOPERSTEIN, SHERWIN J., University of Connecticut
CORNWALL, M. CARTER, Boston University School of Medicine
D'AVANZO, CHARLENE, Hampshire College
DEWEE, PAUL, Washington University
DUBAS, FRANCOISE, Whitney Laboratory of Marine Biology
DUBE, FRANCOIS, University of Quebec
DUNLAP, KATHLEEN, Tufts University School of Medicine
RESEARCH AND TRAINING PROGRAMS

PARSONS, THOMAS D., University of Pennsylvania School of Dental Medicine
PALER, JOHN D., University of Massachusetts, Amherst
PEROZO, EDUARDO, Instituto Venezolano de Investigaciones Cientificas, Venezuela
PIERSON, BEVERLY K., University of Puget Sound
POOLE, THOMAS J., Upstate Medical Center
PUMPLIN, DAVID W., University of Maryland
PURVES, DALE, Washington University
QUIGLEY, JAMES P., SUNY, Downstate Medical Center
RAKOWSKI, ROBERT F., Chicago Medical School
REBHUN, LIONEL I., University of Virginia
REID, JOHN, Hampshire College
REID, JOAN, Hamilton College
REYNOLDS, GEORGE T., Princeton University
RICKLES, FREDERICK R., University of Connecticut Health Center
RIpps, HARRIS, University of Illinois College of Medicine
ROME, LAWRENCE C., University of Tennessee
ROSS, WILLIAM, New York Medical College
RONAN, MARK, Wesleyan University
RUDERMAN, JOAN V., Duke University
RUSSELL, JOHN M., University of Texas
SALZBERG, BRIAN M., University of Pennsylvania
SANGER, JOSEPH W., University of Pennsylvania
SARDET, CHRISTIAN, Station Zoologique, France
SCHROER, TRINA, University of California, San Francisco
SEGAL, SHELDON J., Rockefeller Foundation
SILVER, ROBERT B., University of Wisconsin
SJOEDIN, RAYMOND A., University of Maryland School of Medicine
SLOBODA, ROGER D., Dartmouth College
SMITH, STEPHEN J., Yale University School of Medicine
SPECK, WILLIAM T., Rainbow Babies & Childrens Hospital
SPIEGEL, EVELYN, Dartmouth College
SPIEGEL, MELVIN, Dartmouth College
STANLEY, ELIS F., NINCDS/NIH
STEPSHINS, PHILIP J., Villanova University
STOCKBRIDGE, NORMAN, University of Alberta, Canada
STRACHER, ALFRED, SUNY Health Sciences Center
STRUMWASSER, FELIX, Boston University
STUART, ANN E., University of North Carolina
TAKEDA, KENNETH, Universite Louis Pasteur, France
TASHIRO, JAY SHIRO, Kenyon College
TAYLOR, ROBERT E., NINCDS/NIH
TILNEY, LEWIS, University of Pennsylvania
TRAVIS, JEFFREY L., Vassar College
TREISTMAN, STEVEN N., Worcester Foundation
TRINKAUS, JOHN PHILIP, Yale University
TROLL, WALTER, New York University
TUCKER, EDWARD B., Vassar College
WAITE, MOSELEY, Bowman Gray School of Medicine
WEIDNER, EARL, Louisiana State University
WEISS, DIETER G., Institute of Zoology, FRG
WEISSMAN, GERALD, New York University Medical Center
WHITE, ROY L., Albert Einstein College of Medicine
YEH, JAY Z., Northwestern University
ZIGMAN, SEYMOUR, University of Rochester School of Medicine
LIBRARY READERS

ADELBERG, EDWARD, Yale Medical School
AKINS, KATHLEEN, Tufts University
ALKON, DANIEL, NIH/NINCDS
ALLEN, GARLAND E., Washington University
ANDERSON, EVERETT, Harvard Medical School
APOSHIAN, H. VASKEN, University of Arizona
BABITSKY, STEVEN, Kistin, Babitsky, Latimer & Beitman
BANG, BETSY, MBL
BARRETT, DENNIS, University of Denver
BEAN, CHARLES, Rensselaer Polytechnic Institute
BEMIS, WILLY, University of Massachusetts
BOETTIGER, JULIE, Temple University
BOYER, JOHN, Union College
BROWNE, ROBERT A., Wake Forest University
BUCK, JOHN, NIH
BURSZTAJN, S., Baylor College of Medicine
CANDELAS, GRACIELA C., University of Puerto Rico
CARRIERE, RITA, Downstate Medical Center
CASAGRANDE, VIVIEN A., Vanderbilt University
CHAMBERS, EDWARD L., University of Miami School of Medicine
CHEN, CHONG, Boston University Marine Program
CHILD, FRANK, Trinity College
CLARK, ARNOLD, MBL
COBB, JEWEL PLUMME, California State University
COHEN, LEONARD A., American Health Foundation
COHEN, SEYMOUR S., MBL
COLEN, B. D., Newsday
DALESSIO, GIUSEPPE, University of Naples
DETTBARN, WOLF-D., Vanderbilt University
DIPEOLU, OLUSEGUN O., Tuskegee University
DUNCAN, THOMAS K., Nichols College
EBERT, JAMES D., Carnegie Institution of Washington
ECKBERG, WILLIAM D., Howard University
ELLNER, JEROLD, Case Western Reserve University
FARB, DAVID, SUNY
FARMANFARMIAN, A., Rutgers University
FEINGOLD, DAVID S., New England Medical Center
FELDMAN, SUSAN, New Jersey Medical School
FIELD, GEORGE, Center for Astrophysics
FISHER, SAUL H., Milhauser Laboratory
FRIENKEL, KRYSYNA, NYU Medical Center
FRIEDLER, GLADYS, Boston University School of Medicine
FRENKEL, NORBERT, Northwestern University Medical School
FUSSELL, CATHARINE P., Pennsylvania State University
GERMAN, JAMES L., New York Blood Center
GEWURZ, HENRY, Evanston, Illinois
GOLDSTEIN, MOISE H., Johns Hopkins University
GOODGAL, SOL H., University of Pennsylvania School of Medicine
GOUNARIS, ANNE D., Vassar College
GRANT, PHILIP, University of Oregon
GROSSMAN, ALBERT, NYU
GUTTENPLAN, JOSEPH B., NYU Dental Center
HARDING, CLIFFORD V., Kresge Eye Institute
Hazel, Lea, Kenyon College
HERSKOVITS, THEODORE T., Fordham University
RESEARCH AND TRAINING PROGRAMS

HILDEBRAND, JOHN G., University of Arizona
HILL, RICHARD W., Michigan State University
HILLMAN, PETER, Hebrew University
HILTS, PHILIP J., Washington Post
ILAN, JOSEPH, Case Western Reserve University
ILAN, JUDITH, Case Western Reserve University
INOUE, SADAYUKI, McGill University
JACOBS, LISA, Kenyon College
JACOBS, LISA, Kenyon College
KALAT, JAMES W., North Carolina State University
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KARUSH, FRED, University of Pennsylvania
KARUSH, WILLIAM, California State University
KELLY, ROBERT, University of Chicago, College of Medicine
KLEIN, DAVID, University of California, San Francisco
KLEIN, MORTON, Temple University Medical School
KLEWOW, KENNETH M., Wilkes College
KRANE, STEPHEN M., Massachusetts General Hospital
LADERMAN, AIMLEE, MBL
LAZAROW, PAUL B., Rockefeller University
LEE, JOHN J., City College of CUNY
LEIGHTON, JOSEPH, The Medical College of Pennsylvania
LEVITZ, MORTIMER, NYU Medical Center
LLOYD, DAN, Simmons College
LONG, CAROLE A., Hahnemann University School of Medicine
LORAND, LASZLO, Northwestern University
LYNCH, ELIZABETH, Kenyon College
MACKENZIE, DEBORA OLIVIA, New Scientist
MACLEISH, WILLIAM H., Houghton-Mifflin
MAIENSCHEIN, JANE, Arizona State University
MARFEEY, ANNE, Danish Writers Guild
MARINE RESEARCH, INC.
MASER, MORTON, Woods Hole Educational Associates
MATSUMURA, FUMIO, Michigan State University
MAUTNER, HENRY G., Tufts University School of Medicine
MAUZERALL, DAVID, Rockefeller University
MCCANN-COLLIER, MARJORIE, St. Peter's College
MCCOY, FLOYD W., Lamont-Doherty Geological Observatory
MELE, SUZANNAH, Kenyon College
MILLER, JULIE ANN, Science News
MILLER, MELISSA, Kenyon College
MILLS, ERIC L., Dalhousie University
MITCHELL, RALPH, Harvard University
 Mizell, Merle, Tulane University
MONROY, ALBERTO, Naples Zoological Station
MOORE, JOHN W., Duke University Medical Center
MORSE, PATRICIA M., Northeastern University
MUSACCHAI, X. J., University of Louisville
NAGEL, RONALD L., Albert Einstein College of Medicine
NICKERSON, PETER A., SUNY, Buffalo
OLINS, ADA L., University of Tennessee, Oak Ridge
OLINS, DONALD E., University of Tennessee, Oak Ridge
OLSZOWKA, ALBERT J., SUNY, Buffalo
OTT, KAREN, University of Evansville
PEISACH, JACK, Albert Einstein College of Medicine
PERSON, PHILIP, VA Medical Center, Brooklyn, New York
POOLE, ALAN F., MBL
PRICE, BILL, Kenyon College
MARINE BIOLOGICAL LABORATORY

PROVASOLI, LUIGI, Yale University
PRUSCH, ROBERT, Gonzaga University
RAEBURN, PAUL, Associated Press
REINER, JOHN M., Albany Medical College
RINGE, STEPHEN, Children's Hospital
ROBINSON, DENIS, MBL
ROTH, EUGENE, Jr.
RUSSELL, DIANE H., University of Arizona College of Medicine
RUSSELL-HUNTER, W. D., Syracuse University
SCHLESINGER, R. WALTER, University of Medicine and Dentistry of New Jersey
SCHMIDT, SUSANNE, Cape Cod Planning and Economic Development
SEAGER, GEORGE, Seaver Assoc.
SHAPIER, ROBERT, Rockefeller University
SHEPARD, FRANK, Woods Hole Data Base
SHEPRO, DAVID, Boston University
SHRIETMAN, MOLLIE, North Nassau Mental Health Center
SLUDER, GREENFIELD, Worcester Foundation for Experimental Biology
SOHN, JOEL, Joel Sohn Seafood
SPECTOR, ABRAHAM, Columbia University
SPOTTE, STEPHEN, Mystic Marinelife Aquarium
STEINBERG, MALCOLM S., Princeton University
STEPHENS, MICHAEL J., Rutgers University
STEPHENSON, WILLIAM K., Earlham College
STEVENS, CHARLES F., Yale Medical School
SZENT-GYÖRGYI, ANDREW G., Brandeis University
SZENT-GYÖRGYI, EVA M., Brandeis University
TONE, JEFFERSON, Kenyon College
TRAGER, WILLIAM, Rockefeller University
TUTTLE, FRANK, Kenyon College
TWEEDEL, KENYON S., University of Notre Dame
VAN HOLDE, K. E., Oregon State University
WAGNER, ROBERT R., University of Virginia
WAINIO, WALTER, Rutgers University
WANGH, LAWRENCE, Brandeis University
WARREN, LEONARD, Wistar Institute
WEBB, H. MARGUERITE, MBL
WEINER, JONATHAN, Doylestown, Pennsylvania
WHEELER, GEORGE E., Brooklyn College
WHITTENBERG, BEATRICE, Albert Einstein College of Medicine
WHITTENBERG, JONATHAN, Albert Einstein College of Medicine
WICHTERMAN, RALPH, MBL
WILBUR, CHARLES G., Colorado State University
WOLKEN, JEROME J., Carnegie Mellon University
WORGUL, BASIL V., College of Physicians and Surgeons, Columbia University
YATHIRAJ, SANJAY, Kenyon College
YOUNG, WISE, NYU Medical Center
YOW, F. W., Kenyon College
ZACKS, SUMMER I., The Miriam Hospital
ZIMMERMAN, MORRIS, Merck Sharp & Dohme Research Laboratory
ZOTTOLI, STEVEN J., Williams College

OTHER RESEARCH PERSONNEL

ABRAHAMIAN, LORI, University of Connecticut Health Center
ABRAMSON, CHARLES, State University of New York Health Sciences Center
ALEXANDER, R., McNEILL, University of Leeds, UK
ALTAMIRANO, ANIBAL, University of Texas
ARMSTRONG, SANDRA, Lower Merion High School
ASHLEY, C. C., Oxford University
BAKER, ROBERT, New York University
BAKER, ROSS, University of Connecticut Medical Center
BATES, HISLA, Hunter College
BENNETT, ELENA P., Connecticut College
BISIER, ENRIQUE FONT, University of Tennessee
BLECK, THOMAS P., Rush Medical College
BROWN, LESLEE DODD, Northwestern University Medical School
BROWNE, CAROL, Wake Forest University
BUTNAM, JOHN A., Washington University School of Medicine
CAPUTO, CARLO, Instituto Venezolano de Investigaciones Científicas
CATTARELLI, MARTINE H., Yale University School of Medicine
CALLAWAY, JAY, University of Washington
CATANEO, RENE, NYS Institute for Basic Research in Developmental Disabilities
CHANDLER, ROBERT, University of Maryland
CHOW, ROBERT H., University of Pennsylvania
CHEN, ERIC, Northwestern University
CLARK, GEOFF, Braintree Laboratories
COTTA-PENUELAS, GABRIEL, University of Pennsylvania
COUCH, ERNEST, Texas Christian University
COTE, RICK, University of Wisconsin
CZINN, STEVEN, Rainbow Babies and Children's Hospital
DAVIDSON, DAVID, New York University Medical School
DAVIDSON, SARAH, Columbia University
DEWEILLE, JAN, University of Utrecht, Netherlands
DIPOLO, REINALDO, Instituto de Investigacion Medica, Argentina
DIXON, ROBERT, College of the Holy Cross
DOME, JEFF, University of Pennsylvania School of Medicine
DOWLING, JOHN E., Harvard University
DOUGHERTY, KATHLEEN, University of Delaware
DUAX, J. B., SUNY, Buffalo
DULDULAO, MARLYN, University of Hawaii
EATON, D. C., University of Texas Medical Branch
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Kahn, Terri, Rainbow Babies and Childrens Hospital
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Kem, James, University of Florida
Kishimoto, Yasu, Johns Hopkins School of Medicine
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Koide, Samuel S., Population Council
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KRIEGER, YUTTA
LAVALLI, KARI
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MERRILL, CARL
MOORE, PAUL

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Tamse, Armando
Trott, Thomas
Webb, Jacqueline
White, David
Woods, Susan
Saponaro, Stephen
Shapiro, Rachel
Wallace, Richard
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KUZIRIAN, JEANNE
LEDERHENDLER, IZIA, Marine Biological Laboratory
LEIGHTON, STEPHEN, Biomedical Engineering and Instrumentation Branch, NIH
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McPHIE, DONNA
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DURHAM, JOHN, Mt. Sinai Hospital, New York
ETTENSOHN, CHARLES, Duke University
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FLUCK, RICHARD, Franklin & Marshall College
KATZ, URI, Israel Institute of Technology, Haifa, Israel
KUNKEL, JOSEPH, University of Massachusetts
LEVY, SIMON, Boston University
PAYNE, RICHARD, Marine Biological Laboratory
RUBIN, CLINTON, Tufts Medical School
SARDET, CHRISTIAN, Station Marine Villefranche sur Mer, France
SKADHAUGE, ERIC, Royal Veterinary University, Copenhagen
SPEKSNJEDER, J. H., Marine Biological Laboratory
TRINKAUS, JOHN, Yale University
TROXELL, CYNTHIA, University of Colorado, Boulder
WEIJER, Kees, University of Munich, FRG
WEISENSEEL, MANFRED, University of Karlsruhe, FRG
ZIVKOVIC, DANA, University of Utrecht

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BOWLES, FRANCIS P.
FERRY, ELIZABETH
GARRITT, ROBERT

GIBLIN, ANNE
GRIFFIN, ELISABETH A.
HELFRIC, JOHN V. K.
HOUGHTON, RICHARD A.
XI. HONORS

Friday Evening Lectures

SIMBERLOFF, DANIEL, Florida State University, 27 June, "Academic Ecology and Environmental Problems: Red Scales, Vampire Bats, and Spotted Owls"

ALBERSHEIM, PETER, University of Georgia, 4 July, "Oligosaccharins—A New Class of Regulatory Molecules in Plants and Animals"

BROWN, DONALD D., Carnegie Institution of Washington, 11 July, "The Molecular Basis of Differential Gene Expression"

STEVENS, CHARLES F., Yale University School of Medicine, 17, 18 July, Forbes Lectures, "Molecular Basis for the Brain's Electrical Activity: I. Electrical Excitability of Neurons; II. Communication between Neurons"

KAISER, DALE, Stanford University School of Medicine, 25 July, "Cell-Cell Interactions in a Simple Developmental Pathway"

REESE, THOMAS S., NINCDS, NIH, and Marine Biological Laboratory, 1 August, "Kinesin—An MBL Project"

DOOLITTLE, RUSSELL F., University of California, San Diego, 8 August, "Evolution of the Vertebrate Plasma Proteins"

KANDEL, ERIC R., College of Physicians & Surgeons of Columbia University and the Howard Hughes Medical Institute, 15 August, Lang Lecture, "The Long and Short of Memory"

SELA, MICHAEL, The Weizmann Institute of Science, 22 August, "From Synthetic Antigens to Synthetic Vaccines"

TRINKAUS, J. P., Yale University, 29 August, "Metazoan Cell Movements: Invasion and Morphogenesis"

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KOEING, GERD, MPI fur Entwicklungsbiologie, FRG
KUBIAK, JACEK Z., Warsaw University, Poland
SAAVEDRA, CAROL, McGill University, Canada
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Brantree Laboratories
Brandeis University
Brinkmann Instruments
Brooklyn College
Brown University
California Institute of Technology
California State University
California State University, Los Angeles
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California, University of, Berkeley
California, University of, Davis
California, University of, Irvine
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California, University of, Riverside
California, University of, San Diego
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Carnegie Institution of Washington
Carnegie-Mellon University
Case Western Reserve University
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Center for Astrophysics

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<tr>
<th>Institution</th>
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<tbody>
<tr>
<td>Chesapeake Biological Laboratory</td>
<td>Georgia, University of</td>
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<td>Chicago, University of</td>
<td>Gilson Medical Electronics</td>
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<tr>
<td>Chicago, University of, Medical School</td>
<td>Gonzaga University</td>
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<td>Cincinnati, University of, College of Medicine</td>
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<td>College of the Holy Cross</td>
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<td>Colorado, University of</td>
<td>Hampshire College</td>
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<td>Colorado Video</td>
<td>Hahnemann University School of Medicine</td>
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<td>Columbia University</td>
<td>G. W. Hannaway Associates</td>
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<tr>
<td>Columbia University College of Physicians and Surgeons</td>
<td>Hartwick College</td>
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<td>Connecticut, University of</td>
<td>Harvard Medical School</td>
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<td>Connecticut, University of, Health Center</td>
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<td>Connecticut, University of, Medical Center</td>
<td>Harvard University School of Public Health</td>
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<td>Hawaii, University of</td>
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<td>Dalhousie University</td>
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<td>I.N.S.E.R.M.</td>
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<td>Damon Biotech, Inc.</td>
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<td>Dartmouth College</td>
<td>Illinois Institute of Technology</td>
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<td>Dartmouth Medical School</td>
<td>Illinois, University of, Chicago</td>
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<td>Delaware, University of</td>
<td>Illinois, University of, College of Medicine</td>
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<td>Denver, University of</td>
<td>Illinois, University of, Urbana-Champaign</td>
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<td>Dow Chemical</td>
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INSTITUTIONS REPRESENTED

Liberty Mutual Research Center
Louisiana State University
Louisville, University of
META Systems, Inc.
Maine, University of
Mary Flagler Cary Arboretum, NY
Maryland, University of
Maryland, University of, Baltimore
Massachusetts General Hospital
Massachusetts Institute of Technology
Massachusetts, University of
Massachusetts, University of, Amherst
Massachusetts, University of, Medical School
Mayo Foundation
Medical College of Ohio
Medical College of Pennsylvania
Memorial Sloan Kettering
Merck, Sharp and Dohme Research Laboratories
Miami, University of
Miami, University of, School of Medicine
Michigan State University
Michigan, University of
Millhauser Laboratory
Minnesota, University of
Miriam Hospital
Missouri, University of
Monsanto Company
Mount Holyoke College
Mount Sinai Hospital
Mystic Marinelife Aquarium
National Institute of Child Health and Human Development
National Institute of Environmental Health Sciences
National Institute of Mental Health/NIH
National Institutes of Health
National Institute of Neurological and Communicative Disorders and Stroke/NIH
National Marine Fisheries Service
New Alchemy Institute
New Brunswick Scientific, Inc.
New England Medical Center
New Hampshire, University of
New Jersey Medical School
New Jersey, University of, Medicine and Dentistry
New York Blood Center
New York, City University of
New York Institute for Basic Research in Developmental Disabilities
New York Institute for Basic Research in Mental Retardation
New York Medical College
New York, State University of, Binghamton
New York, State University of, Buffalo
New York, State University of, Downstate Medical Center
New York, State University of, Health Sciences Center
New York, State University of, New Paltz
New York, State University of, Stony Brook
New York University
New York University College of Dentistry
New York University Medical Center
New York University School of Medicine
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Nikon, Inc.
North Carolina, University of
North Nassau Mental Health Center
Northeastern University
Northwestern University
Northwestern University Medical School
Notre Dame, University of
Oak Ridge National Laboratory
Oberlin College
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Oklahoma, University of
Olympus Corporation of America
OptiQuip
OPTRA, Inc.
Oregon State University
Oregon, University of
Pennsylvania State University
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Pennsylvania, University of, School of Dental Medicine
Pennsylvania, University of, School of Medicine
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Photic Microscopy
Pittsburg, University of
Portland State University
Princeton University
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Purdue University
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R & M Biometrics, Corp.
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Rainin Instrument Company
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Rochester, University of, Medical Center
Rochester, University of, School of Medicine and Dentistry
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Rockefeller University
Rush Medical Center
Rush-Presbyterian, St. Luke's Medical Center
Rutgers University
Rutgers University Medical School
Savant Instruments
Sea Education Association
Simmons College
Smith College
Smithsonian Institution
Sorvall Instruments
South Carolina, University of
Southeastern Massachusetts University
Southern California, University of
Stanford University
St. Peter's College
Swift Instruments
Syntex
Syracuse University
Technical Products International, Inc.
Temple University
Temple University Medical School
Tennessee, University of
Tennessee, University of, Oak Ridge
Texas Christian University
Texas, University of
Texas, University of, Austin
Texas, University of, Health Center
Texas, University of, Medical Branch
Texas, University of, Medical School
Texas, University of, Medicine and Dentistry
Thomas Jefferson University
Trinity College
Tufts University
Tufts University, Sackler School
Tufts University School of Medicine
Tufts University, School of Veterinary Medicine

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Annamala University, India
Barcelona, University of, Spain
Basel, University of, Switzerland
Bedford Institute of Oceanography, Canada
Bergen, University of, Norway
Calgary, University of, Canada
Cambridge University, UK

Centre National de la Recherche Scientifique, France
Centro de Investigacion y de Estudios Avanzados del IPN, Mexico
Copenhagen, University of, Denmark
Dalhousie University, Canada
Division of Fisheries, Bermuda
Edinburgh, University of, Scotland, UK
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Gadjah Mada University, Indonesia
Geneva, University of, Switzerland
German Cancer Research Center, FRG
Hamburg, University of, FRG
Hebrew University, Israel
Heidelberg, University of, FRG
Ibadan, University of, Nigeria
I.D.E.A., Venezuela
Institute of Animal Physiology, FRG
Institute of Biological Research, Yugoslavia
Instituto de Investigacion Medica, Argentina
Instituto Superiore de Sanita of Rome, Italy
Instituto Venezolano de Investigaciones Cientificas, Venezuela
International Laboratory for Research on Animal Diseases, Kenya
Israel Institute of Technology, Israel
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Konstanz, University of, FRG
La Sapienza of Rome, University of, Italy
Laboratoire de Neurobiologie, France
Leeds, University of, UK
Leuven, University of, Belgium
Liverpool, University of, UK
Lund, University of, Sweden
Marie Curie, University of, France
Max Planck Institut fur Cell Biologie, Heidelberg, FRG
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McMaster University, Canada
Milan, University of, Italy
Munich, University of, FRG
Naples, University of, Italy
National Institute of Basic Biology, Japan
National Institute of Medical Research, UK
Osaka University, Japan
Ottawa, University of, Canada
Oxford University, UK
Panum Institute, Denmark
Philipps-University, Marburg, FRG
Quebec, University of
Queen's University, Canada
Royal Veterinary University, Denmark
Ruhr-Universitat Bochum, FRG
Seville, University of, Medical School, Spain
Statens Serum Institute, Denmark
Station Marine Villefranch sur Mer, France
Station Zoologique, France
Stazione Zoologica, Naples, Italy
Stockholm, University of, Sweden
Toronto, University of, Canada
Tottori University, Japan
Universidad de Cuyo-Conicet, Argentina
Universite Louis Pasteur, France
University College, London, England, UK
University College, Northern Wales, UK
University College, Oxford, UK
Uppsala University, Sweden
Walter and Eliza Hall Institute, Australia
Warsaw University, Poland
Weizmann Institute of Science, Israel
Wellcome Laboratories, UK

XIII. LABORATORY SUPPORT STAFF

Including Persons Who Joined or Left The Staff During 1986

Biological Bulletin

METZ, CHARLES B., Editor
CLAPP, PAMELA L.

Buildings and Grounds

CUTLER, RICHARD D., Services, Projects, and Facilities Manager
LEHY, DONALD B., Superintendent
ANDERSON, LEWIS B.
BALDIC, DAVID P.
BOURGOIN, LEE E.
BRUNETTE, CLIFFORD J.
CARINI, ROBERT J.
COLLINS, PAUL J.
CONLIN, HENRY P.
ENOS, GLENN R.

MOUNTFORD, REBECCA J.

FUGLISTER, CHARLES K.
GIBBONS, ROBERTO G.
GONSALVES, WALTER W., JR.
HAINES, KEVIN M.
ILLGEN, ROBERT F.
JENNINGS, DAVID A.
LEWIS, RALPH H.
LOCHHEAD, WILLIAM M.
LOVERING, RICHARD C.
LUND, ALAN G.
MACLEOD, JOHN B.
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**Public Information Office**

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**Research Services**

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**Sponsored Programs**

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**1986 Summer Support Staff**

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<td><strong>Armstrong, Nicholas B.</strong></td>
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**Mercuri, Maria R.**

**Pauk, Christine**

**Rioux, Margaret A.**

**Nichols, Francis H., Jr.**

**Poravas, Maria**

**Sadowski, Edward A.**

**Sanger, Richard H., Jr.**

**Sylvia, Frank E.**

**Copeland, D. Eugene, Special Consultant**

**to Electron Microscope Laboratory**

**Kerr, Louis M.**

**Mattox, Andrew H., Safety Officer**

**Ferzoco, Susan J.**

**Hays, Sharon M.**

**O'Brien-Sibson, Patricia J.**

**Martyna, Jonathan W.**

**Maynard, Beth H.**

**Montroll, Charles**

**Neall, William G.**

**Nelson, Christen L.**

**Peal, Richard W.**

**Philbin, Linda M.**

**Poravas, Christos G.**

**Pothier, Jahn A.**

**Prindle, Kirk**

**Remsen, Andrew W.**

**Richardson, Keith W.**

**Rose, Christine**

**Rozanski, Christopher**

**Sanger, Richard H., Jr.**

**Sheehan, Peter C.**

**Sinagra, David T.**

**Sloane, Michael B.**

**Swope, John G.**

**Valois, Francis X.**

**VanAlstyne, Mark**

**Wetzel, Ernest D.**

**Wheeler, Bradley E.**

**Winspear, David A.**

**Wyttenbach, Ann G.**