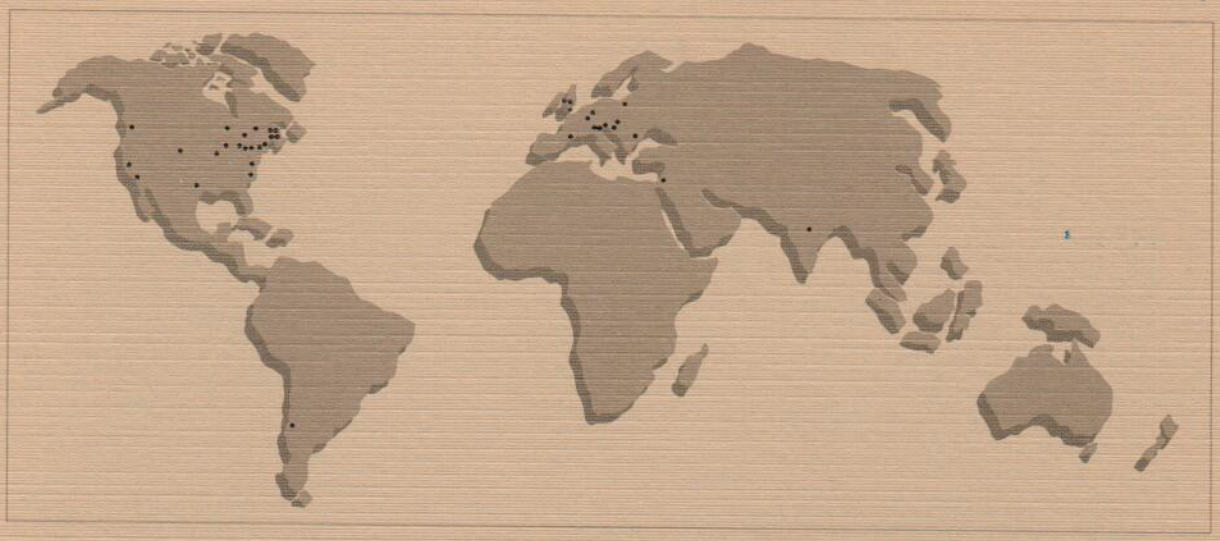
1983



Boston Biomedical Research Institute

annual report

CONTENTS

Cover Design

Marked on the world map are the far-flung sites where, during fiscal 1983, BBRI scientists collaborated with other scientists in important fundamental biomedical research; places from which a selected few young physicians and scientists came to BBRI for highly specialized research training; locations where BBRI scientists personally presented, to international congresses, the results of their own research. The story begins on page 6.

"If politics is the art of the possible,
research is surely
the art of the soluble.
Both are immensely practical-minded
affairs. Good scientists
study the most important problems
they think they can solve.
It is, after all, their professional
business to solve problems, not merely to
grapple with them."

(Prince) Clemens Wenzel Lothar Metternick-Winneburg
(The Art of the Soluble. 1967. London:Methuen)

President John A. Shane working with…(Top) William B. Tyler, Chairman; (Bottom left to right) D. Rao Sanadi, Executive Director; Institute research in progress; Eustis Walcott, Jr., Chairman of the Development Committee.

Report of The President

A changing of the guard and a look at new horizons. . . . BBRI in 1983.

Looking back, 1983 was a year of relative calm and stability at the Institute with reference to many of its activities. However the year represented a time when several significant organizational changes took place and others were contemplated. Because of their significance, I propose to focus my comments on them in this report.

A number of Corporators either completed long terms of duty with the Institute or were forced to resign due to the pressures of other responsibilities. These included:

	Years of Service
Dr. Paul Boeder	15
Mrs. Bigelow Crocker	11
Mr. Hamish F. Gravem	9
Mr. Stephen W. Plimpton	9
Dr. John T. Potts, Jr.	7

We shall always appreciate the time and energy which these men and women gave to the Institute.

Under Horace W. Cole's leadership as Chairman of the Nominating Committee, seven excellent new Corporation members were elected, all of whom have already demonstrated their commitment to the Institute through their participation and economic support. Those elected were:

Mr. Mike M. Coleman	Nuclear Engineer
Ms. Roberta Duvarney	Broker
Dr. Ruth G. Emyanitoff	Market Research Consultant
Mrs. George P. Fogg, Jr.	At home
Mr. Peter B. Sholley	President and Founder of Target Associates, Inc.
Mrs. Galen L. Stone	At home
Dr. Lloyd D. Taylor	Senior Research Fellow in Chemistry

After serving 2 years as a Corporation member, Mr. Gilbert L. Steward, Jr. was elected a Trustee.

Last November, Penelope W. Stohn, who had headed the Institute's Development Office for the previous three years, left BBRI to work on a special task force for the Governor of New Jersey. Penny increased the influence and raised the accomplishments of the Development Office to a very high standard for which the Institute is most grateful. Later her associate, Anne Warner, left to join the Development Office at Children's Hospital. We have been very fortunate indeed to have attracted Mrs. Jacquelyn M. Findlay to head the Development Office. Jackie, an MIT graduate in Chemical Engineering, had most recently been Assistant Director of Corporate Relations at MIT and has over sixteen years of fund raising experience. This experience, coupled with her technical background and previous corporate experience, provides an impressive range of skills to expand and extend the Development Office's activities. The Development Office raised a record $107,000 in contributions this year and has set a target of $150,000 for the coming year. Individual support for the Institute's work has been steadily increasing each year both in terms of total givers and total dollars raised. To reach this 1983-84 goal, further emphasis is being placed on seeking corporate sponsorship. As an example of continuing corporate support in a related way, Polaroid agreed to renew its support of Dr. Henry Paulus's work for another year to the extent of $300,000.

Another transition point occurred in the Development area this year. Mr. Eustis Walcott, Vice President of the Institute, has been active in development work for BBRI over the past decade, and has been Chairman of the Development Committee since its inception in 1980. He will be relinquishing that role in November. Mr. Walcott's enthusiasm, energy and drive have been outstanding. He solicited and received several major gifts for the Institute's Building Fund, he organized the present highly effective format for the Development Committee and has been an ardent supporter and encouraging disseminator of the Institute's work. He has made a permanent and invaluable contribution to the Institute's financial strength.

Mr. Walcott's post will be filled by co-chairmen. Vice President Esther Ewing and Corporator Peter B. Sholley have agreed to share the responsibilities of heading the Development Committee, and we look forward to their continuation of Mr. Walcott's fine example.

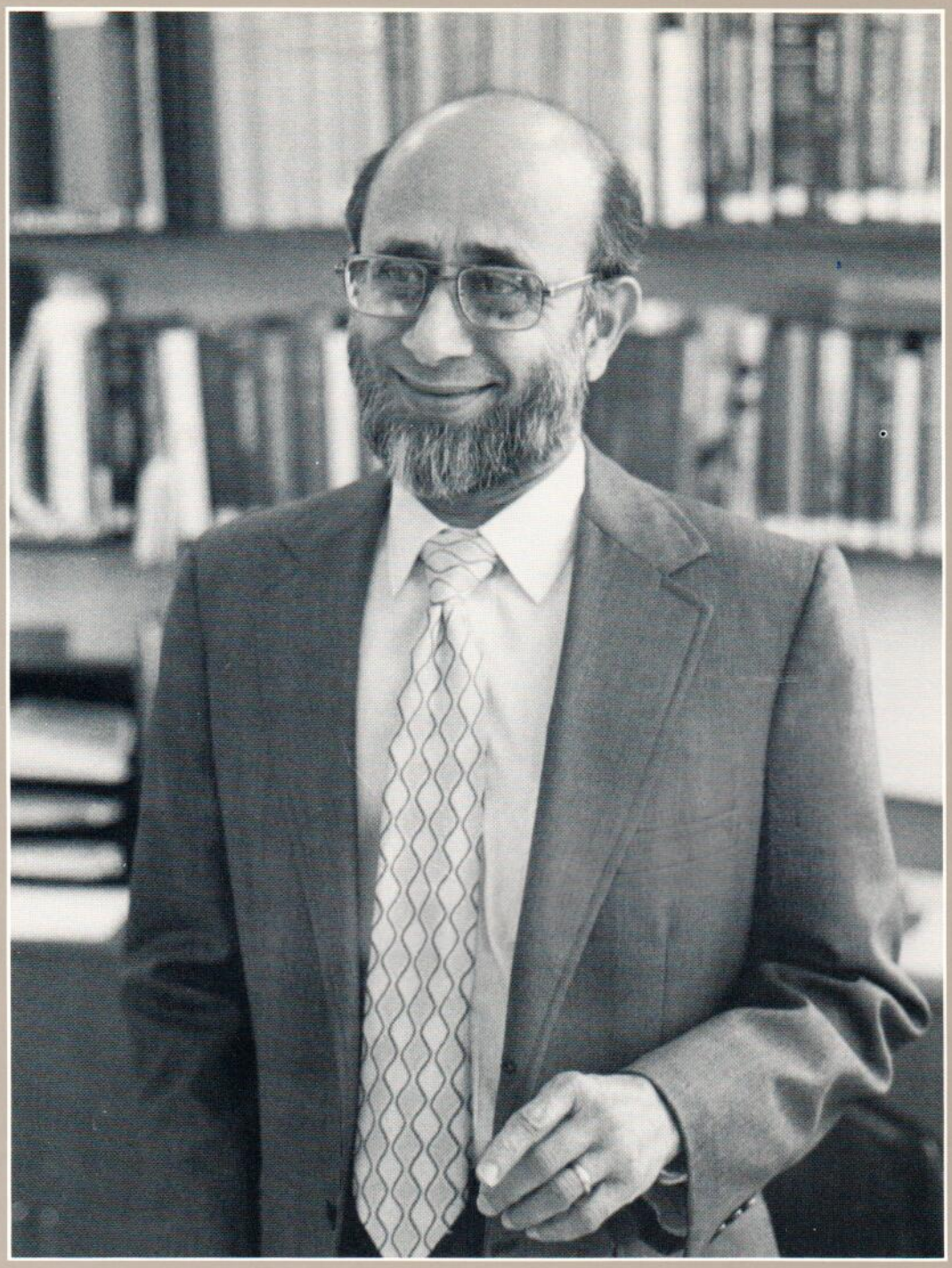
In the spring, the Trustees approved a program for the search and selection of a President for the newly formed subsidiary of BBRI, Boston Biotechnology Corporation. This program initially involved the selection of a professional executive recruiting firm to assist the Institute in this very important task. The Boston firm of McCullen Partners was selected from several outstanding possibilities. McCullen Partners has recently completed the initial phase of the selection task consisting of developing a job description of the position. The actual search process is about to begin and will be followed by the selection phase. We hope that the selection will be completed by the beginning of the year.

As most of you know, it has been the practice of the Institute to ask each of three department directors to serve as Executive Director of the Institute for a period of two years. Dr. D. Rao Sanadi will complete his most recent term as Executive Director at the time of this year's annual meeting and will be succeeded by Dr. John Gergely. Dr. Sanadi has directed the Institute's affairs during a time of diminishing government sponsorship of basic research and decline in revenue following the departure of three investigators. Despite these difficulties, many positive new events have occurred during his tenure, including the completion of the new laboratory facilities, the creation of Boston Biotechnology Corporation, and the consummation of the contract with the Polaroid Corporation. Dr. Sanadi is to be congratulated for his vision and for the clarity and effectiveness of his leadership during this period.

As is appropriate for any organization like BBRI that is committed to the search for knowledge and understanding, and despite the fact that our present organization is working well, a program has been instituted to review it. In collaboration with the Chairman of the Trustees, and the department directors, we have begun a process to examine the organizational structure of the Institute at all levels with particular reference to its adequacy to meet the future requirements of the Institute and its ability to attract and retain outstanding young scientists. It is expected that this examination will evolve into a major undertaking probably extending over a period of more than a year and will involve the Institute's officers, trustees and corporation members as well as its staff and scientific advisors.

It is this willingness to consider change, to reach for better ways of doing things, to ask questions, to exhibit curiosity and to challenge existing ways that will ensure the continuing strength of the Institute.

John A. Shane
President



D. Rao Sanadi, Ph.D., Executive Director

Report of The Executive Director

Basic research tightens its belt. . . . The problems and promise of BBRI.

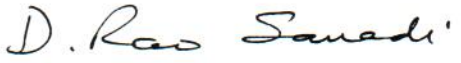
During this term of my office, I have had an uneasy sense that on the one hand our Institute has demonstrated its viability and maturity, and on the other, we still face some serious challenges over the next several years.

We feel confident that despite the steady decline in Federal funding for biomedical research, partly due to erosion of the purchasing power of the awards, we will continue to be successful in the competition and maintain our research support, stature and productivity. In the last round of awards made by the National Institutes of Health, three of our young post-doctoral scientists have won their first research grant. This is particularly encouraging during these times of intense competition. Some other grant applications did not fare so well, and temporary institutional support was necessary to maintain the continuity of the research projects. We are happy to report that the research contract with the Polaroid Corporation for the project of Dr. Henry Paulus on development of bispecific antibody technology has been renewed for the second year.

By careful management, we have maintained our overhead expense at the low end of the range among academic institutions. We have also kept our faculty informed of what constitutes overhead. As a result we have avoided the divisive conflict that has arisen within several universities where the faculty blame their administrators for inadequate control of overhead expense. Currently, the overhead consumes about thirty per cent of the total budget of the National Institutes of Health, and the annual increase in the total budget is barely enough to meet the overhead demand, leaving the allocation for research unchanged or even reduced. The continuing underfunding of biomedical research should be cause for national concern. There is a long lead time between the discoveries in basic research and their application for health improvement. The research that underpins the promise of new vaccines, diagnostic devices and therapies from biotechnology efforts was carried out in the fifties and sixties. The basic research now underway in many laboratories may come together for exploitation twenty years from now. So the threat from the reduced budgets for biomedical research is really for our children and grandchildren.

Turning to our own problems, the major one that demands careful attention from all of our friends and supporters is the difficulty we have experienced in recruiting established senior scientists to set up new departments or programs. We have been relatively successful in adding younger staff members to ongoing programs, but initiating new directions requires scientists with considerable experience and worldwide reputations to attract significant grants and young associates. We have been attempting to develop such strength in the timely field of immunology, so far with no success. The principal reason is that the few suitable candidates in these sought-after fields can demand a guaranteed salary, which we are not in a position to offer. The funding of programs exclusively from research grants has risks, and there is little security at private research institutes unless they have a significant endowment. David Crockett, the first chairman of our board, has often emphasized the need for an endowment and reserve fund at least as large as our annual budget. It is terribly important for the future leadership and stability of this Institute to reach this goal within the next five to seven years. We have considerable pride that, although located in the midst of one of the centers of academic excellence, our Institute has gained worldwide recognition. At this critical stage in our growth, it is time to widen our base and enlist support from outside the Boston area in order to reach the modest endowment goal.

As in the years past, our Board has been of immense help and has provided many hours of their valuable time. John Shane, in particular, has shown outstanding leadership in many different directions. We expect this productive partnership to flourish and continue to be an inspiration to all of us on the research staff.



D. Rao Sanadi, Ph.D.
Executive Director

(Top) Checking the apparatus that will separate fragments of a gene. Analysis of the fragments may help cure some of the blood diseases that baffle doctors.
(Bottom) Preparing myosin, the protein that causes muscles to contract. Researchers must keep proteins iced to prevent contamination by bacteria or molds.

The impact of Boston Biomedical Research Institute (BBRI) on international science is beyond all proportion to its small size. Besides publishing their findings in established journals, which is the major "product" of their activity, BBRI scientists undertake collaborative research projects with their associates all over the world. During the past year, some 26 of BBRI's 64 professional scientists have been involved in one or more of such collaborative endeavors.

The aim of BBRI's research is a clearer understanding of the function and dysfunction of human cells and their assemblies. Only with this understanding can the medical community hope to prevent or cure the major disabling diseases that devastate so many lives today. BBRI's research is multifaceted and as complex as life itself.

Come, journey with us around the world to the places where BBRI scientists are collaborating with other scientists. At each stop we'll note briefly the particular kind of fundamental biomedical research that is involved.

CANADA

Montreal — McGill University
Regulation of messenger RNA (mRNA), which transmits the messages coded in the genes to the sites where the cell manufactures proteins. Aberrations in the messages are likely to be involved in the development of cancer.

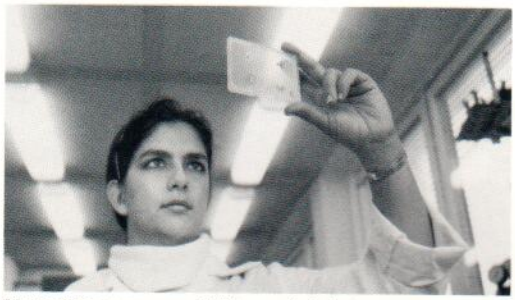
Toronto — University of Toronto
Studies on the biological membrane system that controls calcium levels within the muscle. The studies use compounds which are known to block the flow of calcium in heart muscle and which are clinically useful as drugs to limit heart activity.

Isolation, from the viscous fluid in the eye, of a substance that inhibits the formation of excessive blood vessels which would otherwise block light from reaching the retina.

Vancouver — University of British Columbia
Tracking the error in embryonic development that produces cleft palate.

CHILE

Santiago — University of Chile
Interaction of specialized fats and proteins in the control of calcium levels within muscle.



Measuring enzyme activities on test plates.

ENGLAND

Oxford — Oxford University
Nuclear magnetic resonance (NMR) studies of the regulation of muscle contraction.

London — King's College
Structure of smooth and striated muscle tropomyosin, a protein that regulates muscle contraction.

— University of London, Chelsea College
Characterization of antibodies in patients with primary biliary cirrhosis, a chronic liver disease.

Cambridge — Medical Research Council
Structure of the protein responsible for transport of phosphate across the membrane of mitochondria. Mitochondria are the tiny intracellular granules that provide energy for all our needs, from the beating of the heart to thinking.

At the annual Spring Dinner meeting, members of the Corporation and other friends are briefed on current research.

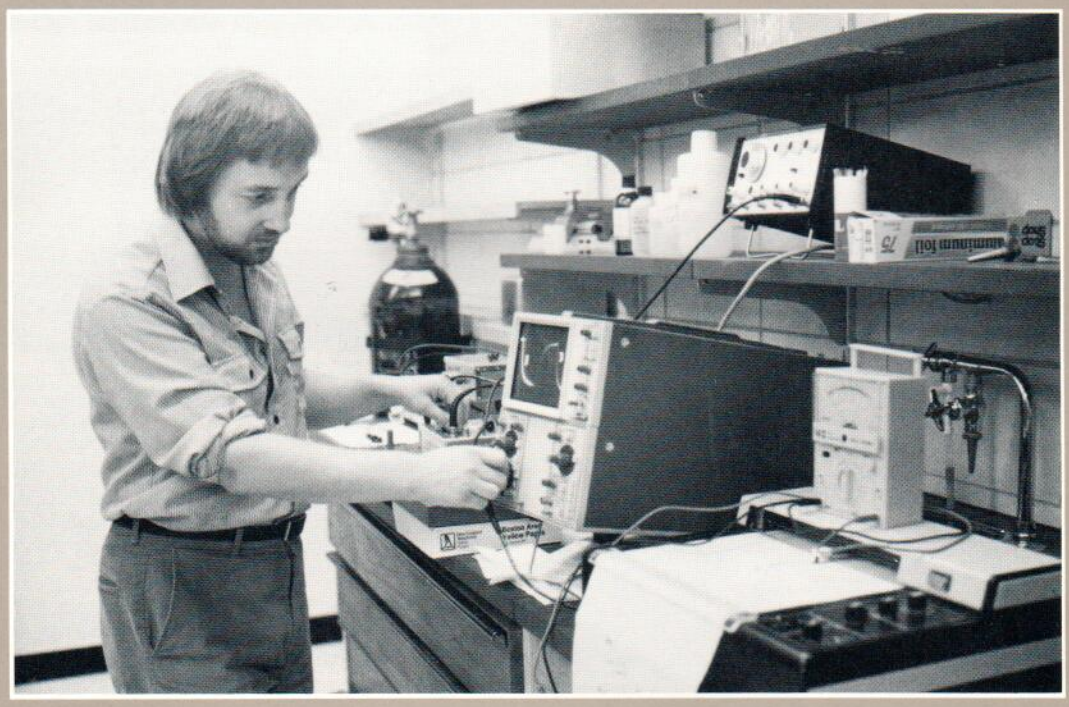
FRANCE

Marseilles — Marseilles Medical School
Studies of "calmodulin", a protein that together with calcium controls various cell functions.

GERMANY

Gottingen — Max Planck Institute of Gottingen
Interactions of proteins and specialized fats in controlling calcium levels within muscle cells.

Berlin — Free University of Berlin
Biological function of antibiotics.



(Top) Cloning a gene for an important nutrient. Ultimately, such genes could be inserted into plants, for instance, to increase their food value.
(Bottom) An oscilloscope facilitates study of membrane films.

HUNGARY

Budapest — Semmelweis Medical University
Changes in enlarged heart muscle of experimental animals.

— Eotvos Lorand University
Changes, in response to changed functional demands, in the activity of genes coding for myosin, a key protein of the contractile machinery of muscle.

POLAND

Warsaw — Nencki Institute of Experimental Biology of the Polish Academy of Sciences
Structure of components of the contractile and regulatory machinery of muscles.

UNITED STATES

California — University of California (Davis)
Regulation of messenger RNA, a link between the genetic code and synthesis of proteins.

Indiana — Purdue University (Lafayette)
Relationship of a mammalian cell protein involved in converting food to energy, to a chloroplast protein involved in converting sunlight to energy in plant cells.

Maryland — Johns Hopkins University (Baltimore)
Role of myosin, the key protein in muscle contraction, in cell motility.

Massachusetts — Beth Israel Hospital (Boston)
Heat treatment of the cornea for correction of astigmatism.

— Boston University Medical School (Boston)
Contractile system in blood vessels, which relates to vascular disorders and high blood pressure.

— Brigham-Women's Hospital (Boston)
Muscle studies to identify candidates for malignant hyperthermia, an inherited sensitivity to certain anesthetics, that may lead to a fatal increase in body temperature.

— Children's Hospital Medical Center (Boston)
Control of gene expression (reading out and translating the genetic code) in animal and human tumor cells.

— Eye Research Institute (Boston)
Relationship between lack of vitamin A and corneal disease.

— Harvard Medical School (Boston)
Use of nucleotides (the building blocks of DNA) to study the way a tumor virus multiplies.

Control of gene expression in animal and human tumor cells.

Changes in contraction velocity of muscle fibres undergoing sustained stimulation.

— Harvard University Primate Center (Southboro)
Enlargement of heart muscle in animals.

— Massachusetts Eye and Ear Infirmary (Boston)
Collagen and eye pathology.

Lack of vitamin A and corneal disease.

— Massachusetts General Hospital (Boston)
Diagnosis of malignant hyperthermia, an inherited and potentially fatal sensitivity to certain anesthetics.

Role of actin, a key protein of muscle and other cells, in defending the body against infection.

Role of free radicals (highly reactive chemicals) in the carcinogenic action of asbestos.

Identification of antibodies to mitochondrial proteins in patients with primary biliary cirrhosis, a chronic liver disease.

— Massachusetts Institute of Technology (Cambridge)
Control of gene expression in animal and human tumor cells.

Lack of vitamin A and corneal disease.

Structure of the protein which facilitates transport of phosphate across biological membanes.

— Tufts New England Medical Center (Boston)
Assembly and disassembly of tiny fibers (cellular microtubules) within cells. These structures play an important role in a variety of normal cells and undergo changes in cancerous cells.

Missouri — University of Missouri (Columbia)
Regulation of messenger RNA, the link between the genetic code and protein synthesis.

Nebraska — University of Nebraska (Lincoln)
Regulation of messenger RNA.

New Jersey — Roche Institute of Molecular Biology (Nutley)
Role of gene expression in the prenatal development of skeletal and heart muscle.

Investigation of the structure of the transmembrane protein which facilitates transport of a breakdown product of sugar (phosphoglycerate) in skeletal and heart muscle.

"Cold Rooms" – held at about 38°F. – are a necessity when scientists work with certain proteins.

New York — Albert Einstein College of Medicine (New York City)
Size and shape of regulatory subunits from heart muscle myosin. Myosin is the key protein which makes muscles contract.

Pennsylvania — University of Pennsylvania (Philadelphia)
Studies on muscle cells grown in tissue culture to simulate changes that occur in muscle subjected to changes in work load.

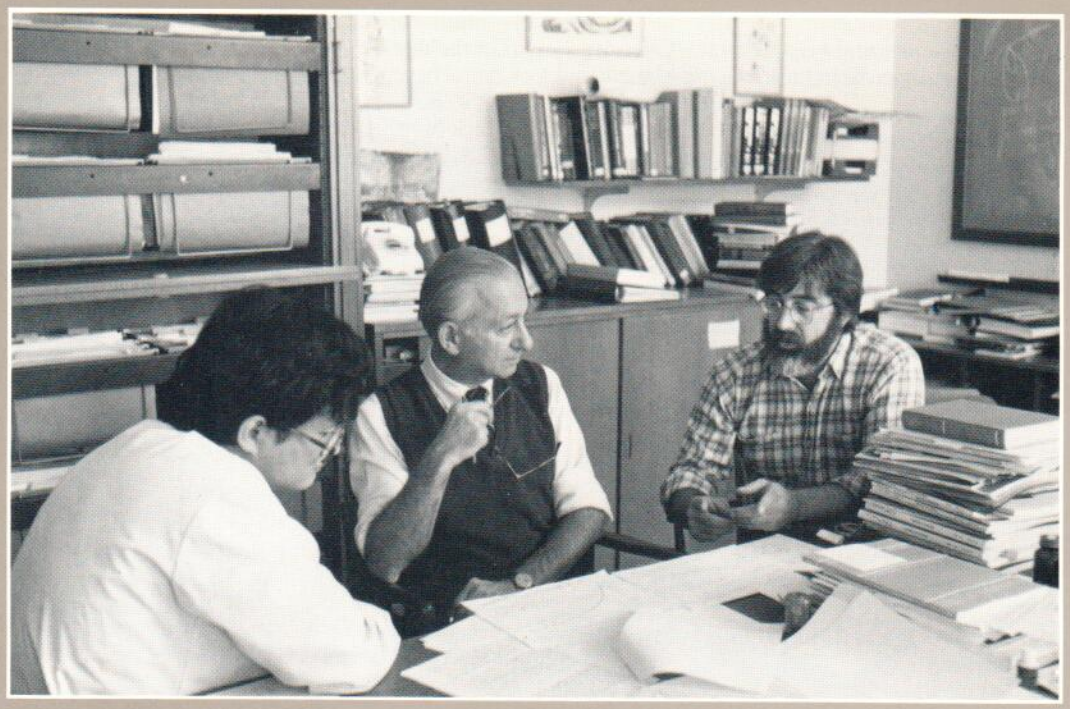
Regulation of gene expression in the embryonic development of skeletal and heart muscle.

— Pennsylvania State University (University Park)
Use of laser-excited luminescence of metals to study regulation of muscle contraction.

— Carnegie Mellon Institute (Pittsburgh)
Nuclear magnetic resonance (NMR) study of metabolism in cell membrane vesicles.

Texas — University of Texas (Austin)
Regulation of messenger RNA, the link between genes and proteins.

Wisconsin — University of Wisconsin (Madison)
Relationship of a heart protein to a protein involved in bacterial energy metabolism.



(Top) Dr. John Gergely (center) with Drs. Al Wang and Paul Leavis, preparing a manuscript for publication. Dr. Gergely is head of the Muscle Research Department and Deputy Executive Director of BBRI.
(Bottom) BBRI's Executive Director and Polaroid Corp.'s Peter O. Kliem sign a research contract.

In the classroom and on rounds

Their appointments to the faculty of outstanding medical schools and a great hospital serve BBRI professional staff as valuable links to current clinical thinking and innovations. Conversely, practicing physicians, medical faculty and students, and researchers at these institutions are kept informed of advances made at BBRI on the frontiers of fundamental biomedical research. Current BBRI academic and hospital appointments include, in Boston,

Harvard Medical School

In the Department of Biological Chemistry, 3 associate professors, an assistant professor, and a lecturer.

In the Department of Biochemistry (Ophthalmology), two assistant professors.

In the Department of Anesthesiology, an associate professor.

In the Department of Neurology, 7 Principal Research Associates.

Tufts Medical School

Department of Physiology, an assistant professor.

Massachusetts General Hospital

In the Department of Neurology, a biochemist.

In the Department of Anesthesiology, a consultant.

In the Department of Medicine, a consultant.

The junction of science and industry

BBRI scientists present lectures to R&D scientists of industrial corporations with which BBRI is collaborating on a contract basis. These lectures communicate recent advances in such areas as protein chemistry, enzymology, and immunology.

Training investigators in the newest research techniques

BBRI scientists make an important contribution to international science by at-the-bench training of both young postdoctoral scientists and senior scientists. For example:

Several postdoctoral positions are offered each year by BBRI departments to scientists of Budapest's Semmelweis Medical School.

For selected postdoctoral scientists from throughout the world, including India, China, and the Middle East, BBRI is providing advanced training for independent investigations on energy metabolism, biological membranes, muscle contraction, and gene regulation.

More hats for BBRI researchers

Service in editorial capacity calls for acknowledged expertise and objectivity. Current BBRI involvement includes the following:

Chief Editor

Biophysical Journal
Journal of Bioenergetics and Biomembranes
Molecular Aspects of Medicine (Co-Editor)

Editorial Board Member

Annual Reviews of Biophysics and Bioengineering
Archives of Biochemistry and Biophysics
Biochimica et Biophysica Acta
Journal of Bioenergetics and Biomembranes
Journal of Muscle Research and Cell Motility
Muscle and Nerve

Guarding the coffers

Leaders in different specialties act on peer review panels to evaluate grant applications and rank them in order of merit. Funding is determined by the priority score. It is a high honor to serve on these panels. In 1982-83, senior BBRI scientists served on grant review panels of:

The National Institutes of Health

Biochemistry and Biophysical Chemistry B Study Section.

Microbial Chemistry Study Section.

Dr. Henry Paulus, head of the Department of Metabolic Regulation.

From the mountains to the prairie. . . . BBRI researchers on the move

Participation in scientific congresses plays an important part in bringing research advances made at BBRI to the attention of the international scientific community. At the same time, the latest advances at other laboratories become known to BBRI's researchers. During the 1982-83 year, BBRI scientists participated in these conferences:

Cold Spring Harbor Symposium on RNA Processing (New York)

First International Symposium on Muscle Contraction Mechanism and Muscle Energetics (Bucharest)

Fourth European Molecular Biology Organization (EMBO) Workshop on Muscle Contraction (Alpbach, Austria)

International Conference on Cadmium Nephrotoxicity (North Carolina)

International Congress of Genetics (New Delhi)

International Workshop on Membranes and Membrane Transport (Budapest)

International Symposium on Calcium Binding Proteins in Health and Disease (Trieste)

Third EMBO Workshop on Molecular and Cellular Aspects of Myogenesis and Myofibrillogenesis (Zurich)

Twelfth European Muscle Conference on Muscle and Motility (Szeged, Hungary)

From the laboratory to the typewriter. . . . Getting it in print

In calendar 1982, BBRI scientists published, in 15 scientific journals, 36 papers on their research findings. As was mentioned earlier, these papers are the primary "product" of basic research. They provide the source material for important medical breakthroughs.

(Top) The Executive Director seeking counsel of Mrs. J. Howard Means, Trustee. Mrs. Means was BBRI's first president.
(Bottom) Trustees socializing before their October luncheon meeting.

BBRI extends a heartfelt "Thank you!" to each of its friends who, through their contributions, helped advance the Institute's research in 1982-83. The gifts of these caring foundations, businesses, and individuals have a profound importance to BBRI's stability and its leadership role. BBRI is proud to announce that for the first time gifts from its friends totalled over $100,000. It is a privilege to acknowledge BBRI's partners in biomedical progress.

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Anonymous
Connor Foundation, Inc.
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Eaton Foundation
The Fuller Foundation, Inc.
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G.E. Employees Good Neighbor Fund — West Lynn Works
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David H. Mitchell, Ph.D.
Mr. and Mrs. James Morgan
Alexander and Ruth S. Nussbaum

BBRI friends enjoying the 4th annual gala at the home of BBRI's President, John Shane.

Mr. and Mrs. John A. Paine, Jr.
Miss Theodora Perry
Dr. and Mrs. Richard L. Pharo
Drayton and Remette Phillips
Gladys (Mrs. George R.) Poor
Mrs. G. Glen Potter and Mr. G. Edward Potter
Mr. and Mrs. Charles M. Pyle, Jr.
Laurie W. Raymond, M.D.
Merion M. Ritter
Mr. and Mrs. Russ Salisbury
Dale and Tammy Schuparra
Mrs. Margaret G. Shane
Bennette A. Shultz
Alexander C. Stohn, Jr.
Mrs. Harborne W. Stuart
Mr. and Mrs. W. W. Symonds
Gertrude L. Turner
Dr. and Mrs. Vladimir V. Volloch

BBRI is grateful for gifts received in memory of
John Bobo — from Mrs. John (Emma) Bobo
C. Harry Erickson — from Mrs. Merion M. Ritter
Mary Gately Egan — from Ms. Bennette A. Shultz
And the Institute was pleased to receive a gift in honor of Penny Stohn and H. W. Cole — from Alexander C. Stohn, Jr.

...officers, Trustees, Corporation Members, and Visiting Committee Members who gave so willingly their time and expertise to the smooth functioning of the Institute. Their input was invaluable.

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John A. Shane
President

Mrs. Charles M. Ewing
Vice President

John B. French
Vice President

Eustis Walcott, Jr.
Vice President

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Ronald Garmey
Secretary-Clerk

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Executive Director

John Gergely, M.D., Ph.D.
Deputy Executive Director

Elkan R. Blout, Ph.D.
Chilton S. Cabot
David C. Crockett
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Denholm M. Jacobs
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The September Trustees' meeting addressed the Institute's budget.

Trustees comparing notes before their September meeting.

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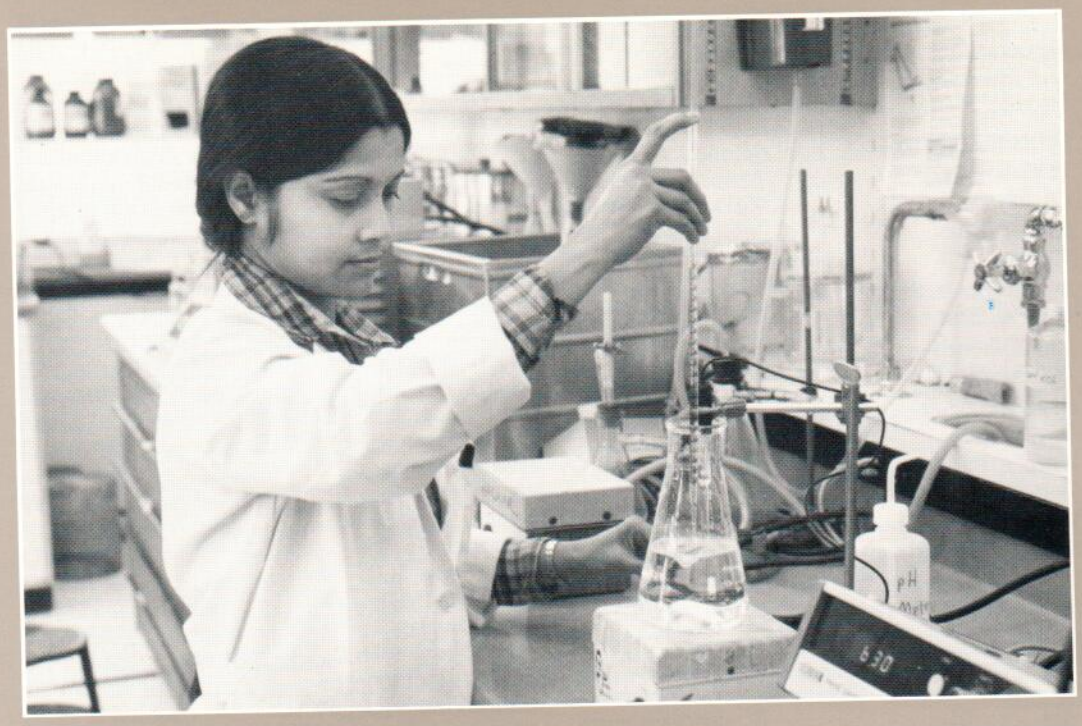

(Top) Preparing muscle proteins.
(Bottom) Separating proteins related to energy metabolism.

. . . whose imagination and dedication keep BBRI at the forefront of research.

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Fine Structure Research

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Muscle Research

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Metabolic Regulation

D. Rao Sanadi, Ph.D.
Cell Physiology

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Li-Wen Wang

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Chandrika Saidapet, Ph.D.
Gale Strasburg, Ph.D.

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Jean Ball
Financial Assistant/Bookkeeper

Helene Clinton
Assistant Bookkeeper

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Personnel Administrator

Development

Jacquelyn MacL. Findlay
Development Officer

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Dorothy Syrigos

Housekeeping

Maria Bozzella
Shirley Eiland
Phuong Ngoc Huynh
Lucille Konjoian

BOSTON BIOMEDICAL RESEARCH INSTITUTE
Balance Sheets
August 31, 1983 and 1982

	1983					1982
	Unrestricted Funds		Restricted Funds	Plant Funds	Total All Funds	Total All Funds
ASSETS	Operating	Other				
Current Assets:						
Cash	$ 20,186	$ 80,909	$	$	$ 101,095	$ 137,254
Grants receivable			2,963,803		2,963,803	3,046,220
Pledges receivable	25,000				25,000	25,000
Overhead & fringe benefit adjustment receivable	49,434		186,488		235,922	299,881
Prepayments, deposits and other receivables	52,936				52,936	45,774
Investments, at market value (cost 1983–$1,135,897; 1982–$988,637) (note 5)		1,235,449			1,235,449	997,843
Total current assets	147,556	1,316,358	3,150,291		4,614,205	4,551,972
Fixed Assets: (notes 1 and 2)						
Leasehold improvements				1,935,632	1,935,632	1,933,411
Research equipment				3,025,833	3,025,833	2,888,109
Furniture and fixtures				47,129	47,129	47,129
Total				5,008,594	5,008,594	4,868,649
Less-accumulated depreciation and amortization				2,648,275	2,648,275	2,262,433
				2,360,319	2,360,319	2,606,216
	$ 147,556	$ 1,316,358	$ 3,150,291	$ 2,360,319	$ 6,974,524	$ 7,158,188
LIABILITIES AND FUND BALANCES						
Current Liabilities:						
Accounts payable and accrued expenses	$ 40,000	$	$	$	$ 40,000	$ 44,013
Deferred grant income (note 4)			3,034,589		3,034,589	3,312,157
Deferred fund (building) (notes 4 and 6)			115,702		115,702	231,164
Total current liabilities	40,000		3,150,291		3,190,291	3,587,334
Fund Balances: (note 1)	107,556				107,556	46,606
Operating		1,022,338			1,022,338	610,893
Plant and equipment (note 6)		294,020			294,020	258,082
Permanent research						49,057
Building program (note 6)				2,360,319	2,360,319	2,606,216
Fixed assets (notes 1 and 2)	107,556	1,316,358		2,360,319	3,784,233	3,570,854
Total fund balances	$ 147,556	$ 1,316,358	$ 3,150,291	$ 2,360,319	$ 6,974,524	$ 7,158,188

See accompanying notes to financial statements.

BOSTON BIOMEDICAL RESEARCH INSTITUTE
Statements of Revenues, Expenses and Changes in Fund Balances
Years Ended August 31, 1983 and 1982

	1983					1982
	Unrestricted Funds		Restricted Funds	Plant Funds	Total All Funds	Total All Funds
	Operating	Other				
Revenues:						
Grants	$ 1,250	$	$ 4,138,679	$	$4,139,929	$4,371,041
Equipment replacement		125,221			125,221	117,983
Contributions and pledges	105,072		2,221		107,293	250,253
Property and equipment purchased (notes 1 and 2)				139,945	139,945	405,425
Investment income	18,176	135,698	24,166		178,040	152,437
Total	124,498	260,919	4,165,066	139,945	4,690,428	5,297,139
Expenses: (by department)						
Muscle Research			2,341,382		2,341,382	2,538,423
Cell Physiology			909,504		909,504	837,734
Developmental Biology						285,963
Fine Structure			369,149		369,149	288,754
Metabolic Regulation			403,623		403,623	239,753
Bioorganic Chemistry						76,357
General Research	25,018		115,021		140,039	182,468
Fund Raising	30,951				30,951	36,081
Purchase of fixed assets	7,579		2,221		9,800	209,321
Depreciation and amortization (note 2)				385,842	385,842	359,847
Total	63,548		4,140,900	385,842	4,590,290	5,054,701
Net addition (deduction) to fund	60,950	260,919	24,166	(245,897)	100,138	242,438
Transfer of investment income from building fund: (notes 4 and 6)						
Current		24,166	(24,166)			
Prior years		113,241			113,241	
Fund balances, beginning of year (note 1)	46,606	918,032		2,606,216	3,570,854	3,328,416
Fund balances, end of year (note 1)	$107,556	$1,316,358	$	$2,360,319	$3,784,233	$3,570,854

See accompanying notes to financial statements.

Notes To Financial Statements
August 31, 1983 and 1982

(1)—Significant Accounting Policies:

Fund Accounting:

The accounts are maintained on the accrual basis and in accordance with the principles of fund accounting. Funds that have similar characteristics have been combined into the following fund groups:

* Unrestricted funds include two groups representing the portion of expendable funds available for support of operations: a) The operating fund includes unrestricted contributions and investment income less the cost of grants not reimbursed in full by granting agencies, and further reduced by transfers to other funds; b) Other unrestricted funds represent reserves transferred from the operating fund, and a building program fund derived from unrestricted contributions.

* Restricted funds represent resources restricted for research grants or building additions. These funds are deemed to be earned and reported as revenues when the Institute has incurred expenditures in compliance with the specific restrictions. Amounts received but not yet earned are reported as restricted deferred amounts (see note 4).

* Plant funds represent the undepreciated cost of leasehold improvements, equipment and furniture and fixtures.

Other Matters:

All income, gains, and losses arising from the sale, collection, or valuation at market of investments are allocated to the fund owning the assets.

A portion of the overhead chargeable to research grants is deemed to be reimbursement for equipment and is shown as an addition to the Equipment Replacement Fund. This amounted to $125,221 in 1983 and $117,983 in 1982. In addition, $7,579 of equipment was charged to the operating fund in the year ended August 31, 1983, $52,887 in 1982 and added to the plant fund.

(2)—Plant Assets and Depreciation:

The Institute, under an agreement dated June 16, 1970, shares with Retina Foundation the use of research facilities for fifty years at 20 Staniford Street, Boston, and of a research farm in Townsend, Massachusetts.

The leasehold improvement asset category represents the cost of the Institute's long-term leasehold in the building and improvements, and is being amortized over the 50-year lease term. The furniture and equipment categories represent, at cost, acquisitions from operating funds and restricted research grant awards. Depreciation is primarily on the straight-line basis over the estimated ten year useful life of the assets. All depreciation and amortization is charged to the plant fund.

(3)—Government Grants:

All grant costs to the U.S. government and most private grants are subject to audit by the granting agency.

(4)—Changes in Deferred Restricted Amounts:

	1983			1982
	Building Fund	Grants & Contracts	Total	Total
Balance, beginning of year	$231,164	$3,312,157	$3,543,321	$3,910,738
Additions:				
New grants awarded		3,832,608	3,832,608	4,108,598
Contributions and pledges				1,025
Investment income	24,166	28,503	52,669	76,460
	255,330	7,173,268	7,428,598	8,096,821
Deductions:				
Funds expended for designated purposes	2,221	4,138,679	4,140,900	4,553,500
Transfer of investment income from Building Fund: (see note 6)				
Current year	24,166		24,166	
Prior year	113,241		113,241	
Balance, end of year	$115,702	$3,034,589	$3,150,291	$3,543,321

(5)—Investments:

Investments consist of corporate and government bonds and listed stocks. Also included is an $800 investment made in 1982 in Boston Biotechnology Corporation. This company was formed to utilize and commercialize certain technical processes originated at Boston Biomedical Research Institute and elsewhere. The investment holding represents the entire outstanding stock of Boston Biotechnology Corporation and is shown at cost since Boston Biotechnology was inactive through the Institute's year end.

(6)—Transfer of Investment Income from Building Fund:

During 1983 the Board of Trustees of the Institute voted to transfer the Unrestricted Building Fund balance at August 31, 1982 of $49,057 and Restricted Building Fund investment income from prior years of $113,241 to the Plant and Equipment Fund. Investment income allocated to the Building Fund during 1983 of $24,166 was also transferred to the Plant and Equipment Fund.

SINGER & LUSARDI/Certified Public Accountants
2 Summer St./Natick/Mass. 01760/(617) 237-1687/(617) 655-7425

Board of Trustees
Boston Biomedical Research Institute
Boston, Massachusetts

We have examined the balance sheet of Boston Biomedical Research Institute as of August 31, 1983 and the related statement of 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. The financial statements of Boston Biomedical Research Institute for the year ended August 31, 1982 were examined by Greene & Company, CPA's, P.C., whose report dated October 8, 1982 expressed an unqualified opinion on those financial statements.

In our opinion, the aforementioned financial statements present fairly the financial position of Boston Biomedical Research Institute as of August 31, 1983, and the results of its operations and changes in fund balances for the year then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

October 5, 1983 SINGER & LUSARDI

Boston Biomedical Research Institute is an independent, non-profit organization with a staff of M.D. and Ph.D. investigators who carry out a broad program of basic and applied research in biology and medicine, and provide highly specialized training for future physicians and scientists. For over a decade the Institute has maintained its position among the leaders in the worldwide effort to prevent and cure disease. Areas currently under investigation range from the study of birth defects to the biology of aging. The findings of Institute scientists are used by others in clinical projects including those aimed at helping people suffering from cancer, heart disease, muscular diseases, nerve degeneration and premature aging. The Institute's research programs will ultimately bring lasting benefits to the future well-being of mankind.

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