

THE NUCLEUS

April 1989

Of the Northeastern Section of the American Chemical Society

Vol. LXVII, No. 7

Monthly Meeting:

*Esselen Award for Chemistry
in the Public Interest
to Carl Djerassi*

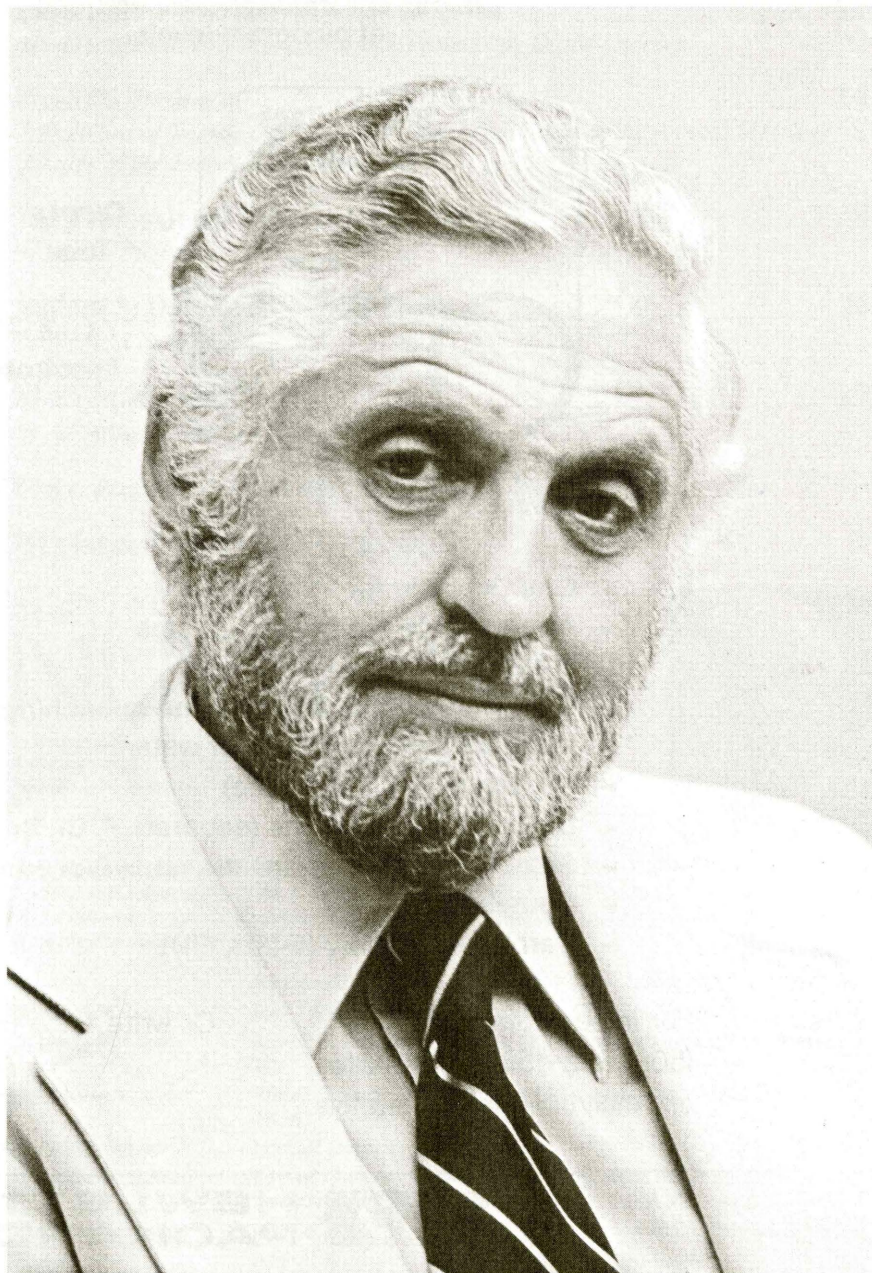
Medicinal Chemistry

Dr. Robert E. Lyle

Continuing Education

Laboratory Robotics

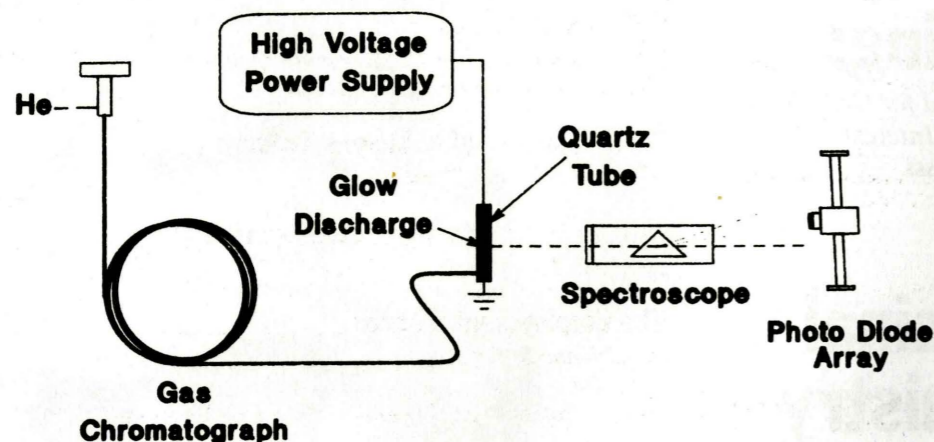
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May Issue Deadline: *March 20, 1989*

THE NUCLEUS

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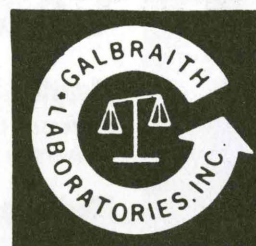
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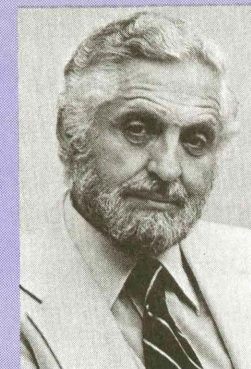
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April Meeting

*The 716th Meeting of the
Northeastern Section of the
American Chemical Society*



The Esselen Award Meeting

Thursday, April 6, 1989

Harvard University Faculty Club, 20 Quincy Street, Cambridge

5:30 p.m. Preprandial Hour

6:15 p.m. Dinner

Harvard University Science Center, 1 Oxford Street, Cambridge

8:00 p.m. The Esselen Award
— M.S. Simon

8:05 p.m. Gustavus John Esselen
— T.S. Light

8:20 p.m. Carl Djerassi
— A.S. Obermayer

8:35 p.m. Presentation of the Gustavus John Esselen Award to
Professor Djerassi
— Gustavus J. Esselen, III

8:40 p.m. Lecture "The Bitter Pill"
— Professor Djerassi

9:40 p.m. Reception for the Awardee
Foyer, Mallinckrodt Chemistry Building, 12 Oxford Street

Dinner Reservations (Black Tie Optional) should be made not later than March 27, 1989 by calling Karen Piper at (800) 872-2054 (in Massachusetts), or (508) 456-8227. Space is limited. Persons who make reservations which are not cancelled at least 24 hours in advance will be billed the dinner price. Members, \$18; Non-members, \$20; Students and Retirees, \$8.
THE PUBLIC IS INVITED.

Abstract

"The Bitter Pill"

What's the word "bitter" doing in the title of an award lecture? one might ask. It sounds pretty sweet: participating in one of the great scientific and societal events of the second half of the century—the creation of an oral con-

traceptive which has certainly changed modern birth control and also affected sexual mores as well as women's emancipation.

The lecture will deal with answers to the first question. ◇

Biography

Carl Djerassi

A major part of Carl Djerassi's scientific and social effort has been directed toward the solution of critical human problems, and he has been extraordinarily successful in his endeavors. Djerassi has invented not only the first oral contraceptive, but he has also developed conceptual solutions to a number of critical problems. His contributions have been technical (synthesizing the first oral contraceptive), educational (writing, lecturing, and developing new courses in the scientific-social area of birth control), managerial and entrepreneurial (founding a company based on new methods for insect control), and political (promoting significant research in less developed countries). His work, especially in the area of contraception, has had an immense impact on the world in which we live; the lives of untold numbers of people in all parts of the world have been significantly improved by his work.

Carl Djerassi was born in Vienna, Austria, received his A.B. at Kenyon College and his Ph.D. at the University of Wisconsin. He has worked as a research chemist with CIBA Pharmaceutical Co. in Summit, New Jersey and with Syntex, S.A. in Mexico City as associate director of chemical research and later as President of Syntex Research. In 1968, he helped found Zoecon Corporation—a company dedicated to developing novel approaches to insect control. In 1952 he accepted a professorship at Wayne State University, and in 1959 his current position as Professor of Chemistry at Stanford University.

Professor Djerassi has published over one thousand articles and seven books dealing with the chemistry of natural products (steroids, alkaloids, antibiotics and terpenoids), and with applications of physical measurements (notably optical rotatory dispersion, magnetic circular dichroism and mass spectrometry) and computer artificial intelligence techniques to organic chemical problems. In medicinal

continued on page 6

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Biography

continued from page 5

chemistry he was associated with the initial developments in the fields of oral contraceptives, antihistamines and topical corticosteroids.

For the synthesis of the first oral contraceptive, Professor Djerassi received the national Medal of Science and was inducted into the National Inventors Hall of Fame. A partial listing of his awards include the American Chemical Society's Award in Pure Chemistry, Baekeland Medal, Fritzsche Award, A.C.S. Award for Creative Invention, and the Bard Award in Medicine and Science. The Society for Chemical Industry presented him with the Perkin Medal and the American Institute of Chemists with the Freedman Foundation Patent Award and the Chemical Pioneer Award. The Royal Society of Chemistry (London) and the American Academy of Pharmaceutical Sciences elected him to honorary membership. He is a member of national Academies of U.S., Sweden, Germany, Mexico, Bulgaria and Brazil, and the recipient of eleven honorary doctorates.

He has published numerous poems and short stories in literary magazines and a novel, "Cantors Dilemma," will be published in 1989. The Djerassi Foundation has established an artists' colony near Woodside, California for seventy artists per year.

The Northeastern Section of the American Chemical Society salutes Carl Djerassi, the 1989 winner of the Esselen Award for Chemistry in the Public Interest. ♦

The Guacamole

Sidney Brenner of the Medical Research Council's Molecular Genetics Unit in Cambridge and his friend Matthew Meselson of Harvard have come up with a new unit: the guacamole which depends on Avocado's number, which can be anything you want it to be ... (Science, 30 September 1988). ♦

MCG Meeting

Medicinal Chemistry Group Meeting

Tuesday, April 18, 1989

Boston College
Room 307, Higgins Hall
Chestnut Hill, Massachusetts

4:00 p.m. Coffee

4:30 p.m. Lecture

Robert E. Lyle, Ph.D.

Southwest Research Institute

Will Speak On:

Microencapsulation, A Drug Delivery System

6:00 p.m. Dinner, Ming Gardens, Chestnut Hill

For dinner reservation please call NESACS office, Mrs. Piper by April 17, 1989, in 617 area 1-800-872-2054; all other areas (508) 456-8227. Members: \$10.00; Students: \$6.00

May Meeting:

Tuesday, May 9, 1989; Donald Karanewsky, Ph.D. Squibb Institute for Medical Research; on Enzyme Inhibitors at Boston College.

Abstract

Microencapsulation, A Drug Delivery System

by Robert E. Lyle

The coating of small particles of a compound in order to separate it from its environment has applications in a variety of industries. In the pharmaceutical industry encapsulation may provide taste masking, stabilization, sustained release, or controlled release of



the drug. The nature of the coating is determined by the objective of the encapsulation. The methods of encapsulation will be determined by the physical state of the drug, the mechanism of release, and the size of capsule desired. The available methods include chemical methods and physical procedures, several of which are the subject of SwRI patents. Several specific applications will be discussed.

A recent encapsulation of viable cells for promoting bone growth will be discussed and a new bone implant used to evaluate these capsules will be described. ♦

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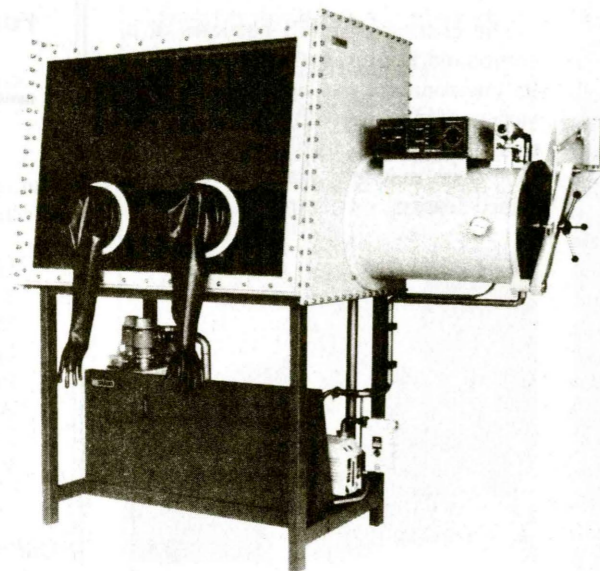


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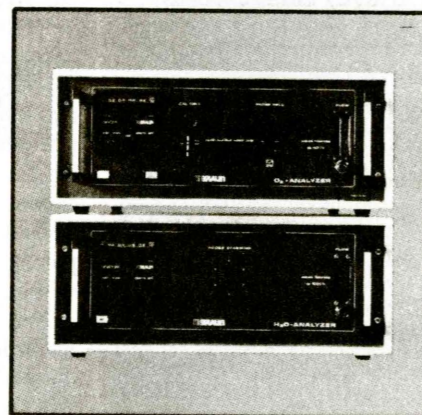
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The Northeastern Section's Committee on Continuing Education presents the first of a series of lectures to highlight new promising topics and techniques which were little known just a few years ago.

Topic: **"Laboratory Robotics—1989: The State of the Art"**

Karl E. Sharicz, Director
Zymark Learning Center

Place: Northeastern University
360 Huntington Ave.
Boston, MA
Room 129 Hurtig Hall

Time: Saturday, May 13, 1989

9:30 a.m. — Registration and Coffee
10:00 a.m. — Lecture

Lecture Fee: \$25.00

For further information call Prof. Alfred Viola, (617) 437-2809
Advanced Registration Required by May 1, 1989—use form below:

Registration form for Lecture on Laboratory Robotics

Name: _____

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Telephone: _____

Mail with remittance to:

Prof. Alfred Viola, Co-Chair
NESACS Committee on Continuing Education
Department of Chemistry
Northeastern University
Boston, MA 02115

A limited number of students will be admitted at the Student Rate of \$5.00
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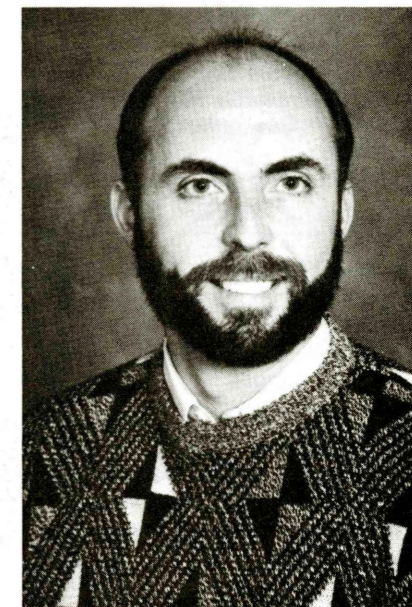
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Biography

Karl Sharicz



Karl Sharicz is a graduate of Suffolk University and a member of the A.C.S. He worked in several laboratories as an analytical chemist in the field of atomic spectroscopy before joining ZYMARK Corporation in 1984. He has recently become the Director of the Zymark Learning Center. Zymark Corporation is the world's leading producer of laboratory robotics. ◇

Abstract

The illustrated lecture will deal with the progress of robotics from 1981 to the present day. The lecture will illustrate the advances that have been made and will address the requirements for implementing robotics in the chemical laboratory. The lecture will illustrate numerous robotic applications which have been developed and will offer forecasts as to what the technology has to offer for the future. ◇

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Video Programs will be uplinked to WESTAR V (C band) Transponder 11D on Tuesday, Wednesday, and Thursday, April 25, 26, and 27 starting at 1 PM (EST).

Each hour segment will contain: a half-hour interview from the ACS sponsored "EMINENT CHEMISTS VIDEOTAPES SERIES," (tentatively scheduled: Carl S. Marvel, Herman F.

Mark, Paul J. Flory, W. Lincoln Hawkins, William O. Baker, and Hubert N. Alyea), several two minute news-styled programs on current trends and developments in industrial chemistry, and short, informational programs on CHEMCOM (Chemistry in the Community), an exciting high school chemistry education curriculum for non-science majors, the Chemistry Olympiad, an international science competition for high school chemistry students, and "WONDERSCIENCE," a pre-high school science publication, filled with new and exciting science games for children and adults!

If you would like more information on programs sponsored by the ACS Education Division or on future informational broadcasts by the ACS, please write to: The American Chemical Society, Education Division, 1155 16th Street, NW, Dept. S-2, Washington, DC 20036. ♦

1988 James Flack Norris Summer Scholar Reports

III—Identification of Myelin Surface Proteins

by Diane Lucente
Department of Biochemistry
Emmanuel College

Faculty Advisor:
Dr. Allen L. Ganser
Department of Neuroscience
Children's Hospital, Boston, MA

INTRODUCTION

Myelin is a multi-layered, spiral wrapping of plasma membrane around axons. The myelin occurs in 1mm segments along the axon and the gaps in between these segments, which are exposed to the extracellular environment, are called nodes of Ranvier. Myelin is composed of approximately 70–80% lipid, unlike most membranes which only contain about 40%. It is because of this high lipid content that myelin is believed to act as an electrical insulator of nerve fibers. The myelin is produced by oligodendroglial cells in the CNS and Schwann cells in the PNS. As these cells produce the myelin spiral, the oldest layers lie closest to the axon. In a myelinated nerve fiber only the nodal axolemma can be depolarized and repolarized, in such a way that nerve impulses "jump" from node to node and move quickly down the axon. In contrast, in an unmyelinated nerve fiber the impulse is conducted along the axon in a continual series of depolarizations and repolarizations of small contiguous zones of the axonal membrane and travels in the same manner as a wave. In unmyelinated nerve fibers the impulse travels much more slowly and requires more energy because the whole axonal membrane needs to undergo electrical changes, unlike the small nodal sections in the myelinated fiber.

Multiple sclerosis is an autoimmune disease in which the myelin sheath of nerve fibers is attacked and destroyed by immune cells and/or antibodies. Once the myelin sheath has been destroyed the conduction of nerve impulses is slowed or even blocked.

Results of such blockage include paralysis, difficulty in vision and lack of coordination, to name a few symptoms. Why the immune system attacks and destroys the sheath is unknown. One theory is that viruses have the potential to trigger an autoimmune response to the myelin sheath. Antibodies or immune cells generated against the virus might cross-react with the myelin proteins, thus causing injury to the myelin sheath and demyelination (Fujunami, 1985). We hypothesize that the destruction begins with the immune recognition of protein antigens on the most accessible, superficial surface of the myelin sheath.



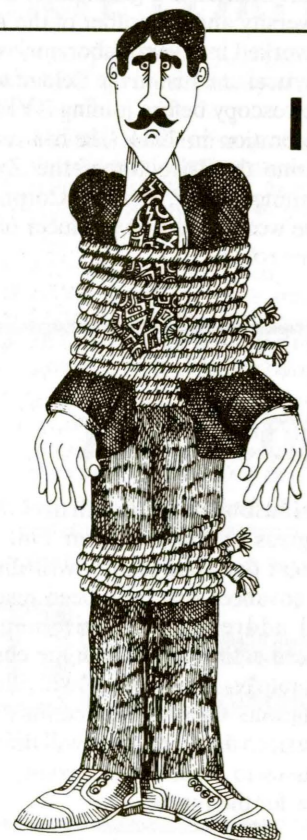
One possible therapy for multiple sclerosis would be to kill the specific immune-cells that are attacking the myelin. To do this one would have to identify the protein antigen that the immune cell is recognizing, and synthesize a protein that mimics it. Then an "immune cell poison" could be produced by making a hybrid molecule consisting of the look-alike protein and another protein which is a toxin, such as diphtheria. When this compound is injected into the patient it would bind to and be engulfed by the destructive immune cell, released inside the cell

and inhibit the immune cell's protein production, causing the cell's death. If multiple sclerosis is indeed caused by an autoimmune recognition of myelin proteins, a poisoning of the immune cells that attack the protein antigen would limit or possibly stop the destruction of the myelin sheath.

The object of this research is to identify the myelin surface protein that the immune system is sensitive to in multiple sclerosis. Our research requires the use of extremely small amounts of sample and therefore, the development of a highly specific and sensitive process for identifying proteins. It is well known that plasma membrane proteins are different from cytoplasmic proteins and intracellular membrane proteins in myelin. That is why we wish to detect both the surface membrane proteins and the proteins contained within the myelin. The system that was devised consists of a preparation of isolated nerve fibers, with only the surface proteins being labeled, and a homogenized sciatic nerve which would allow us to detect all the proteins that the nerve contains. The proteins from these two preparations are then separated according to their molecular weights using sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE). They are then electrotransferred from the gel to nitrocellulose paper. The proteins are finally visualized using a precipitation reaction involving biotin, avidin, and the enzyme alkaline phosphatase.

METHODS

Tissue Preparation and Protein Labeling. To label myelin surface proteins, a sciatic nerve was removed from a mouse and mechanically separated into individual, intact, myelinated nerve fibers in physiological Ringers solution (Krebs-Ringers bicarbonate; KRB). To label amino groups on the proteins, a particular amino-reactive, biotin derivative (sulfosuccinimidyl
continued on page 12



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Myelin Surface Proteins

continued from page 11

6-(biotinamido) hexanoate; NHS-LC-biotin) was chosen because it is water soluble, has an extended spacer arm between the biotin and the reactive succinimidyl group which limits steric hindrance, and is negatively charged. All three of these properties lead one to expect that this biotin derivative is impermeable to the myelin membrane and therefore would only label the extracellular surface proteins. The fibers were incubated with 40mM NHS-LC-biotin in KRB for 60 minutes. The reaction was then quenched using 1M glycine which reacts with any remaining succinimidyl groups. The fibers are then gently cut from the nerve, trying to retrieve only intact, whole nerve fibers and leaving behind any damaged fibers along with any remaining connective tissue and fat. We collected approximately 0.5mg of tissue per teased nerve. The biotinylated fibers were then incubated in 1 ml of 2% SDS per 15 mg of nerve for 2 hours. The SDS will dissolve, denature, and straighten the proteins into long, rod-like molecules, which is necessary for the separation of the proteins on the basis of molecular weight. The solution was then diluted with an equal volume of buffer containing 10% β -mercaptoethanol and 20% glycerol, and frozen until enough tissue had been gathered for analysis.

To label all proteins in the myelin a homogenate of sciatic nerve fibers was prepared in 2% SDS and reacted with the biotin derivative as above. These samples were also frozen until the time of use. In addition, molecular weight protein standards ranging from 6,500–205,000 kD were biotinylated for the purpose of sizing our nerve fiber proteins.

SDS-PAGE. SDS-PAGE was used to separate the proteins according to molecular weight on 1.5mm thick slab gels having an 8–18% gradient of acrylamide. Samples of both the biotinylated total protein and biotinylated surface protein were used at varying concentrations; biotinylated molecular weight standards were also run on the gel. In addition, unbiotinylated standards were used as controls to make

sure that the bands we finally see on the nitrocellulose are actually due to the interaction of biotin/avidin/alkaline phosphatase, and not due solely to the presence of protein. Once the samples were loaded, electrophoresis was carried out using the procedures of Laemmli and Favre (1973).

Electrotransfer To Nitrocellulose Paper. The proteins on the gel were electrophoretically transferred to nitrocellulose paper according to the procedures of Otter et al. (1987). First the gel was equilibrated in transfer buffer, 50mM Tris, 386mM glycine, 20% methanol, 0.01% SDS for 2 hrs. This was done to insure that no swelling of the gel would occur during transfer, which causes the protein bands on the nitrocellulose paper to be disfigured. 24V was applied for the first one hour of transfer to insure the elution of low molecular weight proteins. The voltage

was then turned up to 84V and the transfer continued overnight for the elution of high molecular weight proteins.

Visualization. The biotinylated proteins (total & surface) on the nitrocellulose paper were now able to be visualized. The nitrocellulose was incubated in Tween-Tris buffered saline (TTBS) for one hour to block non-specific binding of protein to the nitrocellulose paper. The nitrocellulose paper was next incubated with avidin which has a very high affinity for biotin ($K_d=10^{-15}$). The avidin binds to the biotin attached to the proteins on the nitrocellulose paper. Biotinylated alkaline phosphatase (the visualizing enzyme) which attaches to free biotin-binding sites on the avidin, was added next. The visualization reaction involves: i) the enzyme catalyzed removal of phosphate from indoxyl phosphate; ii) oxidation of the gener-

ated indoxyl intermediate to indigo white; and iii) reduction of nitro blue tetrazolium to diformazan, a dark blue precipitate.

RESULTS AND DISCUSSION

We realized from the onset of this research that a few technological obstacles would need to be overcome. Up until this time most electrotransfer systems worked well for either high or low molecular weight proteins but not for both, and they transferred only about 20–40% of the proteins from the gel to the nitrocellulose paper. Otter et al. (1987) overcame these problems by devising a system that transferred both high and low molecular weight proteins and transferred them at about 85%. High transfer efficiency was indicated by the absence of proteins on the gel after transfer. We established this technique in our laboratory and results with our own samples are shown in Fig. 1. Staining of the gel after transfer with Comassie Blue showed few or no protein bands indicating that almost all the proteins transferred.

We needed to devise a visualization system which was more sensitive and universal than was available. Other methods used either dyes such as Comassie Blue or enzymes coupled to antibodies to detect proteins on nitrocellulose. Although dyes are universal detection systems, they are insensitive because only a small number of dye molecules bind to each protein molecule and, therefore, many protein molecules are needed for visualization. Enzymes coupled to antibodies, in contrast, are not universal since the antibodies recognize only specific proteins. The enzymes are, however, much more sensitive than dyes because they catalyze many hundreds of dye-precipitating reactions per protein molecule.

With sensitivity and universality in mind, we decided to label the proteins with biotin. The derivatization reaction we chose is universal for all proteins since NHS-LC-biotin reacts with free amino groups present on all proteins. Once the proteins were biotinylated, we then reacted them with avidin coupled to alkaline phosphatase, which is an enzyme that can be used in precipita-

tion reactions for visualization. This system gives us the sensitivity needed for our small amounts of sample. Once we had devised this new system, we were ready to use it for the detection of myelin surface proteins.

Experiments which compared the labeling of intact fibers and nerve homogenate are shown in Fig. 1. Lanes 9–13 show the labeled proteins of intact fibers incubated with the biotin derivative from 5–60 minutes. Labeling patterns of whole homogenate incubated also for 5–60 minutes with biotin derivative are shown in lanes 3–7. Lanes 1, 8, 15 which appear to be empty are loaded with samples of unbiotinylated standard proteins and, therefore, are not visualized on the nitrocellulose paper. The main results from this experiment are that the number and species of proteins labeled in the intact fibers and the homogenate are relatively the same. Only one obvious difference appeared. One of the proteins in the homogenate did not become labeled in the fibers (see arrowheads, Fig. 1). Also, the major myelin proteins, myelin basic protein and P_0 glycoprotein, were labeled equally in both the homogenate and the fibers. These are quite puzzling results since we expected different sets of proteins to be labeled in the fibers and in the homogenate. To explain the lack of difference in the labeling of the surface proteins, we proposed that the biotin reagent was permeating the surface membrane as well as the many layers of myelin membrane beneath it, and reacting with proteins throughout the myelin sheath. But upon further examination of this explanation, it appeared to be inadequate because the biotin derivative is charged and is quite a large molecule, and these are the properties of molecules that don't permeate surface membranes. Also if the problem was permeation you would expect to see a difference in labeling pattern between the fibers labeled with biotin for 5 minutes and the fibers incubated for 60 minutes, and we did not.

FUTURE WORK

In our lab we are now working with cultured astrocytes to test how permeable the plasmamembrane is to the NHS-

LC biotin. Intact cells will be incubated with the biotin derivative at the concentration of 40mM in KRB and for varying amounts of time, just like the surface proteins of intact nerve fibers. The biotinylated cells will then be fixed with formaldehyde to ensure that when the cells are made permeable by the addition of detergent the proteins will not wash away with the lipids. The cells need to be made permeable so that when we add avidin covalently coupled to the fluorescent label rhodamine, any biotin that did permeate the surface will be detected. These cells will then be visualized with a fluorescence microscope to determine if only the surface is fluorescing, due to the binding of biotin to membrane surface proteins, or if also the interior is fluorescing, which would mean the biotin permeated the surface. Two controls will be used, one with no biotin to make sure the results are not due to non-specific binding, and another with no avidin-rhodamine to make sure that the cells are not autofluorescing, which old, dead cells have been known to do. In addition, experiments exactly parallel to the ones done on the nerves will be done to biochemically determine if the biotin derivative is permeating the cell surface. If these procedures do prove that our biotin derivative is permeating the surface, we will continue looking for surface proteins of myelinated nerve fibers but with a more impermeable biotin derivative. \diamond

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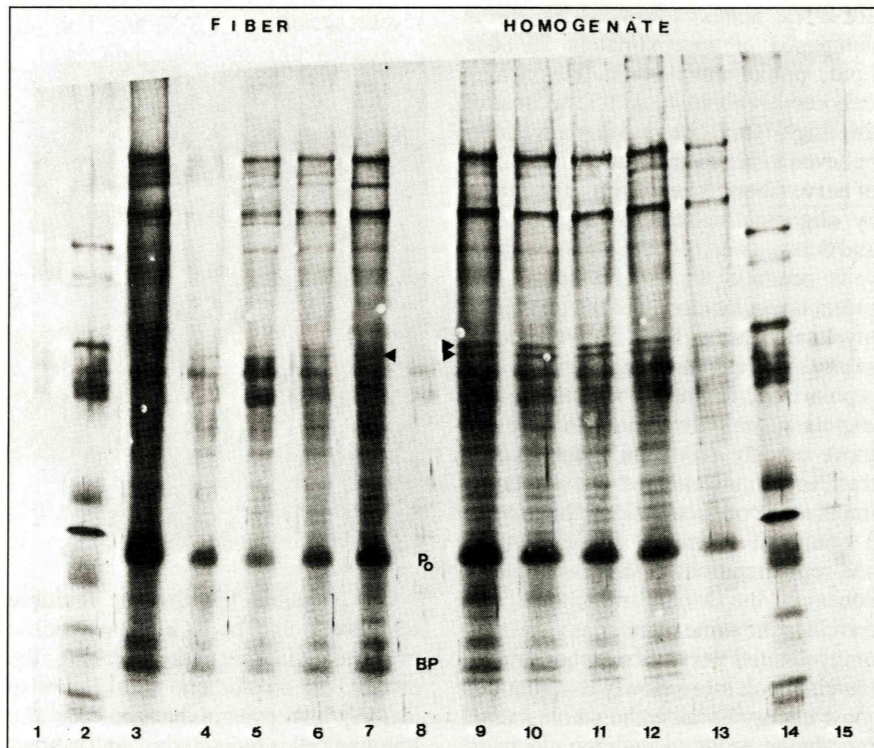


FIGURE 1. Biotinylated protein bands on nitrocellulose paper visualized with avidin-alkaline phosphatase. Lanes 1, 8, and 15 are unbiotinylated protein standards. Lanes 2 and 14 are biotinylated protein standards; molecular weights range from 160,000 to 6,000 kDaltons with the largest at the top and the smallest at the bottom. Lanes 3–7 are biotinylated proteins from intact fibers; lanes 4, 5, 6, 7, 3 were biotinylated for 5, 10, 15, 30, and 60 min, respectively. Lanes 9–13 are biotinylated proteins from homogenized nerve; lanes 13, 12, 11, 10, and 9 were biotinylated for 5, 10, 15, 30, and 60 min, respectively. P_0 glycoprotein and myelin basic proteins (BP) bands are indicated. Arrowheads presumably indicate the labeling of two tubulin subunits in the homogenate lanes and one in the intact fiber lanes.

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1988 Board of Trustees Report

Prepared by G. Richard Handrick
30 January 1989

A detailed survey of the status of endowment and Trust Funds of the Northeastern Section, which are the management responsibility of the Board of Trustees, has been prepared (as a 21-page document, dated 25 January 1989) and sent to the executive officers of the Section. What follows represents a summary of the full report.

Most important to the Section are the income, expenses, and cash balances of

the Trust Funds, which determine the offsetting income available to the Section for its activities permitted by the several Trusts. These figures are summarized below in Table I.

Income and Expense. In 1988 new cash income of dividends and interest from the capital account (Consolidated Trust Fund) and the five "income" accounts interconnected with it amounted to \$67,263, about \$13,400 more than projected on 1-1-88. This extra income (see Table 1, footnote a) accumulated in the Consolidated Trust Fund as unanti-

cipated long-term capital gains distributed from mutual funds, dividends from money-market funds not estimable in advance, and recovery in 1988 of dividends from two mutual funds due but not posted to our account in 1987 during the changeover from Merrill Lynch to EF Hutton Inc. as our brokerage firm. This excess formed part of the \$36,900 used in 1988 to add new equities and bonds in the Consolidated Fund to increase the capital base and cannot, therefore, be counted as income available to the Section for operating expenses.

TABLE I. CASH FLOW AND STATUS OF TRUST FUNDS—1988

	balance: cash + AMA		net income new cash	expenses ^c		1988 Section budget	^{s,h} est. income for 1989
	12-31-87	12-31-88		total	to Section		
Consolidated	\$ 7,202	2,883	29,751 ^{a,b}	278 ^d	238	200	45,244
Richards	17,642	16,928	7,429	7,651	7,611	10,000	3,332
Norris	16,194	1,610	18,043	32,847 ^e	28,108	26,752	2,731
Publications	4,702	5,570	3,067	2,242	2,202	8,500	660
Permanent	10,172	17,602	7,381	3,793	3,753 ^f	9,000	2,310
Hill	4,669	5,050	1,592	1,211	1,171	1,400	-0-
	60,581	49,643	67,263	48,022	43,083	55,852	54,277
Esselen	1,147	3,203	9,373	7,317	7,277	9,000	9,000
TOTALS	\$ 61,728	52,846	76,636	55,339	50,360	64,852	63,277

^a A total of \$57,911 was received in the Consolidated Trust, but \$25,000 was distributed to the "income" accounts, and \$3,160 was paid out as reinvested dividends for shares of MFS Govt HiYield.

^b Excludes amounts received by sale and exchanges of capital.

^c Excludes amounts spent for purchase of new capital.

^d An additional \$33,792 was paid out in cash to buy new capital.

^e \$4,699 of this went directly to National ACS for the National Norris awards of 1988 and 1989.

^f The Section had a credit balance of \$3,000 remaining from reimbursements from Trustees in 1987, which was not spent

until 1988. Net cash reimbursed by Trustees to Section in 1988 for expenses permitted by the Permanent Trust was \$753.00.

^g Before distribution from Consolidated Trust to income accounts. After distribution of a reasonable sum from the Consolidated Trust, the new incomes might align as shown in Table II.

^h There will be a significant additional income from money market fund dividends, which cannot be determined at this time. In 1988 these extra dividends amounted to \$5,500 from the seven Trust Funds.

The new cash income of \$54,300 (excluding the Esselen Award income) looked for in 1989 will be about the same as first proposed for 1988. Long-term capital gains and money market dividends will probably enhance this amount.

The Section was reimbursed nearly \$43,700 from the income accounts (Richards, Norris, Publications, Permanent, Hill) for their expenses in

1988. The Norris Trust, which also paid out \$4,700 directly to National ACS for our sponsorship of the National Norris Award, used up nearly all of its 1988 income as well as the balance left from 1987. The Richards Trust spent all of its 1988 income, but the other Trusts fared better, ending the year with surpluses of varying size.

Because the Directory of Membership of the Northeastern Section was not com-

pleted in 1988, all expenditures from the Publications and the Permanent Trusts allowed by the budget were not made. The Trustees anticipate a considerable charge against these two Trusts in 1989. Even so, except for the Norris Award Trust, all income accounts should be able to handle comfortably most requests from the Section in 1989, unless exceptional demands are made on the Consolidated Fund to add to and

expand the capital base again. (cf Table I, footnote g)

Portfolio—The investments in the capital fund (Consolidated Trust) on 12-31-88 had a market value of \$636,856, made up of equities (39%), mutual funds (10%), and bonds (51%). Cash balance (money-market funds) added \$2,884, for a total worth of \$639,740 in that Trust. The five interconnected income accounts were valued at \$110,345, with an additional \$46,760 in more liquid assets as money-market funds. The Esselen Trust held sixteen TIGR bonds valued at \$127,753, with an additional \$3,200 in a cash fund. The total of these investments plus cash funds amounted to \$927,800, an increase of 5.4% over the \$880,040 on 12-31-87, which pretty well counters the inroads of dollar inflation for the year. [Dow-Jones average of 30 industrials was 2168 on 12-31-88 and 1938 on 12-31-87.]

In the Consolidated account, shares in a mutual fund were sold for \$67,523, to be replaced by shares in commercial stock, mutual funds, and industrial bonds costing \$111,423. The difference of \$43,900 was provided by general dividend income, reinvested dividends, and a residue of capital accumulated over a 2-year period which had been held as cash-in-escrow for such purchases.

Trustee Activities—Trustees for 1988 have been Drs. Janet S. Perkins, Arthur S. Obermayer, and Phyllis A. Brauner. Dr. John L. Neumeyer was elected to replace Dr. Perkins in 1989 after her term of office expired on 12-31-88. The Trustees convened for four formal meetings in 1988, two of them with Mr. Robert Sarly, our Account Executive at Shearson Lehman Hutton. In February 1988 EF Hutton Inc. joined with Shearson Lehman Brothers to form a new brokerage firm known as Shearson Lehman Hutton. This acquisition was accomplished smoothly without noticeable effect on function or fortune. More detailed monthly statements now being sent as a consequence of the merger have produced more paper to study.

The Board of Trustees appointed Dr. G. Richard Handrick, a former Trustee, as their Treasurer and accountant for the Trust Funds for 1988 and 1989. Besides monitoring the monthly statements and preparing summaries from them for the Trustees each month, he has been responsible for writing the 1988 Annual Report from the Trustees to National ACS (10 pages, mostly balance sheets), the detailed report to the Board of Directors of the Northeastern Section (21 pages), and this briefer summary for the Board. ◇

TABLE II	by distr in 1989	+	bal. 12-31-88	+	Trust income 1989	=	Total avail. for 1989
Consolidated	\$(45,000)		\$ 2,880		\$ 244		\$ 3,124
Richards	5,392		16,928		3,332		25,652
Norris	26,252		1,610		2,731		30,593
Publications	3,674		5,570		660		9,904
Permanent	7,434		17,602		2,310		27,346
Hill	2,248		5,050		-0-		7,298
	45,000		49,640		9,277		103,917

Public Communication in Dallas

Two sessions of special interest to local sections are planned for the Dallas national meeting by the ACS Department of Public Communication.

They are the Executive Television Training for Local Section Members on Sunday, April 9, 6:30 to 9:30 p.m. in the Fairmont Hotel, room to be announced, and the Local Section PR Workshop on Wednesday, April 12, 2-4 p.m. in the Adolphus Hotel, Pat Morris Neff Room. These are highly recommended for section officers and PR chairpersons, as well as other interested members.

Northeastern Section American Chemical Society

List of Candidates for Election in May 1989

Chairman:

Charles E. Kolb, Jr.,
Aerodyne Research Inc.

Thomas R. Copeland, ENSECO

Secretary:

Michael Hearn
Arno Heyn

Auditor:

Tony Rossner

Trustee:

Adrienne Dey
Myron Simon
Arthur Obermayer

Councilor:

Mary Burgess
Adrienne Dey
Thomas Gilbert
David Howell
Robert Stolow
E. Joseph Billo
Paul Vourous
Wallace Gleekman
Esther Garber
Patrick Gordon
Richard Milius
James Quick

Bruno DePamphilis

Iclal Hartman
Mary Ann Solstad
Katie Stygall
Kathleen Thrun
Alfred Viola
Jean Vnenchak
Bet Wong

Nominating Committee:

Jerry Bell
William Foye
Alfred Viola
David Howell

Theodore William Richards Award

Donald Ciappenelli
Frederick Greene
Dudley Herschbach
Kenneth Legg

Esselen Award Committee

Arthur Obermayer
Myron Simon

NESACS Budget Proposal, February 1989

Annual Account	#	1988 Actual	1989 Requests	1989 Proposed General	1989 Proposed Offsetting	From Acct
National Allotment	10	14,819.00		15,549.00		
Travel Grants	11	1,623.53			1,650.00	
Local Dues	12	18,679.89		21,500.00		
New-member Commission	13	32.50		30.00		
Contributions	14	500.00				
Ashdown Awards	15	1,685.00			1,200.00	
Continuing Education	16	1,140.00			1,000.00	
Hospitality	17	3,848.00			3,000.00	
Savings Interest	18	810.32		750.00		
Miscellaneous	19	31.59			1,075.00	
Trustees: Cons. Acct.	20	0.00			250.00	
Perm. Inc. Acct.	21	0.00			14,925.00	
Norris Inc. Acct.	22	24,022.45			20,650.00	
Richards Inc. Acct.	23	7,611.32			100.00	
Publ. Inc. Acct.	24	1,800.00			4,700.00	
Hill Award	25	1,000.00			1,400.00	
Esselen Award	26	7,276.86			9,000.00	
NERM	27	0.00				
Summer Programs	28	0.00			1,500.00	
Advertising	29	9,111.02	15,200.00		15,200.00	
INCOME TOTALS		93,991.48		37,829.00	75,650.00	
Chairman	50	545.59	500.00	500.00		
Business Office	51	2,327.65	2,400.00	2,400.00		
Treasurer	52	1,699.03	4,200.00	200.00	7,075.00	21,19
Archivist	53	0.72	500.00	500.00		
Publication	54	2,204.96	7,000.00		7,000.00	24,29
Nucleus	55	22,319.98	29,410.00	16,510.00	12,900.00	29
Directory Maint.	56	0.00				
Program	57	282.82	1,500.00	1,500.00		
Ballots	58	2,052.06		2,100.00		
Public Relations	59	299.17		350.00		
Education	60	332.26	500.00	500.00		
Newell Awards	61	495.64			500.00	21
Ashdown Awards	62	1,798.99		600.00	1,200.00	15
Continuing Education	63	0.70			1,000.00	16
Hospitality	64	4,395.59		500.00	3,000.00	17
Hill Award	65	1,170.83	1,400.00		1,400.00	25
Norris Award	66	14,246.74			12,000.00	22
Speakers Bureau	67	988.84	850.00		850.00	22
Summer Scholars	68	10,295.31			7,800.00	22
Richards Medal	69	7,611.32			100.00	23
Esselen Award	70	7,464.90	9,000.00		9,000.00	26
Sec. School Award	71	2,028.98	1,800.00		1,800.00	21
Aula Laudis	72	499.37			200.00	21
Trustees	73	241.72	250.00		250.00	20
Safety Committee	74	952.50	1,425.00		1,425.00	21
High School Group	75	0.00				
Chairman-elect	76	364.35		500.00		
Membership Committee	77	4.94		200.00		
Public Service	78	5,684.41			5,000.00	21
Retired Chemists	79	6.11				
Summer Programs	80	0.00			1,500.00	
Travel Grants	81	4,436.08		3,350.00	1,650.00	11
Adm. Secretary	82	9,600.00	10,080.00	10,080.00		
Miscellaneous	83	25.86		150.00		
NERM	84	0.00				
EXPENSE TOTALS		104,377.42		39,940.00	75,650.00	

Notes to the 1989 Budget

The budget was approved at the 9 February 1989 meeting of the Board of Directors.

12 Approximately \$3000 is hoped to be raised by soliciting dues from members who elected not to pay local dues with their National dues. Because of this, the deficit in the General Budget column is only \$2111 which will be covered by cash on hand at the beginning of the year.

20-26 Approval of this budget constitutes an authorization to transfer and expend a maximum of these amounts for expenses incurred in the corresponding expense accounts.

21 The Permanent Trust Income Account funds all expense items with 21 in the "From Acct" column. This includes \$6000 in account 52 for the 1987 and 1988 audits.

22 The Norris Award Income Account funds accounts 66, 67, and 68 and is about \$5500 less than 1988, a year in which we overspent the current income. In addition, the Norris Account funds the National Award, amounting to about \$4700, which is not a part of this budget.

Account 66 has been reduced from 15,000 to 12,000 which should adequately fund the expenses of a single award. Account 68 has been reduced to cover three instead of four summer research scholarships.

54 Total Directory expenses are projected to be \$9125, with advertising revenue covering 3300. Some expenses and ad revenue appeared in 1988.

Questionnaire	1,825
Roster Update	350
Printing	5,000
Mailing	1,025
Labels	125
Postage	800
TOTAL	9,125

1988 Expenses	2,200
NET 1989 expense	6,925

Ad Revenue	3,300
1988 Ad Revenue	976
NET 1989 Ad Revenue	2,324

Publication Trust	5,825
1988 Trust Reimbursement	2,200
NET 1989	3,625

55 The Nucleus Budget is presented as submitted by the Board of Publications, with total expenses of \$32,800:

Typesetting	7,000
Printing	14,800
Mailer	1,400
Labels	520
Postage	3,000
1st Class Mailings	400
Editor	2,100
Ad Manager	2,580
Miscellaneous	1,000
TOTAL	32,800

funded as follows:

Advertising	12,900
Norris Award Issue	3,390
Section Funds (Acct 55)	16,510

82 The budget of 10,080 represents a 5% increase over 1988.

1989 Committees

The following are the names of Chairpersons of the Northeastern Section Standing and Special Committees. Should you have an interest in participating in a particular area, please call the chairperson. We will be very appreciative of your help. The purpose of these committees is to serve the membership. Should there be a problem that we can help solve, please do not hesitate to contact us.

Awards

Dr. William Foye (617) 732-2931

Board of Publications

Ms. Jean Vnenchak (617) 577-3388

Budget

Dr. James Piper (508) 456-8227

Constitution and Bylaws

Dr. Arno Heyn (617) 969-5712

Education

Dr. Michael Hearn (617) 235-0320

Hospitality

Dr. Katie Stygall (508) 999-8254

Membership

Dr. Iclal Hartman (617) 738-2181

Nominating

Dr. Thomas Gilbert (617) 437-4505

Professional Relations

Dr. Myron Simon (617) 332-5273

Program

Dr. Joseph Billo (617) 552-3619

Public Relations

Dr. Katie Stygall (508) 999-8254

1990 Boston National Meeting

Dr. Joseph Billo (617) 552-3619

Continuing Education

Dr. Al Viola (617) 437-2809

Long Range Planning

Dr. Lloyd Taylor (617) 577-3160

Public Service

Dr. Phyllis Pranner (617) 235-7849

Safety

Dr. Jim Kaufman (617) 333-0500

Sec. School Award

Dr. Irwin Taub (508) 651-4711

Speaker's Bureau

Ms. Mary Ann Solstad (617) 631-4748

Nucleus Editor

Dr. Adrienne Day (617) 449-9204

1989 NESACS Board of Directors

Minutes of the meetings of January 12, 1989
The Annual Meeting

The Annual meeting was opened by the Chairman, Thomas Gilbert at 4:30 PM, Jan. 12, 1989.

The following members of the Board were in attendance: E. J. Billo, P. Brauner, C. Costello, T. Gilbert, W. Gleekman, A. Heyn, E.A.H. Hopkins, D. Howell, J. Kaufman, T. Light, R. O'Malley, J. Perkins, J. Piper, A. Reis, P. Samuel, M. Simon, M.A. Solstad, M. Strem, K. Stygall, J. Vnenchak, V. Wilcox.

The Secretary's notes concerning the special meeting in June, 1988 were approved, with corrections to the list of attendees. The list of attendees should read as follows: E. J. Billo, P. Brauner, C. Costello, W. Foye, E. Garber, T. R. Gilbert, M. Hearn, A. Heyn, D. Howell, T. Light, J. Piper, P. Samuel, M. A. Solstad, K. Stygall, M. Strem, L. Taylor. The Minutes of the December, 1988 meeting and the notes for the Special Meeting were approved as read.

The Secretary reported that Karen Piper had performed excellently in 1988, her first full year with the Northeastern Section. Among the major pieces of work she performed were the compiling of the 1987 Annual Report, and the organization of the details of the May 1988 Awards meeting. The Secretary has recommended a raise in salary for Mrs. Piper. The Treasurer reported that this was included in the preliminary budget for 1989.

All of the Constitutional officers and Committee Chairmen who were present gave oral reports on the work of their office or committee for the past year. The only missing reports were those of the few Board members who were unable to attend the meeting.

The Program Chairman, Michael Strem, reported that there had been an average attendance of 150 at the various meetings during the year. There were two joint meetings with the topical groups and a number of independent meetings of the Medicinal Chemistry Group. On being questioned regarding other topical group activities, M. S.

Simon stated that the Beer and Wine Topical Group had been discontinued due to ramifications of the Commonwealth's responsibility law regarding drinking. A leader for a Retired Chemists' Group has not been found.

The Treasurer's report was presented. Some funds transferred by the Trustees had not yet been cleared in time for inclusion in the report. With these included, the net loss of the section for 1988 was about \$3000. Not all the funds for the Esselen Award were used. The remaining monies will be carried over for use in future years.

T. S. Light reported that the Constitution and By-Laws Committee had received a new edition of the Northeastern Section's Constitution and By-Laws in Sept. 1988. This can be examined at the Section office.

The new Constitution and By-Laws will be printed in the new Edition of the Directory along with a list of proposed changes which have not yet been officially approved.

Katie Stygall briefly summarized her duties as Hospitality Committee Chair in handling the dinners and after-meeting refreshments. She heartily thanked Karen Piper for her aid in providing information about reservations, etc.

T. S. Light reported for the Esselen Committee. The next award will be presented in April, 1989. The 1988 award was made and handled in excellent fashion.

Jean Vnenchak mentioned the yeoman work of Harry Orf in Chairing the Board of Publications for 1988. She mentioned the departure of Bill Adams from the Advertising Manager-Business Manager positions and his replacement by Russell F. McCann as Business Manager and Vincent Gale as Advertising Manager. Progress on the Directory has been made and it should be published in February, 1989. T. S. Light mentioned the listing by employers in the directory and the importance of the list being kept up-to-date.

Mary Ann Solstad reported for the

Speaker's Bureau that 29 speakers (one now deceased) had made 39 presentations including those to five teacher groups. The Speakers' Bureau records are now on new software, "Info XL". One High School has requested a series of 10 speakers for teacher groups.

Myke Simon reported for the Professional Relations Committee. The highlight of that committee's activities was the October Meeting. Adrienne Dey has seen to it that professional relations issues and activities have had coverage in the Nucleus. The Committee has also provided counselling to job-terminees.

The Meeting recessed at 5:30 PM.

The January Meeting

The First Board meeting of 1989 was opened by the Chairman, Dr. Michael Strem, at 5:30 PM, Jan. 12, 1989.

The following members of the Board were in attendance: E. J. Billo, P. Brauner, C. Costello, T. Gilbert, W. Gleekman, A. Heyn, E.A.H. Hopkins, D. Howell, J. Kaufman, T. Light, R. O'Malley, J. Perkins, J. Piper, A. Reis, P. Samuel, M. Simon, M.A. Solstad, M. Strem, K. Stygall, J. Vnenchak, V. Wilcox.

Dr. Strem started the meeting by presenting a Past-Chairman Pin to Dr. Thomas Gilbert. He then announced that Lloyd Taylor had resigned as Alternate Councilor. Mary Ann Solstad was elected by the Board as Alternate Councilor to serve until the next election.

M. Strem then announced the following adjustments to the Committee assignments:

M. Chen to Professional Relations Committee

A. Viola as Continuing Education Co-Chair

The Preliminary Budget for 1989 was distributed.

The National Society is giving the Section \$500 as seed money for the 1990 National Meeting toward the Hospitality Center.

W. Gleekman has received a letter
continued on page 20

The Professional Relations Column

by Myron S. Simon
Chairman, NESACS Professional Relations Committee

In this column I will describe some of the helpful publications available to members of the Section. They cover topics ranging from signing up for your job to coping with its loss. At this time we are ordering a supply of all of these publications, and we expect that you will be able to get those you want with a call (1-800-872-2054 or 508-456-8227) or note to Mrs. Piper at the Section office.

The Chemist is a professional and the relationship between chemist and employer or between chemist and employee or between chemist and client or between chemist and academic administration is governed by rules of the profession.

These relationships are described in useful form in a booklet, "Professional Employment Guidelines". There you will find four major topics: Terms of

Employment, Employment Environment, Professional Development, and Termination Conditions. The present "PEG" is a newly revised edition.

The chemist's society is ACS. A booklet, "The Professional Edge, A Handbook for Members of the American Chemical Society" describes the Society, what it is, what it offers its membership, its activities, educational and professional. This is a most useful source of information about ACS which I would assume is already in the hands of most Section members. If you don't have a copy, request it.

Another helpful publication is "Employment Agreements". The copy I have is the 1981 edition, and I have not heard that there is a new revision. While it was written primarily for chemists about to sign an employment contract, it is also useful for chemists

already working under an agreement who may want to review their status.

Another 1981 publication is "Trade Secrets . . . Ethics and Law". The pamphlet describes several interesting legal cases which resulted from chemists changing jobs and becoming embroiled in a dispute between former and present employers. It includes a page of suggestions to avoid such quagmires. This reminds me that a new liability insurance plan has been negotiated by ACS to protect its members. Details on signing up are in the most recent CEN's. I would strongly recommend this coverage for consultants and others not already covered by their employers.

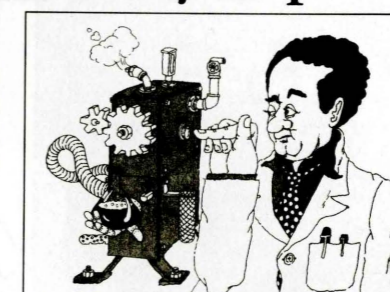
Grievances arise between chemist and employer on occasion. These are mostly settled internally, but occasionally there is no meeting of minds and

continued on page 20

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Professional Relations

continued from page 19

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Send in your suggestions for topics you would like us to cover in this column or submit your own columns. We will publish your contributions if they are considered appropriate. Until next time . . .

(Editor's Note: Dr. Simon can be reached at 617-332-5273. The reader may also refer to the ACS Focus article on Professional Services in C&EN, October 24, 1988, page 52. The Washington office is headed by Dr. Terry Russell, tel. 202-872-4431.)

Board Minutes

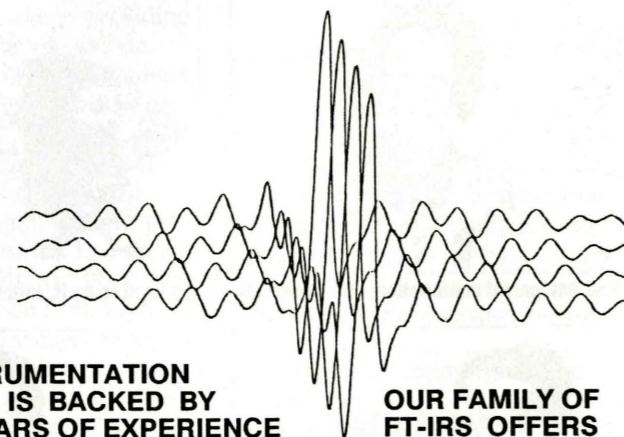
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The Organizing Committee for the 1990 national meeting planned to meet at M. Simon's house on Monday, Jan. 16, 1989.

The meeting adjourned at 6:00 PM.

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DuPont in the Northeastern Section

by Richard L. Young
Manager of Operations

The E.I. DuPont de Nemours & Co. facilities in the Boston area are manufacturing and R&D organizations of the Medical Department, which is one of the six operating departments of the DuPont Company. There are approximately 1200 employees at three locations in the Boston area, Westwood, Billerica and Boston. A large proportion, over thirty percent, are technically trained with scientific degrees in biochemistry, organic chemistry, biology, molecular biology, inorganic chemistry and analytical chemistry. Products are developed and produced for sale as diagnostics, research products and imaging agents for medical and biological applications.

Employment opportunities in disciplines of chemistry vary with the demands of the organizations during the year, with the majority being B.Sc. graduates with varying amounts of experience. These employees are hired locally and from area colleges and universities while Ph.D.s are recruited nationally. DuPont offers locally competitive salaries and programs for career development, tuition reimbursement and a superior benefits package that encourages career long employment. Depending on the success and talents of each employee, there are promotion and transfer opportunities into various technical, supervisory and sales/marketing positions. The complex, technical nature of DuPont's products offers rewarding career opportunities in diverse areas for scientifically trained personnel.

Chemists entering the NEN™ Products division are usually assigned to laboratory R&D or production work in facilities that range from academic style surroundings to specially designed radiochemical units requiring training in specialized skills over several months. The majority of positions are hands-on laboratory work that often results in a product being produced for direct sale for a customer. This work is combined with development research

that either optimizes the chemistry of current products or prepares similar new products for introduction to NEN™ customers.

Most products are specialty chemicals for medical and biological research that require unique chemical handling for their synthesis. These skills are learned over several months and prepare chemists for more advanced work as their career develops. Customer support and quality management is a significant responsibility for the Boston area scientific employee at all levels. Management at DuPont believes that the high technology content of their products requires a close and continuing customer-scientist interaction.

DuPont chemists in the diagnostic divisions in the Boston area have made traditional roles in research and product development. Chemists generally design chemicals that may fit certain biological criteria, develop synthetic routes and accomplish the synthesis in small scale reactions for testing. A successful test would lead to synthesis of

analogs to determine the structure-activity parameters and to select the best chemical for further development. Large scale synthesis would follow on a kilogram scale. Eventual success would allow the chemical to be incorporated into a product marketed throughout the world.

The above example is duplicated in the disciplines of molecular biology, biochemistry, inorganic and analytical chemistry.

Specific information on current opportunities at DuPont in the Boston area may be obtained from:

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549 Albany St.
Boston, MA 02118
(617) 350-9060

Human Resources
E.I. DuPont de Nemours & Co.
331 Treble Cove Rd.
No. Billerica, MA 01862
(508) 671-8617

Career development tutorial: expanding your options

As part of a program of career services to ACS members, the Committee on Professional Relations is sponsoring a tutorial on career development that will provide information on career guidance and assessment, career tracks and planning, and increasing career options in the chemical industry and elsewhere. Sessions are designed for midcareer chemists interested in or undergoing a career change as well as others who wish to investigate options.

There is a \$20 materials fee for the tutorial, which is available only to ACS members registered for the Dallas meeting. Meeting registration is free to unemployed ACS members registered for the employment clearinghouse.

Led by David Daniel and Dorothy Rodmann of the ACS Personnel Office, staff for the sessions are professionals with training in various areas of career guidance, development, and assessment of skills and career goals.

Two sessions are scheduled: Sunday, April 9, and Monday, April 10. Both sessions meet from 8 AM to 5 PM. Individual consultation with the tutorial staff will be available to registrants from 7 to 10 PM on both days. Sessions feature small group tutorials and are limited to 35 registrants each. If one of the sessions fills, registrants will be assigned to the remaining session on a first-come, first-registered basis.

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Professional Relations

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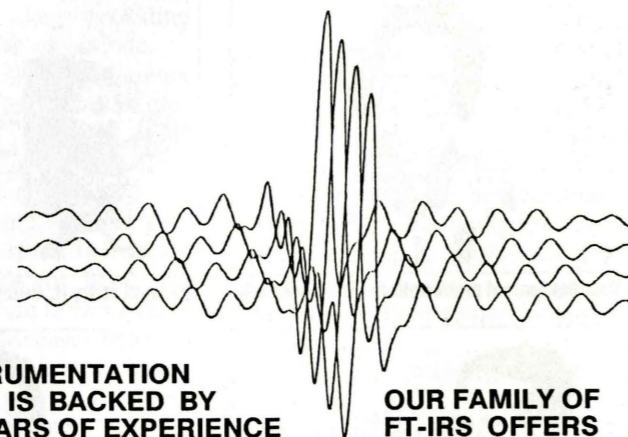
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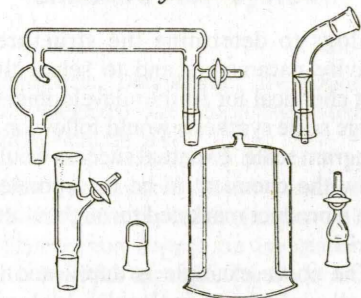
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The Employment Scene

A Collection of News Clippings

by Adrienne S. Dey

A Call to Action. This is the title of a column by Suzanna Gordon on the op-ed page of the Boston Globe of 8 February 1989 in support of the Parental and Medical Leave Act which is again before Congress this year in a watered down version. The present version would provide only 10 weeks of unpaid parental leave every two years and would initially exempt 90 percent of the nation's companies and half of its workers. Although this type of leave is available in every other industrialized nation (generally in a paid version) and is desperately needed by working parents in this country, legislators say that they only hear opposition from local chambers of commerce and business people and very little from the working mothers and fathers who would benefit from the legislation.

Needless to say, the Bush administration opposes this bill.

Let's get behind this one for heaven's sake! I know all about how hard it is to juggle work and family but we still need to engage in collective political work to make life better for all. A phone call or post card to your legislator is really very effective, especially right now (April 9) when women will be gathering in Washington in support of a variety of issues of importance to all of us.

Age Bias Begins at 40. Discrimination against older workers begins at 40, according to witnesses at a State House hearing on 15 February 1989 in support of legislation proposed by Sen. Lois G. Pines (D-Newton), Commerce and Labor Committee chair. The proposed bill would set up an "ElderCorps" of volunteers to investigate complaints and assist the efforts of the Massachusetts Commission Against Discrimination. State Elder Affairs Secretary Paul Lanzikos, speaking in support of the measure, said that increasing numbers of workers in their 50's are being offered early retirements or being laid off while younger and less experienced workers remain.

Groups testifying in support of the bill included the Gray Panthers, Operation Able, the Stone Center at Wellesley College, Freelancers over Fifty, and the Advocacy Center for Older Women Workers. The bill was opposed by the Associated Industries of Massachusetts. (Boston Globe, 16 February, 1989).

You Can Fight and Win! The Boston Globe of 20 December 1988 carries the detailed story of Iver Freeman, an executive at Package Machinery Co. in East Longmeadow who was fired at age 60 without warning in 1980 after more than 25 years of loyal, and apparently appreciated, service. After the initial shock and disorientation, Freeman filed a complaint with the Massachusetts Commission Against Discrimination which was not able to resolve the issue. Freeman then filed an age discrimination suit against his former employer in US District Court in Springfield. The arguments brought by the company in support of their decision make interesting reading. The company also offered to settle out of court for \$17,500 but Freeman went to court and after a lengthy appeal was finally awarded \$653,700 in pay and damages eight years after having been dismissed. Obviously this is not for everyone and only works if you have a really good case.

New Layoff Law In Effect. A new federal law requiring companies with 100 or more employees to give workers 60 days of advance notice of a plant closing or mass layoff went into effect in February. This law was staunchly opposed by Reagan but Congress finally passed it with a bipartisan effort. A mass layoff is defined under the law as a reduction of at least 500 employees (!) over a 30 day period or 33 percent of the work force if at least 50 people are affected within 30 days. I don't know if this law will be of much help to chemical professionals since few of the multi-

ple terminations investigated in recent years by the Committee on Professional Relations of the ACS have been of this magnitude. It is also possible that the largest of these reductions in force (such as the one at Roche for instance) have already occurred and it is very easy for employers to simply let go a smaller number of workers over a period of several months. Anyway, the law is apparently so complicated and has so many loopholes and exceptions that a new wave of layoff lawsuits is possible. (Boston Globe, 31 January, 1989).

The Christmas Firing. The executive outplacement consulting firm of Stybel Peabody & Associates reports in the Boston Globe of 20 December 1988 that they have learned to expect a wave of new clients just before the annual Christmas party season gets underway. This apparently happens when firms who normally give Christmas bonuses to employees wish to fire some of them. The writers make the observation that many of the companies involved tend to have performance appraisal systems that are either not taken very seriously by management or allow individual managers to make highly subjective decisions regarding the amount of bonus pay-outs at the end of the year. It would be really interesting to see an article here on how objective measures of performance can be arrived at in the chemical industry. Any volunteers?

LBOs May Inhibit Innovation. The most recent annual survey of industrial research and development by the National Science Foundation tends to confirm what critics of the LBO/merger craze have been warning against: debt born of greed will ruin our ability to innovate and compete effectively against Japan and Europe. The survey pinpointed 16 large "R&D performers" that were involved in mergers and acquisitions over the past two years, plus another eight that were participants in leveraged buyouts. The 24 experienced a combined reduction of 5.3% in R&D spending while all other R&D performing companies reported a 5.4% increase in their R&D expenditures during the same period. The LBO

companies suffered an even deeper drop of 12.8%. (Science, 6 February, 1989).

Within our own Northeastern Section, Polaroid, the largest employer of chemists, is battling a hostile takeover by the Disney clan at this writing.

Is it a Bonus or a Paycut? An interesting article entitled "Firms Revamp Compensation Packages to Keep Employees" appeared in the 7 November 1988 issue of C&E News. It seems that increasing numbers of companies are tying compensation to the health of the firm, offering profit sharing incentives to both middle- and lower-echelon workers. When I began to read the article I was under the impression that this is a benign development but by the time I finished reading I was not so sure.


Such a new compensation plan is currently being phased in at Du Pont's fibers department, affecting 20,000 employees. After three to five years, when the program will be fully implemented, employees may receive bonuses of up to 12% of base pay if the company earns 150% of its predicted earnings but may lose up to 6% of their salaries when the company achieves 80% or less of its targeted earnings. The company does not have to lose money and divisions may still be operating in the black when employees are asked to give up some of their salaries. At current salary rates Du Pont could save up to \$36 million a year.

I find it difficult to see why workers such as laboratory technicians, for instance, who may have done an outstanding job during the year should be put in a position where their salaries are in effect cut. Some comments by compensation specialists could be illuminating here. Is this a cleverly disguised scheme to save money?

Portable Pensions. The Boston Globe of 22 February 1989 gives a brief report of a meeting between Labor Secretary Elizabeth Dole and the AFL-CIO Executive Council. Dole raised a proposal to allow workers who change jobs to carry pension funds with them. She said that the administration is studying the issue so presumably some

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proposal may come of it. The ACS has also "studied" it for years. If it is possible for professors to have portable pensions which are vested after one year, why not for the rest of humanity? So here is another issue which calls for a letter or phone call to your legislator. I hope to live long enough to see some progress in this area!

Calendar

For additional seminar information, call:
Boston College—(617) 552-3606
Harvard University (chemistry)—
(617) 495-4070
**Southeastern Massachusetts
University**—(617) 999-8246/8232
**Tufts University, Department of
Chemistry**—(617) 628-5000
Wellesley College—(617) 235-0320
ext. 3149

Tuesday, April 4

Donald J. Creighton (University
of Maryland Baltimore County)
Tufts University
Pearson Memorial Laboratory room 104
at 4:30 pm

Wednesday, Apr. 5

Dr. Peter S. Sheridan (Colgate University)
"A Chemist's View of Solar Energy"
Southeastern Massachusetts University
Science & Engineering Building
(Group II) room 305 at 4:00 pm

Thursday, April 6

Dr. T.W. Doyle (Bristol-Meyers Co.)
Title to be Announced
Boston College
Gasson Hall room 305 at 4:00 pm

Thursday, April 13

Professor Mary Jo Ondrechen
(Northeastern University)
Title to be Announced
Boston College
Gasson Hall room 305 at 4:00 pm

Tuesday, April 18

Dexter Northrop (University
of Wisconsin, Madison)
Title to be Announced
Tufts University
Pearson Memorial Laboratory room 104
at 4:30 pm

Dr. Robert Sauer (M.I.T.)
"Decoding the Structural and Functional
Information in Protein Sequences"
Tufts University Health Sciences
Campus, Boston, MA
Sackler Building, BeBlois Auditoriums
A and B at 4:00 pm

Thursday, April 20

Professor Francis J. Di Salvo (Cornell
University)
HARVARD/MIT INORGANIC
CHEMISTRY SEMINAR
"The Solid State—A Rediscovered
Chemical Frontier"
Harvard University
Mallinckrodt MB-23 at 5:00 pm

Professor Sondra Grear (University
of Maryland)
Title to be Announced
Boston College
Gasson Hall room 305 at 4:00 pm

Tuesday, April 25

Nita Lewis (University of Miami)
Title to be Announced
Tufts University
Pearson Memorial Laboratory room 104
at 4:30 pm

Thursday, April 27

Professor Robert Schleif (Brandeis
University)
"DNA Loops and Gene Regulation"
Boston College
Gasson Hall room 305 at 4:00 pm

Friday, April 28

Professor Margaret Merritt
(Wellesley College)
"Solvated Asymmetric Carbocations"
Wellesley College
Science Center (Sage Hall) room 278
at 1:30 pm

Biotechnology Featured in Dallas

The Spring ACS Meeting in Dallas, Texas will feature a large number of papers on Biotechnology subjects. The Presidential Plenary Session on Monday, April 10 will be on "Environmental Issues in Biotechnology" in the Dallas Convention Center, from 8-10 a.m. Three speakers will explore this topic from governmental, academic and industrial viewpoints: Prof. David T. Kingsbury (George Washington University Medical Center, Department of Microbiology) will discuss the governmental aspects, Prof. James M. Tiedje (Michigan State University, Dept. of Soil Science) will discuss the academic aspects, and Dr. Will D. Carpenter (Vice President, Monsanto Company) will discuss the industrial aspects.

President Clayton F. Callis extends a cordial invitation to this Plenary Session and has arranged a complimentary continental breakfast at 7:30 a.m.

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