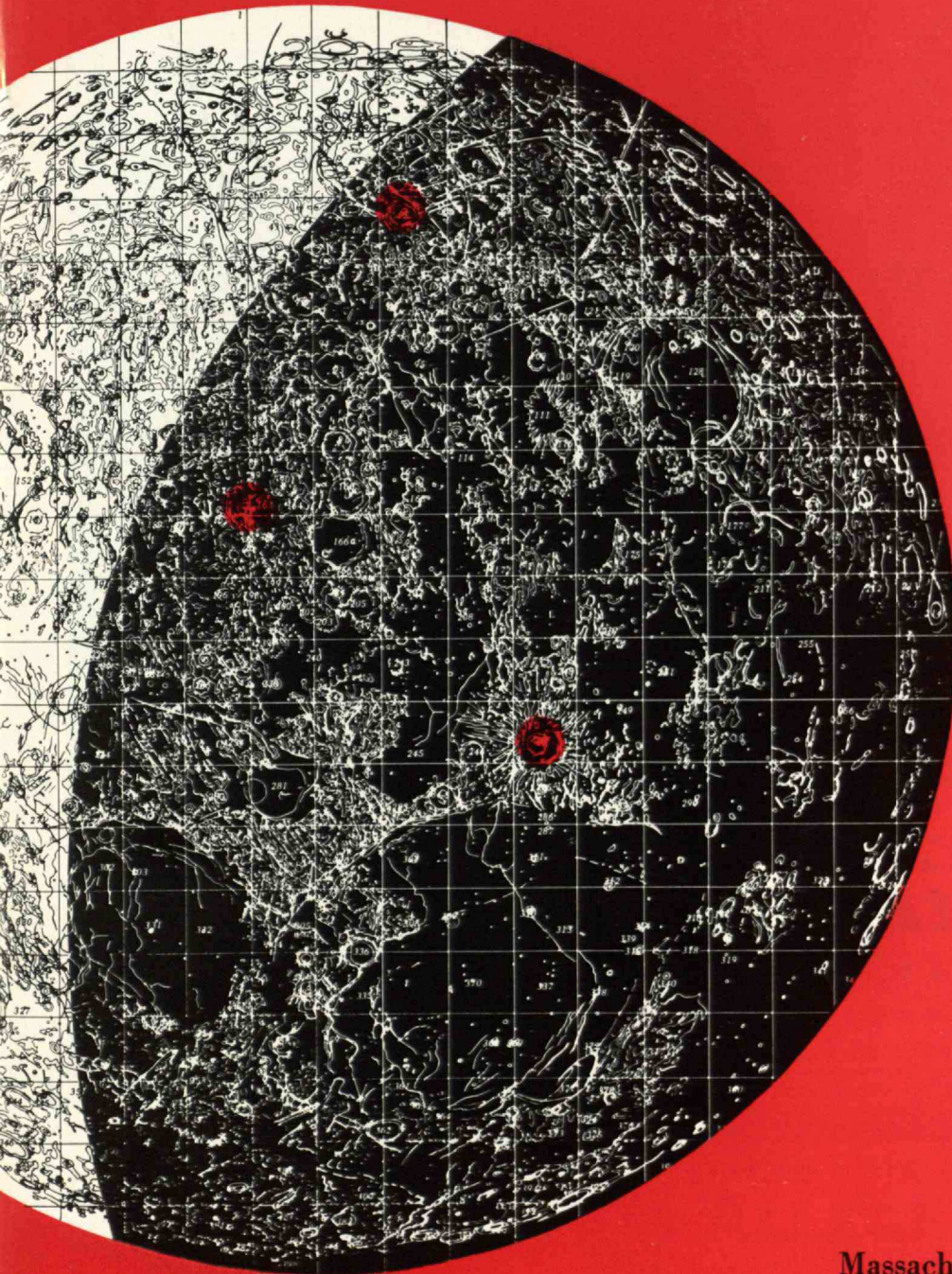


# Technology Review



**M. I. T's Light  
on the Moon**

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**Science and  
Technology  
in Modern  
Perspective**

**The 1962  
Commencement Address**

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**July 1962**

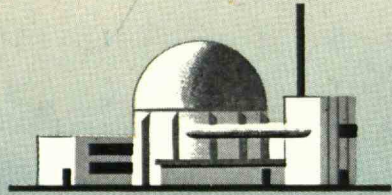
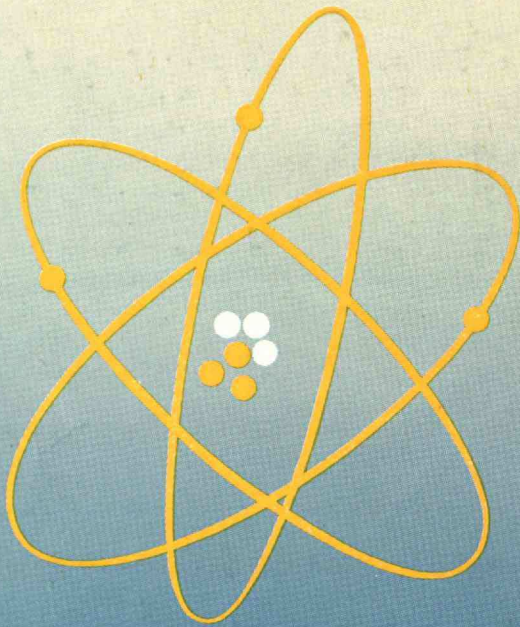
**Edited at the  
Massachusetts Institute of Technology**

# technology review

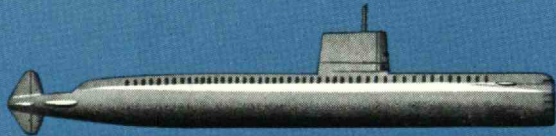
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|----------------------|-----|----|----|----|-----|----|----|
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| AL 20 Ni (250)       | .01 | 20 | .. | .. | 1.4 | .2 | .5 |
| AL 18 Ni Co Mo (250) | .01 | 18 | 7  | 5  | .4  | .1 | .. |
| AL 18 Ni Co Mo (300) | .01 | 18 | 9  | 5  | .6  | .1 | .. |

## TYPICAL MECHANICAL PROPERTIES

| PRODUCTS                             | .2 YS<br>(X 1000 psi) | UTS | Elong.<br>% | RA<br>% | Notch TS<br>Smooth TS |
|--------------------------------------|-----------------------|-----|-------------|---------|-----------------------|
| <b>BARS (Heat treated)</b>           |                       |     |             |         |                       |
| AL 25 Ni (250)                       | 250                   | 265 | 12          | 50      | 1.1                   |
| AL 20 Ni (250)                       | 250                   | 265 | 12          | 55      | 1.3                   |
| AL 18 Ni Co Mo (250)                 | 250                   | 265 | 10          | 50      | 1.5                   |
| AL 18 Ni Co Mo (300)                 | 300                   | 305 | 12          | 55      | 1.4                   |
| <b>SHEETS (Cold rolled and aged)</b> |                       |     |             |         |                       |
| AL 25 Ni (250)                       | 250                   | 270 | 5           | ..      | .7                    |
| AL 20 Ni (250)                       | 260                   | 270 | 4           | ..      | .7                    |
| AL 18 Ni Co Mo (250)                 | 285                   | 290 | 4           | ..      | .9                    |
| AL 18 Ni Co Mo (300)                 | 300                   | 310 | 3           | ..      | .8                    |

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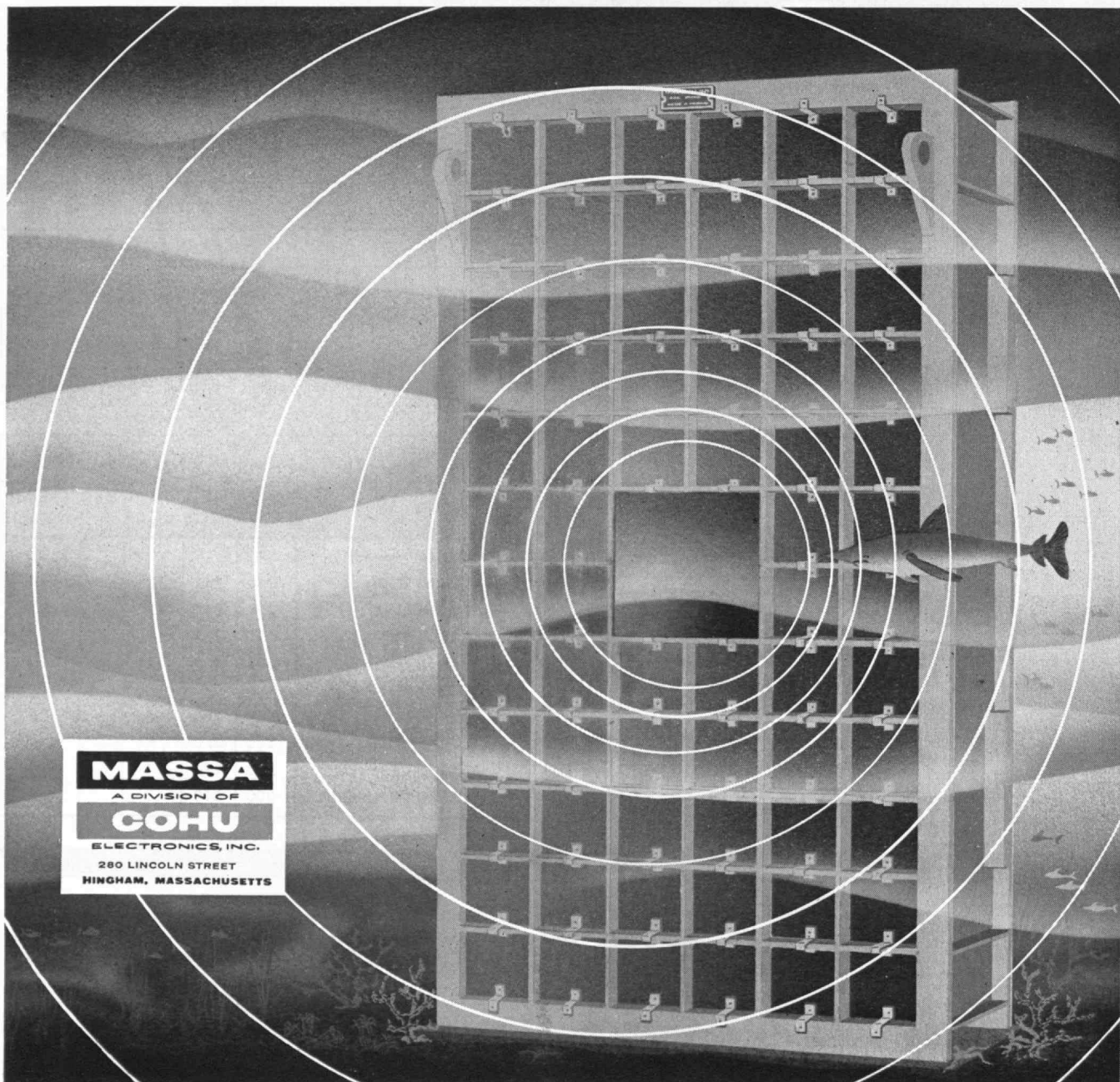
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BSME '49



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# Technology Review

Reg. U.S. Pat. Off.

Volume 64, Number 9

Edited at the Massachusetts Institute of Technology

July, 1962

## Feedback

### Our Greatest Waste

FROM KURT S. LION:

If you are a scientist or administrator who daydreams of constructing a 20-million-dollar research laboratory, don't read this paper because you will not understand what I am talking about. But if you are one of the fellows in the backyard who one morning while shaving suddenly comes up with a glorious new idea, you will understand me.

One of the highlights that academic life still offers us (and perhaps the only one) is the feeling of having found something new, something exciting. It may be a method of doing something that could not be done before, or a new explanation, or an unsuspected connection between several formerly unrelated facts. For the next few days you walk on clouds and to the horror of your personnel appear in your office an hour before your usual time.

This is the time to improvise a few experiments, and see whether the outcome is what you expect. But this is not the way things are. You need some money. Not much, because you can borrow instruments "just for a day or so" from the stock-room attendant. Still, the money needed is more than the potential barrier of your conscience permits you to "allocate."

It might be logical to go to your nearest superior despite the deep sadness that will appear on his face when, after a brilliant introduction, the figure of, say, \$5,000 is mentioned. "Experience shows" that the superior is well armed against such always expected attacks, and the words, ". . . haven't got, in fact don't even know how . . ." are standard equipment in his arsenal. You enter his office with one problem and emerge with three or more. The melancholy of the existing situation lowers the radiation temperature of your enthusiasm. But there is always a long distance between his office and yours and by the time you arrive in your office you know how to handle that situation:

(Concluded on page 66)



THE FIRST Class of 1922 Professor will be John Wulff. His and many other appointments are reported in this month's unusually long "Individuals Noteworthy" department.

This issue concludes Volume 64 of The Review. Number 1 of Volume 65 will be published October 27, 1962. An index to Volume 64 will be supplied this fall to readers requesting it.

EDITOR: Volta Torrey; BUSINESS MANAGER: R. T. Jope, '28; CIRCULATION MANAGER: D. P. Severance, '38; EDITORIAL ASSOCIATES: J. J. Rowlands, Francis E. Wylie, John I. Mattill; EDITORIAL STAFF: Ruth King, Roberta A. Clark; BUSINESS STAFF: Madeline R. McCormick, Patricia Fletcher; PUBLISHER: H. E. Lobdell, '17.

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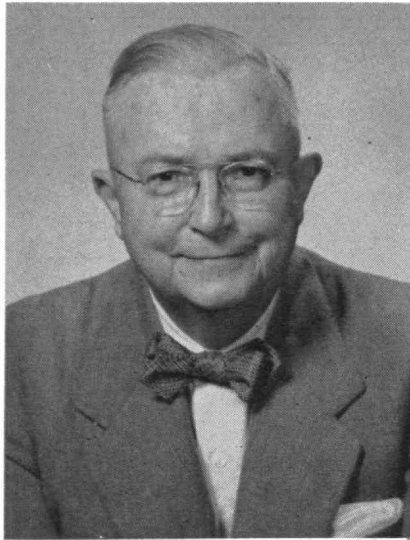
# Individuals Noteworthy

## A Most Noteworthy Individual Retires

H. E. LOBDELL, '17, one of the M.I.T. community's most widely known and effective leaders for more than four decades, is retiring this summer to make his home in Cuernavaca, México, a city about 50 miles south of Mexico City. There Mr. Lobdell expects to be "just a post-office box," but Cuernavaca's postmaster will receive mail for that box from all over the world.

Others have taught the humanities at M.I.T., but no one else has practiced the arts of life in its environment, polarized around engineering and science, any more sagely or more productively than "Lobby." He first came to M.I.T. as a student from Johnstown, N.Y., and is leaving it as one of its most highly regarded senior citizens. He was dean of students from 1929 to 1946 and has been the Alumni Association's Executive Vice-president since 1947. He was chairman of the Technology Loan Fund for a quarter of a century, and has been responsible for the publication of *The Technology Review* longer than any other person in its history.

Mr. Lobdell returned to the Institute to join its staff after serving as a lieutenant in the U.S. Army in World War I. He became assistant dean of students under Henry P. Talbot, '85, in 1922 and later succeeded him as



H. E. Lobdell, '17

dean. Students respected the firm, friendly discipline that he maintained, and he helped to develop policies to which the Institute still adheres. He co-operated with Allan Winter Rowe, '01, and others to establish its program of athletics for all; and when Gerard Swope, '95, led the campaign for a Student Loan Fund, Dean Lobdell became its first chairman and made it a model for similar efforts to provide financial aid to students at universities throughout the country. He was a national officer of both Pi Delta Epsilon and Phi Kappa Sigma, and in 1933-1934 was president of the National Association of Deans and Advisers of Men.

In 1922 he also became editor of *The Technology Review* and helped its managing editor, Eric Hodgins, '22, report the selection of Samuel Wesley Stratton as the Institute's eighth president. He became *The Review's* publisher in 1930 and continued to contribute to its columns frequently for James R. Killian, Jr., '26, Frederick G. Fassett, Jr., and later editors. His review of *Now It Can Be Told*, by Leslie R. Groves, '17, is on page 48 of this issue. The "Institute Yesteryears" column on page 47 is his, and he has assured its continuance through the 1986-1987 school year by already compiling and delivering the copy.



D. P. Severance, '38 (at left, talking with Jonathan A. Noyes, '12), will succeed Mr. Lobdell as Executive Vice-president of the Alumni.

Mr. Lobdell is internationally known as a philatelist and in 1949 was the author with A. E. Hopkins of *Hong Kong and the Treaty Ports*, a study of the early postal stations in the British crown colony. He is a Fellow of the Postal Historians (London) and the Royal Philatelic Society. His clubs have included the Engineers and St. Botolph in Boston, the Century in New York, the Army and Navy in Washington, and the East India and Sports in London.

Railroads and crack trains were another of his early interests, and since becoming the executive officer of the Alumni Association he has been a roving ambassador to its friends and former students throughout the world. He has visited Europe repeatedly and been especially interested in recent years in Latin America. He was married in 1954 to Conchita Zambrano de la Garza, and Mr. and Mrs. Lobdell expect to continue to be regular attendants at the annual Fiestas of the M.I.T. Club of Mexico.

## Corporation Members

H. W. McCURDY, '22, has been elected a life member of the M.I.T. Corporation and six new term members have been elected to it. They are Professor Edward M. Purcell of Harvard, Theodore A. Mangelsdorf, '26, Frank R. Milliken, '34, D. Reid Weedon, Jr., '41, Luis A. Ferré, '24, and William L. Taggart, Jr., '27.

Mr. McCurdy captained the first varsity shell at M.I.T. and has long been active in alumni work. He is chairman of the Puget Sound Bridge and Dry Dock Company in Seattle, with which he has been associated for 40 years; a director of the Lockheed Aircraft Corporation and a leader in many West Coast industrial, civic, and historical societies.

## Class of 1922 Professor

JOHN WULFF, a member of M.I.T.'s Faculty for 31 years, who is now lecturing in Europe on superconducting alloys, will be the first occupant of the Class of 1922 Chair (see page 30). Educated at the Colorado School of Mines, Yale, and in Germany, he has long taught students at all levels and is noted both as a dramatic lecturer and for his research, inventions, and publications regarding materials.

(Continued on page 6)



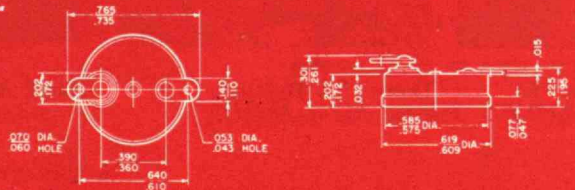
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\* 6°F is difference between maximum open and minimum close.



## Individuals Noteworthy

(Continued from page 4)

### 48 Members of Faculty at Institute Promoted

PRESIDENT Julius A. Stratton '23, has announced the promotion of 18 members of the M.I.T. Faculty to the rank of professor and 26 to the rank of associate professor. Twenty-three of the men this year are Alumni, representing classes from 1941 to 1960.

The new professors are pictured on this page and on page 8.

The new associate professors are:

Klaus Biemann, Chemistry.

William F. Brace, '46, Geology.

P. L. Thibaut Brian, '56, Chemical Engineering.

George A. Brown, '51, Mechanical Engineering.

Robert L. Coble, '55, Metallurgy.

Alfred R. Cooper, Jr., '60, Metallurgy.

Paul H. Cootner, '53, Industrial Management.

James E. Darnell, Biology.

John Dugundji, '48, Aeronautics.

Franklin M. Fisher, Economics.

Lee Grodzins, Physics.

Edward Herbert, Biology.

Kenneth M. Hoffman, Mathematics.

Norman N. Holland, '47, Humanities.

Ronald A. Howard, '55, Electrical Engineering.

William D. Jackson, Electrical Engineering.

Theodore R. Madden, '49, Geology.  
Winston R. Markey, '51, Aeronautics.

Ronald Melzack, Economics.

Perry A. Miles, Electrical Engineering.

George S. Reichenbach, '52, Mechanical Engineering.

Phillips W. Robbins, Biochemistry.

Gian-Carlo Rota, Mathematics.

Dietmar Seyferth, Chemistry.

Stephen M. Simpson, Jr., '53, Geology.

David A. Thomas, '58, Metallurgy.

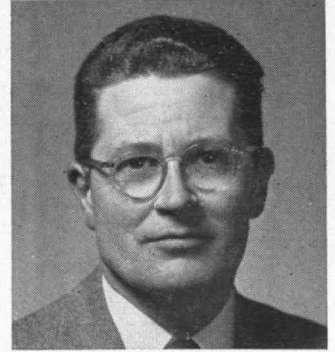
Attaining the rank of assistant professor are Ward D. Getty in Electrical Engineering, Gonzalo S. Leon and Daniel H. Marcus, '56, in Mechanical Engineering, and J. Daniel Nyhart in Industrial Management.

Ten of the new full professors are shown here; eight more on page 8.

(Continued on page 8)



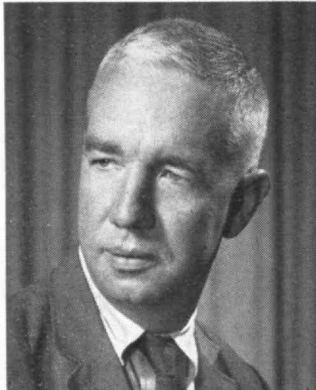
Stanley Backer, '41  
Mechanical Engineering



Sanborn C. Brown, '44  
Physics



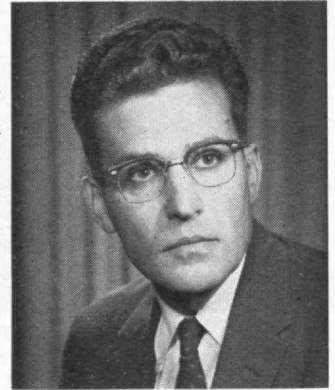
Dayton E. Carritt  
Geology



Alfred D. Chandler, Jr.  
Humanities



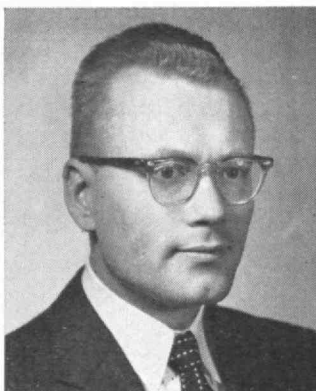
Philip L. de Bruyn, '52  
Metallurgy



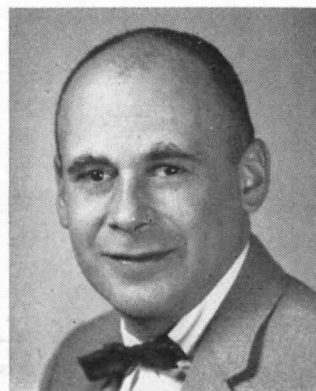
David J. Epstein, '49  
Electrical Engineering



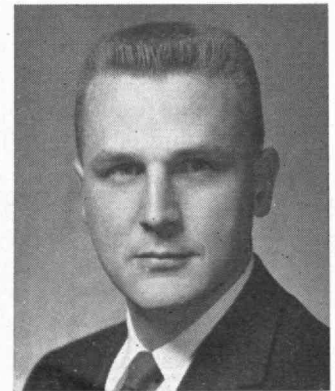
Frederick D. Greene, 2d  
Chemistry



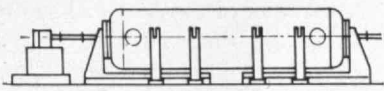
Hermann A. Haus, '54  
Electrical Engineering



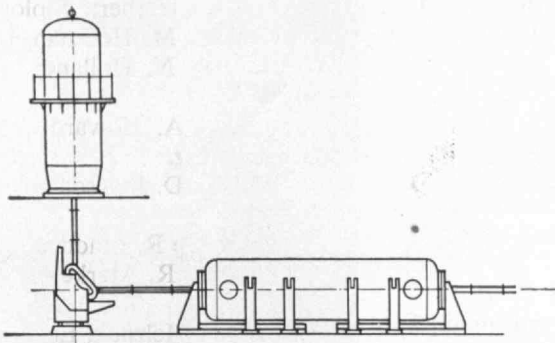
Daniel M. Holland  
Industrial Management



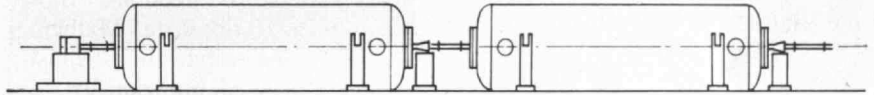
David A. Huffman, '53  
Electrical Engineering



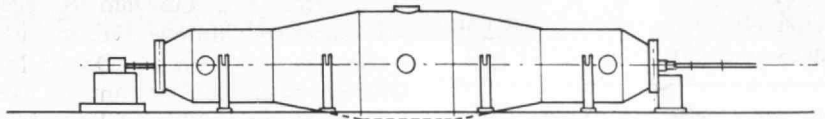
12 MeV 2-stage Tandem (Model EN) **1957**



**1961** 17.5 MeV 3-stage Tandem (Model EN)  
with 5 MeV negative ion injector



**1962** 21.5 MeV 3-stage Tandem (Model FN)



**1962** 20 MeV 2-stage Tandem (Model MP)

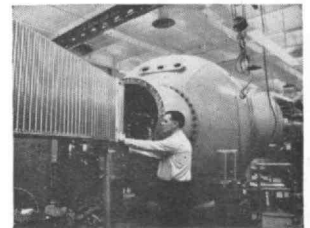
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## Individuals Noteworthy

(Continued from page 6)

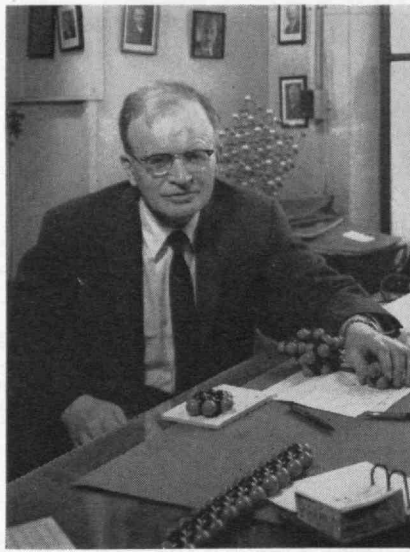
### Institute Professor

ARTHUR R. VON HIPPEL, founder and director since 1940 of the M.I.T. Laboratory for Insulation Research, this spring was appointed an Institute Professor.

Born in Germany in 1898, Professor von Hippel received his doctorate at the University of Göttingen, worked for three years at the University of Jena, and came to the United States as a Rockefeller Fellow in Physics at the University of California. He then served three years as privat-docent at Göttingen, a year as professor at the University of Istanbul, and went to the University of Copenhagen where he worked with Professor Niels Bohr.

At M.I.T. since 1936, he has become increasingly noted for his research in dielectrics and molecular science and engineering, and his con-

*The men shown below are among those promoted to the rank of professor this spring.*



Arthur R. von Hippel

tributions to materials science. He has edited *Dielectrics and Waves*, *Dielectric Materials and Applications*, and *Molecular Science and Molecular Engineering*.

He was a member at large of the Office of Scientific Research and Development during World War II, and has been professor of electrophysics since 1947.

## Faculty Retirements

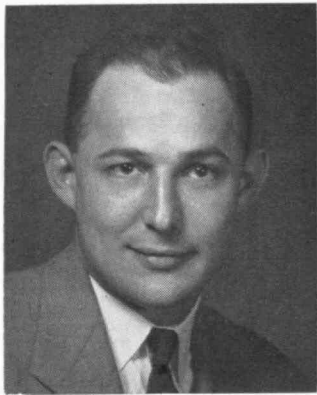
MEMBERS of the M.I.T. Faculty retiring on June 30 this year were *John Chipman*, Professor of Metallurgy and Head of the Department; *James Holt*, '19, Professor of Mechanical Engineering; *Nicholas A. Milas*, Associate Professor of Organic Chemistry; *Frederick H. Norton*, '18, Professor of Ceramics; *Carl L. Svenson*, '19, Professor of Mechanical Engineering; and *Carlton E. Tucker*, '18, Professor of Electrical Engineering.

### Assistant Dean

WILLIAM W. SEIFERT, '47, Associate Professor of Electrical Engineering, was appointed assistant dean of the School of Engineering at M.I.T. this spring. In addition to continuing his teaching, he will now assist the Faculty on matters related to the enhancement of engineering education.

Professor Seifert has been associated with M.I.T. since 1944, and played a major part in developing advanced analog computing facilities in the Dynamic Analysis and Control Laboratory.

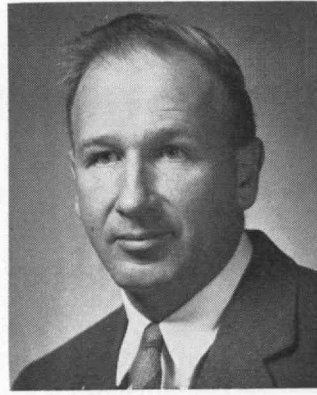
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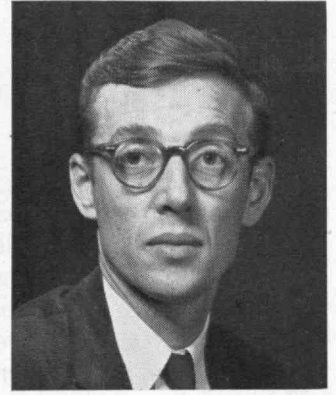
W. David Kingery, '48  
Metallurgy



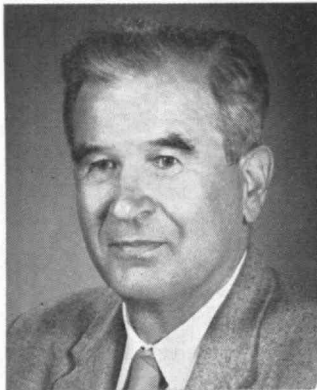
Edwin Kuh  
Industrial Management



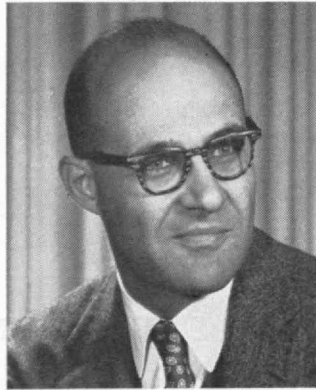
Edward N. Lorenz '43  
Meteorology



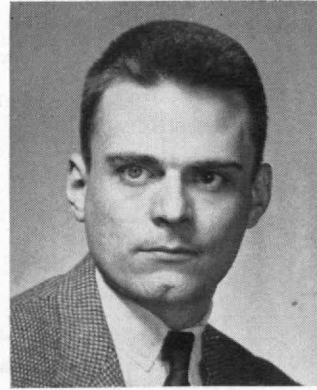
E. L. Mollo-Christensen, '48  
Aeronautics



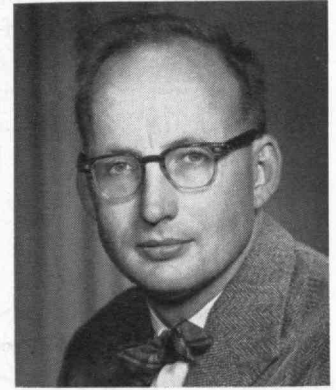
Alexander Smakula  
Electrical Engineering



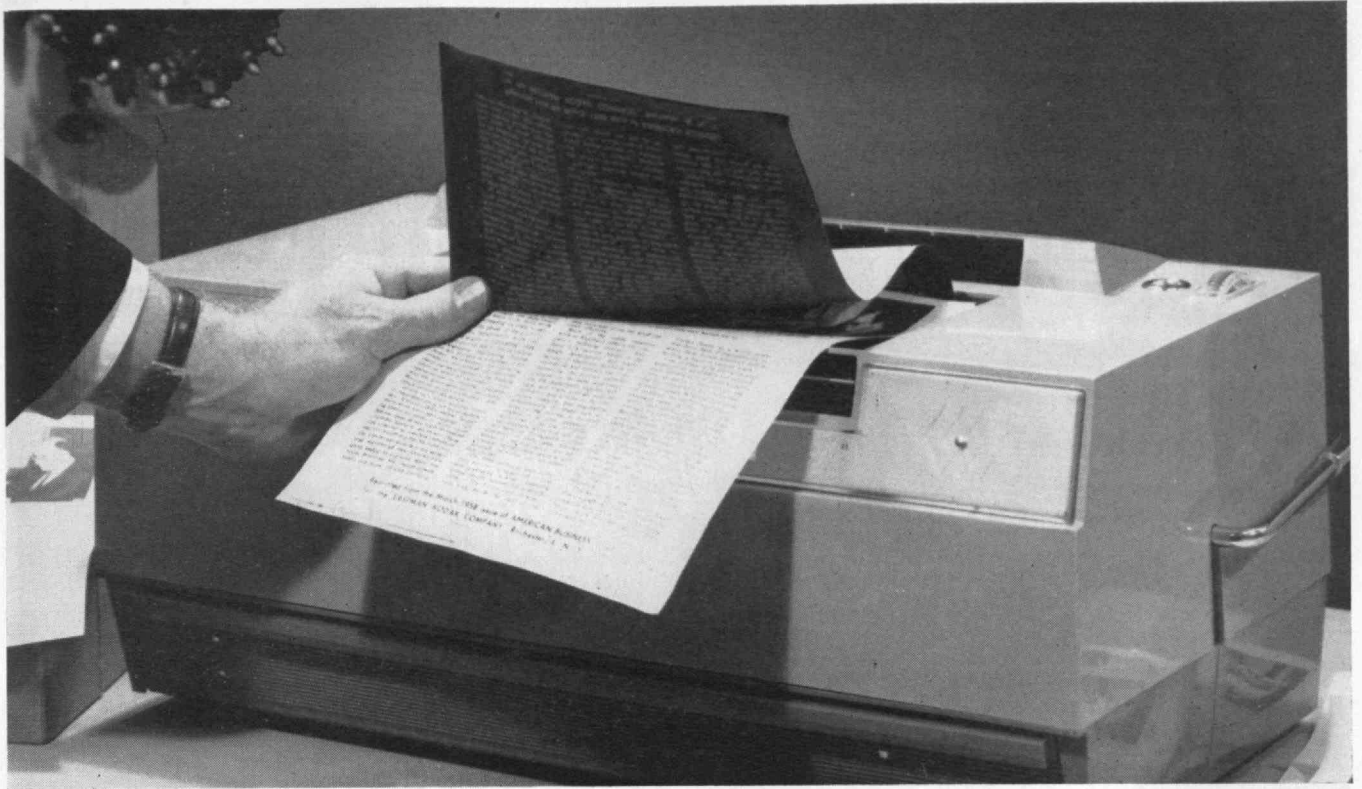
Leon Trilling  
Aeronautics



John Stewart Waugh  
Chemistry



Robert C. Wood  
Economics



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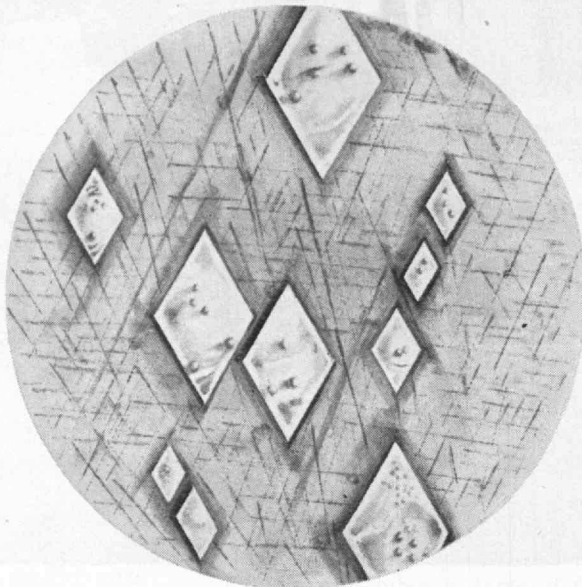


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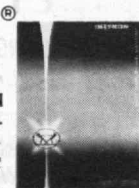
Even beyond the perfection of a single crystal, with its rows and planes of atoms in ordered array, there is much scientific interest in the minute imperfections in the symmetry of the atomic lattice. These "errors" in symmetry cause precious gems to show their beautiful colors and semiconductors to exhibit their important electrical properties. Also, the stress-strain behavior of a crystal is influenced, to a marked degree, by the kind and number of these lattice imperfections. If we can better understand the mechanisms by which these "mistakes" influence material properties, we may hold the key to the synthesis of new materials — materials from which we will fashion the tools of the future!

Laboratory investigations of single crystals require precision and ingenuity which is totally new. To assist in this work, we at Instron build sensitive and accurate testing instruments suitable for a broad range of stress-strain studies. In other fields, Instron instruments are used to study the rheology of high polymers, the performance of refractory metals and ceramics at high temperature or the properties of textile materials and biological tissues, for example.

We have reprinted many technical articles describing the work of outstanding men in this new technology of materials. If you would like to know more about the work being done in single crystals, or any other material, tell us your field of interest. We will be glad to send appropriate literature.

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## Individuals Noteworthy

(Continued from page 8)

### Sloan Fellows Professor

DOUGLAS M. MCGREGOR, who first came to M.I.T. as an instructor in 1937, this year became the first occupant of a new Sloan Fellows Chair established by the Society of Sloan Fellows.

The first Sloan Fellows Professor of Industrial Management is a former president of Antioch College and was



**Douglas M. McGregor**

the founder of the Industrial Relations Section of the School of Industrial Management at M.I.T.

Born in Detroit in 1906, Professor McGregor was educated at Wayne University and Harvard University, and in addition to a distinguished academic career has had extensive experience as a consultant on industrial relations. He is the author of *The Human Side of Enterprise* and many articles on social psychology and its application to personnel and industrial administration.

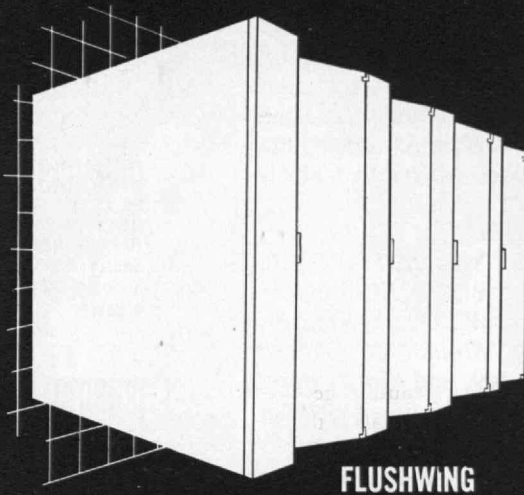
### Allis Goes to NATO

AFTER attending commencement weekend festivities, Professor William P. Allis, '23, expected to leave for Paris to become assistant secretary general of NATO. He will be on leave of absence from M.I.T. for two years.

His duties will include responsibilities for research grants in 14 countries, directing advanced study institutes, and advising the Atlantic alliance on scientific matters.

(Continued on page 12)

# THE QUALITY LINE OF TOILET PARTITIONS



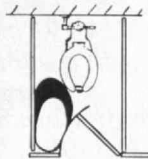
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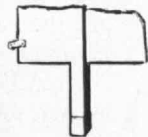
## FEATURES OF FLUSH-METAL TOILET PARTITIONS



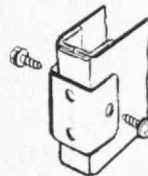
Flusheal Construction makes use of an internal edge-reinforcing channel through which all hardware is anchored.



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# TECH NEWS

for Scientists, Mathematicians  
Operations Evaluation Group

"Operations research"—the term itself—has attained full status in the recently published Webster's Third International Dictionary. OEG takes particular



pleasure in this recognition because of our background as the oldest military operations research organization in the country.

Now when someone asks, "But what do you do?" we can refer him to Webster's.

OEG advises the Chief of Naval Operations and certain Fleet and Force commanders regarding operational problems susceptible to quantitative analysis.

A recent example is collected under the title, "The Selection of Cargo for Air Transport." Here the objective was to determine criteria for shipping the myriad replacement parts



stocked by the Navy's Yokosuka (Japan) Supply Depot. One interesting discovery: Less than 1% of the line items account for well over half the dollar value of annual issues at Yokosuka.

The more sobering content of another recent study can be deduced from its title, "The Effects of Radiation on Populations," a two-part work considering (1) the effects on individuals exposed to radiation today and (2) the genetic consequences for future generations. One of many conclusions: The continued detonation of nuclear weapons in the stratosphere, at a 100-megaton-yearly rate, would result in reducing individual life expectancy by approximately 20 days.

Assisting in the creation of a stable U. S. deterrent posture is one of the major aims of OEG's research program. Permanent career positions are available to scientists and mathematicians with advanced degrees who are interested in problem-solving and want to contribute substantively to the national purpose. These positions are in Washington, D. C. Please send your inquiry to the Director, Dr. Jacinto Steinhardt.

## OEG

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## Individuals Noteworthy

(Continued from page 10)

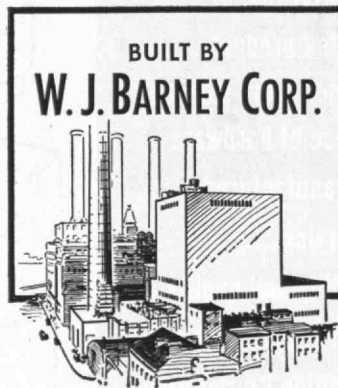
### Honors to Alumni

RECIPIENTS of recent awards and similar distinctions have included:

*Harold S. Osborne, '08*, the Silver Medal Award, by the American Society of Planning Officials . . . *Earl P. Stevenson, '19*, an honorary doctorate of engineering, by Tulane University . . . *Latimer F. Hickernell, '22*, an honorary doctor of science degree from Grinnell College . . . *Roy G. Rincliffe, '23*, the Dean Award for community service, by the Philadelphia Press Association . . . *Allan T. Gwathmey, '28*, the Distinguished Service Award, by the Virginia Section, American Chemical Society;

*Albert G. H. Dietz, '32*, the John W. Derham Memorial Lecture Award, by the Plastics Institute of Australia . . . *W. David Kingery, '48*, *Richard E. Mould, '48*, *Willard E. Hauth, Jr., '49*, and *Morris Berg, '53*, new Fellows of the American Ceramic Society . . . *Richmond P. Boyden, '59*, the Flight Test Engineering Fellowship, by the Institute of the Aerospace Sciences . . . *Thomas A. Briner, '61*, the Lloyd Warren Fellowship, 49th Paris Prize in Architecture.

(Continued on page 14)

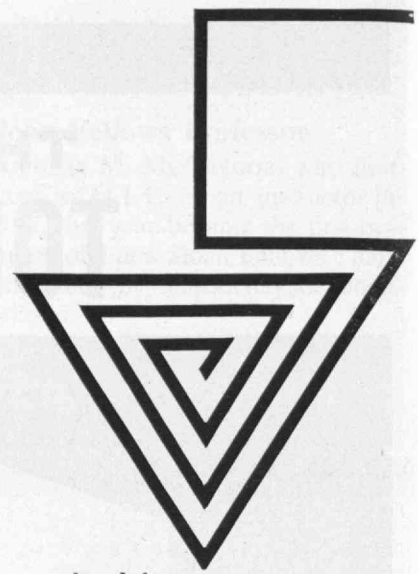


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- Plasma Electron Beam Interaction
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### solid state physics

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- Optical Studies
- Magnetic Resonance
- Defect Studies
- Energy Conversion
- Electrical Transport Studies

Our new laboratories, located just 25 miles west of Boston, provide a basic research environment with maximum freedom to pursue fundamental ideas. Individual achievement is recognized, in part, by the publication of papers written by our scientists. Exceptional growth opportunities . . . professionally and financially . . . exist for all our members.

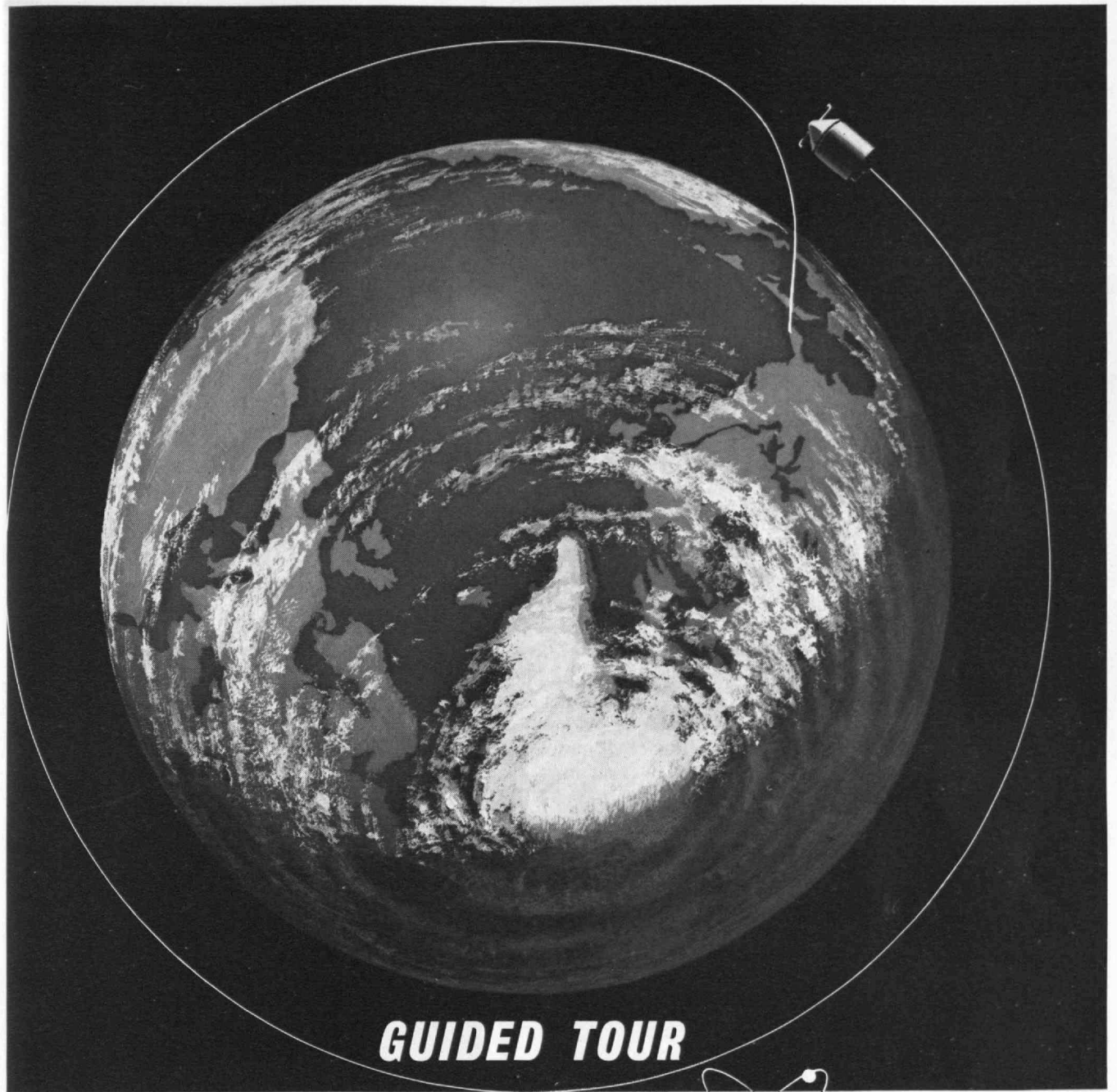
Please direct your resume to:  
Mr. Frederick M. Swope, Jr.,  
Dept. 304

SPERRY RAND  
RESEARCH CENTER

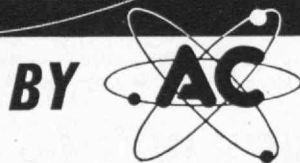
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## GUIDED TOUR



AC Spark Plug, The Electronics Division of General Motors, has accepted an exciting new challenge: the development and production of a navigational-guidance system for the first phase in NASA's APOLLO project of manned flight to the moon. This new assignment is another significant step in the progress that is being made at AC . . . progress achieved through the knowledge of AC's highly skilled, highly respected staff of creative engineers. We suggest that you inquire about the advantages of being associated with our new assignment or other projects now underway at AC. If you have experience in any of the following specialties and have a B.S., M.S., or Ph. D. in Electrical Engineering, Mechanical Engineering, Physics, or Mathematics, send your resumé to G. F. Raasch, Dir. of Scientific and Professional Employment, AC Spark Plug Div., Dept. 5753D, Milwaukee 1, Wis.

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**LOS ANGELES RESEARCH AND DEVELOPMENT LABORATORY (Airborne Digital Computers & Advanced Inertial Guidance Systems)** ■ Development Engineers ■ R & D Engineers ■ Circuit Design Engineers ■ Systems Engineer

**BOSTON RESEARCH AND DEVELOPMENT LABORATORY (Advanced Inertial Guidance Systems & Components for Future Aircraft, Ballistic Missiles & Space Vehicles)** ■ Systems Engineers & Mathematicians ■ Electronic Circuit Engineers ■ Physicists ■ Instrument Engineers ■ Electromagnetic Engineers ■ Radar Systems Engineers

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## Individuals Noteworthy

(Continued from page 12)

### New Posts

NAMED in the news of promotions, elections, and appointments recently were:

*Archie P. Cochran*, '20, as Chairman, Anaconda Aluminum Company . . . *Philip M. Alden*, '22, as Chairman, Better Light Better Sight Bureau . . . *Allan H. Kidder*, '22, as Chairman, Engineering Foundation . . . *Samuel M. Seegal*, '22, as a Director, National Council on the Aging;

*Chaplin Tyler*, '23, as a Director, Delaware Investment Company, Inc. . . . *Clarke Williams*, '24, as Deputy Director, Brookhaven National Laboratory . . . *James H. Howard*, '25, and *Donald A. Hurter*, '46, as Vice-presidents, Standard-Thomson Corporation . . . *James R. Killian, Jr.*, '26, as a Trustee, Mount Holyoke College;

*Harold W. Fisher*, '27, and *Emilio G. Collado*, '31, as Vice-presidents, Standard Oil Company (New Jersey) . . . *Benedicto B. Padilla*,

'27, as Acting Chairman, Philippine Tobacco Board . . . *John Stack*, '28, as Vice-president and Director of Engineering, Republic Aviation Corporation . . . *Archibald W. Adkins*, '29, as Technical Director, Engineering Mechanics Department, Dynatech Corporation . . . *Howard L. Richardson*, '31, as a Director, Burndy Corporation . . . *Morley G. Taylor*, '31, as President, Canadian International Power Company, Ltd.;

*Hollinshead T. Martin*, '33, as Vice-president, Signode Steel Strapping Company . . . the *Honorable Robert H. Winters, P.C.*, '33, as a Director, Algoma Steel Corporation . . . *H. Neal Karr*, '34, as a Director, The Singer Manufacturing Company . . . *John Ayer*, '36, as Vice president, Operations, Denver & Rio Grande Western Railroad . . . *Norman A. Copeland*, '36, as Director of Research and Development, Du Pont Film Department;

*Kenneth G. McKay*, '41, as Executive Vice-president, Bell Telephone Laboratories . . . *Lloyd W. Hartman, Jr.*, '48, as President, Lake Central Airlines . . . *Lowell S.*

*Bensky*, '50, as President, Rese Engineering, Inc. . . . *Melvin J. Gardner*, '50, as a Director, The Arwood Corporation . . . *Kenneth G. Harms*, '51, as Vice-president, Engineering, Polymer Processes, Inc. . . . *Charles K. Schramm, Jr.*, '51, as Vice-president, Colloids, Inc. . . . *James H. Howard, Jr.*, '53, as Vice-president, Andruss-Peskin Corporation.

### Advanced Research Head

RAYMOND L. BISPLINGHOFF, Professor of Aeronautics and Astronautics at M.I.T., has been appointed to succeed Ira H. Abbott, '29, as director of the National Aeronautics and Space Administration's Office of Advanced Research and Technology.

Professor Bisplinghoff will be concerned with the engines, fuels, guidance and communications systems used in space research in future decades. He has been a member of the Institute's Faculty for the last 16 years, and previously served the Department of Defense and NASA's predecessor.

(Continued on page 16)



## NEW INKS for new surfaces

The new Mylar, Acetate and Vinyl drafting surfaces demand new types of drawing inks. Higgins has met this problem with two new India inks designed just for plastic and water-repellent surfaces:

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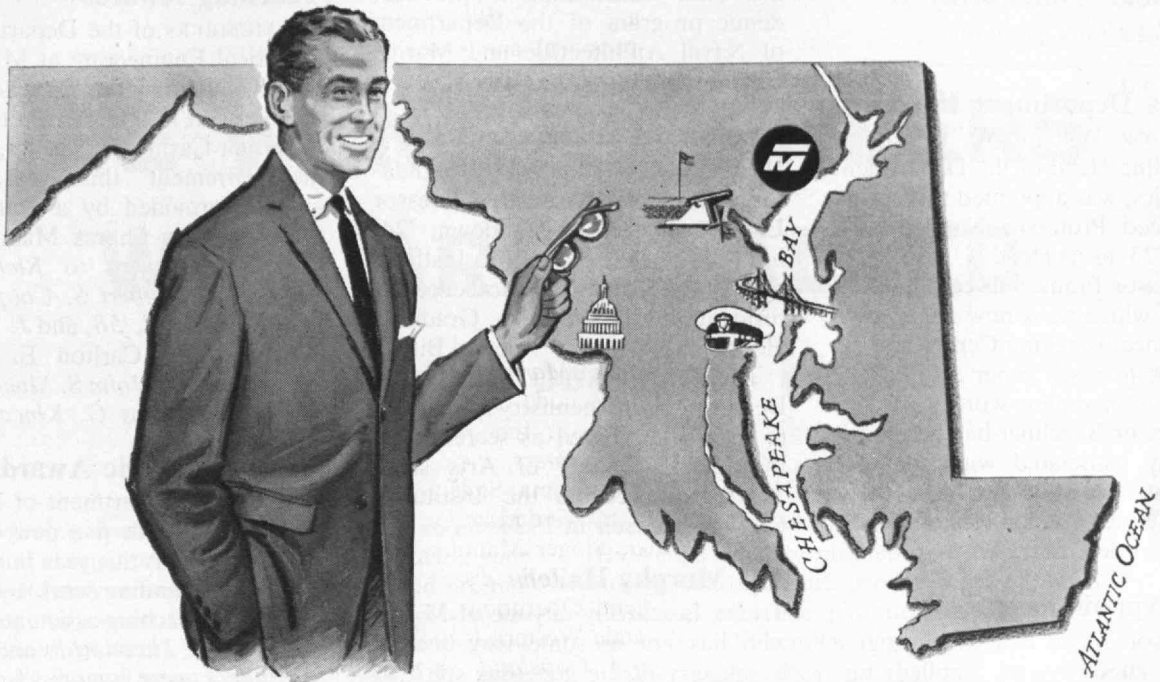
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| Servo-Analysis             | Engineering              |
| Automatic Control Systems  | Reliability Engineering  |
| Celestial and Orbital      | Telemetry-Data Handling  |
| Mechanics                  | Systems                  |
| Radiation Heat Transfer    | Communications Systems   |
| Rocket Propulsion Analysis | Guidance and Navigation  |
| Elevated Temperature       | Systems                  |
| Structural Analysis        | Launch & Control Systems |

### ELECTRONIC SYSTEMS AND PRODUCTS DIVISION

|                         |                       |
|-------------------------|-----------------------|
| ASW                     | Infrared              |
| Guidance and Navigation | Human Factors         |
| Microwave               | Solid State Circuitry |
| Reconnaissance          | Modern Packaging      |
| Command and Control     | Data Processing       |

### NUCLEAR DIVISION

|                    |                      |
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| Energy Conversion  | Radiation Effects    |
| Compact Reactors   | Metallurgy           |
| Shielding Analysis | Solid State Physics  |
| Nuclear Rocketry   | Radiochemistry       |
| Plasma Physics     | Facilities Design    |
| Hazards Analysis   | Marketing            |
|                    | Magnetohydrodynamics |

**MARTIN Company**  
Aerospace Division of

**MARTIN MARIETTA**

BALTIMORE 3, MARYLAND



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## Individuals Noteworthy

(Continued from page 14)

### Physics Department Head

PROFESSOR William W. Buechner, '35, Acting Head of the Department of Physics, was appointed this spring to succeed Professor Nathaniel H. Frank, '23, as its Head.

Professor Frank will continue the work in which he is now engaged in the Science Teaching Center and be available to assist other science departments in similar work.

Professor Buechner has been continuously associated with the Department since 1935 and has worked for many years with Professor Robert J. Van de Graaff.

### Joint Appointment

PROFESSOR Jacob P. Den Hartog, a leading authority on applied mechanics and former Head of the Department of Mechanical Engineering, has accepted a joint appointment as professor of mechanical engineering in both the Departments of Naval Architecture and Marine Engineering and that of Mechanical Engineering. Professor Den Hartog

has been contributing to the academic program of the Department of Naval Architecture and Marine Engineering for some time.

### Graduate Housemaster

HAVING reached the age of mandatory retirement, Associate Professor Emeritus Avery A. Ashdown, '24, has relinquished his official Institute duties and has been succeeded as resident master of the Graduate House by Professor Francis Bitter.

Professor Ashdown taught in the Department of Chemistry from 1925 to 1957, has served as secretary of the M.I.T. Society of Arts since 1940, and became the Institute's first housemaster in 1933.

### Mr. Murphy Hailed

THERE is scarcely anyone at M.I.T. who has not in some way been a beneficiary of the generous spirit of James N. Murphy, Manager of Kresge Auditorium since 1955, President Julius A. Stratton, '23, observed at this year's student awards convocation. Mr. Murphy was given a check and silver tray, and thus became the first employee so honored at a student convocation.

### Teaching Awards

SIX MEMBERS of the Department of Electrical Engineering at M.I.T. received awards for "excellence in teaching" at a dinner given to honor Professor Carlton E. Tucker, '18, on his retirement this year. Four awards, provided by a grant from the Television Shares Management Corporation, went to *Richard J. Briggs, '59, Robert S. Cooper, Joseph L. Hall, 2d, '58, and J. William Poduska, '59.* Carlton E. Tucker Awards went to *John S. MacDonald, '61, and Thomas G. Kincaid, '61.*

### General Electric Awards

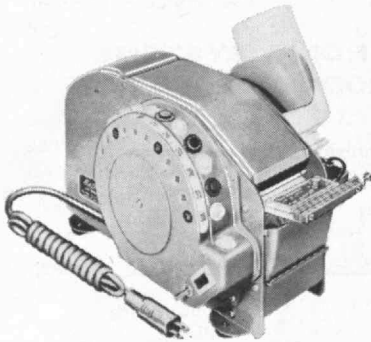
THE M.I.T. Department of Nuclear Engineering made five new General Electric Awards this year in recognition of outstanding work by its research and teaching assistants.

*George C. Theodoridis and Carlos S. Ribbeck* were honored for excellence in teaching; *Lucien J. Donadieu, '56,* for work in developing large superconducting magnet systems; *John M. Neill, '61,* for gamma-ray spectrometry research; and *Richard E. Skavdahl, '56,* for research on ruthenium solvent extraction.

(Continued on page 58)

## Better Pack

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## Wrap-O-Matic

SEMI-AUTOMATIC POWERED WRAPPING SYSTEMS



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# WE WANT ENGINEERS WHO ARE STALLED

**on that sub-supervisory plateau**

Moving upwards in industry can be an erratic and chancy process. Advancement during your first few years may indeed be rapid and promising, but when you reach that first sub-supervisory plateau, your continued advancement may depend upon getting a "break," the same "break" that a number of others may also be waiting for. This is the time to consider your course of action if you, for one reason or another, do not appear likely to get this break.

We are offering you the opportunity to make a break for yourself before you become ruttled or taken for granted. We are offering recent graduate engineers—aeronautical, electrical, electronic, mechanical, chemical, and aerospace—with one to three years experience the opportunity to join a proven career development program for advancement to the \$9,000 level within six months to 3 years depending on your experience.

"We" are the many facets of the Navy's Bureau of Naval Weapons, the organization within the civilian Navy that is responsible for creating a vast array of subsurface, surface, air and space weapons—combining the original functions of naval ordnance and aeronautics.

Because the Naval establishment maintains direct control over the design, development, test and evaluation of all its programs, BuWeaps engineers are given far greater responsibilities across a broad spectrum of activities than can be achieved anywhere else. In

this, the supposed "Age of Specialization," the BuWeaps engineer may become involved in the design, management, procurement administration and advance planning for as many as seven or eight unrelated programs.

We would like to talk to you about broadening your professional capabilities and increasing your management experience. If selected for this management program, you will be given a variety of on-the-job training and assignments under individual guidance until you have acquired the breadth of knowledge required for advancement to GS-12 (\$8,955 and up). You should be able to do this within three years—less if your experience and abilities warrant.

At this point, a great many doors will open to you, rather than just one.

But before you reach this level, and as soon as you join this Program, you are entitled to all the benefits of Career Civil Service. This means 3 weeks paid vacation (4 weeks after three years), 8 paid holidays and 13 days sick leave each year, partly-paid group life and medical insurance, unusually attractive retirement policies . . . and the time off, encouragement and financial help to take job-related graduate courses given right at Naval headquarters, and at local universities.

To get full details on this outstanding management development program, get in touch with Harvey Jackson, Personnel Coordinator.

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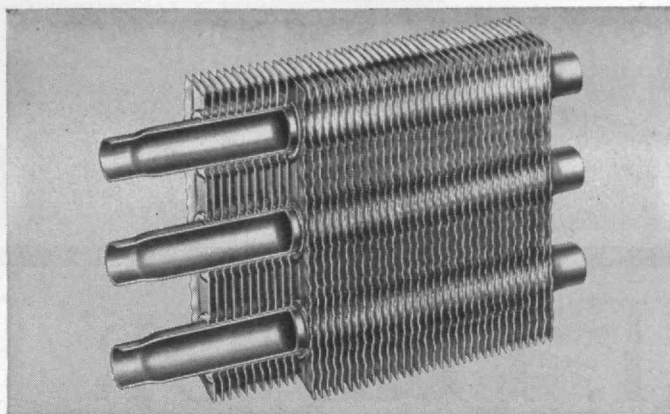
Brunswick contributes to vital national defense programs through design, development, and manufacture of metal and plastic component parts for the aero-space industry.



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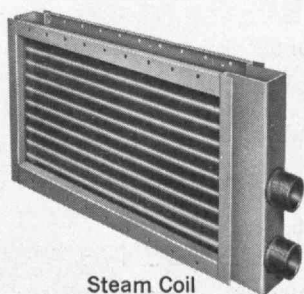
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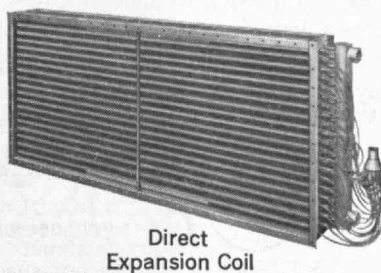
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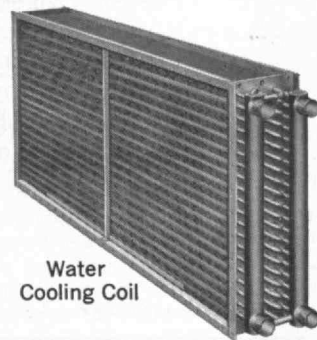
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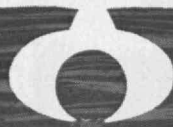
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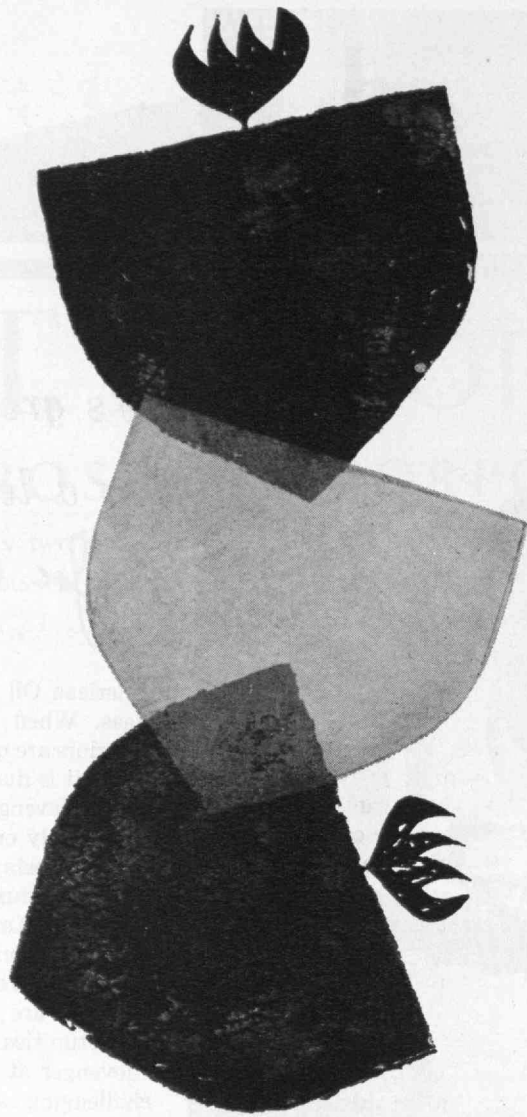
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# Science and Technology In Modern Perspective

*Are they a blessing or curse? Overemphasized in the world today? Couldn't scientists and engineers manage the world better than its current leaders? What do you want from life? . . . The 1962 Commencement Address at M.I.T.*

BY THE REV. THEODORE M. HESBURGH, C.S.C.

*President of the University of Notre Dame*

THE GREATEST TEMPTATION facing a commencement speaker at M.I.T. is to tell you what you want to hear and probably believe: that in a world deeply committed to science and technology you have completed an education that assures you of great success. I trust that there have been enough recruiters here during recent months to sing this song, so I shall spare you another rendition. Besides, it is somewhat of a siren song, because what it says is only half true, if that much. The truth, I think, hinges on the meaning of success.

A lesser temptation would be for me to recount what a mess the world is in, and how eagerly the world beyond needs and awaits you to save it. The only problem with this approach is that unless you really understand the true dimensions of the mess, and what is causing it, you are likely to go forth and make the world yet messier.

Suppose rather than telling you something, which you might not believe anyway, I ask you a few questions mainly relating to science and technology in modern perspective. There ought to be some ground rules for these questions, however, since otherwise I have you at a disadvantage. Let us say that the questions should be relevant to the world, or better, relevant to the life for which you have been preparing yourself, and that I, too, should commit myself to a few answers so that you may agree or disagree with me as you answer the questions for yourselves. This is in the academic tradition, and fair game.

First question: *Are science and technology a blessing or a curse in today's world?* I suspect most of you would answer, "A blessing." That had better be your answer if you expect to be Alumni of this institution in good standing. If you do say simply this, however, I disagree with you, and I shall tell you why.

Most briefly, may I say that science and technology are in themselves neither a blessing nor a curse, although, in fact, they are a bit of both and may be either depending upon how they are actually used. Science and technology are in themselves neutral, neither

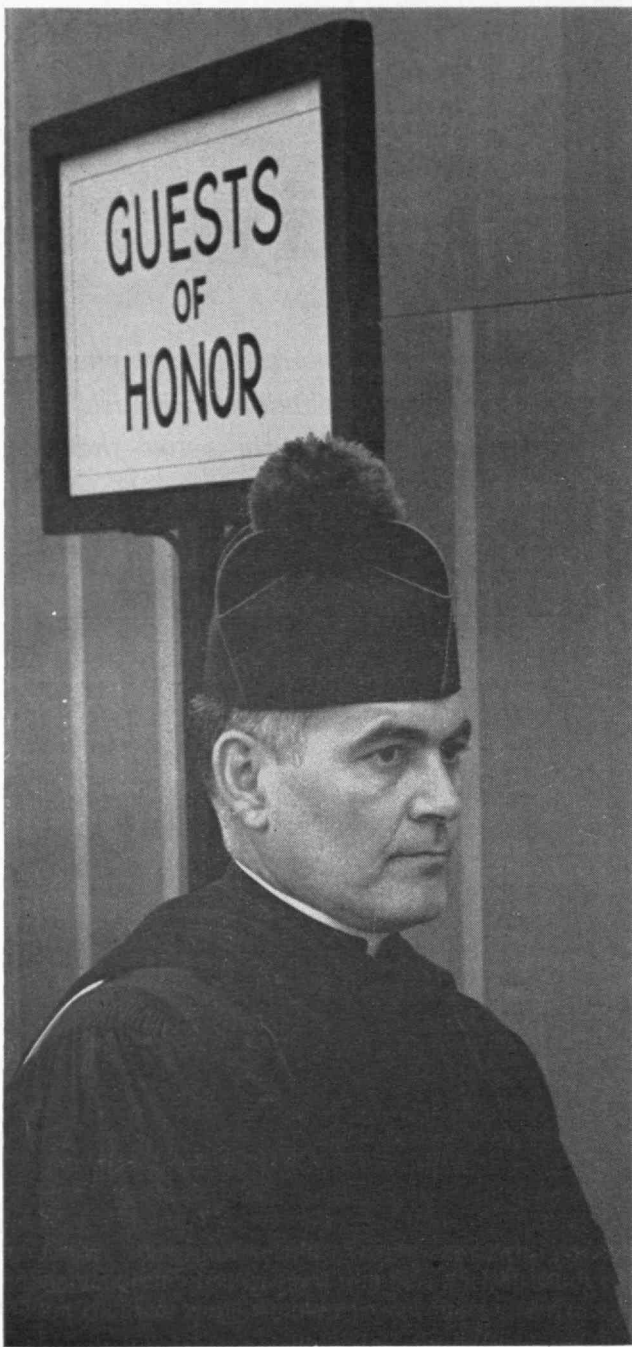
good nor bad. Most simply, they represent two great realities: knowledge and power. Insofar as you have become competent in science and technology, you possess this knowledge and this power. It is yours to use or abuse, as are all other forms of knowledge and power.

Herein lies the true meaning of science and technology as a blessing or a curse in our day. It is not the quality of our science and technology that really answers this first question, but the quality of our scientists and engineers, *as persons*. It is mainly persons who give a moral quality to things, who bless or curse, who do good or evil, with the means available.

Second question: *Are science and technology the greatest forms of knowledge and power in the world today?* I do not know you well enough to suppose your answer to this question, but may I say that many in today's world would answer simply, "Yes." I dislike being disagreeable, but with those who answer thus, I again disagree. And this is why.

Science is knowledge of the physical world, of those things which are sensibly observable, or measurable, capable of being conceptualized in mathematical formulae, submitted to hypothesis and verification. The power of science and technology is physical power, awesome, yes, if seen internally as fission or fusion in the heart of the atom, or externally in the brilliance of a super nova. One can well respect and reverence this knowledge and this power. Science and technology represent the really obvious new frontier in our day, they command and fashion most of our resources, they man our front-line defenses, they produce the affluent society, they attract the majority of our most brilliant people, they spark the revolution of rising expectations around the world.

One can say all of this and yet not admit that science and technology are the greatest forms of knowledge and power in our day. To disagree, one need only believe that there are realities that transcend the physical order. If one says this, he also says that there



**FATHER HESBURGH** was introduced to M.I.T.'s Class of 1962 as "a many-faceted man." He became the University of Notre Dame's president in 1952 at the age of 35, is a member of the U.S. Commission on Civil Rights and the National Science Board, and is the Vatican's permanent representative to the International Atomic Energy Agency.

Born in Syracuse, N.Y., he studied at Notre Dame, the Gregorian University in Rome and the Catholic University of America, and was ordained a priest of the Congregation of Holy Cross in 1943. He is a trustee of the Ford Foundation and the Carnegie Foundation for the Advancement of Teaching and was president last year of the Association of American Colleges. He is the author of *Patterns for Educational Growth*, and a widely used college text, *God and the World of Man*, has been active in numerous educational organizations, and holds honorary degrees from Columbia, Princeton, Dartmouth, and many other schools.

are limitations to knowledge and power of a physical order, that indeed this knowledge and power need something outside and beyond themselves for their true meaning and direction in the total life of mankind. This proposition was stated very simply ages ago. I cannot improve on the statement: man does not live by bread alone.

In saying this, one need not denigrate science and technology. It is not a question of either-or, but of both-and. It is a matter of proportion, of total meaning. Man does need bread, too.

Third question: *In view of the foregoing, are science and technology overemphasized in the world today?* If you have been with me thus far, you might be inclined to utter a cautious and qualified, "Yes," but even then I would disagree. I am not for less science and technology, but more. However, this "more" must be qualified. It is not necessarily more of the same. I will agree that in our own country we have, thanks to science and technology, created the highest standard of living yet known to mankind: better food, better housing, better clothing, better communications and transportation, better medicine and better life expectancy. Is this bad? Of course not. But it is not automatically good either. We have spoken here of material benefits—and these alone do not make the life of man good. The worst gangster may enjoy a ranch house, air-conditioning, good food and drink, a Cadillac, a private airplane, the best medical care that money can buy, and a long life, too.

When I say more science and technology, I am not thinking of more luxurious living conditions for Americans of every and any quality. I am thinking of the broader context of the world in which never before have so many millions of people been more poorly housed, or fed, or clothed. Never before have there been more illiterates, more infant deaths, or more people with frustrated hopes for a better life. More science and technology does indeed have an answer for all of these very real human problems, but the answers will only come if scientists and engineers put their science and technology to work in the true service of mankind everywhere, to respond to real human needs rather than pampering imagined wants, piling luxury upon luxury, and convenience upon convenience.

Personally, I am not interested in better dog food when people are hungry. I spoke earlier of proportion. Even in the material order, proportion plays an important role. I have seen people dying on the streets of Calcutta; I have seen hungry refugee children on the sampans and in the shacks of Hong Kong; I have seen unnecessary disease in Uganda, in Pakistan, in Brazil and Chile. I have sensed the hopelessness of many of the 900,000,000 illiterates of this world. Against this background, I am slightly nauseated when I see science and technology dedicated to trivial purposes like better deodorants and better detergents, better cosmetics and more aesthetic telephones, better garden sprinklers and better remote control of wrestling and horse operas on television. If this is the overemphasis spoken of, of course we have too much, but how can this knowledge and power be overemphasized if it is directed against man's ancient enemies of hunger, disease, illness, and ignorance? In a world largely frustrated, we cannot be against that which brings great hope.



It is not really science and technology we speak of, but the forces that motivate their use for trivial or meaningful purpose in our day. And again, we speak of a personal equation, of the inner values that lead a scientist or engineer to use his knowledge and his power for noble or trivial ends. The trivial use of science and technology may mean a great personal profit to the scientist or engineer; the noble is rarely profitable. But this is only to say again that there is indeed a higher order of values that makes science and technology meaningful, and that these values reside not in science and technology, but in the person of the scientist or engineer. He alone confers human nobility upon his knowledge and his power. With highly motivated and dedicated scientists and engineers, the knowledge and power of science and technology will always be a blessing to mankind; indeed in our day, they may help create a physical situation in which human dignity can finally flower all around the world. But in the hands of those to whom knowledge is a means of personal selfish profit, and power a raw edge for creating fear of utter destruction and conquest of the world to slavery, science and technology can well become a curse. In any event, man makes the difference for man alone of God's creatures is free to reproduce beauty, order, and justice in this world—or ugliness, disorder, and grinding injustices. Science and technology are powerful means to either purpose. In a free world, it is man, the scientist or engineer, who makes the choice of goals for science and technology in our day.

Fourth question: *Wouldn't the world really be a better place if we could replace the current leadership—the politicians, the philosophers, the lawyers, the humanists, and the theologians—with scientists and engineers?* I am sure that this question, on the surface, sounds somewhat preposterous to you, but there are scientists who do profess to have an answer for everything, who have been disillusioned by political and legal forces in our day, who often feel unduly inhibited by philosophy and theology, who legitimately bristle when they are portrayed by the humanists as the new savages, bringing the world to the brink of destruction.

One might make the point that these others, the non-scientists acted mightily selfish themselves when they had their day of ascendancy. I must resort to some oversimplification here, but I think the main point at issue will be evident to you. The Greeks in their day reduced all knowledge to philosophy: a remnant of this remains as many scientists today receive Ph.D's—doctors of philosophy. The Romans brought our civilization a heritage of law and political order. Many of our current legal principles were formulated long ago in the Code of Justinian, when science was fairly primitive. Renaissance man almost worshiped the arts. Science was simply a liberal art in those days. In medieval times, theological synthesis was in highest vogue. The earliest universities turned 'round about the faculty of theology. The queen of the sciences was theology's most cherished title. None of you would have had then, the ascendancy you enjoy today. In fact, the explosive beginnings of science and technology were most often met with resistance and misunderstanding.

Would it be any surprise then if history were to repeat itself, if you who hold the ascendancy today were to claim as your exclusive right the center of the stage,

as the philosophers, the lawyers, the humanists, and the theologians did in their day? Would it be incomprehensible if scientists and engineers were to claim today that they, with their revolutionary new knowledge and power, could do a better job of running the world than those who preceded them in man's long history of intellectual development? I grant you that the temptation is there, and very real. There is historical precedent for those who would answer my latest question in the affirmative and claim exclusive leadership today for scientists and engineers as the best the world may expect and need.

I could readily understand this stance, but again, in disagreeing with this position, I would only underline one perceptive statement: that those who are merely children of their day, who do not understand history, condemn themselves to repeat all the human errors of the past. I have commented amply on the modern world's need for science and technology, but have always reiterated the need for other values if this new knowledge and power are not to be perverted in our day, to man's great loss, indeed, possibly to his utter destruction. I have no argument against the enthusiasm and zeal you have for science and technology—indeed I share it with a great and abiding new hope. But man does have other needs. There are other legitimate and very important areas of knowledge and power, and frankly some of them are ultimately much more important to man than science and technology. Indeed, science and technology cannot have their true human meaning and direction without reference to this total world of human spirit.

What is really needed today is not exclusivity of knowledge, but a deeper unity of all knowledge, past, present, and yet to come. Each kind of knowledge, scientific, humanistic, philosophical, and theological, has its proper sphere, its proper method of learning and knowing, its innate limitations, too. And each kind of knowledge bears some relation to man's nature and destiny, some service to offer to man and to the God who made man to know, to love, and to be happy in the knowledge of all that is true, and in the love of all that is beautiful and good.

It is true that man's intellectual history up to now has represented a long series of abortive efforts to establish an unwarranted hegemony for this or that kind of knowledge. In our day, you who represent that which is best in science and technology have the unique opportunity of changing this unhealthy historical trend. I cannot imagine this happening in our day unless you possess some deep conviction to see that it does happen, especially in your own intellectual and professional life. It is most probably you who must take the lead in becoming humanists, jurists, philosophers, yes theologians, too. It is you who must begin to repeat with Terence: nothing human is alien to me: no human insight, no human misery, no human beauty, no human knowledge, no human anguish, no human value, no human hunger. Anything less than this leads to a truncated or sterile life, a life without fullest meaning and direction and depth.

It is meaningless and futile, for example, to labor for better communications without being interested and concerned about what is being communicated, to make abundance of food available in one corner of the world



for storage while countless millions go hungry, to make quantum advances in the speed of transportation without ever asking yourselves: Why am I here and where am I going? All of these questions and concerns relate not to the quality of things, but to the quality of persons. Any person, whatever his talent or skill or competence, who does not seek wise answers to these broader human questions, is unfit for significant leadership in human affairs. He is at best an anchorless manipulator, at worst a menace.

To return to our specific question: May I now answer—scientists and engineers who are only scientists and engineers and nothing else should have exclusive leadership in the world today only if man has only material needs, only if he has a purely temporal destiny, only if he is not a person capable of wider ranges of knowledge and power, only if a transcendent moral order does not exist in the universe, only if people can be manipulated like things, not possessing inalienable spiritual rights as persons created in the image and likeness of God. What I have just described is, of course, the world view of the Communists. It is not illogical that their educational system, from top to bottom, is rather totally dedicated to the almost exclusive production of scientists and engineers, who are this and little else.

If we believe differently, should we ask that scientists and engineers abdicate world leadership and confine themselves to the area of science and technology? By no means. One might as well ask that parents forget their children, or that the artist disown the work of his hands. Such is the significance of the knowledge and power of science and technology today that the scientists and engineers would indeed be immoral to be unconcerned with the consequences of their work. As Oppenheimer remarked after Hiroshima and Nagasaki: "The scientist has now known sin." The only

point I have been making is this: you should be concerned, you should indeed lead, but the beginning of significant human leadership involves a deep respect for the totality of man's intellectual and moral heritage, and active cultivation of the wide areas of wisdom above and beyond your science and technology.

I grant you that many humanists, jurists, philosophers, and theologians are illiterate in the vast and growing area of modern science and technology. Their illiteracy in your area is no argument for your illiteracy in their field. I am not excusing them; I am only trying to make the centrality of your position in the world today more fruitful, more meaningful, more significant in its total effect. I believe it was with all of this in mind that your Alma Mater has lately opened its doors to so many significant areas of knowledge beyond the realms of science and technology. I like to believe, immodestly to be sure, that my presence here today is an expression of this same concern. Since you have borne with me thus far, may I direct one final and most personal question to each of you. It is in a very true sense, the most important question of all. It has to do with you, not specifically as a scientist or engineer, but as a person.

Last question: *What do you want from life?* There are many who would answer for you. First the obvious answers from Madison Avenue, which I trust you do not take too seriously, the trappings of the affluent society: food and drink, martinis and charcoal-broiled steaks from your very own backyard grill; the status symbols: house, sports cars, vacation spots, clothes, gadgets, hobbies, and the money to make all of these possible. Material security and success, pleasure and ease, fun and games, so the litany goes. Fortunately, there is enough spiritual adventure in science, enough hard and rigorously dedicated work involved in technology, to insulate you somewhat against these more infantile answers to what makes life worth living. There is nothing wrong, of course, in the material amenities of our day. But to make their acquisition and enjoyment the end all of human existence is a folly worth avoiding like the plague. Too many people spend their lives on this narrow, inane track today and retire all too early to become vegetables.

To take a more serious approach to an answer, you might ask yourself, what are your values? I take it we might assume that these values are of a spiritual character, and that they represent what you really intend to live and work for, or if need be, to suffer and die for. These values are what you must use to define the kind of person you wish to be, the kind of life you intend to live, the best hoped-for meaning of your life in the days ahead, however many or few they will be.

You must make up your own list, of course, for you must live your own life for your own goals. My last words to you are suggestive of some of the enduring values that have made human existence worth while in every age, and that could make your life most meaningful in our times. Beyond that, these values also share the fine patina of eternity, for they have withstood the test of time, they have endured through every crisis that man has known.

First of all, *commitment to truth* in all its forms: the joy of ever seeking truth, the peace of finding truth everywhere, the courage of living truth always. Open-



mindfulness is the prelude to this commitment, intellectual honesty is its truest spirit, and purity of life is essential to both possession of the truth and commitment to what it demands of us.

*Commitment to what is good and excellent.* I mean here no narrowly selfish good, but that every good and noble inspiration might find in you a champion and a defender, and indeed a personification. What is good for your own moral integrity, yes, but also the realization that you will often find yourself and your good in spending yourself and your talent for the good of others who need you. To avoid the taint of intellectual and moral mediocrity, to be willing to stand for something, even something unpopular, if it is good; to be willing to be a minority of one if needs be, this is part of the commitment. But not to be a neutral where principle is involved, a moral cipher, a pragmatic compromiser who easily takes on the protective coloration of whatever moral environment happens to be at hand, this also is ruled out by commitment. Is it too much to expect of you? Anything less is all too little.

*A passion for justice,* in our times. Again, not merely justice for yourself, or your family, or your profession, but especially a passion for justice as regards those who have few friends and fewer champions. There are great and festering injustices in our country and in our world. You can side-step them if you wish, you can close your eyes and say it is none of your business. Then remember that freedom and equality of opportunity in our times are quite indivisible. If one class, or nation, or race of men is not really free, then the freedom of all men is endangered. Injustice breeds more injustice, disorder begets more disorder. You do not need a suit of armor, or a white horse, or a sword, but just a sensitivity to justice wherever it is endangered, a quiet passion to be concerned for justice in our times, a compassion for all men who suffer injustice, or the fruits of injustice. Why suggest this to scientists and engineers? Indeed, why not?

Lastly, I would suggest a value that could have many names, but the simplest name of all is *Faith*. Faith is not an easy virtue for scientists and engineers who in their own profession instinctively take nothing on faith. But in the broader world of man's total voyage through time to eternity, faith is not only a gracious companion, but an essential guide. Let us face the matter frontally and in its deepest dimensions. Faith begins with belief in God, He who is, the ultimate eternal Source of all else that is: all truth, all goodness, all beauty, all justice, all order. Science, as science, tells us nothing of this, nor does science deny any of this, unless you take seriously the prattling of Cosmonaut Titov about not seeing God while in orbit.

On the other hand, one should observe, as Whitehead did, that the world of faith is not uncongenial to science. God is not only a God of omnipotence and freedom, but also a God of rationality and order. While He was free to create or not create a cosmos, and in choosing to create was free to create this cosmos or some other, when He did create, it was a cosmos and not a chaos that was created, since it had to reflect His own perfection.

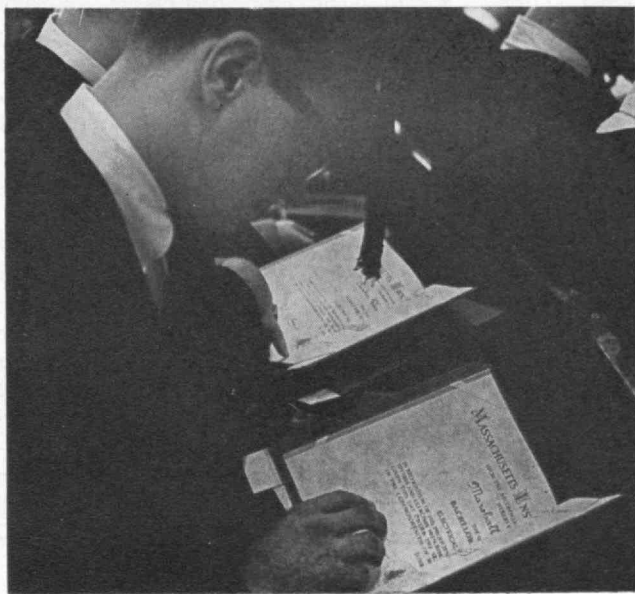
Because God is rational, His work is orderly, and because He is free, there is no predicting absolutely just what that precise order will be. The world of faith is

then a world congenial to empirical science with its twin method of observation and experiment. Unless there were regularities in the world, there would be nothing for science to discover, and being contingent regularities, they must be open to hypothesis and verified by experimentation. This is the rhythm of modern physics: experimental expansion and theoretical development. As an aside, may I express in passing the hope that the theoretical physicists will soon bring some order out of the present chaos of sub-atomic particles. I am sure there is more to this than we now know.

Every year in Vienna, at the Atoms for Peace Conference, I have to assure my Russian scientist friends that I do indeed believe in God and that this does not preclude my believing in science, too—for entirely different reasons, but without becoming schizophrenic about it either. Much would be gained, I believe, if the scientists and engineers in our day were men of faith as well as men of science. Too long has there been an imagined chasm between the very real values of the physical and spiritual worlds. Faith I take to be a gift of God, but one that is amenable to rational foundations and prayerful preparation. It is not just a blind leap into the dark on no evidence whatever. It is rather a luminous opening on another world, that adds new personal dimensions to one's life and wider vistas to one's highest endeavors, in science or in any other field of intellectual interest. For these reasons, I have added faith to my list of the values that make life more meaningful.

Well now, you have my questions and my answers. I trust you have also had within the citadel of your own person, the opportunity to sort out some of your own answers. A lifetime is not too long to cherish such values, nor is eternity too long to reward them.

My prayer for each of you today is that you might find answers that are equal to your opportunities in the days ahead: to be a truly significant person, to live a meaningful, happy, and productive life, to be an influence for truth, justice, and the good life for the vast fraternity of mankind in our times, and ultimately to achieve excellence in all of those endeavors which are to be the sum of your lives. May the good Lord bless and keep you, today and always.



# The Graduation Exercises



**D. REID WEEDON, JR., '41, President of the Alumni Association, carried the mace in the June 8 academic procession to the Rockwell Cage for M.I.T.'s commencement.**

AT ITS 96th commencement exercises, the Massachusetts Institute of Technology granted 1206 degrees to 1135 students. The Class of 1962 had 656 graduates, and in addition to bachelor's degrees this year's awards included 112 doctoral degrees, 57 advanced engineering degrees, and 359 master's degrees.\* Seventy-one members of the group each received two degrees.

More than half of this year's class will go on to graduate schools. A record number, 35, will study medicine. Three were to leave immediately for tours of duty in the economic ministries of African countries.

The commencement speaker, the Reverend Theodore M. Hesburgh, the baccalaureate speaker, Clarence H. Linder of the Corporation, and the Institute's President Julius A. Stratton, '23, in his traditional charge to the graduates, emphasized the human as well as technical duties of this "body of considerable men."

"We have hoped to convey to you our strong belief that knowledge and power must be guided by integrity of purpose and supported by the highest moral character," Dr. Stratton told them. "All of you have developed strong roots in science. Some of you will indeed become scientists; others, engineers. But from the graduates of this class will come also architects, lawyers, doctors, professors, economists, managers of industry—I shall predict also journalists, historians, men of letters. For the central thought that has shaped all our academic policies is that the education of an un-

dergraduate at M.I.T. should be relevant to the needs and conditions of this age . . . Every profession stands in need of the thorough technical competence that you have to give. . . . But the professional estate implies much more than technical competence alone . . . You must bear your share of the responsibility for solving the human as well as the technical problems of our age.

"The essence of that responsibility is a deep and abiding concern for the obligations of a citizen. Your country—whether it be the United States or a land abroad—needs not only the kind of advice, but the kind of leadership, that you have to give. The effort that you have given to your years at M.I.T., the hopes and often the sacrifices of your families, the knowledge and inspiration dedicated to you by this Faculty, have been an investment in your country's future as well as your own. In return we ask that you give willingly of your time, your creative thought, and your personal faith to solving the problems of a working democracy."

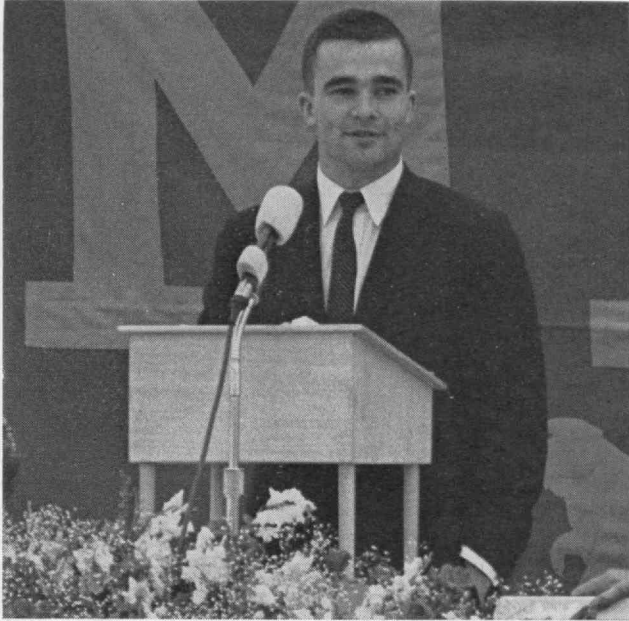
Chairman James R. Killian, Jr., '26, of the Corporation, presided at the exercises, and the Reverend Myron B. Bloy, Jr., gave the invocation. Andrew F. Kazdin, '57, conducted the Brass Choir and its selections included a fanfare, which Mr. Kazdin composed for the Institute's Centennial, and *Intermezzo Giubiloso*, which he composed especially for the 1962 commencement.

Dean Harold L. Hazen, '24, of the Graduate School, presented the Harry Manley Goodwin medal for conspicuously effective teaching to Norton L. Starr, 2d, a doctoral candidate in the Department of Mathematics

\* Figures from the past are given on page 47.



*M.I.T. honors 1135 students with degrees . . . and asks that they give their time, thought, and faith to seeking the solution to human problems*



**BARDWELL C. SALMON, '62**, recalled how his classmates became "eager beavers" and their scholastic and athletic triumphs when he spoke for them on Commencement Day.



**JONATHAN A. NOYES, '12**, of Dallas, recalled his first job (at \$50 a month) after being graduated, and predicted that '62 men will live longer and go farther than his class.

who has taught calculus at the Institute for the last three years.

The Deans of the Schools presented the candidates for degrees to President Stratton, and Dean Hazen and Professor John T. Norton, '18, invested the hoods. Two of the robed men on the platform, Professor Arthur T. Ippen and F. Leroy Foster, '25, had sons among the graduates. Nine women, including one who will be employed in atomic submarine research, received bachelor's degrees, and six received advanced degrees.

A doctorate of science was given posthumously to Mrs. Kayako Tanaka Hirano who died in April after working five years for it. Her thesis was on "Microslip in Copper" and required the building of complex apparatus which will remain at M.I.T. after her husband and nine-month-old daughter return to Japan.

President D. Reid Weedon, Jr., '41, of the Alumni Association, was chief marshal of the procession, and his aides included John J. Wilson, '29, for the Corporation; Dean Kenneth R. Wadleigh, '43, for the Faculty; Frederick J. Shepard, Jr., '12, for the 50-year class; Professor Campbell L. Searle, '51, for the graduates; and William H. Carlisle, Jr., '28, for the audience.

More than 40 members of the Class of 1912 and the Alumni Association's President-Elect William L. Taggart, Jr., '27, were in the procession. So, too, were Vannevar Bush, '16, Honorary Chairman of the Corporation, and more than 30 of its members. Retiring members of the Faculty were among the honored guests in the colorful proceedings.

*(Concluded on page 62)*



**LIKE MANY OTHERS**, Cristobal A. Bonifaz posed for a picture after receiving his Sc.D. With him were Deirdre Cooney of M.I.T. and his small cousin from Ecuador.



# Second Century Fund Reaches

## \$60,250,000 on Alumni Day

*Contributions of Alumni exceed expectations and Class of 1922's gift sets a record . . . \$9,000,000 needed to complete program*

SECOND CENTURY FUND leaders reported on June 11 at the M.I.T. Alumni Day luncheon that their \$66,000,000 goal is in sight. Alumni contributions have exceeded the \$8,000,000 target set for them and including large gifts and bequests, now total \$19,164,000.

A grand total of \$60,250,000 has been contributed or pledged, General Chairman John J. Wilson, '29, announced, but of this sum about \$3,000,000 has been given for purposes not included in the Second Century Program, leaving nearly \$9,000,000 to be raised to carry out that program.

Corporation Chairman James R. Killian, Jr., '26, disclosed that one alumnus has given \$2,100,000 anonymously to go toward the construction of a Center for the Life Sciences, and that Mrs. Stanley McCormick, '04, was the donor of a previously announced anonymous

gift of \$2,020,100 for the women's dormitory now being built. Mrs. McCormick came to Boston as Miss Katherine Dexter, and her gift will enable the Institute to provide housing for more than twice as many co-eds as can now be accommodated.

Class gifts have constituted \$3,552,850 of the \$19,164,000 that Alumni have given to the Institute. The largest of these, \$738,000 from the Class of 1922, was announced on Alumni Day by Class President Parke D. Appel. It was the largest class gift in the Institute's history and one of the largest ever made by a class to any American university, and will be used in part to endow a Class of 1922 Professorship. This new chair's first occupant will be Professor John Wulff, a member of the M.I.T. Faculty for 31 years who has long been noted as a dramatic lecturer as well as an outstanding engineer and researcher.



**Philip H. Peters, '37, headed the successful Area Organization.**

Other class gifts announced at the luncheon in the Great Court were a gift of \$225,000 reported by Professor Emeritus Erwin H. Schell, reunion gift chairman for the Class of 1912, and one of \$269,000 reported by Josiah S. Heal, reunion gift chairman for the Class of 1937.

Classes holding their 25th, 40th, and 50th reunions during the Second Century Fund campaign, which previously had only made progress reports, submitted final reports this year. These revealed that the sums given by six classes were:

|               |           |
|---------------|-----------|
| Class of 1910 | \$309,087 |
| Class of 1911 | \$298,602 |
| Class of 1920 | \$223,218 |
| Class of 1921 | \$589,003 |
| Class of 1935 | \$641,656 |
| Class of 1936 | \$259,284 |



**Erwin H. Schell reported the gift of \$225,000 from the Class of 1912.**



**Parke D. Appel reported the gift of \$738,000 from the Class of 1922.**



**Josiah S. Heal reported the gift of \$269,000 from the Class of 1937.**

# Former Students See A Changing Institute

*Alumni tour building sites, learn about the new ways of teaching, and pay tribute to old friends*

**S**UDDENLY a great array of plans that we have been developing over the years has matured," M.I.T.'s President Julius A. Stratton, '23, told Alumni at their annual meeting this year.

Buses had carried his audience a few hours earlier past the sites of the Institute's first skyscraper, new housing for students, and commercial buildings being remodeled for educational uses. Thanks largely to the Second Century Fund, Dr. Stratton noted, construction under way soon will total \$30,000,000.

Familiar faces and places as well as new ones greeted the visitors, of course, and they conferred honorary membership in the Alumni Association on Miss Alice Marie Browne, who retired last year after 35 years on the M.I.T. Infirmary's staff, and Professor Paul M. Chalmers, former teacher of English, who for 18 years has been advising foreign students. But the President's report, and the remarks of other speakers, dealt mainly with new developments.

Dr. Stratton noted the eightfold increase in biological research since 1956, and recent electronic feats, but went on to emphasize that virtually every M.I.T. department is involved now in efforts to improve teaching. One Faculty committee is reconsidering the core curriculum and another the students' extracurricular activities.

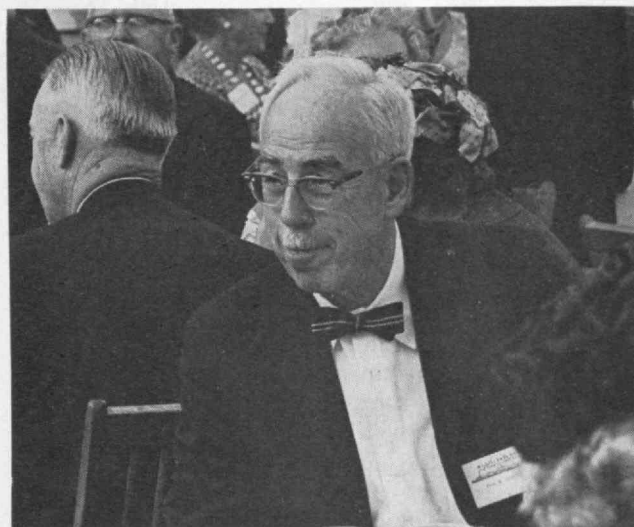
Some of the newest developments were described by Professor Harold E. Edgerton, '27, and Associate Professors Erik L. Mollo-Christensen, '48, and Gene M. Brown; and others were demonstrated in the new Electromagnetic Laboratory and the Computation Center, during the tours set up for the visitors. Still more were explained in a "Revolution in Education" symposium.

David A. Page, Director of the University of Illinois Arithmetic Project, described a new way of introducing elementary school children to mathematics. Associate Professor John G. King, '50, dealt with the new approach to physics at M.I.T., and Associate Professor Richard D. Thornton, '54, showed the visitors how to assemble a circuit from a kit as part of a 10-minute course in work with semiconductors.

There was something to do every minute from 9:30 A.M. until the reception at 5:30, which was moved indoors because of the upcoming storm. Then there was a banquet with music provided by 50 men from the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America.



**HONORARY ALUMNA:** Alice M. Browne received corsage from Dr. J. W. Chamberlain, '28, with her certificate.



**HONORARY ALUMNUS:** Paul M. Chalmers was second recipient of Alumni Association membership certificate.



**PRINCIPAL PASTIME** between lectures and festivities was observing construction of the Institute's new buildings.





## Alumni Greet New President

**N**EARLY 1300 M.I.T. Alumni took part in the festivities June 11. At the customary luncheon in the Great Court, the Association's President, D. Reid Weedon, Jr., '41, presented a gavel to the incoming President, William L. Taggart, Jr., '27, and announced that its retiring Executive Vice-president H. E. Lobdell, '17, would be succeeded by Donald P. Severance, '38.

Classes from 1891 to 1962 were represented. There were special parties for Emeritus Professor Warren K. Lewis, '05, who will be 80 years old on August 21; Professor Carlton E. Tucker, '18, who is retiring, and others—climaxed by a reception in the Armory and the annual banquet in the Rockwell Cage. There was no Pops Concert this year, but there was music throughout the evening.



**PRINCIPAL PARTICIPANTS** included (from left) Dr. Stratton, William L. Taggart, Jr., '27 (the Association's new President), Mr. Weedon, and Dr. Killian.



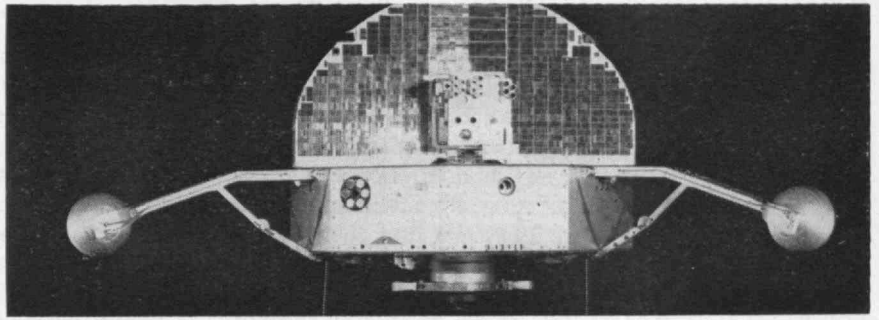
Mrs. John J. Wilson at head table with H. E. Lobdell, '17.



Frederic A. Jones, '98, and Emeritus Prof. J. C. Riley, '98.



# Trend Of Affairs



## Millstone Milestone

LINCOLN LABORATORY'S Millstone Hill radar in Westford, Mass., was shut down on April 12 for its first complete overhaul in more than four years of service. Millstone grew out of a program initiated in the spring of 1956 to design and establish an experimental high-power radar facility to provide some of the experience and information needed to build the technical foundation for new, extremely long-range radar systems. Today it has progeny and kin in Virginia and New Jersey, Saskatchewan and Trinidad, Great Britain, Greenland, and Alaska.

Starting with Sputnik I in 1957, the Millstone radar has at one time or another tracked virtually every satellite and space probe that has been placed in orbit, and has served as "one of the most important sources of satellite orbit information in the Free World." (See "Space Traffic" next column.) It has tracked many missile flights down the Atlantic Missile Range from Cape Canaveral, a thousand nautical miles from Westford, and has conducted joint operations with stations at Wallops Island, Va.; Trinidad, West Indies; College, Alaska; and Manchester, England, among others.

Although the first radar contact with the moon was made in 1946 by the U.S. Army Signal Corps, the new science of radar astronomy has taken many of its first steps at Millstone Hill, with detailed observations of various natural phenomena, including meteors, ionospheric electrons, the aurora borealis, the moon, and the planet Venus. The Lincoln-built CG 24 computer at Millstone was the first digital computer of significant size in which transistors completely supplanted vacuum tubes, and has demonstrated the use of a digital computer as an integral part of a radar system.

Despite the constant improvement in its capabilities over the years, the Millstone radar has been overtaken by the advancement of radar technology at somewhat higher frequencies. Major modifications and replacements are now being made to receivers and transmitters, and to the antenna feed and reflector. Later this year, Millstone will resume operation at about three times the previous frequency (1295 vs 440 megacycles per second), with an estimated 15 decibels improvement in sensitivity or more than double its present range capability in tracking satellites.

*A RECENT VISITOR to M.I.T. was the prototype of OSO-1, the orbiting solar observatory, shown above. This \$2,000,000 model of one of America's most successful satellites was publicly shown for the first time in the lobby of Building 7, as part of a Department of Aeronautics and Astronautics exhibit.*

## Space Traffic

WHEN Lincoln Laboratory's Millstone Hill radar first went on the air in 1957, Sputnik I was the moon's only such rival. A recent report from the Smithsonian Astrophysical Observatory lists 176 different identifiable man-made objects now in orbit about the earth, including useful and defunct satellites, burned-out boosters, jettisoned hatch covers, and miscellaneous spare parts. The casual observer may apply the old saw, "out of sight, out of mind," but this traffic density is already enough to keep space-traffic monitors quite busy.

During 1961 and early 1962, an Air Force team operated the Millstone system two or three evenings a week, tracking satellite objects that came into view of the radar. Over a six-month period, they tracked an average of 35 passes per seven-hour shift, or one object every 12 minutes of operating time. In one single seven-hour shift, they tracked 88 passes of between 40 and 50 different objects. This record is not only a credit to the capability of the radar system and to the zeal of the tracking team, but also an indication of the traffic density that is likely when the world's space programs really get under way.

## Linguists to Meet at M.I.T.

HARVARD AND M.I.T. will be hosts next August 27 to 31 to the International Congress of Linguists. Participants will come from all parts of the world to consider language theory, analysis, categories, and related topics including translation problems. M.I.T. researchers will demonstrate mechanical translation, speech synthesis and analysis, and the use of a computer to produce and read handwriting.

Institute Professor Roman Jakobson is a vice-president of the Permanent International Committee of Linguists arranging the congress, Professor William N. Locke is its secretary-general, and Professor Morris Halle is secretary of the Executive Committee.

## The Council's 359th Meeting

AT ITS final meeting this year, on May 28, in the Faculty Club, the M.I.T. Alumni Council accepted the annual report of the Alumni Association's Executive Vice-president without knowing what was in it.\* In lieu of reading the customary report, H. E. Lobdell, '17, recalled at this, the Council's 359th meeting, his attendance at its 71st meeting on September 29, 1919, and then invited all present to the 15th annual fiesta of the M.I.T. Club of Mexico next March 5, 6, and 7 as paying guests.

Dean George R. Harrison of the School of Science, the principal speaker, reviewed the growth of the departments of science and the increase in the number of doctoral candidates since he came to the Institute 32 years ago. He noted particularly the increasing interest in mathematics and physics, and emphasized changes that the years have brought in scientific concepts.

Andrew D. Fuller, '95, presented resolutions occasioned by the death of Professor Samuel C. Prescott, '94. Edwin D. Ryer, '20, reported on the Alumni Fund, John L. Danforth, '40, announced the Alumni Day plans, and Leicester F. Hamilton, '14, gave the report of the Committee on Honorary Members of the Association. President D. Reid Weedon, Jr., '41, announced that upon Mr. Lobdell's retirement this summer, Donald P. Severance, '38, would become the Association's Executive Vice-president, Frederick G. Lehmann, '51, would succeed Mr. Severance as its Secretary, and Volta Torrey would become publisher of *The Technology Review*.

\* That report showed that the Association's 1961-1962 operating expenses would be well within the allotted budget, that as of March 31 its roster of living members totaled 52,170, and that Alumni benefactions to M.I.T. from the start of the Alumni Fund in 1940 to June 30, 1961, amounted to \$42,701,997.

## Esso's Gift to M.I.T.

M. J. RATHBONE, President of the Standard Oil Company (New Jersey) and Chairman of the Esso Education Foundation, informed M.I.T. in May that the foundation would contribute \$500,000 to the Second Century Fund with no restrictions on its use.

"Making funds available on an unrestricted basis represents the thoughtful understanding of the Esso Education Foundation trustees of the great need for flexible funds in building strength in a university," said SCF Chairman John J. Wilson, '29.

"The ability to create new and improved products plays an increasing role in determining corporate success. As a nation we must increase our scientific and technological resources, we must build more first-rate facilities, and we must produce more scientists and engineers of the first rank if we are to hold up and strengthen our technological and industrial leadership.

"The Institute has turned to American industry, which it so directly serves, for new levels of corporate support to help meet the objectives of its Second Century Program. In generously responding to M.I.T.'s needs, industry has created a new policy of corporate support of education—a recognition by national organizations of national responsibilities."

## The Sloans See Europe

FORTY-THREE Sloan Fellows flew to Europe in May to study economic trends there under the guidance of the Faculty and staff of the M.I.T. School of Industrial Management. They were accompanied by Dean Howard W. Johnson, Professor E. Cary Brown, Associate Professors Abraham J. Siegel and Zenon S. Zannetos, '55, and Peter Gil and J. Bruce Neighbor of the staff.



**STRUCTURAL IMPROVEMENTS** in C-47's have resulted from the work of Sydney D. Berman, '27 (right above) in analyzing a wing severed from a plane last January. The

Governor of Montana and five others died in the crash. Mr. Berman investigated it as Technical Director of the USAF Directorate of Flight Safety with Colonel George Simeral.



## Inter-American Engineering

A GRANT OF \$250,000 from the Carnegie Corporation of New York is enabling M.I.T. to launch an Inter-American Program in Civil Engineering. Its objective is to involve both students and professors in authentic unsolved civil engineering problems of technical, social, and economic importance to both Latin America and the United States, and the work done will be an integral part of the students' formal training.

Professor Charles L. Miller, '51, will direct the program and Associate Professor Frederick J. McGarry, '50, is its associate director. They will seek problems, says the latter, "which are not closely related to current practices but which will require new research, new concepts, and new methods of analysis." Some of these may be suggested by Latin American professors.

Each project team will consist of an engineering professor from a Latin American country with two of his students and an M.I.T. professor with two U.S. students. The teams will work on the problems selected both in the field and at M.I.T.

The program is not a form of technical assistance but an organized attempt to tackle unsolved problems which require research on the frontiers of engineering and technology. A good example of the type of problems to be tackled, says Professor McGarry, is water storage. "In many parts of the United States and Latin America water shortages chronically occur, not due to any lack of rainfall or scarcity of rivers and dam sites, but simply because the cost of conventional dams and reservoirs is too high. What is obviously needed is a cheaper method for storing large amounts of water." New civil engineering techniques will be applied to such problems and an effort made to make the program a bridge between undergraduate and graduate studies and between the study of engineering and its practice.

## Findings in Gamma-Ray Astronomy

GAMMA-RAY astronomy, Professors George W. Clark, '52, and William L. Kraushaar of M.I.T. reported this spring, can reduce present uncertainties about galactic space and the size and shape of the Milky Way. They presented evidence of its usefulness at the American Physical Society's meeting in Washington.

This evidence came from the gamma-ray telescope built in the M.I.T. Laboratory for Nuclear Science\* and carried into space a year ago on Explorer XI. It functioned in orbit for about five months, and about half of the data it yielded now has been analyzed.

From this data, Professors Clark and Kraushaar concluded that the telescope had detected 64 individual high-energy gamma rays that originated in collisions of cosmic rays with hydrogen nuclei far out in galactic space. This was from three to 10 times as many as were expected.

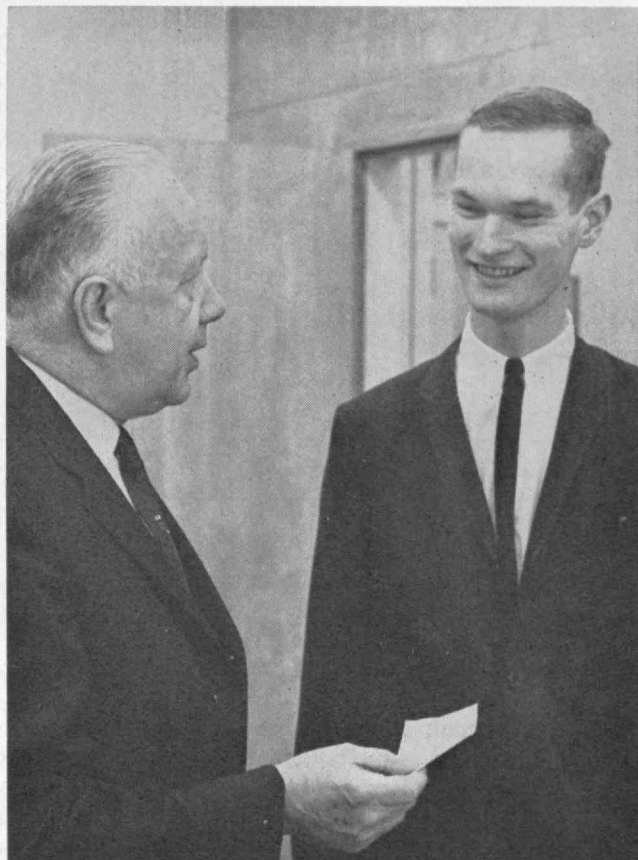
The 64 events thus far analyzed have indicated a sort of even distribution of cosmic rays and cosmic gases throughout the galaxy. The M.I.T. experimenters believe, however, that more research may show that some parts of galactic space contain more cosmic rays and gases than others. Although their experiment has not produced any great surprise, they believe it has paved the way for more elaborate experiments in space.

\* See "Two M.I.T. Experiments in Space," May, 1960, page 25.

## Students Support SCF

EACH YEAR the M.I.T. students' Lecture Series Committee brings several celebrities to Cambridge. Its recent guests have included, for example, Harry S. Truman, Barry Goldwater, T. S. Eliot, Jacques Cousteau, Norman Rockwell, and Ayn Rand. In addition to sponsoring popular lectures by such persons, it arranges for showings of both classic and popular films.

From its revenues this year, the Lecture Series Committee recently presented \$500 to the Second Century Fund. The gift was designated for the proposed student



President Stratton accepting a check from C. Lee Davis, '63.

center (pictured in *The Review* last month). Chairman C. Lee Davis, '63, presented the check to President Julius A. Stratton, '23, and expressed the hope that it would inspire more gifts for the Student Union "and thus expedite the construction of this building."

The committee was founded in 1948 as a Faculty organization and became wholly a student activity in 1952. It now has 70 members, and many noted visitors receive their first impressions of the Institute from these young men. Daniel S. Spiers, '63, was the host responsible for greeting and entertaining the lecturers brought to the campus this year.

## Open House at the Reactor

THE STAFF of the M.I.T. nuclear reactor took time out on June 16 to hold open house for the public. Completed in 1958 and operated nowadays at 2,000 kilowatts, the reactor is used wholly for unclassified research and education, and guides were available to explain how it works and some of the research now under way. Several hundred people toured this impressive facility.



# Project Luna-See In Lexington

*M.I.T.'s light hit the moon and bounced back 83 times this year*

THE IDEA of lighting up the moon came to Louis D. Smullin, '39, and some friends one night while they were waiting at an airport. It would be a challenging stunt, they thought, and Professor Henry J. Zimmermann, '42, Director of the Research Laboratory of Electronics, asked, "Why not try it?"

Six months later it was done. Between 8:55 and 9:07 P.M. (EDT) May 9, Professor Smullin and his colleagues aimed 13 short bursts of light at a dark part of the moon through a telescope. Some of the light from each burst was reflected back to earth and detected 2.6 seconds later.

The next night 22 more bursts were fired and recorded similarly, and the night after that the M.I.T. light shone on the moon 48 times. A mountainous area southeast of the crater Albategnius, in the southeast quadrant of the moon's face, was illuminated the first night; the crater Copernicus was the target the second night, and Tycho the third night.

It was not a costly undertaking, and it revealed nothing unexpected. But the most powerful beams of coherent light yet recorded were produced to achieve the experimenters' goal, and it was the most dramatic demonstration to date of the potentialities of optical masers.

These masers, often called lasers, are new devices. Provost Charles H. Townes of M.I.T. and Dr. A. L. Schawlow of Stanford University suggested and laid the groundwork for such masers at Columbia University in 1958. They are similar to the microwave masers (on which Dr. Townes holds the fundamental patent) that are now used in advanced radar systems, but they operate in the optical portion of the spectrum.

Optical masers emit beams of coherent light. Its waves are far more uniform in length and polarization than those of ordinary light, and such light can travel for vast distances without spreading out the way beams from common sources of light do. Optical masers, in fact, can so pinpoint light that they have aroused high hopes of putting light to many new uses. Their light can carry signals and possibly transmit power. Military, industrial, and medical uses for optical masers are being considered, and they seem certain to figure importantly in the exploration of space.

## The Transmitting System

The very powerful maser required to hit the moon and send a detectable amount of light back to earth was being developed by the Raytheon Company when Professor Smullin and Giorgio Fiocco, a research engineer in the Research Laboratory of Electronics, began planning such a feat.



This maser consists of a ruby crystal surrounded by four stroboscopic flash lamps. The ruby is a rod six inches long and about  $\frac{3}{8}$ ths of an inch in diameter. The strobe lamps are xenon gas tubes which produce white, incoherent light. This light is focused on the sides of the crystal rod by metal reflectors. One end of the ruby is coated so that light can leave it only from the opposite end. The light that comes out that end when the strobe lamps flash is red with a wavelength of 6,934 angstroms.

Each of the four strobe lamps pumps bursts of nearly 2,000 joules of light energy into the crystal simultaneously. These bursts last about a thousandth of a second, and cause the ruby to emit bursts of coherent light lasting only about a two-thousandth of a second but containing 50 joules of light energy. The ruby is cooled with liquid nitrogen and such bursts can be sent out at one-minute intervals.

In addition to the maser, the experimenters needed telescopes. Lincoln Laboratory, they found, had developed and built Cassegrainian-type instruments for other purposes that could serve for this one. These were in Lexington, near the scene of the shot heard 'round the world in 1775, and a handy place to make more history.

## The Detecting System

The Raytheon maser's coherent light was aimed at the moon through a 12-inch telescope. The earth's atmos-



**Professor Smullin (left), Stanley Kass of Raytheon's Advanced Systems Department, and Giorgio Fiocco (right) of**

**M.I.T. headed the team that made light jump to the moon and back with the telescopes in Percy Lund's drawing at left.**

phere absorbed a little of its energy, and the experimenters saw a thin red line in the sky when the burst sped forth to illuminate an area several miles wide on the face of the moon a quarter of a million miles away.

Anyone standing on the moon in the center of that area would have seen a flash when each burst of the red light reached him, but the light reflected back toward the earth was too spread out and diffuse to be seen by anyone in Lexington. How then did the experimenters know that their light was reaching the moon?

This was proven with the help of a 48-inch telescope alongside the one used for the transmission. Each burst of light directed at the moon contained about  $10^{20}$  photons. Of these only about 12 photons were reflected back into the 48-inch telescope. This telescope focused the reflected light into a photomultiplying tube which, in turn, produced excitation patterns on an oscilloscope. These were photographed and analyzed statistically.

The telescope, of course, was constantly receiving more light than was reflected from the small part of the moon's face that the maser illuminated. The time required for the light produced in Lexington to reach the moon and return, however, had been calculated carefully—and there was an increase in the number of photons entering the telescope at precisely the right interval after each burst was emitted from the maser.

The moon passed out of the field of view of the Lexington telescopes after 13 shots were fired the night of

May 9. The results of those shots were analyzed immediately, presented at a technical meeting the next morning, and explained at a press conference the next afternoon. The 70 additional shots the next two nights were fired to remove any lingering shadows of doubt and yielded confirmatory data.

### **The Lamp Lighters**

Professor Smullin, in describing the night's work that the newspapers reported, emphasized that it had been undertaken simply as a stunt. Performing it, however, had required many hours of work, at odd hours, and his associates were quick to point out that it was in effect a bench mark indicative of the rapidity with which maser technology has advanced.

Raytheon maser teams have included Stanley Kass, Aaron S. Soltis, '47, Colin Bowness, Danilo Missio, and Glenn Hardway. The ruby crystal in this maser was supplied by the Adolf Meller Company, and Edgerton, Germeshausen and Grier produced the strobe lights. Kass and Hardway of the Raytheon Company worked closely with Professor Smullin and Dr. Fiocco. The Research Laboratory of Electronics' participation in the venture was made possible by support from the Army Signal Corps, the Office of Naval Research, and the Air Force Office of Scientific Research.

The code name for the project, Professor Smullin told the press, was "Luna See."



# A New Lab Delights Students

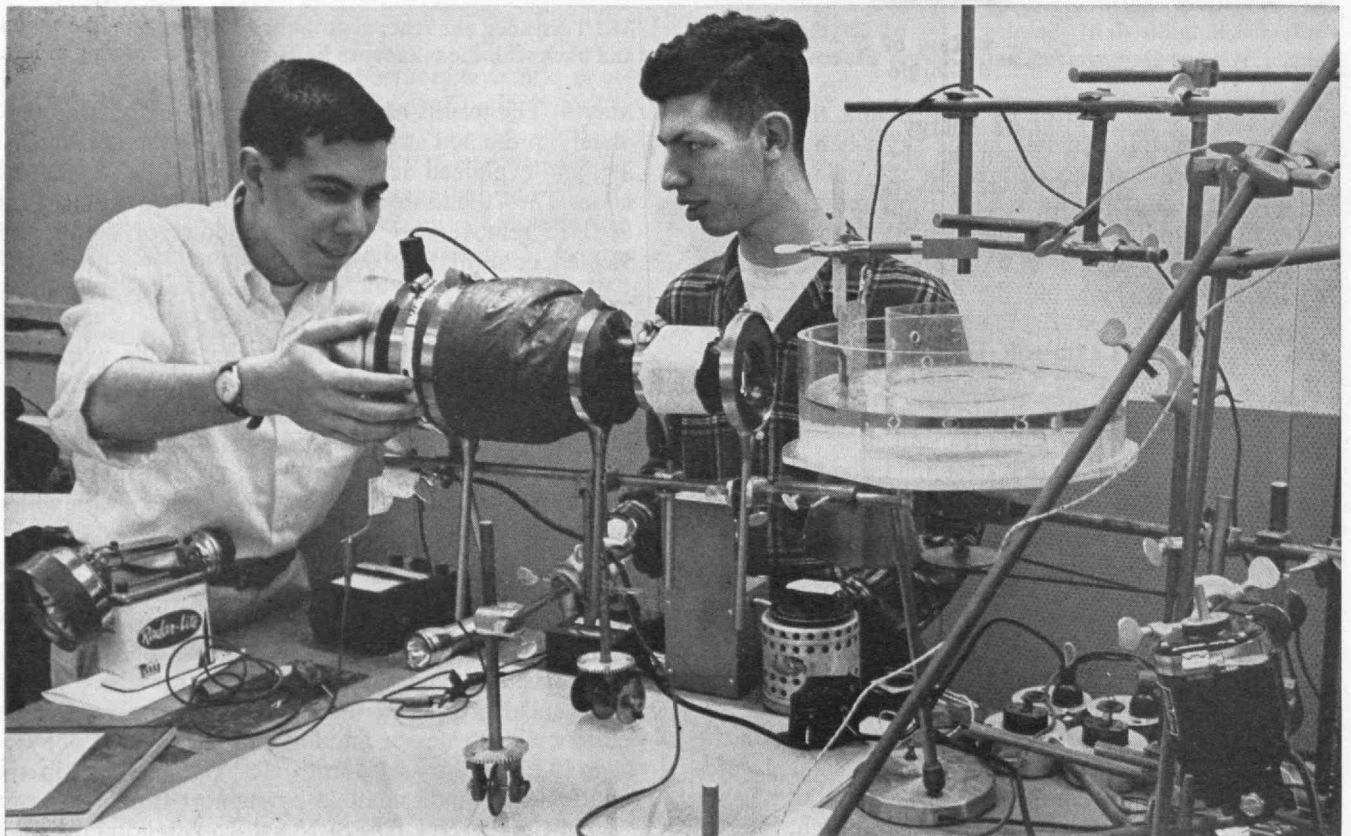
*Undergraduates work with graduates and M.I.T. Faculty on a variety of engineering projects*

**T**HE FACULTY, graduates, and undergraduates studying at M.I.T. work together in the Engineering Projects Laboratory set up this year. Made possible by the Ford Foundation's grant to the School of Engineering, and organized by the Department of Mechanical Engineering, this new laboratory occupies 38,000 square feet of new, rebuilt, and refurbished space in Building 3. Its numerous test cells, utility lines, and other facilities hum with a great variety of activities—as the pictures on the next three pages suggest. Thirty-five Faculty members, 65 instructors and graduate assistants, and more than 150 undergraduates worked in EPL this year.

"It provides the environment and facilities for challenging, sophisticated participation in research by undergraduates through the merging of Faculty supervised, sponsored research with the undergraduate instructional program," says its chairman, Associate Professor Robert W. Mann, '50. "By this direct involvement in engineering R&D, students can begin to appreciate fully the challenge and satisfaction of engineering."

Work under two dozen research contracts, supported by grants of more than \$550,000 annually, is being done in the EPL and some of the laboratory work required in eight undergraduate courses is conducted there. The new lab's projects include work formerly done in the Steam Laboratory, the Heat Transfer Laboratory, the Dynamic Analysis and Control Laboratory, and part of the Automotive Laboratory. Some work formerly done individually by members of the Faculty has also been moved to the EPL.

Its crew of technicians headed by Joseph "Tiny" Caloggero, who has been around M.I.T. for two decades, in the Radiation, Nuclear Engineering, and Automotive Laboratories, is especially steamed up about what has happened. "The students seem a lot more enthusiastic about what they are doing," says Ed Clark, one of Caloggero's colleagues. "They're down here nights, Saturdays, and Sundays. They are doing finer, more careful experiments." And Caloggero adds: "We have to be careful not to help them too much."



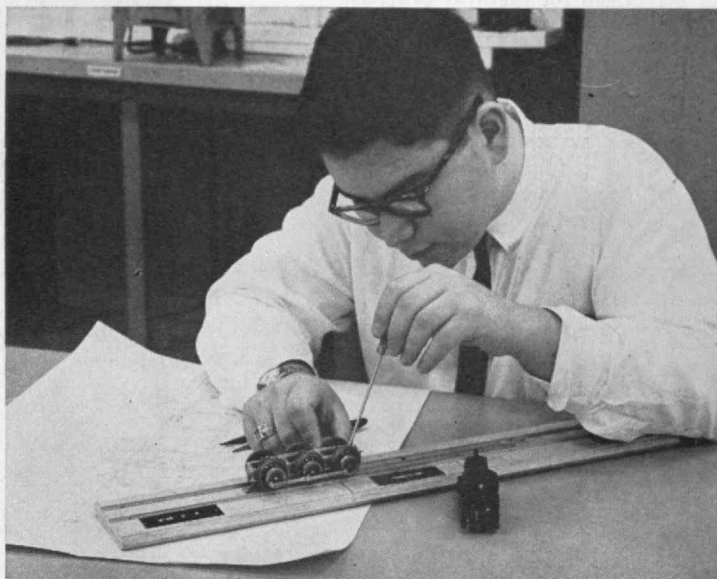
**FREDERIC L. EGENDORF, '63**, adjusts the light source used in an electrochemiluminescence project on which he

is working with **RONALD L. ALPERT, '63**. It involves a method of observing boundary phenomena in liquid flow.

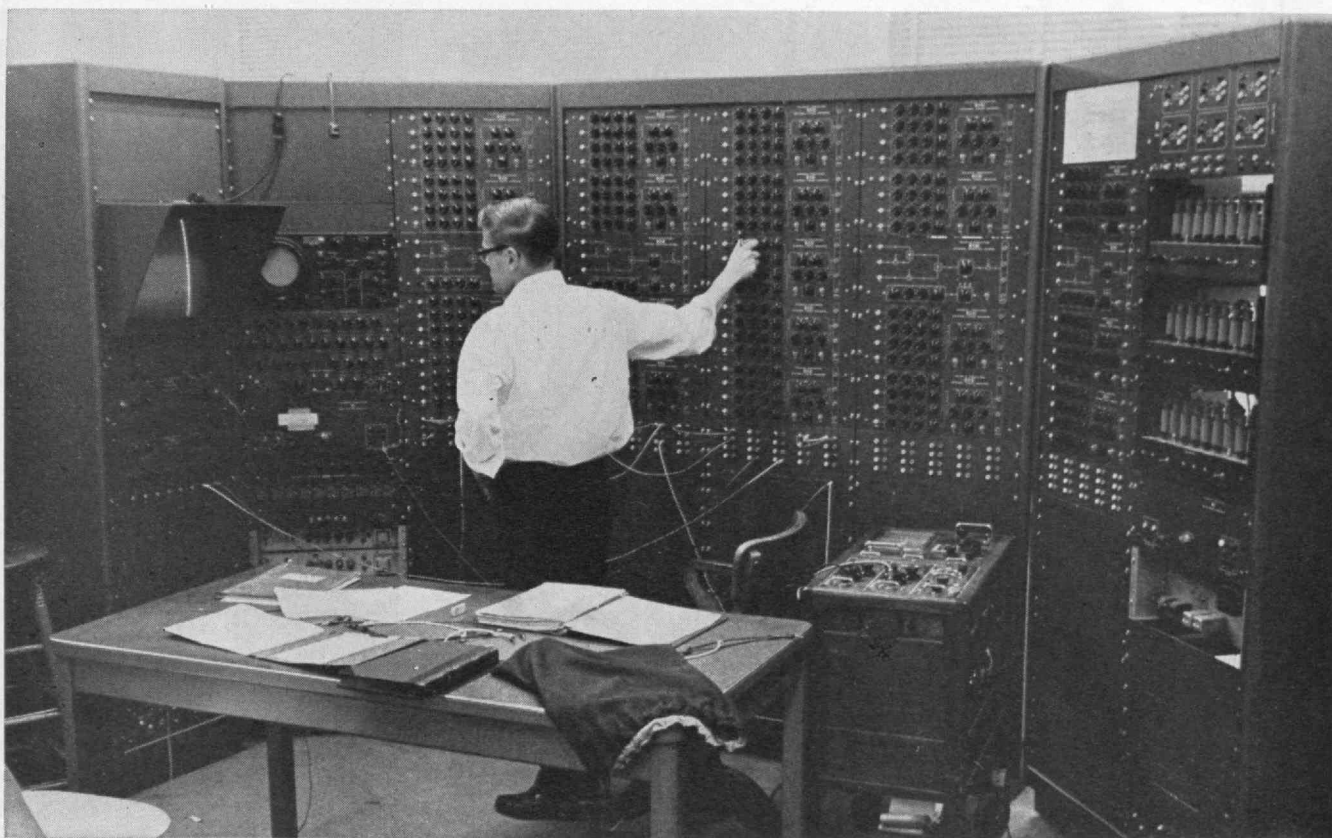




**GEORGES S. DUVAL, 3d, '63**, at left, is comparing the power efficiencies of small-diameter rounded-entrance nozzles and sharp-edged orifices, with oil as a working fluid. Georges is shown preparing the instrumentation required to measure thrust associated with the nozzles and orifices.



**JOHN T. M. PRYKE, '62**, is shown with a model of a variable-gauge locomotive frame. Pryke investigated how to integrate the several railroad gauges found in the newly emerging African countries into a single system. His frame fits all present locomotives and could be adapted to cars.



**KENNETH L. LEBSOCK, '60**, is shown using the EPL's general purpose analog computer to isolate trouble spots in

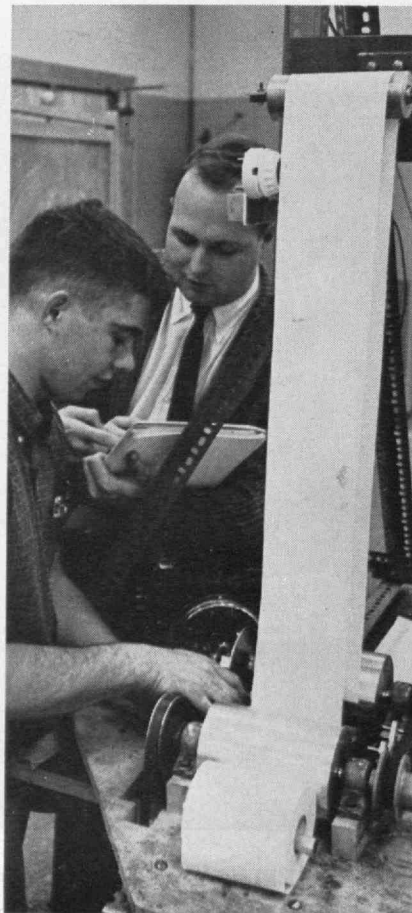
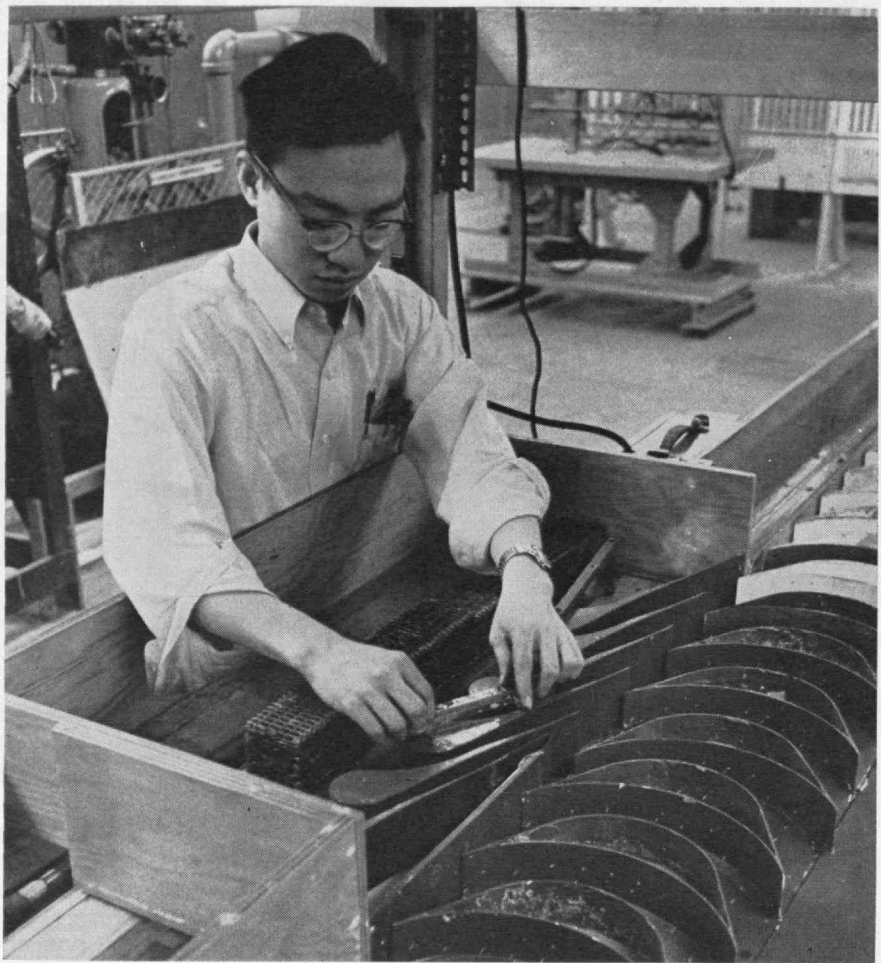
the control system of a radar-tracking antenna. His master's thesis deals with an azimuthal control system.

**KUO-HUA CHU, G,** at right, is studying compressible gas flow inside partial admission turbines by means of analogous water flow. To measure water heights, he uses an adaptation of aerial photogrammetric mapping techniques such as civil engineers have devised for highway projects.

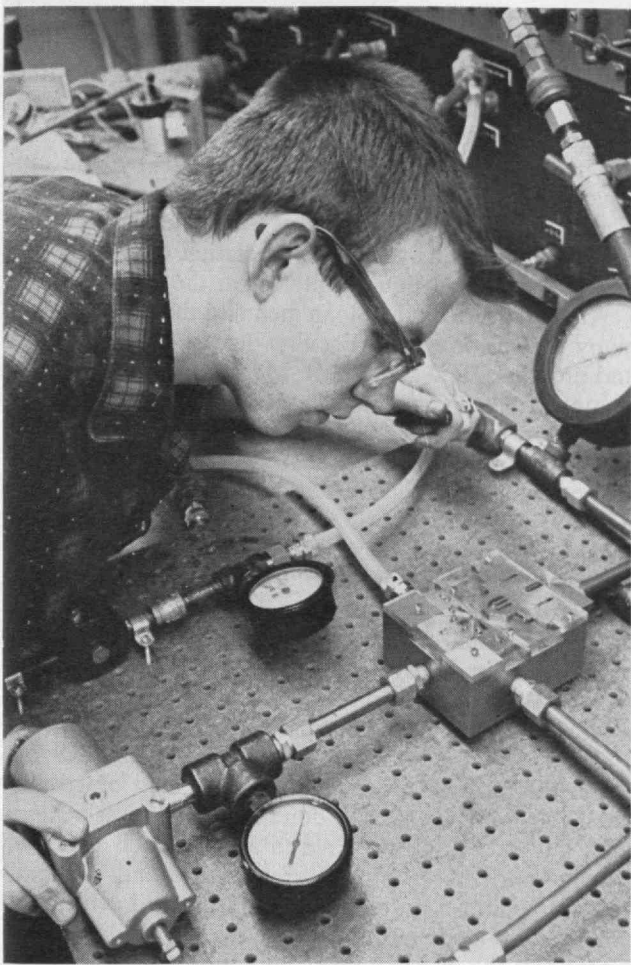
**ALFRED H. BELLOWS, '62,** is shown below using a servo-controlled inverted pendulum, a possible teaching aid for classes in dynamics and automatic control.

**TERRENCE D. CHATWIN, '63,** and **WILLIAM H. PETTUS, 3d, '63,** are shown in the center below studying dynamic stresses in paper webs to help solve a manufacturer's problems.

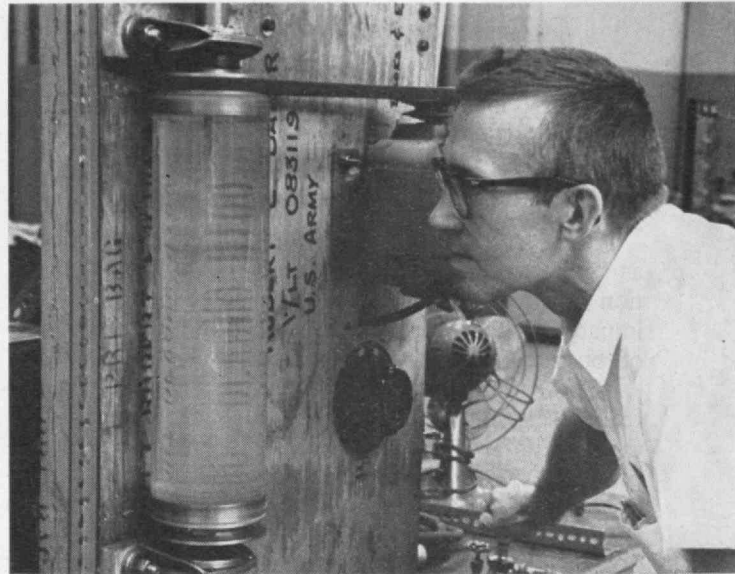
**ALVIN K. GROB, G,** is seen taking notes at the far right below while working with **PETER LUPESCU, G,** on an investigation of two-dimensional flow by means of birefringent fluids. After adding yellow dye to water, they pass polarized light through the model and observe fringe patterns.







**WILLIAM J. HASTINGS, '62**, at left, is studying basic characteristics of a proportional pneumatic amplifier with no moving mechanical parts. A pair of low-energy level control jets, perpendicular to a two-dimensional high-energy level jet, is used to control the deflection of the main jet.



**ROBERT E. BAKER, G**, is a member of a team of three men who are studying fluid flow in a rotating co-ordinate system. Their object is to find the relation between the through-flow rate and the angular velocity of a surrounding rotating chamber for which the through rate is stable.



**RICHARD M. PICKETT, JR., '62**, **RAYMOND B. LANDIS, '62**, and **BERNARD A. GOLDHIRSH, '62**, are seen

above (left to right) running an experimental stress analysis experiment. It involves use of the photoelasticity effect.



# Mr. Sloan Recalls A School's Genesis

*Executives return to Institute to  
ponder management decisions*

**M**ORE THAN 500 former Sloan Fellows and Senior Executives who have studied in the School of Industrial Management returned to M.I.T. in May to consider "Management Decisions in a Changing World."

Alfred P. Sloan, Jr., '95, addressed their convocation as "an advocate of the advancement of higher education in all its ramifications," and emphasized both the impact of education on business and the responsibilities of business.

"The American private colleges and universities, the recognized standard bearers of higher education, owe their material existence to the fruits of private enterprise," Mr. Sloan said, "and, conversely, private enterprise owes its extraordinary accomplishments in part to the knowledge created in the educational process.

"Business gets the benefit and business has the money to support higher education. . . . It must do this in defense of its own great opportunity in our free competitive society."

The schools, in turn, he said, should strive to make greater utilization of existing facilities, reappraise the value of time in the educational process, and develop more attractive ways of seeking financial support.

Mr. Sloan, who was about to celebrate his 87th birthday, also recalled the genesis of the M.I.T. School of Industrial Management. While attending the 50th anniversary reunion of his class, he found that only three of the 50 or so men present had gone into industry. The others were teaching or following other professional pursuits. "Something ought to be done about that," he remarked to President Karl T. Compton, "be-

cause as an industrialist looking forward I see a great association between science and industry." Dr. Compton agreed and Mr. Sloan endowed a chair for a Professor of Industrial Management. This led to the establishment of the school.

These reminiscences were prompted by the announcement of Wylie Robson, a member of the Sloan Class of '56, that the Society of Sloan Fellows was endowing a chair this year in appreciation of Mr. Sloan's generosity and continuing interest in the School.

At other sessions the Sloan men and their wives heard many friends from the Faculty discuss current trends and problems, and William B. Murphy, President of the Campbell Soup Company, describe the new challenges facing top management.

Mr. Murphy declared that some economists still do not fully appreciate the impact of foreign competition. "If American business is to be competitive," he argued, "we need the same kind of co-operation from our government that our foreign competitors receive from their governments. What we need particularly is the kind of help that will make it possible for us to compete in terms of depreciation, taxes, and such factors. We also need some old-fashioned, skillful horse trading on export-import tariffs and quotas."

Speaking of the Khrushchev prediction that our grandchildren will grow up under his kind of government, Mr. Murphy said, "I don't think any of us believes that, but I do think we have to admit that it is not an easy task to preserve private enterprise and our individual freedoms." In resisting a drift toward centralized power, he added, businessmen hope for "a loud clear voice from the dispassionate and unprejudiced academic world to expose this drift."

Dean Howard W. Johnson of the School of Industrial Management and Dean Emeritus E. P. Brooks, '17, presided at the principal sessions and the speakers included President Julius A. Stratton, '23, Chairman James R. Killian, Jr., '26, of the Corporation, Dean George R. Harrison of the School of Science, and Professors Robert M. Solow, Douglas M. McGregor, and Max F. Millikan.



Alfred P. Sloan, Jr., '95, addressed the Executive Development Convocation of Sloan Fellows at the Institute in May.

Chairman James R. Killian, Jr., '26, of the Corporation, is at left; Dean Howard Johnson and Mrs. Killian at the right.

# Problems That Don't Worry Me

*There are greater problems than automation, affluence, and the economic consequences of disarmament, so why fret about those?*

BY ROBERT M. SOLOW  
*Professor of Economics*

THE UNITED STATES faces many real economic problems: unemployment, the growth rate, the balance of payments and inflation. Obsolete ideas about the national budget, the public debt, and government spending are obstacles to the development of a sensible economic policy. This was the theme of Professor Solow's remarks at the Executive Development Conference of M.I.T.'s Sloan Fellows, which brought a distinguished group of businessmen to the Institute in May.

Incidentally, he discussed other problems, which he considers less serious. This article was drawn from his remarks about the latter.

I DON'T MIND worrying when I've got something real to worry about. But some problems that get talked about a lot don't seem to me to be real problems. So I don't worry about them. One of them may surprise you—it is the "problem" of automation.

I don't doubt that there is such a thing as automation or that it's intellectually exciting and economically important. But the argument is often made that automation represents a second industrial revolution, that it means a spectacular increase in productivity, and that it threatens catastrophic unemployment. My trouble is that I have seen no evidence of any spectacular speed-up in the rate at which manufacturing productivity has been rising in recent years. And even if there were such evidence, I don't think it would portend an unusually severe problem of unemployment.

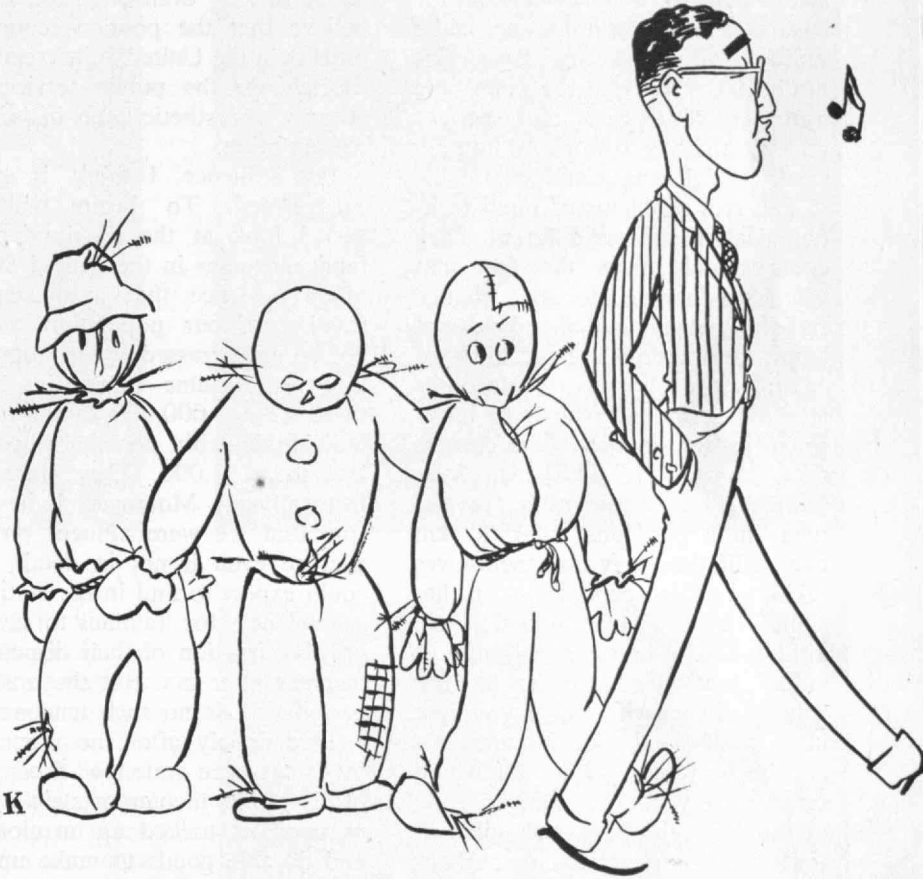
It is true that output per man-hour in manufacturing, in the economy as a whole, and most especially in agriculture, has increased a bit more rapidly since the end of World War II than it did in the earlier part of the century. For the whole private economy, for instance, out-

put per man-hour increased at an average rate of 2.4 per cent per year from 1909 to 1960. For the latter part of the period, from 1947 to 1960, the rate of increase was 3 per cent. It was faster from 1947 to 1954 than from 1954 to 1960, but that's because the last six years have been weak. In manufacturing, output per man-hour rose at an annual rate of something like 2.5 per cent from 1909 to 1960 and 2.9 per cent from 1947 to 1960. The rates of productivity improvement from 1947 to 1954 and from 1954 to 1960 were approximately the same. But if you try to make allowance for the retarding effects of the lower rate of capacity utilization after 1954, you come up with a rate of productivity improvement of 2.8

per cent per year between 1947 and 1954 and 3.1 per cent a year between 1954 and 1960. That's nothing to be sneezed at, but neither does it amount to a revolution.

I can't tell what will happen to productivity in the next five or 10 years. It is true that during the last three-quarters of 1961 there was a terrific burst of productivity increase, even bigger than usually happens in periods of strong recovery. But I wouldn't stake much on that—in fact, I wouldn't be surprised to see the data revised and the whole thing disappear.

But suppose that the prophets of a second industrial revolution are right, not about the past but about the future; suppose that a very sharp increase in productivity lies



just around the corner. Is there danger of mass technological unemployment? I don't think so, though neither would I accept the Pollyanna position that all such transitions are accomplished smoothly and automatically. If the Federal government goes about its prescribed business—under the Employment Act of 1946—of maintaining an appropriate level of aggregate demand for goods and services, higher productivity will mean a higher standard of living or a higher demand for leisure or both. But it does not make sense to argue, as some have, that our society can be at the same time saturated with goods and services and yet anxious to work 40 hours a week at high wages and salaries.

The real problems of rapid technological change are different. They come mainly from the fact that when production processes change rapidly, certain specific kinds of labor (and certain specific kinds of capital as well) may become obsolete and command a suddenly lower price in the market. This means that groups of individuals who have built up a considerable investment in a particular kind of skill over a lifetime may find themselves taking a sudden capital loss on that skill. This is a very uncomfortable kind of loss to experience—an individual semiskilled worker has no way of diversifying his investment in himself—and the human cost can be very great. I myself would favor society bearing some portion of this loss, either through substantial retraining programs, or perhaps through something analogous to a carry-back of loss offsets in the personal income tax, or both. But these are problems of adjustment, not of catastrophe. They do not suggest that automation does or can mean the impossibility of everybody finding a job while at the same time everybody still hungers enough for goods to want to work for a living. That is simply a fallacy.

#### How Affluent Are We?

There is a related belief, cherished by many serious people but not by many economists, that the U.S. has become an "affluent society" in which the problem of economic scarcity has vanished as a result of technical progress and the accumulation of capital. We are all jaded by the goods of the world, some say,

and the capitalistic economic machine is only able to work as long as the advertising profession can make us think we desperately want things we don't really want.

I suppose there is a real question about how literally one is expected to take this doctrine. Kenneth Galbraith, our tall and distinguished Ambassador to India, presumably writes as a social critic rather than as an economist. Any citizen is privileged to think that much advertising is silly or even offensive, or to believe that the political-economic process in the United States tends to shortchange the public services in favor of unaesthetic items of private consumption.

But affluence, I think, is much exaggerated. To begin with, a casual look at the distribution of family incomes in the United States offers evidence that a substantial fraction of our population would not be embarrassed by an opportunity to consume more. In 1960 there were 7,000,000 families and individuals with personal incomes less than \$2,000. They were far from affluent. Moreover, if it were true that we were affluent on the average even if not in detail, one could expect to find in the statistics a tendency for families to save a growing fraction of their disposable incomes after tax. But the postwar period reveals no such tendency.

Immediately after the war, savings rates were quite low, 5 per cent of disposable income or even lower, as families stocked up on clothing and durable goods to make up for the restricted consumption of the war years and the even larger interval of depression that preceded the war. But in 1950 personal savings were 6 per cent of disposable income and between 1951 and 1961 the savings rate has fluctuated between 6½ and 8 per cent with no systematic tendency either to rise or to fall. In 1961, the figure was an even 7 per cent. I see no reason to doubt that for the foreseeable future, apart from the short-run fluctuations, the American consumer will spend between 92 cents and 94 cents of every dollar of income he has available. This doesn't sound to me like the behavior of tired consumers.

There remains the question whether this consumption is not simply proof that we are all sheep,

being led by Madison Avenue to waste our money on things of no intrinsic value. Once again, anybody is entitled to criticize his neighbors or his wife for the quality of their taste. But it seems to me that the distinction between natural wants and artificially created wants is so tricky as to crumble as soon as you think about it. The taste for Beethoven is as artificially created as the taste for outboard motors. The great apes are not known to be natural admirers of Rembrandt. And I must confess that the taste for very modern music or very modern art strikes me as almost impossible to acquire.

The difference between the European housewife and the American housewife is not that one is cultured and the other is a slave to *The Ladies Home Journal*. The difference is that the American housewife has been able to afford an electric refrigerator for some time and the European housewife is only beginning to have that much money to spend. What appears to some as the Americanization of European tastes is really just the Americanization of European incomes.

#### Would Disarming Wreck Us?

There is a third false economic problem which is more talked about in other countries than it is in the United States. Many people believe that American prosperity is based entirely on a high level of military expenditure, and conclude that an acceptable disarmament agreement would mean an economic collapse. I think this is wrong, but one must not be too casual about it. The evidence of the past must be interpreted with care.

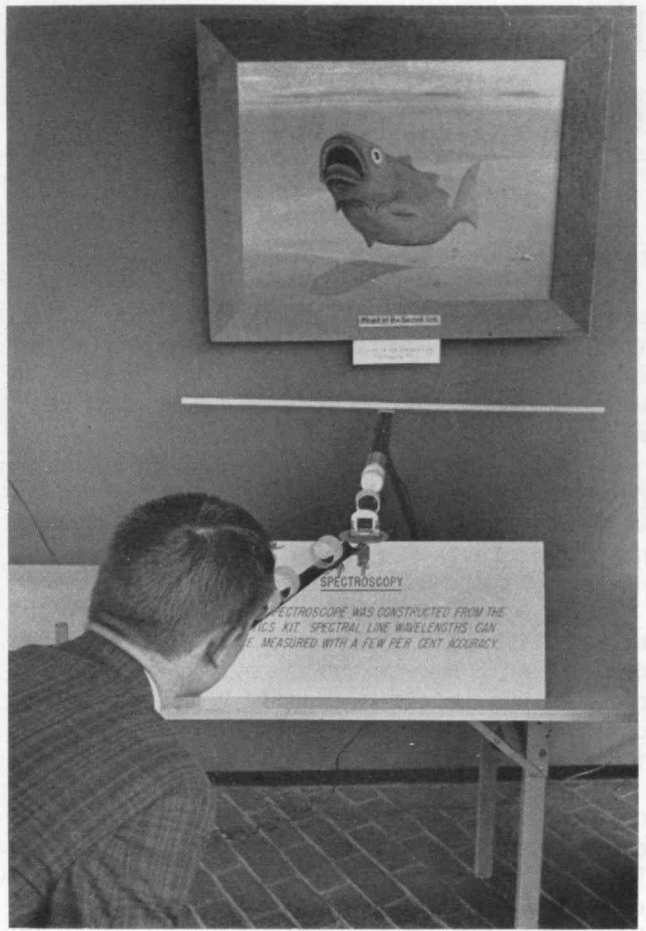
We are in no case likely to be faced in the future with a reduction in defense outlays as radical as what occurred, and occurred so successfully, in 1945-1946. Between 1945 and 1947, defense expenditure fell from 40 per cent to 5 per cent of the Gross National Product with no ill effects. We are now spending 9 per cent of our annual output on national defense. But of course that demobilization occurred to an economy that had been starved for consumer goods, houses, and capital equipment by both a long war and a longer depression. We have no such backlog of demand to

(Concluded on page 64)

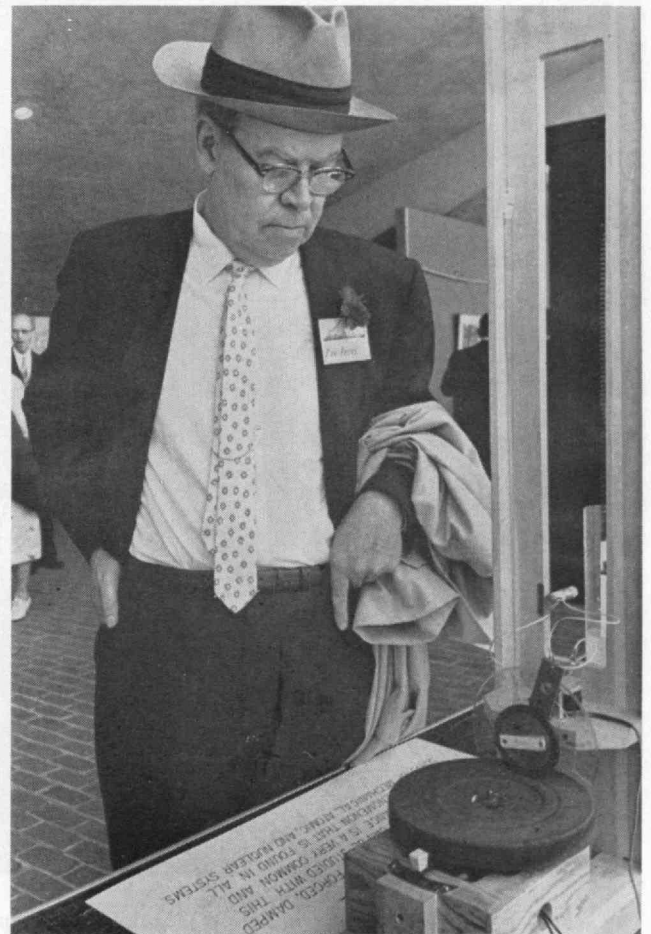
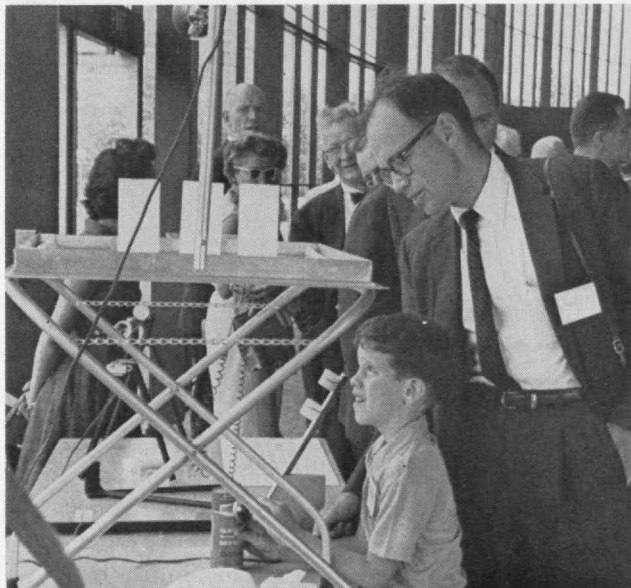


# The Arts and Sciences In Kresge Auditorium

*Visiting experts examine pictures by Alumni  
and the new devices now used to teach science*



PEOPLE were diverted from people on M.I.T. Alumni Day by the teaching aids and art exhibited in the Kresge lobby. Above, one guest is seen looking through an optics kit set up as a spectroscope below a portrait of the late Redfield Proctor, '02, by Gardner Cox, '32, and another does likewise under "Plight of the Sacred Cod" by Francis W. Hagerty, '38. The ripple tank below was admired from both its under and upper sides, and the gentleman with the raincoat gave the resonance apparatus for study of driven vibrations his undivided attention.



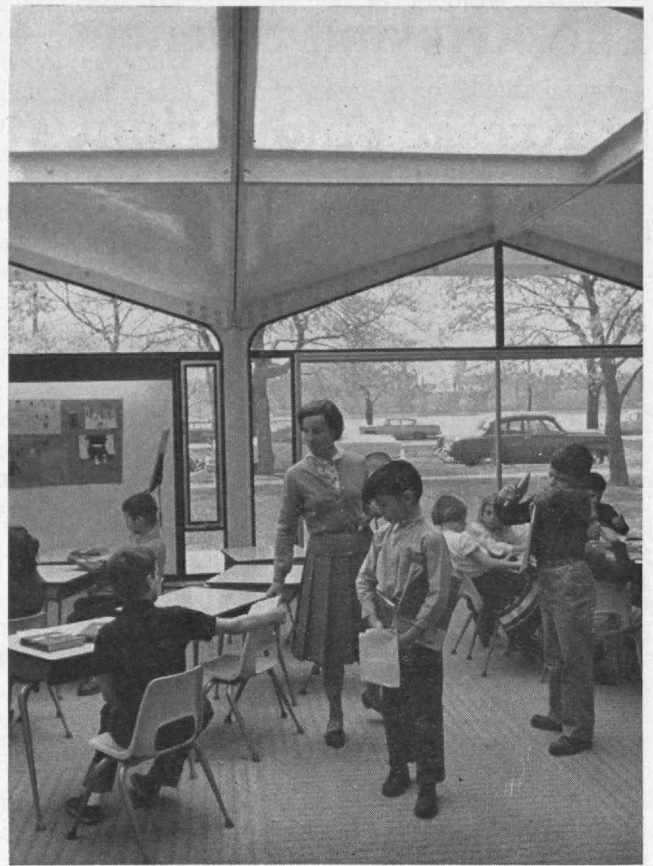
# Instant Schoolhouse Built at Institute

**T**HE 32-FOOT SQUARE SCHOOLROOM near the M.I.T. dormitories on Memorial Drive was built to demonstrate the new ideas about school construction of Marvin E. Goody, '51, and Joseph J. Schiffer, '61, of the Department of Architecture. It is a type that can be erected quickly, expanded as necessary, and even taken apart and reassembled elsewhere in a jiffy.

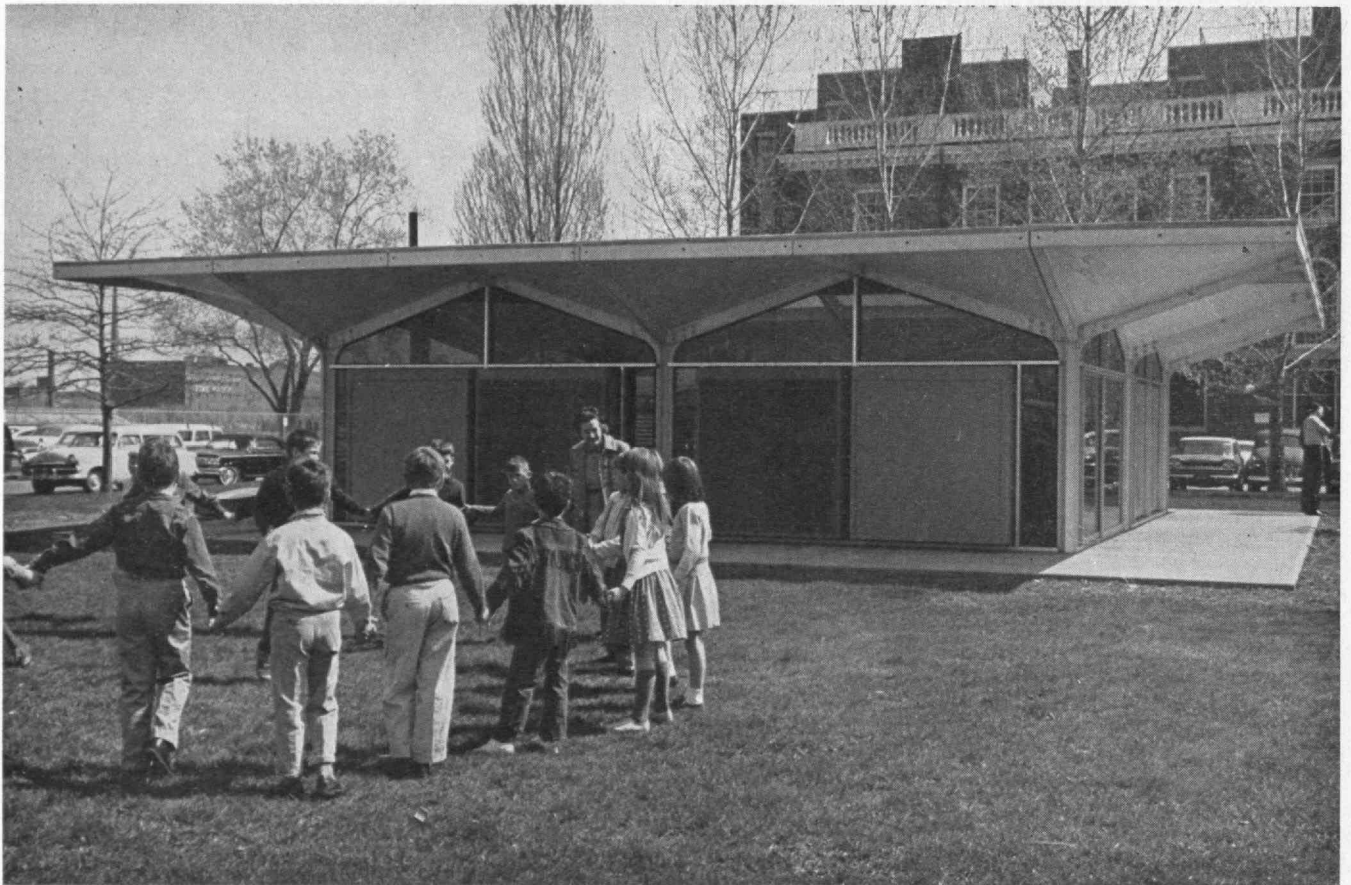
Its basic structural unit is a tree with four arms supporting panels bolted together. Walls and dividers can be clipped in from four directions. The demonstration model has eight such trees, and an eight-foot overhang around the enclosure as sun protection.

Such a school, Professor Goody believes, could be manufactured, packed, shipped to the sites chosen, and erected for the same cost as the solid, inflexible classrooms now in use. "It is designed," he emphasized, "to deal with new ways of thinking about schools and new ways of teaching."

Twenty makers of building materials co-operated in the construction of the prototype. The Educational Facilities Laboratory, Inc., sponsored the project, and John P. Eberhard, '59, of the School of Industrial Management, now is evaluating potential markets for this new kind of flexible "instant schoolhouse."



Carpet tiles, three-feet square, can be replaced separately if damaged. Storage space is provided in the walls.



The school can be enlarged by adding tree units, and adapted to various needs by rearranging the room dividers.



# Institute Yesteryears

## 25 Years Ago . . .

ON JULY 1, 1937, *Donald G. Robbins, '07*, Vice-president of Associated Depositors, Inc., retired as the 43d President of the Alumni Association, being succeeded in that office by *Marshall B. Dalton, '15*, President of the Boston Manufacturers Mutual Fire Insurance Company; and *C. Adrian Sawyer, '02*, retired as Vice-president of the Association, being succeeded by *Charles R. Boggs, '05*.\*

Mr. Boggs had been a member of the Executive Committee during the Robbins administration, as had Professor *Carle R. Hayward, '04*, whose term thereon also expired at the end of 1936-1937. These two vacancies were filled for the Dalton administration by *George A. Packard, '90*, and *Joseph P. Draper, '00*.

◀ *Martin H. Eisenhart, '07*, *Donald G. Robbins, '07*, and *Bradley Dewey, '09*, retired as Alumni Term Members of the Institute's Corporation, their successors for 1937-1942 being *Albert F. Sulzer, '01*, *George E. Whitwell, '14*, and *William E. R. Covell, '23*.

## 50 Years Ago . . .

PREPARATIONS were under way for the opening of the new Technology Summer Surveying Camp near the village of East Machias, in Washington County, Maine, on August 6, 1912. Here, 72 students of the Class of 1914, together with 13 members of the instructing staff, would spend some eight weeks of field instruction in land and water surveying. Of the new camp, The Review reported that it had become available "through provisions made by generous Alumni, [by which] the Civil Engineering Department has been provided with 800 acres of land bordering for two and a half miles on a beautiful lake . . ."

"Not content with this liberal gift of land, the donors have also provided a group of camp buildings for purposes of instruction and sustenance, a village of sleeping tents, a complete water supply and sewerage system, and a gas lighting plant which arouses the interest of inhabitants for miles around.

"This extensive tract of land—the largest piece of real estate owned by the Institute—lies at the edge of a wilderness, and one can go for miles in a northerly direction without passing habitation or meeting other travelers. Moose, deer, and other wild animals are sometimes seen in the vicinity, and the lake offers excellent pickerel fishing. . . ."

"The land consists, for the greater part, of rolling hills covered with second-growth spruce, fir, hemlock, maple, and birch, but there is a considerable amount of cleared land, on which it is expected that we shall soon be able to raise many of our own vegetables. . . ."

\* Mr. Boggs resigned his vice-presidency for reasons of health in April, 1938, and Professor Arthur L. Townsend, '13, was elected in June, 1938, to serve until the end of 1938-1939.

## How the Institute Has Grown

|                                | 75<br>Years Ago<br>1886-1887 |            | 50<br>Years Ago<br>1911-1912 |            | 25<br>Years Ago<br>1936-1937 |            |
|--------------------------------|------------------------------|------------|------------------------------|------------|------------------------------|------------|
|                                | No.                          | %          | No.                          | %          | No.                          | %          |
| <b>Total Registration</b>      | <b>637</b>                   | <b>100</b> | <b>1,566</b>                 | <b>100</b> | <b>2,793</b>                 | <b>100</b> |
| Freshmen                       | 198                          | 30.6       | 387                          | 24.7       | 650                          | 23.3       |
| Undergraduates                 | 635                          | 99.7       | 1,521                        | 97.1       | 2,174                        | 77.8       |
| Graduate Students              | 2                            | 0.3        | 45                           | 2.9        | 619                          | 22.2       |
| States Represented             | 35                           |            | 43                           |            | 48                           |            |
| Massachusetts                  | 402                          | 63.0       | 860                          | 54.9       | 1,092                        | 39.1       |
| Other New England              | 84                           | 13.2       | 130                          | 8.3        | 206                          | 7.4        |
| Total New England              | 486                          | 76.2       | 990                          | 63.2       | 1,298                        | 46.5       |
| Foreign Countries Represented  | 4                            |            | 30                           |            | 30                           |            |
| Foreign Students               | 8                            | 1.3        | 101                          | 6.4        | 181                          | 6.5        |
| <b>Total Instructing Staff</b> | <b>69</b>                    | <b>100</b> | <b>240</b>                   | <b>100</b> | <b>535</b>                   | <b>100</b> |
| Faculty Members                | 25                           | 36.2       | 90                           | 37.5       | 244                          | 45.6       |
| Students per Staff Member      | 9.3                          |            | 6.5                          |            | 5.2                          |            |
| Students per Faculty Member    | 25.5                         |            | 17.4                         |            | 11.4                         |            |
| <b>Total Degrees Awarded</b>   | <b>59</b>                    | <b>100</b> | <b>287</b>                   | <b>100</b> | <b>648</b>                   | <b>100</b> |
| Bachelor's                     | 58                           | 98.3       | 261                          | 90.9       | 391                          | 60.3       |
| Master's                       | 1                            | 1.7        | 20                           | 7.0        | 206                          | 31.8*      |
| Doctor's                       | —                            |            | 6                            | 2.1        | 51                           | 7.9†       |

### Leading States Outside of New England

| (75 Years Ago) |              | (50 Years Ago) |              | (25 Years Ago) |              |
|----------------|--------------|----------------|--------------|----------------|--------------|
| No.            | State        | No.            | State        | No.            | State        |
| 24             | New York     | 90             | New York     | 400            | New York     |
| 21             | Ohio         | 39             | Pennsylvania | 154            | New Jersey   |
| 19             | Illinois     | 37             | Ohio         | 127            | Pennsylvania |
| 13             | Pennsylvania | 33             | New Jersey   | 91             | Illinois     |
| 8              | California   | 30             | Illinois     | 73             | Ohio         |
| 7              | New Jersey   | 23             | California   | 44             | California   |
| 6              | Iowa         |                |              | 35             | Missouri     |

### Leading Foreign Countries

| No. | Country | No. | Country | No. | Country       |
|-----|---------|-----|---------|-----|---------------|
| 4   | Canada  | 36  | China   | 50  | China         |
| 2   | Peru    | 19  | Canada  | 30  | Canada        |
| 1   | Belgium | 5   | Mexico  | 13  | Great Britain |
| 1   | Japan   | 3   | Japan   | 11  | Cuba          |
|     |         | 3   | Brazil  | 11  | India         |
|     |         | 3   | Cuba    | 5   | Mexico        |
|     |         | 3   | Russia  | 4   | Japan         |

\* First S.M. in Economics and Engineering, to Richard A. Denton, '36.

† First Sc.D. in Petroleum Engineering to Eldon N. Dunlap, '36.

## 75 Years Ago . . .

ON JULY 2, 1887, President Francis Amasa Walker was being congratulated upon the occasion of his 47th birthday.

## 100 Years Ago . . .

AT THE THIRD Meeting of the "Government" held on July 15, 1862, Thomas H. Webb was elected "permanent Secretary of the Institute.\*"

\* Dr. Webb held this office until his death in the summer of 1866, when Samuel Kneeland became the second "permanent Secretary."

# Books

**NOW IT CAN BE TOLD, The Story of the Manhattan Project, by Leslie R. Groves, '17, Lieutenant General, U.S.A., Ret.; Harper & Brothers (\$6.95). Reviewed by H. E. Lobdell, '17.**

SON of a regular Army chaplain, who served with the 14th U.S. Infantry during the Boxer Rebellion, the future General Groves was an undergraduate member of the M.I.T. Class of 1917 for two years, from the fall of 1914 until the spring of 1916. He then received a Presidential appointment to West Point, from whence he emerged successfully as a freshly foaled shavetail of the Army's Corps of Engineers in 1918. For the next two decades he fulfilled various service assignments and experienced successive promotions until in 1940, as a colonel, he was Deputy Chief of Construction of the Corps, in charge of all Army construction within the United States and its offshore bases—including the Pentagon.

Especially from Pearl Harbor forward, he coveted an overseas assignment as commander of combat troops; but one fine morning in mid-September of 1942, when it seemed he was about to get his wish, Lieutenant General Brehon Somervell, Commanding General of the Army's Services of Supply, said NO—because the Secretary of War, with the approval of the President, has “selected you for a very important assignment”—in Washington. “If you do the job right,” Somervell continued, “it will win the war.”

Nevertheless, as Groves writes, his “initial reaction was one of extreme disappointment. I did not know the details of America's atomic development program at the time, but, because of the nature of my responsibilities, . . . I knew of its existence and general purpose—through the use of uranium to produce an atomic bomb which it was hoped might be of unprecedented power. . . . Magnitude aside, what little I knew of the project had not particularly impressed me, and if I had known the complete picture, I would have been still less impressed.”



General Groves (right) with Henry E. Strout (left) and E. P. Brooks at the 30th reunion of the M.I.T. Class of 1917.

Later that morning, Groves saw Major General W. D. Styer, '22, Chief of Staff to General Somervell, who plausibly outlined the Manhattan Project's mission as follows: “The basic research and development are done. You have just to take the rough designs, put them in final shape, build some plants and organize an operating force and your job will be finished and the war will be over.” To all this, Groves records that he “was skeptical, but it took me several weeks to realize just how overoptimistic an outlook he had presented.”

## His Encounter with Bush

Nor did Groves derive comfort from subsequent happenings that morning for, as he learned from colleagues more “details of the problems which confronted the Manhattan Engineer District . . . I was not happy with the information I received; in fact I was horrified. It seemed as if the whole endeavor was founded on possibilities rather than probabilities. . . .” And in the afternoon of that historic September 17, he had the “inauspicious beginnings” of his relations with Vannevar Bush, '16, chairman of the Office of Scientific Research and Development.

Groves supposed, of course, that Styer had informed Bush of his new assignment; but on that score, Bush was entirely in the dark. Anyone, even casually acquainted with Van Bush, hardly need stretch his imagination very far to picture in his mind how Bush reacted to being quizzed by a caller on matters about which, so far as Bush knew, Groves had no business being informed. After the interview, Bush got in touch with Styer, found out about Groves's new assignment, and wrote a memorandum to Harvey Bundy, a principal assistant to Secretary of War Stimson; in it Bush said in part, “having seen General Groves briefly, I doubted whether he had sufficient tact for such a job . . . [and Styer] agreed the man is blunt, etc., but thought his other qualities would overbalance. . . . I fear we are in the soup.”

Fortunately, however, as Groves writes, his “relations with Bush from that day on, were always most pleasant and we soon became, and remain, fast friends. . . . Never once throughout the whole project were we in disagreement. He was a pillar of strength upon whom I could always rely.” And not infrequently Groves needed such backing from a man like Bush, for to many of the scientific personnel of the Manhattan Project Groves was characterized from time to time, politely, as a “controversial figure,” or as something less elegant but emotionally more expressive.

## The Project's Magnitude

In this connection it is of interest to note that Groves “decided, and Styer agreed, that I should not take over the project officially until I could do so as a brigadier. I thought there might be some problems in dealing with many academic scientists involved in the project, and I felt that my position would be stronger if they thought of me from the first as a general instead of as a promoted colonel. Many later experiences convinced me that this was a wise move; strangely enough, it often seemed to me that the prerogatives of rank were more important in the academic world than they are among soldiers.”

Groves's amazingly dramatic and well-told narrative of what then went on until he laid down command of the Manhattan Project in 1947, makes amply clear the



magnitude of it all in countless ways. The first estimate for construction alone at Oak Ridge, for example, was "between \$12 and \$17 million," but by the end of 1946, "exclusive of the value of the silver borrowed from the Treasury for electrical conductors, the construction costs . . . totalled \$304 million; research cost \$20 million, the engineering \$6 million and operation \$204 million." Again, before the Hanford Works were finished, Du Pont employed over 10,000 subcontractors!

On scarcely any of his more than 400 text pages does Groves fail to dispense credit to some of the countless individuals involved in the two-billion dollar operation. Many thus credited were M.I.T. Alumni or members of its Faculty, such as the late Theodore B. Parker, '11, Chief Engineer of TVA, who in the early stages of the Oak Ridge planning gave assurance that the Authority could supply the power needs, providing it obtained priority assistance in procuring heavy generating equipment; and Major John H. Dudley, '39, who conducted the field search of the Southwest for the laboratory site which narrowed down the choice to Los Alamos, where the second commanding officer, primarily responsible for the maintenance of adequate living conditions, safeguarding government property and the conduct of military personnel, was Lieutenant Colonel Whitney Ashbridge, '26.

### Hanford's Origin

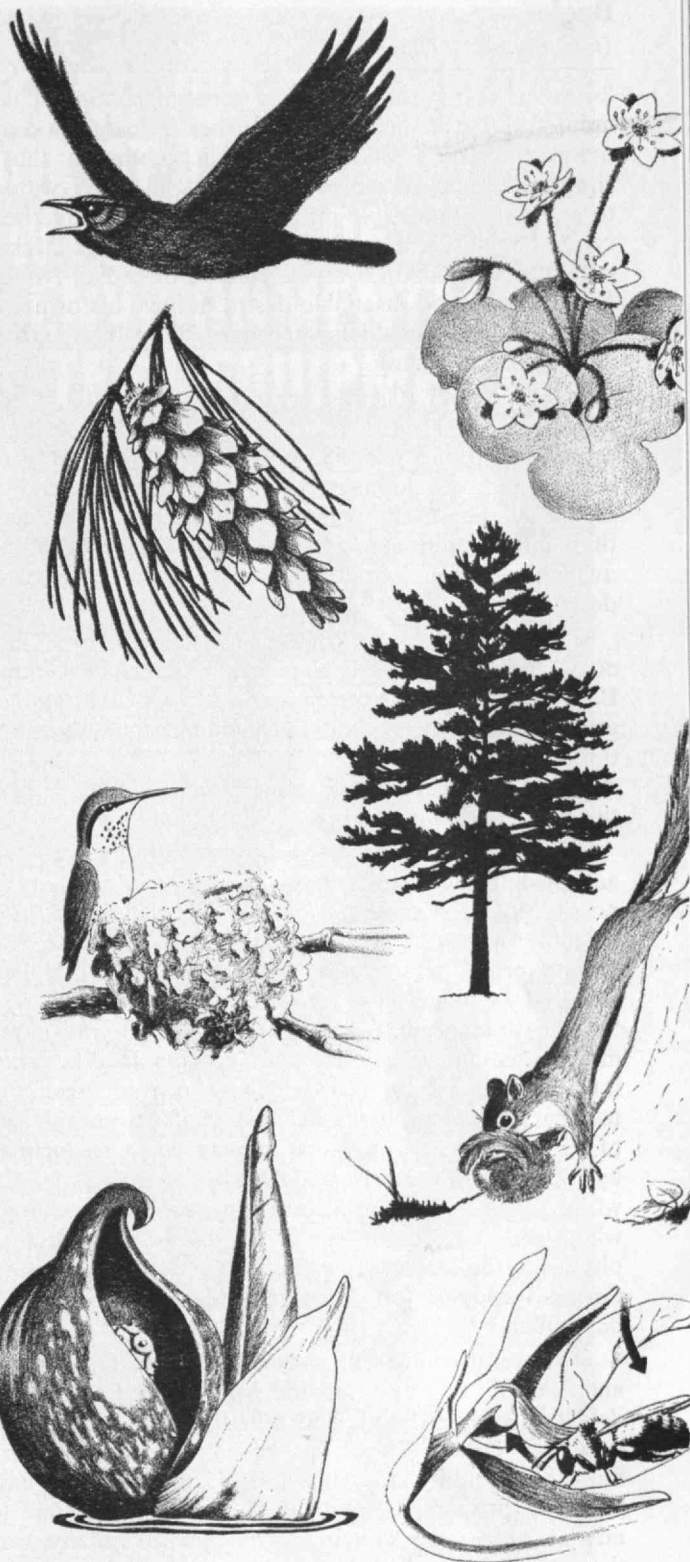
On October 30, 1942, with the late Willis F. Harrington, '05, and Charles M. A. Stine, Vice-presidents of Du Pont, Groves had his first contact which led to that company undertaking the plutonium process at Hanford. On November 18, he and James B. Conant (who, with the late Richard C. Tolman, '03, served Groves as a "scientific adviser") had a "thorough discussion" with Dr. Stine and Crawford H. Greenewalt, '22, who expressed a fear that Du Pont was being asked to take the most difficult process under consideration. To allay their misgivings, Groves and Conant appointed a reviewing committee of five members including Professor Warren K. Lewis, '05, of M.I.T., as chairman; Eger V. Murphree, '23, of Standard Development Corporation; and Roger Williams, '14, and Greenewalt of Du Pont.

Honorable mention accorded other industrialists by the author included: Percival C. Keith, '22, and John H. Arnold, '31, of Kellogg; Charles A. Thomas, '24, of Monsanto; and Hartselle D. Kinsey, '24, of Union Carbide. Named by him as among the "principal contributors" to the "Metallurgical Project" was Professor John Chipman of the Institute's Department of Metallurgy, and his colleague, Professor A. M. Gaudin, the latter for devising the method by which uranium could be recovered from the ores of the Rand in South Africa.

Of Kenneth T. Bainbridge, '25, the "scientist in charge of the test" at Alamogordo, Groves writes that "he had the unusual qualification of being a physicist with undergraduate training in electrical engineering. He was quiet and competent and had the respect and liking of over 200 enlisted men later on duty at Alamogordo. . . .

"I had ruled out using Los Alamos for the test on grounds of security and also because I doubted if the area could be expanded sufficiently. Later, we decided we would need a site measuring approximately 17 by

(Continued on page 50)



HENRY B. KANE, '24, generously illustrates the books he writes with his own photographs and original drawings. Some of the latter from his newest volume, "The Tale of a Wood," are reproduced above. Published this spring (Alfred A. Knopf, \$3), it is a companion book to "The Tale of a Pond" and "The Tale of a Meadow." Starting on a July morning, a lively boy serves as the reader's guide to nooks and crannies often missed. Written for David Marshall, "woodsman of the future," it describes the many different kinds of life in the wood in a way certain to please readers of all ages.

## Books

(Continued from page 49)

24 miles, that it should be in a generally nonpopulated area, and that it should be no farther from Los Alamos than necessary. I added one special prohibition; that it should have no Indian population at all, for I wanted to avoid the impossible problems that would have been created by Secretary of the Interior Harold L. Ickes, who had jurisdiction over the Bureau of Indian Affairs. His curiosity and insatiable desire to have his own way in every detail would have caused difficulties and we already had too many."

Late in 1943, Groves organized a scientific intelligence mission to go to Italy "to obtain advance information regarding scientific developments in enemy research and development establishments . . . and to secure all important persons, laboratories, and scientific information immediately upon their becoming available to our own forces before their dispersal or destruction."

This mission, known by the code name "Alsos," was commanded from the beginning by Lieutenant Colonel Boris T. Pash, and its original unit, which assembled at Algiers on December 14, included four scientists, three of whom were Major William P. Allis, '23, of the Army; Lieutenant Commander Bruce S. Old, '38, of the Navy; and James B. Fisk, '31, of OSRD.

After V-E Day, Alsos quickly penetrated Germany and an intensive search began to gather in as many as possible of the German scientists, especially those presumably working in the atomic field. Of these, the "grand prize" was Werner Heisenberg, captured personally by Colonel Pash. Of Heisenberg, Groves writes, "at the time of the German break-up he was worth more to us than 10 divisions of Germans. Had he fallen into Russian hands, he would have proved invaluable to them. As it was, he had always remained on the side of the west . . ."—perhaps in part being so inclined by his pleasant sojourn at M.I.T. in the spring of 1929 while giving a series of lectures on quantum mechanics when, at the age of 27, he was professor of theoretical physics at the University of Leipzig. (Be that as it may, Groves's chapters on Alsos read like an Eric Ambler best seller.)

On several counts one may be thankful the appearance of this fine opus on the Manhattan Project was delayed nearly a decade and a half after the last of the events described. The delay served to make the story more complete by removing most, if not all, of the earlier "security wraps," and the author used the time to advantage by not producing a "quickie" like many wartime memoirs rushed into print to hit a supposedly short-lived market. Instead, this book very evidently was "rewritten and worked over" many times more than once after draft No. 1—and in that way General Groves has produced a written record truly worthy of the accomplishments of his wartime command, which record he concludes in a final paragraph as follows:

"In answer to the question, 'Was the development of the atomic bomb by the United States necessary?' I reply unequivocally, 'Yes.' To the question, 'Is atomic energy a force for good or for evil?' I can only say, 'As mankind wills it.'"

## Have You Seen These New Books?

RECENT PUBLICATIONS likely to be of especial interest to M.I.T. Alumni have included:

*Dynamics: particles, rigid bodies, and systems*, by Associate Professor Robert L. Halfman, '44 (Addison-Wesley, \$7.50).

*Elements of Finite Mathematics*, by Francis J. Scheid, '48 (Addison-Wesley, \$6.75).

*Food Plant Sanitation*, by Milton E. Parker, '23, and John H. Litchfield, '50 (Reinhold, \$12).

*Macromolecular Specificity and Biological Memory*, edited by Institute Professor Francis O. Schmitt (The M.I.T. Press, \$3).

*Microbiology for Sanitary Engineers*, by Ross E. McKinney, '49, of the University of Kansas, another book in a series edited by Rolf Eliassen, '32, of Stanford University (McGraw-Hill Book Company, \$9.75).

*Network Analysis and Synthesis*, by Louis Weinberg, '51 (McGraw-Hill Book Company, \$19.50).

*Petroleum Progress and Profits, A History of Process Innovation*, by Professor John L. Enos, '49, of M.I.T. (The M.I.T. Press, \$9.50).

*Revolution in Electricity*, by Martin Mann, '41, a book for laymen on recent work in electronics (The Viking Press, \$5).

*The Scientific Basis of Illuminating Engineering*, by Parry H. Moon, '27 (Dover, \$2.85).

*Site Planning*, by Associate Professor Kevin A. Lynch, '47 (The M.I.T. Press, \$8).

*A Survey of Switching Circuit Theory*, edited by Edward J. McCluskey, Jr., '52, of Princeton University and Thomas C. Bartee of M.I.T.'s Lincoln Laboratory (McGraw-Hill Book Company, \$7.75).

*Tables of Spectral-line Intensities, Part I, Arranged by Elements*, by William F. Meggers, Charles H. Corliss, '41, and Bourdon F. Scribner (National Bureau of Standards Monograph 32, \$4).

*Unusual Careers*, by Martha E. Munzer, '22, a book for young people about the earth sciences, sanitary engineering, city planning and related professions (Alfred A. Knopf, \$3).

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**LIVING WITH THE ATOM**, by Ritchie Calder; University of Chicago Press (\$5.95). Reviewed by Stanley Klein, '58, staff member of Engineers Joint Council, formerly associated with the AEC.

*Living With the Atom* is neither a children's book nor a "gee whiz" popularization of nuclear technology as its ABC-like title might imply. Rather, it is an intelligent assessment of the hazards associated with the peaceful applications of atomic energy and the reasons for the public's exaggerated fears over these hazards.

The book is an outgrowth of two colloquia held during 1961 at the University of Chicago. It summarizes the discussions of an impressive list of participating scientists and science journalists, that included the book's author, Ritchie Calder, a distinguished English science writer. The book probes fundamental issues: Who are we to believe when scientists possessing laudable credentials disagree over the extent of radiation hazards? Why do they disagree? Why do we often distrust information on atomic energy originating from government sources? Is the scientist or the journalist primarily re-

(Continued on page 52)





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## Books

(Continued from page 50)

sponsible for the widespread misinformation about atomic matters?

In the discussion of such questions, political leaders, the press, and the public are reprimanded for contributing to the confusion that accompanies atomic-generated social issues. The scientists, however, receive the brunt of the blame. ". . . Scientists, and the authority of science, have in recent years been used to promote policies or to win appropriations or contracts or to defend government agencies and industrial concerns and to 'reassure the public' on subjects such as fallout . . ." Of the older generation of scientists, particularly those who participated in the development of the first A-bombs, Calder writes: The study group recognized that "many of them, if not most of them, are 'pretty well mixed up.' They have a marked sense of guilt."

Calder includes engrossing evaluations of the radiation dangers posed by nuclear research and power reactors, nuclear-powered ships, planes, rockets, and auxiliary devices, and by radioactive wastes. Fascinating chapters explain ingenious technological innovations designed to minimize these hazards. The intricate movements of radioactive elements are traced from their release into an environment to their eventual uptake into human bone and tissue. The numerous approaches used to assess the effects of chronic, low-level radiation upon human beings are surveyed.

Regrettably, the book omits the peaceful applications of nuclear explosives (Operation Plowshare) which, in time, will rouse as much heated public debate and turmoil as did fallout from weapons testing. Other than this omission, *Living With the Atom* will clarify for intelligent readers much of the world of atomic energy which, since Hiroshima, has been more fogged up than the interior of a Wilson Cloud Chamber.

**MANAGEMENT AND THE COMPUTER OF THE FUTURE**, edited by Martin Greenberger; **The M.I.T. Press and John Wiley and Sons, Inc. (\$6)**. Reviewed by Philip Franklin, Professor of Mathematics, M.I.T.

IN ITS first 18 years, the automatic digital computer has already proved to be a valuable aid to management in making decisions, and the rate of growth promises many interesting possibilities for the future. To examine their significance, the M.I.T. School of Industrial Management sponsored a series of eight lectures and discussions. These were held in 1961 as part of M.I.T.'s centennial celebration. This book was prepared from tape recordings of the sessions.

The planners of the program gave a very broad interpretation to the term "management": including policy decisions in the interests of society, government, science, and education as well as those of industrial organizations. This interpretation determined the choice of the principal speakers, discussants, and other participants from widely varying fields such as administration, psychology, social science, physics, engineering, computers, and mathematics.

Some idea of the content of the book may be gained from the following list of principal speakers with the

titles of their lectures and a brief amplification and interpretation.

1) C. P. Snow: *Scientists and Decision Making*. This lecture emphasizes the danger of vital political decisions being unduly influenced by a small group of computer-oriented scientists who may subconsciously bias the data inputs and processes which lead to the computer outputs.

2) Jay W. Forrester, '45: *Managerial Decision Making*. A summary of his theory of Industrial Dynamics, or the information feed-back system aspect of the managerial process.

3) Herbert A. Simon: *Simulation of Human Thinking*. Simon presents the theory of the General Problem Solver, a computer program which artificially produces results similar to those traditionally found by the use of human intelligence.

4) John G. Kemeny: *A Library for 2000 A.D.* This chapter formulates one conception of a library system adequate for the expected growth of collections well into the Twenty-first Century, with reasonable considerations of cost and limitations to readily foreseeable technological developments.

5) Alan J. Perlis, '49: *The Computer in the University*. A description of the use of the computer as an aid to research problems in a variety of fields, and also as an educational tool, particularly for students introduced to computer processes and programming early in the college curriculum.

6) John McCarthy: *Time-sharing Computer Systems*. This lecture describes the use of one large computer, interacting with many simultaneous users through remote consoles, to give each client the advantage of a continuously available private machine.

7) George W. Brown: *A New Concept in Programming*. Brown's lecture is devoted to parallelism, both in the internal structure of the computer (hardware), and in the organization of the external human effort in setting up models and programming (software), by which several activities can be carried on simultaneously.

8) John R. Pierce: *What Computers Should Be Doing*. A description of research and the computers of today, and speculation on their future help to management in information handling, analysis, and retrieval.

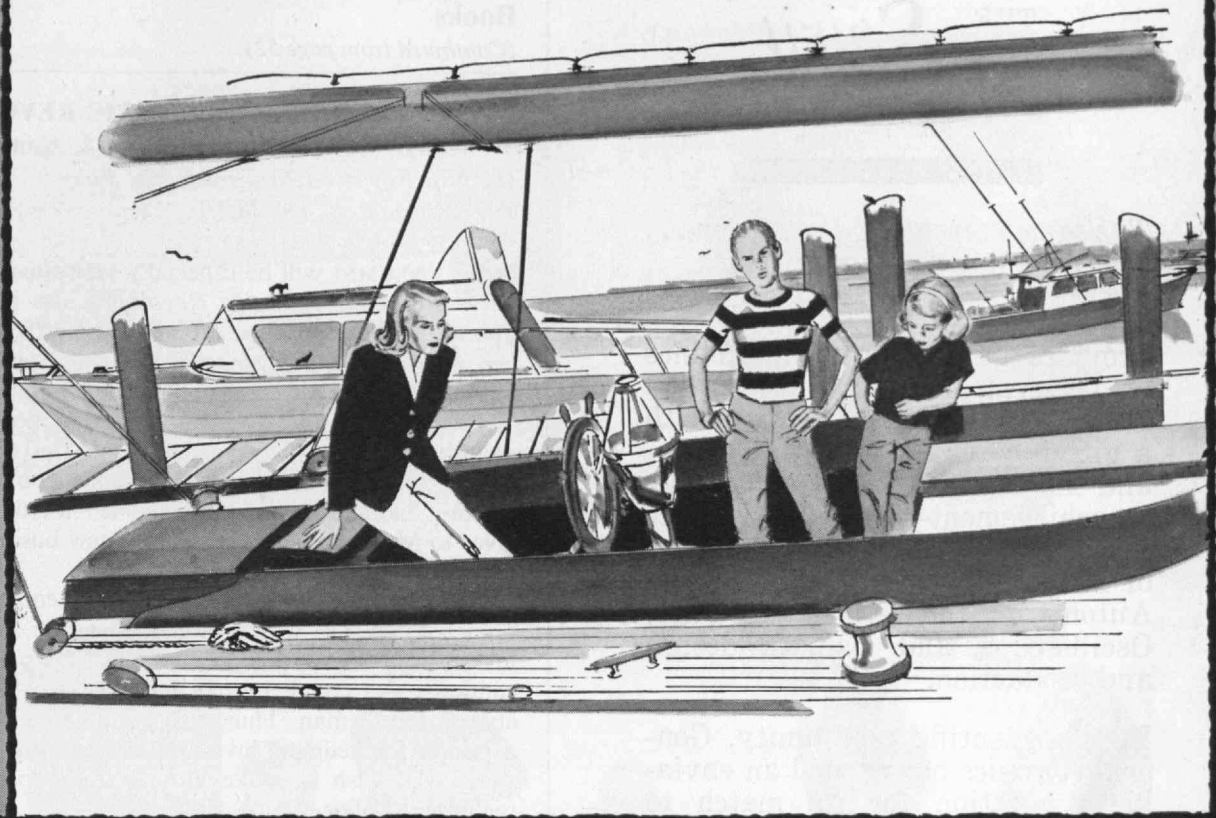
For each of the eight topics the book contains the lecture, the prepared commentary of each of the two discussants, the response by the speaker, and the general discussion. There is a healthy difference of opinion on the emphasis to be given to present alternative procedures. And, naturally, a great divergence of views on matters requiring speculation as to future developments.

Biographical notes on the speakers, discussants, and session chairmen as well as brief identification of some 30 other participants are included. Several references to books and articles are given at the end of each topic. In addition, a more extensive selected bibliography arranged in 12 categories is given at the end of the book.

The editor and those who have assisted him have not only selected a stimulating set of topics, and an interesting group of people to present and discuss them, but have done an excellent technical job in producing the results in book form.

(Book News is continued on page 54)





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**Books**

(Continued from page 52)

**INVESTING IN THE SCIENTIFIC REVOLUTION,**  
by Arthur C. Merrill; Doubleday & Company, Inc.  
(\$5.95). Reviewed by Vincent A. Fulmer, '53, Executive Assistant to the M.I.T. Corporation's Chairman.

M.I.T. ALUMNI will be especially interested in reading *Investing in the Scientific Revolution*. Its no-nonsense approach to the problem of evaluating growth stocks is set forth against a dazzling account of new companies and new technologies spawned in the period since World War II. M.I.T. and its Alumni are mentioned so frequently that, even if the reader should find the sections dealing with security analysis dull, the book may be a worth-while addition to his bookshelf for the insight it gives to M.I.T.'s role in generating new business opportunities.

The author combines an illuminating commercial approach to science with a sound, scientific approach to investments. Moreover, he puts all of his prescriptions, cautions, and convictions in terms readily understandable to the layman. Thus, this book can serve both as a primer for fledgling investors and as a handbook for those who wish to make growth stocks part of their regular portfolios.

Mr. Merrill has a wholesome nonspeculative attitude towards science-based companies. He is consistently cautious but optimistic about scientific developments and the use of judgmental factors in estimating their probable effect upon a company's future earnings and upon its future stock price. His book is concerned with approaches, not solutions, to the all-important question: to buy or not to buy?

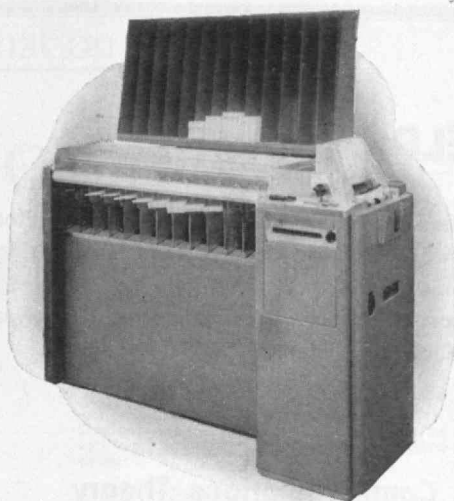
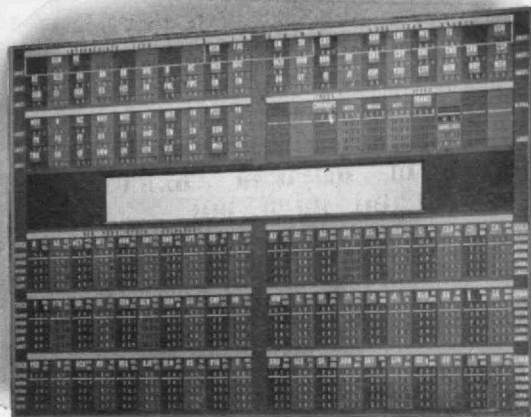
The “science stocks” flared so brilliantly in recent years, he reports, that they have changed the basic character of the stock market. True, it remains a place where millions of shares are traded daily and general, across-the-board, price movements occur. But one of its striking features today is that it has become a market for *individual* stocks, each with its own peculiar behavior, only loosely interlocked with the over-all behavior of other securities—a market wherein the differences overwhelmingly dominate the similarities among individual offerings.

His second major observation concerns the deceptive appearance of stock market quotations on science stocks. To the untrained eye the existence of an orderly market for a particular stock (Big Board listing or over-the-counter sales) may belie the narrow circle of traders among whom these stocks are changing hands. These thinly traded markets may be no place for uninformed participants. They require a higher skill and special intelligence on the part of the individual investor. (The book, incidentally, was written and published before this spring's sharp market decline.)

Much of this book is taken up with an analysis of the conventional price earnings ratio as applied to science stocks. The author points out that historical price earnings comparisons now give little guide to the probable future behavior of science stocks; more likely, they will produce the wrong advice.

(Concluded on page 56)





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## Books

(Concluded from page 54)

Mr. Merrill's approach is to evaluate a stock by looking at both the *relative value* and the *alternative value* of the stock. His relative measure utilizes price earnings comparisons where earnings are calculated on the basis of cash earnings rather than reported earnings on accounting statements. His evaluation of alternative investments is based upon a process of discounting probable future earnings of a particular company and comparing these discounted earnings with alternative investment opportunities such as fixed income securities, preferred stocks, etc. Both of these measures involve certain assumptions about the way traders are likely to behave in the future.

Mr. Merrill's book is a remarkable synthesis of security analysis and technical reporting. One unfortunate slip: on page 91 he has the U.S. economy growing at the rate of 6.5 per cent per year in current dollars or 4 per cent per year in constant dollars during the post-war period. In all of the growthmanship debates since the mid '50's, when the GNP data began their sluggish behavior, there has been considerable doubt that our average growth rate has been this rapid. In his excellent roundup of new frontiers likely to have an important business impact in the future, Mr. Merrill does a workmanlike job with an assist from Alan A. Smith, '41, of Arthur D. Little, Inc. Their running inventory unfortunately omits two vital fields: the Life Sciences and the Earth Sciences, but otherwise the appendix contains a great deal of "what every man should know" before investing in the scientific revolution.

### El Curso de Fisica del PSSC

The M.I.T. Club of Colombia has undertaken an ambitious and unusual project to exert the influence of its members in a united and organized way to raise the technical level of Colombian education. Under the direction of Captain Alberto Ospina Taborda, '58, a Translation Committee of the club is preparing a Spanish edition of the high school physics textbook prepared by the Physical Science Study Committee organized at M.I.T. The project was planned with the help of Educational Services, Inc., of Watertown, Mass., and the book's North American publisher, D. C. Heath and Company. The Spanish edition is expected to be on sale in December and will be published concurrently by *Editorial y Tipografia Bedout* of Medellin, Colombia, and *Editorial Reverté* of Barcelona, Spain. Besides the actual translation, the M.I.T. club has extensively promoted the book with the Colombian government and Colombian educational institutions, and expects it to be adopted as the official text for high school physics.

Officers of the Club are: Honorary President, Alberto Lobo-Guerrero, '23; President, Virgilio Barco-Vargas, '43; Vice-presidents, Rodrigo Uribe, '41, and Oliverio Phillips-Michelsen, '48; Secretary, Santiago Robledo Ocampo, '56; Treasurer, Hugo Belalcazar, '54.

The PSSC course also is being adapted for use in other foreign countries. Educators from New Zealand and Sweden arrived in Watertown at E.S.I. early this spring for six months of work on an Advanced Topics Extension of the PSSC course, to produce materials supplementary to the present one-year course.



# What is known?

## FUEL CELLS

by Hermann A. Liebhafsky **Making valence electrons do work before they're captured by oxygen is the most direct way to convert chemical into electrical energy. But effective cells seem years away**

**IN BRIEF:** Like the ordinary battery, the fuel cell is a low-voltage source of dc; unlike the battery, the fuel cell does not store energy but merely converts it. Ideally, it has most of the advantages of the battery—compactness, no moving parts, soundlessness; has a disadvantage in its need for accessory fuel supply and oxide removal apparatus; and has a number of unique virtues—steady output without recharging, long life, and operation on air and conventional fuels. It can use these latter more efficiently than conventional generators because, unlike them, it converts the energy of fuel oxidation directly into electricity.

The theory is simple: valence electrons of a conventional fuel are forced to do work en route to the oxidation product. But practice is bedeviled by technical demands that are difficult to meet one at a time, let alone all at once. Still, after a century of failure to develop a practical fuel cell, recent work has led to a handful of devices that work well enough to merit attention.—T. M.

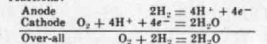
■ Since the Second World War, and largely because of military and space needs for new energy sources, there has been a tremendous expansion of fuel-cell research here and

these valence electrons can be made to do useful work before they come to rest in the oxidation products—if they are caught in right, so to speak—chemical energy can be converted directly into electrical energy, and the intermediate conversion to heat disappears.

### How it works

A fuel cell, like any other electrochemical cell, contains two electrodes (the anode and the cathode). These are joined externally by a metallic circuit through which the valence electrons from the fuel flow, and internally by a conducting medium (the electrolyte) through which ions flow to complete the circuit.

In the hydrogen fuel cell of Fig. 3, these component parts are labeled, and the substances involved in the reaction at each electrode are indicated. These are the electrode reactions:



Note that the over-all reaction, which is the equation for combustion of hydrogen, has in it no charged species. But the electrode reactions involve two charged species, the hydrogen ion  $H^+$  (here written without its water of hydration) and the electron  $e^-$ . The electron works

S+T30 FUEL CELLS BY HERMAN A. LIEBHAFSKY

FOR YEARS, SUCH FAMILIAR ELECTROCHEMICAL CELLS AS DANIEL CELLS, DRY CELLS, AND STORAGE BATTERIES HAVE BEEN DIRECTLY CONVERTING INTO ELECTRICITY THE FREE ENERGY OF OXIDATION OR IN THE CHEMIST'S BROAD SENSE OF OXIDATION AS THE ADDING OF OXYGEN OR ANY OTHER ELECTRO-NEGATIVE ATOM OR GROUP.

THE SUBSTANCES THAT ORDINARY BATTERIES CONSUME AT THEIR ANODES ARE THE ANODES THEMSELVES, WHICH ARE EXPENSIVE METALS SUCH AS ZINC, MAGNESIUM, OR LEAD, OR EVEN SODIUM — CERTAINLY NOT THE INEXPENSIVE FOSSIL FUELS THAT FUEL CELLS ARE INTENDED TO CONSUME, SUCH AS COAL AND HYDROCARBONS, AND SUBSTANCES EASILY DERIVED FROM THEM, LIKE HYDROGEN, CARBON MONOXIDE, AND THE SIMPLER ALCOHOLS.

THE ACTUAL EFFICIENCY OF A FUEL CELL IS NECESSARILY LESS THAN THE IDEAL, BECAUSE THE ACTUAL ELECTROMOTIVE FORCE IS ALWAYS LESS THAN THE IDEAL DUE TO IRREVERSIBLE CHANGES IN THE ACTIVATION-ENERGY BARRIERS TO HIGH ELECTRODE ACTIVITY, THE INTERNAL RESISTANCE OF THE ELECTROLYTE TO IONIC MOBILITY, AND LOCAL CHANGES IN THE ELECTROLYTE'S CONCENTRATION AND COMPOSITION.

IN 1842, GROVE SAID OF HIS HYDROGEN-OXYGEN CELLS, \* AS THE CHEMICAL OR CATALYTIC ACTION...COULD ONLY BE SUPPOSED TO TAKE PLACE...AT THE LINE OR WATERMARK WHERE THE LIQUID, GAS AND PLATINA (PLATINUM) MET, THE CHIEF DIFFICULTY WAS TO OBTAIN ANYTHING LIKE A NOTABLE SURFACE OF ACTION.

IN SEPTEMBER, K. SCHWABE OF THE INSTITUTE FOR ELEKTROCHEMIE AND PHYSIKALISCHE CHEMIE OF THE TECHNISCHE HOCHSCHULE IN DRESDEN ANNOUNCED THAT PREPARATORY GAMMA, AND EVEN BETTER, BETA, IRRADIATION OF ELECTRODE SURFACES INCREASED THEIR ACTIVITY.

*This 4000-word article appeared in the January, 1962, issue of International Science and Technology. To abstract the article, a document analyst would read it, define its purpose, and summarize its essential points.*

Each year in the physical and life sciences, some 50,000 technical journals will be published throughout the world. 100,000 research reports and 60,000 technical books will also be written. Somewhere in this mass of knowledge may be information you need. To tell what is known—and where to find it—IBM is investigating systems for the dissemination, storage, and retrieval of information.

To create an advanced information retrieval system, labels must be found for *all* useful information in documents. With conventional library indexing, it is difficult to make allowance for new kinds of knowledge. However, computers let us use more versatile methods of indexing. In one of these, the KWIC INDEX (Key Word In Context), a computer selects significant terms in the titles of documents, then prints them out as index entries.

Once indexed, characteristics of documents' contents can be used to notify people of their existence. The Selective Dissemination of Information system at IBM stores profiles describing individuals' interests. A new document's key words are matched against key words in a person's profile. If there is sufficient correlation, he is informed of the document. Profile matching can also be used to retrieve

*This abstract was prepared by an IBM computer. The text was first coded in machine language. The computer then counted key words, and printed out sentences having the greatest statistical significance.*

information by storing documents and feeding key-word queries through the system.

At present it is relatively difficult to get text into machine-readable form. However, the development of high-speed optical character readers, automatic language translators, and improved methods of capturing linguistic information at the source may make it possible to introduce information directly into retrieval systems. Once harvested, vast quantities of information will present storage problems. IBM is investigating random-access photostorage systems capable of storing millions of documents and retrieving them in seconds. Out of systems like these may come total information centers which will acquaint scientists and businessmen with all the information needed in their work.

If you have been searching for an opportunity to make important contributions in information retrieval, component engineering, optics, space systems, or any of the other fields in which IBM scientists and engineers are finding answers to basic questions, please contact us. IBM is an Equal Opportunity Employer. Write to: Manager of Professional Employment, IBM Corporation, Department 615T, 590 Madison Avenue, New York 22, New York.

## Individuals Noteworthy

(Continued from page 16)

### Compton Awards

SIX SENIORS and three organizations received Karl Taylor Compton Prizes, made possible by gifts from members of the Boston Stein Club, at this year's M.I.T. Awards Convocation. They were:

*Michael L. Jablow*, for his service as chairman of the Freshman Coordinating Committee and the Parents' Weekend Committee;

*E. Dennis Johnson*, for his leadership in the musical life of the Institute;

*Devrie J. Shapiro*, for guiding the Association of Women Students;

*Richard B. Stein*, for outstanding work in student-faculty relations;

*Juri Toomre*, for contributions to many areas of undergraduate life;

*Carl I. Wunsch*, for his work as editor of "The Tech";

*Alpha Phi Omega*, for its achievement within and beyond the M.I.T. Community;

*Drama Shop*, for its enrichment of the cultural life of the Institute; and

*T Club*, for work under President Chester H. Riley, '62, in furthering the development of athletics.

### Outstanding Students

WINNERS of undergraduate honors at M.I.T. this spring included:

*Robert H. Maskrey*, '63, the Scott Paper Company Leadership Award . . . *Deanne H. Gross*, '63, the M.I.T. Women's Association Award . . . *Edward P. Hoffer*, '65, the Outstanding Freshman Award;

*Mark Schoenberg*, '65, the Phi Lambda Upsilon Award . . . *Jeffrey I. Steinfeld*, '62, the Kendall Company Award . . . *Philip A. Ruziska*, '62, the Robert T. Haslam Cup . . . *Roger N. Wallace*, '63, the Blonder Tongue Foundation Award . . . *R. Bruce Cuthbertson*, '62, the James F. Lincoln Arc Welding Award.

### Humanities Prizes

IN THE Robert A. Boit essay competition this year the first prize for essays went to *Victor B. Schneider*, '62, and the first prize for imaginative writing to *Gregory N. Gabbard*, '62. The Stratton prize for debating was won by *Madis Sulg*, '65.

### Military Awards

AT MILITARY DAY exercises May 8 on M.I.T.'s Briggs Field, Superior Cadet awards from the Department of the Army were made to *Oscar Orringer*, '62, *Maurice P. Andrien*, '63, *Kraig W. Kramers*, '64, and *Bruce B. Bottomley*, '65.

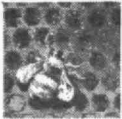
The Professor of Naval Science Award went to *Roger M. Rowe*, '62, and Professor of Air Science Awards to *Robert R. Barthelemy*, '62, *Kenneth L. Weyler*, '63, *Edward L. Arnn, Jr.*, '64, and *Charles S. Rall*, '65.

Alumni participants in the ceremonies included Rear Admiral William A. Brockett, '43, Colonel Irving M. Finberg, '31, and Captain Lewis E. Larson, Jr., '47.

### Luis de Florez Awards

WINNERS of awards for outstanding ingenuity provided by Luis de Florez, '11, this year were *Juan H. Crawford*, '63, in mechanical engineering, who developed a three-dimensional model of the atomic structure of a crystal, and *Stanley Harrison*, '62, in aeronautics and astronautics, who built an electrostatic satellite simulator.

(Concluded on page 60)



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Now available! Coaxial cables which maintain hydrostatic integrity at pressures 500 and 1,000 PSI. Recent applications met the specialized demands of the Polaris missile firing submarines. The antenna mast system required coaxials\* with the ability to withstand 500 PSI on the exposed end without leakage. In addition, they must remain watertight following subjection to an "S" bend at  $-54^{\circ}\text{C}$ . BIW bonded polyethylene dielectric to the conductors and compound blocked the shielding braid. Care was taken to avoid altering the cable attenuation at prescribed frequencies. Rugged neoprene jackets were extruded by special techniques which controlled the O.D. and assured a tight fitting cable in the stuffing glands. Flexible armored versions are available.

\*RG-293/U and RG-294/U



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Herman Ferré, B.S.C.E. — 1931

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## Individuals Noteworthy

(Concluded from page 58)

### Tribute to Miss McCormick

A DINNER at the M.I.T. Faculty Club on May 29 honored Madeline R. McCormick, Assistant Treasurer of the Alumni Association, who first came to the Institute to work on the Educational Endowment Fund of the '1920's.

Seventy guests listened as H. E. Lobdell, '17, Executive Vice-president of the Association, reminisced about "Miss Mac's" knowledge of Institute affairs and Alumni. Donald P. Severance, '38, spoke informally of Miss Mac's assistance to him when he became the Association's secretary in 1949.

Ralph T. Jope, '28, Business Manager of The Review, presented a Paul Revere silver bowl from the group as he read, in verse, lines to Miss Mac alluding to her work.

### Leaders in Music

BATON SOCIETY awards for outstanding contributions to music at M.I.T. were made this year to *Gerald L. Becker*, '62, *E. Dennis Johnson*, '62, and *Michael E. Lee*, '62.

### To Lecture Overseas

THREE members of the M.I.T. Faculty have received U.S. educational exchange grants to lecture abroad in 1962-1963. They are *Martin A. Abkowitz*, '40, Professor of Naval Architecture, who will go to the Technical University of Denmark in Copenhagen; *Marvin E. Goody*, '51, Assistant Professor of Architecture, to the Royal Academy of Fine Arts in Copenhagen; and *John W. Winchester*, '55, Assistant Professor of Geochemistry, who will be at the National Tsinghua University and the National Taiwan University in China.

### Athletic Laurels

CHARLES W. GAMBLE, '62, won the Clifford Award as the "athlete of the year" at M.I.T. this year, and *Dirk Berghager*, '62, the Cochrane Award for athletic leadership.

Others honored included *Philip J. Robinson*, G, the Eastern College Athletic Conference Merit Medal; *Albert L. Tervalon, Jr.*, '65, the Quadrangle Club Award; *Richard M. Harris*, '63, the Manager of the Year Award; and *Delta Tau Delta* fraternity, the Beaver Key Trophy.

### Guggenheim Awards

MEMBERS of the M.I.T. Faculty receiving 1962 Guggenheim Fellowship awards are:

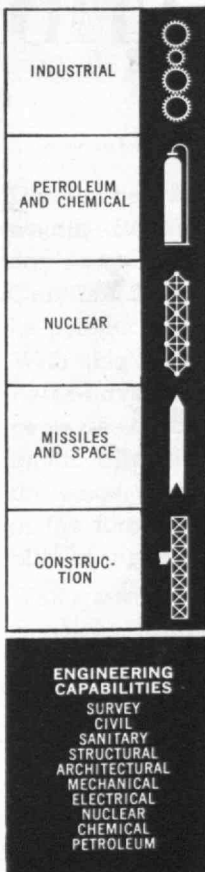
*George W. Clark*, '52, for studies of primary cosmic electrons, and neutrons associated with solar disturbances; *Charles D. Coryell*, for studies of nuclear energetics; *Everett E. Hagen*, for studies of religious ethic and social change;

*Lawrence J. Heidt*, for a study of charge and energy transfer processes related to solar energy conversion; *Philip G. Hill*, '58, for studies of nonequilibrium effects during rapid expansion of gases; *William L. Kraushaar*, for studies in astrophysics;

*Eric Reissner*, '38, studies of the problem of deriving two-dimensional theories of thin elastic shells from the equations of three-dimensional elasticity; *Kenneth N. Stevens*, '52, for studies of the speech production process; *Laszlo Tisza*, a study of the extension of thermodynamics to microscopic properties;

*John S. Waugh*, studies of the theory of spin resonance; and *Robert S. Woodbury*, '28, studies in the history of machine tools.

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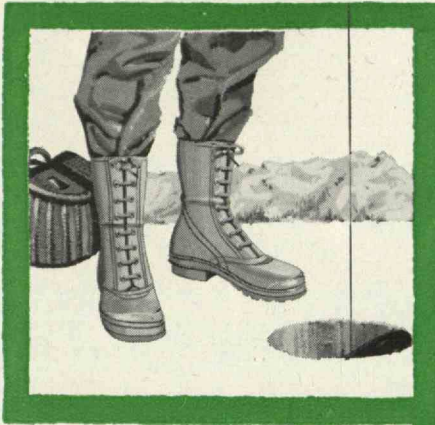
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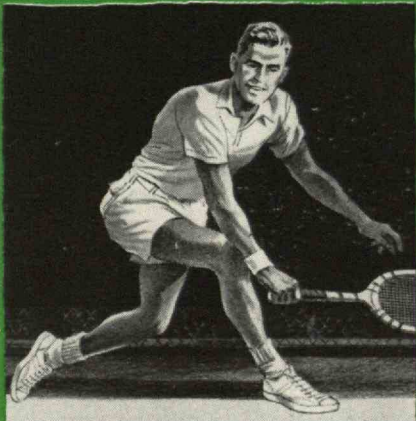


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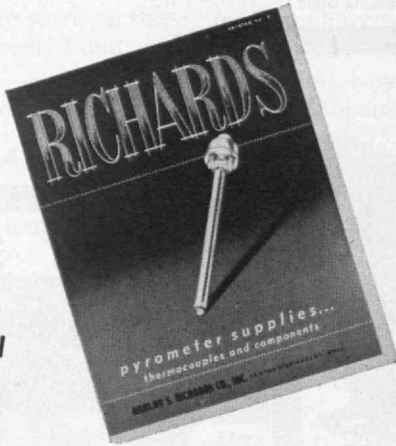
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## The Graduation Exercises

(Concluded from page 29)



Corporation representatives at commencement included Thomas D'Arcy Brophy, '16, and Duncan R. Linsley, '22.

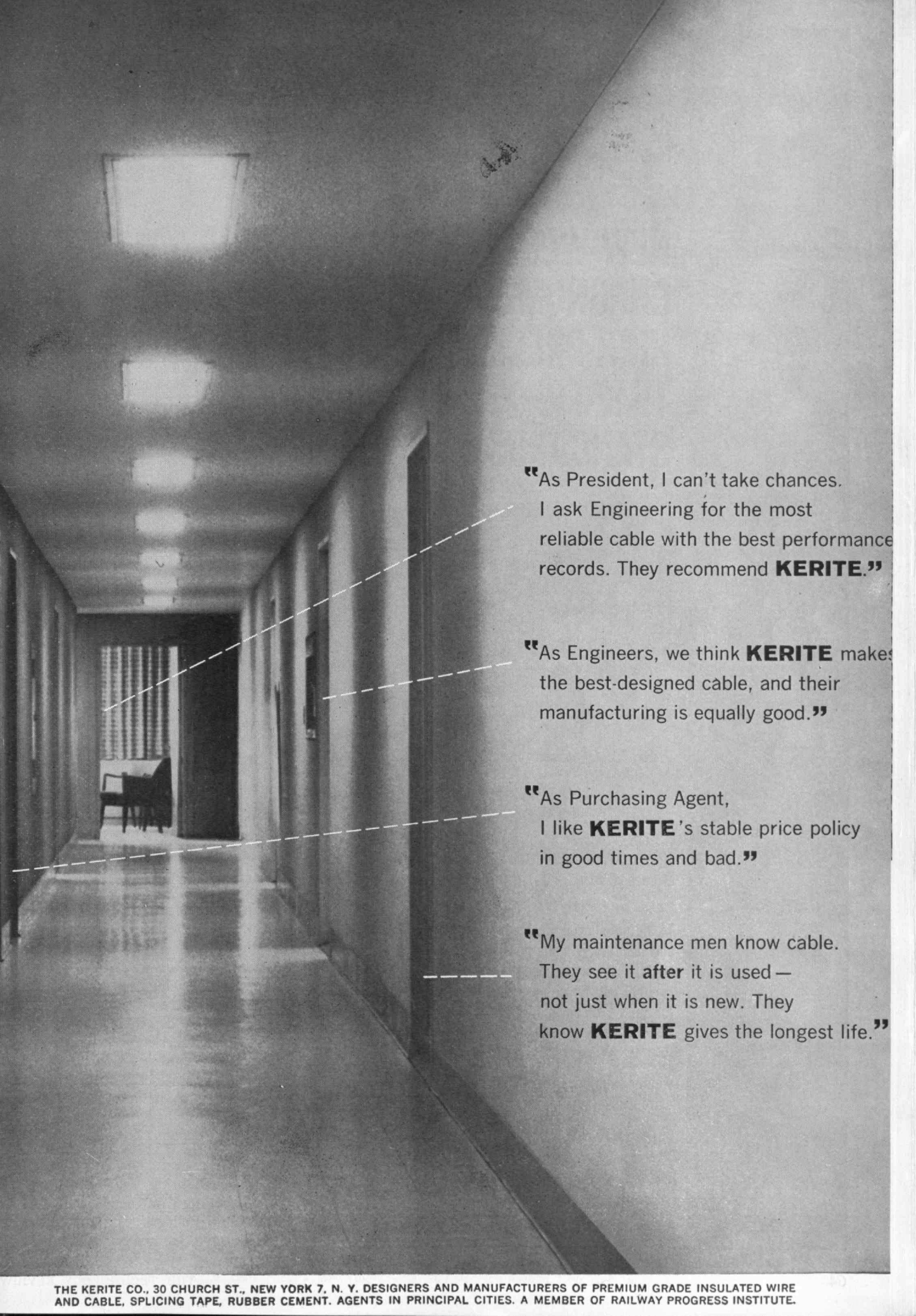
At baccalaureate services the day before the graduation exercises, Clarence H. Linder of the Corporation gave the address. "The work of the technological community," he observed, "often solves a given problem only to create or complicate other problems. Relating our efforts to good and evil is an exceedingly uncomfortable task for most of us, but for each person sometime, somehow, it must be done. . . . The work of the world desperately needs whole men who act with clear standards, and who recognize, among the very real welter of relative values, that life is lived within eternal absolutes. . . . The personal aspect is vital. . . . It takes only one man, however much of a random statistic he may be, to make a wrong choice . . ."

At military commissioning exercises prior to commencement, Major General Charles H. Pottenger, Vice Commander of the Air University, spoke of the need for men of education and intensive training to provide for the common defense of the country. Members of the class received one commission in the Regular Army, 17 in the Army Reserve, and five certificates of recognition from Brigadier General Seymour A. Potter, Jr.; 14 Naval Reserve commissions and three certificates from Rear Admiral Joseph H. Wellings, and four Air Force commissions and six certificates from General Pottenger. M.I.T. Vice-president James McCormack, '37, presided at these exercises.

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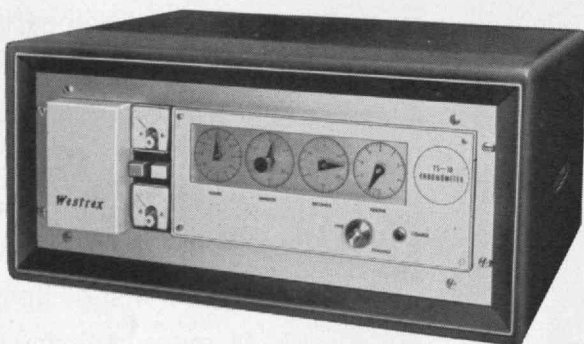
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**TS-3A** (not shown) Rugged, compact for field, observatory, and laboratory. Input power 90-130 volts, 50-400 cps, 20 watts. Output frequency 60 cps; four additional from 10 to 1000 cps on order. Wheels for hrs., mins., secs., dial for tenths of second.  $17\frac{3}{8}'' \times 6\frac{1}{2}'' \times 7\frac{3}{4}''$ . 23 pounds.

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## Problems That Don't Worry Me

(Concluded from page 44)

rest on now. The end of the Korean War resulted in a decrease in defense expenditures of a magnitude comparable to what we might face in the future. And one of the consequences was the mild and short recession of 1954. But I think there would be general agreement now that even that effect could have been avoided had the Federal government's budget and tax policies taken the problem more seriously.

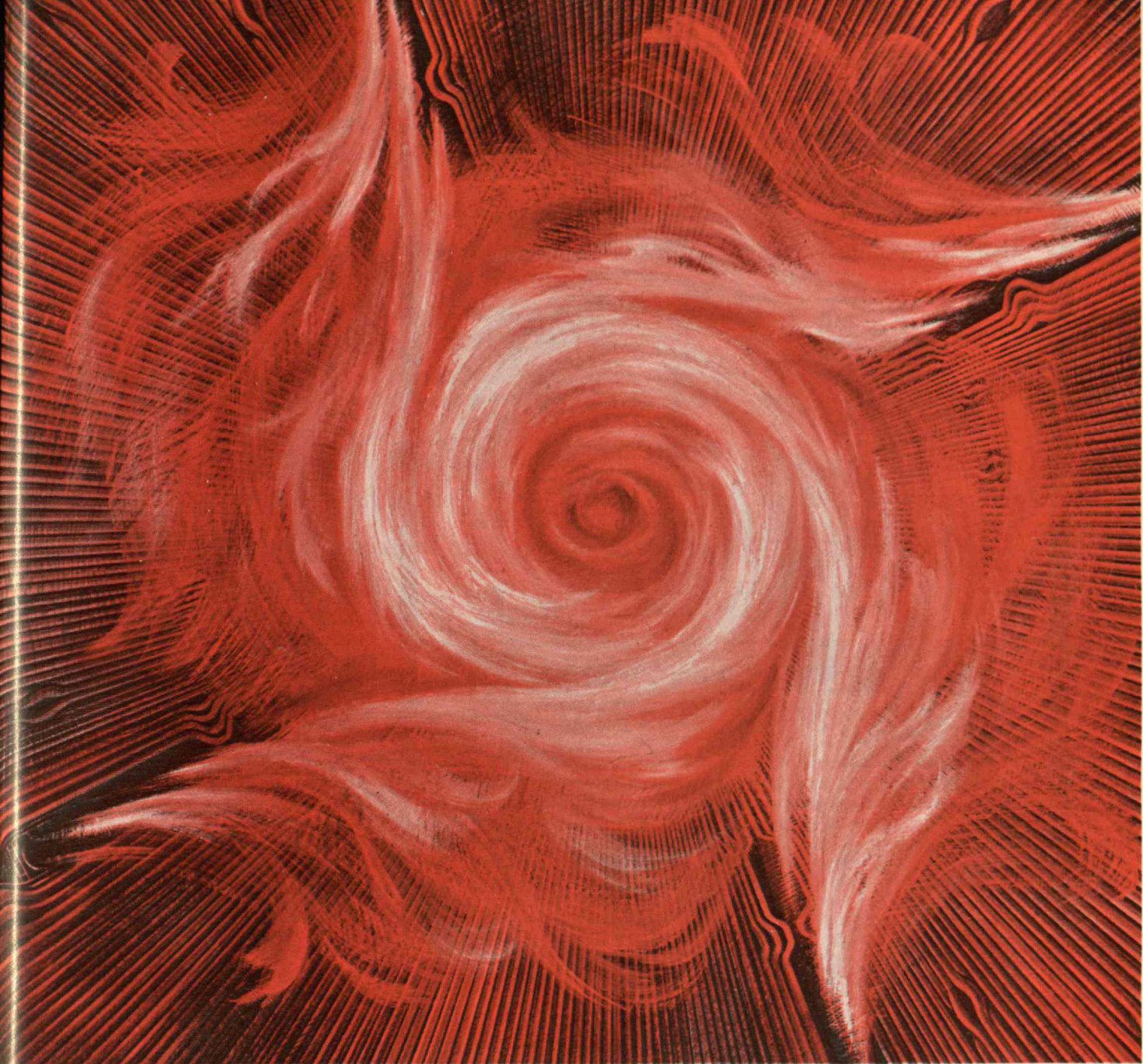
With sensible compensating policies of tax reduction, credit ease, and expansion of desirable civilian public expenditures, a reduction in defense outlays would be an advantage, not the reverse. There is no doubt in my mind that one of the reasons for the economic successes of the European countries in the postwar period has been their freedom to devote resources that might have been swallowed up in defense to the construction of houses and public facilities, to private consumption, and to capital investment.

There would be plenty of transitional problems. A reduction in military spending and a compensating increase in civilian expenditure of all kinds would mean a radical shift in the demand for goods and services, and like any shift of demand it could be good for some people and some areas and some industries and bad for others. Sensible public and private economic policy would be prepared to cushion the shock and adjust gradually to new patterns of output and consumption. This could be done sensibly or not so sensibly, by preparing to shift resources to those areas where they are most desirable in terms of our private and collective tastes, or by responding simply to sectional interests. But it could be done unless we dither the opportunity away entirely.

We don't need automation, affluence, or a disarmament agreement to have recessions and fairly prolonged periods of slow growth and economic softness; we are perfectly capable of having them without such help.

IN NOVEMBER, The Technology Review will bring you reports on the proceedings at the Fourth M.I.T. Alumni Officers' Conference, to be held next September 6, 7, and 8.





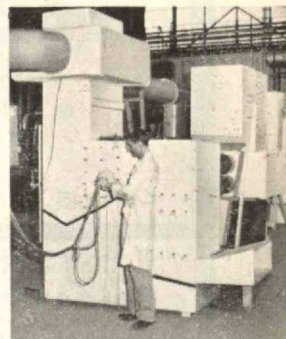
## Cage for a hot hurricane

*Artist's rendition of a corner-fired furnace  
of a typical large C-E steam generator.*

The walls of this cage are actually miles of steel tubing filled with water under very high pressure. The hurricane: a whirling maelstrom of burning, pressurized gases. The purpose: to transform water into steam to drive electric turbogenerators. Eighty percent of America's electricity is produced from steam. ■ The C-E nameplate will soon be attached to the highest-capacity steam generator ever built. Rated at one million kilowatts, it will generate enough steam to light ten million 100-watt bulbs—a string which, if spaced less than two feet apart, would stretch from New York to San Francisco! The steam generator will stand 18 stories high and occupy more than three-quarters of an acre. Its daily fuel diet will be 8,400 tons of coal. ■ Designing and fabricating equipment of this size requires an organization of unusual skill and experience. That's why so many of the world's leading utilities select steam generators that bear the C-E nameplate when they want higher pressure, higher capacity, higher efficiency. On fuel-burning and related equipment, too, C-E's flame is a corporate signature which certifies top performance, guarantees quality and dependability.

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*C-E laboratories use many techniques to evaluate design factors. Shown here, a structural model used to study hot-gas flow through C-E steam generators.*

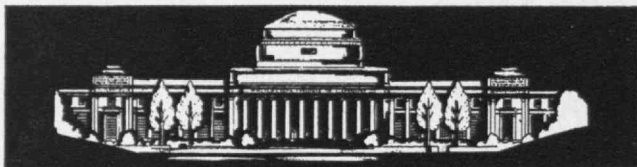
**All types of steam generating, fuel burning and related equipment; nuclear reactors; paper mill equipment, pulverizers; flash drying systems; pressure vessels**



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Recently, the Instrumentation Laboratory was selected by NASA to develop the guidance navigation system for the moon space craft project, APOLLO.

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## Feedback

(Concluded from page 3)

"Will you take dictation, Mary? Heading A, Historical background. For many years . . . the famous Galilean proof of the impossibility . . . later confirmed by Einstein . . . even in a recent paper by Romanow and Caviarsky . . . however they all overlooked the fact of . . . included in this amount are 1,024 per cent overhead, FICA, and union dues . . . work can be started immediately . . .

"Write it on stencil, please . . ."

That is usually the end because the proposal goes into the hands of the dreadful monster that feeds on enthusiasm. What happens? There is an apparently endless sequence of delays, of steps to be taken, opinions to be solicited, meetings of committees to be scheduled, accountings and contract divisions to be consulted.

In most cases our sponsoring agencies have excellent, sometimes brilliant men; they are understanding, they are friendly, they work hard, but the fear of taking action often prevents them from making decisions. An administrator of grants in a sponsoring agency cannot be an expert in every field. So, he sends the proposal to an expert. But the expert is in Europe, or in Asia, or in Africa. For the benefit of African science he must neglect the scientific progress in his own country. He does not really neglect it, of course; he just delays action, and the enthusiasm of the scientist decreases in an exponential fashion.

If I were a senator, I would bring in a bill that for every scientific administrator who is away from his desk for more than one week, a man be appointed with full authority to make or refuse grants. It is, at times, more merciful to get a negative answer fast than to wait many months or years (yes, years!) to get a positive answer.

When you expect it least, a letter finally arrives: "We take pleasure to inform you . . ." You read it, you enjoy it, but your interest has shifted to something else—a year is a long time. You will have to hire personnel, and this is June. You may have to wait 'til September to find somebody.

Enthusiasm comes from the Greek and means "to be inspired or possessed by the gods" (Webster). Were the Greek gods persistent enough to take possession of a man's emotional life for the time it takes for a research proposal to come through? I rather doubt it. As far as I know, no methods have been developed for the conservation, canning, or deep freezing of enthusiasm. The waste of enthusiasm is our greatest waste.

Department of Biology, M.I.T.

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(Continued from page 35)



### New Housing for Coeds

CONSTRUCTION of a new women's dormitory—a picture of which Juanita Tonso, '64, and Dean Frederick G. Fassett, Jr., are showing above—began this year, thanks to a gift from Mrs. Stanley McCormick, '04. It will embody many suggestions from undergraduate women, and greatly increase M.I.T.'s accommodations for women.

### A Half Century of Flying

LUIS DE FLOREZ, '11, and Alfred V. de Forest, '11, appeared at the Marblehead boatyard of W. Starling Burgess 50 years ago to see about flight testing an airplane for an M.I.T. thesis. De Florez became Burgess' only engineer, learned to fly, and went on to become noted as both an aviator and engineer. This May he landed on the Basin near the Institute in his own Widgeon amphibian for a 50th anniversary party. Grover Loening arrived with him—and guests included C. H. Chatfield, '14, C. J. McCarthy, '16, E. E. Aldrin, '17, S. P. Johnston, '21, and E. Sperry in addition to J. R. Killian, Jr., '26, J. C. Hunsaker, '12, S. Ober, '16, J. H. Keenan, '22, E. S. Taylor, '24, C. S. Draper, '26, C. F. Taylor and many others from M.I.T.'s Faculty.

### 15,000-Mile Auto Trip

FIVE M.I.T. MEN and a Harvard senior have arranged to drive about 15,000 miles this summer, from London to India and back, by way of Paris, Rome, Istanbul, Teheran, Lahore, New Delhi, and Amritsar. "The basic purpose of our trip," explained Warren M. Zapol, '62, "is to make better known a little known portion of the world. We plan to document the route carefully, providing up-to-date information on the roads, rivers, and villages, and the availability of fuel and water."

Other members of this M.I.T. South-West Asia Expedition are Philip J. Hauptman, '62, Jeffrey S. Gruber, '62, Norman P. Soloway, '62, Farrokh K. Captain, '65, and Robert A. Knisely of Harvard.

(Concluded on page 70)

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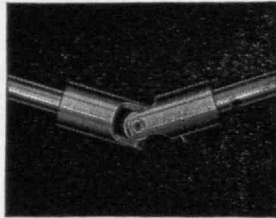
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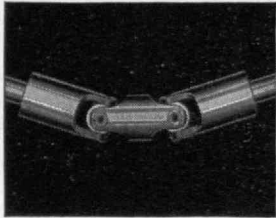


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## Trend of Affairs

(Concluded from page 68)

### Lowell Institute Graduation

CHANGES in engineering opportunities during the last 20 years was the theme of the commencement speaker, John H. Mains, '48, at the Lowell Institute School's exercises on May 24. One out of every three employed at General Electric currently is working on a product nonexistent 20 years ago, he said, and without the desire to continue to learn, those in managerial and subordinate positions find their usefulness outdated rapidly.

Thirty-one graduate certificates were awarded to men successfully completing the two-year program. One graduate received his third certificate, indicating four years of night study, and five students received their second certificates for three years' study. In addition 43 certificates were awarded to students for completion of supplementary courses.

The Charles F. Park Award was presented by Frederick M. Rasmussen, L.I.S. Class of 1935, to Borislav Bialocki, who came to the U.S. six years ago from the Ukraine via Australia.

### The Computer's Rapid Growth

PROFESSOR PHILIP M. MORSE of the M.I.T. Computation Center was chairman of a seminar on computers, sponsored by the American Institute of Physics, for the press in New York this spring, and flabbergasted some of the reporters with a brief account of computing at the Institute.

He likened the development of the electronic computer to that of the automobile, and emphasized how difficult it is neither to oversell nor undersell the news about them. It's a young man's game, he observed, which some bright students seem to master easier than do professors. At M.I.T. the computing capacity has doubled every two years for the last two decades, he estimated, and about 80 per cent of the Class of 1962 has had some experience with computers.

Donald O. Smith, '49, of Lincoln Laboratory, explained the big digital machine's and/or/not circuits, reviewed developments in solid-state physics, and discussed additional ideas that have not jelled. Elmer Hutchisson, '24, Director of the AIP, introduced the scientists to the fourth estate, and Phyllis A. Fox, '49, compiled a glossary for the occasion. Other participants included Daniel I. Cooper, '46, Martin Mann, '41, and Arthur W. Kenney, '13.

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By *Paul Penfield and Robert Rafuse*

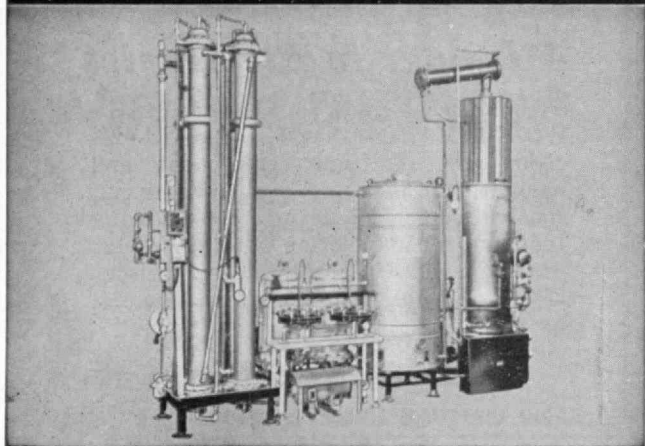
This theoretical study examines how parasitic series resistance has thus far limited the quality of varactor performance at high frequencies and explains the fundamental limits of varactor applicability in circuit design. Due in August. About 600 p. \$12.00

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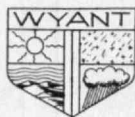
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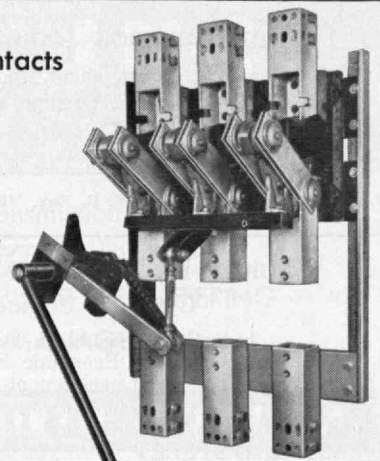
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## Club News

### Weather Control Problems Discussed in Washington, D.C.

Ladies Night on April 26 was our final meeting of the 1961-1962 season. We were fortunate to have as our speaker Dr. Florence Van Straten, Head of Technical Requirements, U. S. Navy Weather Service.

Dr. Van Straten fascinated her audience with a vast array of technical and practical aspects of weather control, giving us an insight into some of the sociological problems that would result from any large scale weather control programs. If large sections of Africa's heat belt, for example, were made more inhabitable, the existing balance of nature would be destroyed, thus causing numerous health, economic and social problems.

Large scale weather control programs are not yet an actuality but weather scientists are rapidly learning how to control weather in small areas. Dr. Van Straten discussed several methods of making rain and some of the problems involved. Most of the methods are effective but we can never be sure that the rain was caused solely by the "rain maker." Dr. Van Straten told of her many years of experience in weather control experiments throughout the world. Many people talk about the weather; Dr. Van Straten and her staff do something about it.

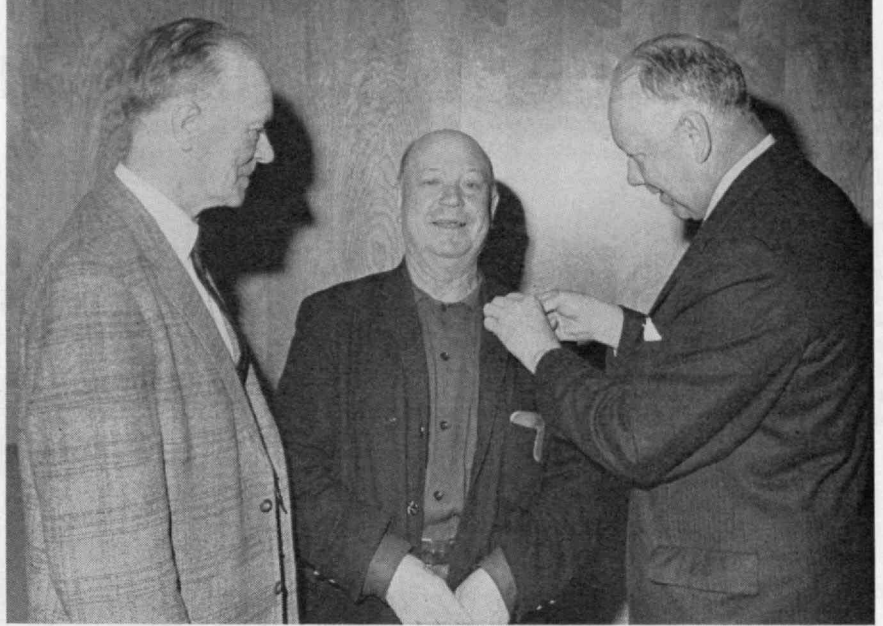
A brief business meeting was held for the purpose of electing the officers named in the June 1962, Technology Review. Next year the club expects to have five meetings, starting with the stag dinner meeting in early October. Dinner meetings will be held in November, February, and April and the annual Christmas luncheon meeting will be held the last week of December. We extend to all Alumni a sincere wish for a pleasant summer.—Gilbert H. Lewis, '51, Secretary, 9914 Grayson Avenue, Silver Spring, Md.

### Southern Californians Meet at Caltech

The M.I.T. Club of Southern California met May 24 at the California Institute of Technology Athenaeum in Pasadena. Dr. Robert L. Minckler of Caltech was the speaker. Our long time and staunch member Robert Welles, '15, was in charge of the arrangements.

A summer field trip to Rocketdyne is tentatively scheduled for July 17. This is to be a repeat of a trip two years ago, during which a rocket engine was test fired.

Any newly arrived Alumni in the Southern California area should contact Albert Levinston, '49, for information concerning club meetings.—Arthur Schwartz, '47, Assistant Secretary, 8355 Blackburn Avenue, Los Angeles 48, Calif.; Albert Levinston, '49, Secretary, 3850 Wilshire Boulevard, Los Angeles 5, Calif.



**RETIRING EMPLOYEES OF M.I.T. honored at a recent meeting of the Quarter Century Club included (at left) Maurice Forbes, an instrument maker in the Instrumentation Laboratory, a member of the club for six years, and Samuel Saroka (center), a Walker dining service employee since 1936, who received his 25-year service pin from President Julius A. Stratton, '23, this spring.**

### Detroit Club Tours Mill of the Future

The M.I.T. Club of Detroit visited Great Lakes Steel Corporation on April 17 as guests of the president, Wilfred D. J. MacDonnell, '34. After dinner in the cafeteria, Mr. MacDonnell and the superintendent, George Gabor, explained the planning and operation of the mill of the future—Great Lakes' new 80-inch strip mill—and then conducted a tour of the facilities.

When the mill is in full operation, it will be the fastest and most powerful hot strip steel rolling mill in the nation, utilizing the steel industry's first fully automatic roll grinders. It is designed to handle coils up to 70,000 pounds with delivery speed of 3,000 feet per minute.

Great Lakes also operates the nation's largest blast furnace which is fed by the world's longest blast furnace materials conveyor system. The tour was certainly one of the most interesting taken by the club.—Ella Paton Gardner, '55, (Mrs. Richard Gardner), Secretary, 1821 Villa, Birmingham, Mich.

### Infra-red Instrumentation Explained to Fairfield Club

The spring meeting of the M.I.T. Club of Fairfield County was held on May 1 at the Clam Box in Westport. The speaker for the evening was Dr. R. B. Barnes of Barnes Engineering Company, Stamford, who has had a long and notable career in the study and application of infra-red radiation. He described general principles as well as a number of specific applications in this rapidly expanding field. The uses of infra-red instrumentation appear to be limited only by man's imagination. Dr. Barnes spoke of such diverse subjects as the guidance and tracking of missiles, weather research, oceanography, medical research, and evaluation of arctic clothing. Following his talk Dr. Barnes displayed photographs of various applications and some components including an infra-red scanner which had successfully orbited the earth in a satellite and was still in operating condition after its re-entry.—Randall Goff, '51, Secretary, Goodhill Road, Weston, Conn.

### Alumni Officers to Meet at M.I.T. in September

THE M.I.T. Alumni Association's Fourth Alumni Officers' Conference will be held at the Institute next September 6 to 8. William L. Taggart, Jr., '27, President of the Association, will preside at a session devoted to the M.I.T. student and his environment, and Edward O. Vetter, '42, conference chairman, will lead a discussion of what Alumni are doing. Special seminars will be conducted by Donald P. Severance, '38, Henry B. Kane, '24, Frederick G. Lehmann, '51, Douglas F. G. Haven, '52, James H. Eacker, '55, and Thomas P. Pitre, Director of Student Aid.

President Julius A. Stratton, '23, is expected to address the conference, and other speakers will include Vice-president Philip A. Stoddard, '40, Dean Gordon S. Brown, '31, of the School of Engineering, Dean of Student Affairs Kenneth R. Wadleigh, '43, and Roland P. Greeley, Director of Admissions.



# Tech Lightweights Will Race at Henley This Month



A TRIPLE TIE with Navy and Cornell in the Eastern Sprints entitles the varsity lightweights (pictured above) to compete for the Thames Challenge Cup the first week in July at Henley, England. The Thames Cup was won by M.I.T. in both 1954 and 1955. The crew from left to right is: Stroke, Mark E. Barron, '64, Charles J. Bruggemann, '62, Dennis D. Buss, '63, Jerome E. Manning, Jr., '62, Her-

bert G. Herrmann, 3d, '64, George L. Zimmerman, '62, Stephen F. Richards, '64; Bow, Stephen C. Aldrich, '63. Kneeling is Coxswain Robert E. Vernon, '63. The varsity heavyweights won the Compton Cup for the first time in 29 years by defeating Princeton and Harvard, and won the Cochrane Cup for the second consecutive year, defeating Dartmouth, Wisconsin, Brown and Boston University.

## Birthdays to be Celebrated This Summer

Congratulations are in order during July, August and September for one Alumna who will celebrate her 95th anniversary; and to 11, 17, and 39 Alumni who will turn, respectively, 90, 85, and 80, as listed below with dates of birth:

July, 1867—MARY EVA WARREN, '05 on the 8th.

July, 1872—MRS. ARTHUR W. HARTT, '07, on the 5th.

August, 1872—GEORGE L. BIXBY, '95, on the 4th; EDWARD C. EMERSON, '00, on the 8th; M. ERNEST MOORE, '96, on the 9th; CHARLES F. EVELETH, '95, on the 12th; JOHN C. NOWELL, '94, on the 14th; JOHN P. STORY, '94, on the 19th; MABEL T. WELLMAN, '02, on the 23rd; and CHARLES JOHNSON, '96, on the 28th.

September, 1872—FREDERICK W. HARRIS, '95 on the 1st, and BENJAMIN F. BUCKNER, '95, on the 17th.

July, 1877—M. DEKAY THOMPSON, '98, on the 23rd; BENJAMIN MILLER, '01, on the 24th; and ALTON P. TRUFANT, '01, on the 30th.

August, 1877—MILES S. SHERRILL, '99, on the 2nd; FRANK A. COLBY, '01, on the 4th; HUNTINGTON SMITH, '05, on the 9th; JAMES J. MAHAR, '02, on the 10th; CHARLES E. SMITH, '00, on the 20th; JOHN E. JOHNSON, '08, on the 23rd; LEE HAGOOD, '08, and KENNETH SEAVER, '00, on the 26th; and AMBROSE F. BORNEUF, '02, on the 31st.

September, 1877—WILLIAM G. BLAUVELT, '01, and FRANCIS C. LINCOLN, '00, on the 8th; HARRY R. WHITE, '01, on the 9th; HELEN M. HILL, '99, on the 18th; and EDGAR P. TRASK, '99, on the 28th.

July, 1882—G. CURTIS NOBLE, '06, on the 1st; ALBERT L. MAGNITZSKY, '04, on the 2nd; JOHN J. MULLEN, '08, on the 6th; FRED W. GOLDTHWAIT, '05, and WILLIAM A. SHELDON, '06, on the 8th; SILAS P. CUMMING, '05, on the 11th; BARRY C. EASTHAM, '05, and EDWARD J. POOR, '05, on the 15th; PHILIP S. SWEETSER, '04, on the 21st; VICENTE MOLINA, '05, on the 22nd; ROGER P. INGALLS, '05, on the 23rd; and GEORGE E. ATKINS, '04, on the 29th.

August, 1882—MRS. RUTH M. DENNY, '08, on the 3rd; HENRY H. NELSON, '06, on the 11th; MYRON W. DOLE, '04, on the 12th; ALBERT A. HAYWARD, '06, and FRANK W. MILLIKEN, '04, on the 17th; ARTHUR J. MANSON, '05, on the 18th; SAMUEL A. GREELEY, '06, on the 20th; WILLIAM B. BOGGS, '04, THOMAS L. HINCKLEY, '06, and WARREN K. LEWIS, '05, on the 21st; THOMAS F. GERAGHTY, '05, on the 22nd; ELMER D. MCCAIN, '06, on the 26th; HAROLD A. KINGSBURY, '07, and HOWARD L. PIERCE, '04, on the 27th; HOWARD J. C. MACDONALD, '07, on the 28th; and COURTLANDT W. BABCOCK, '05, on the 29th.

September, 1882—HARRY J. SARGENT, '07, on the 4th; GEORGE M. BARTLETT, '05, on the 7th; HOWARD P. SHAW, '06, on the 12th; LOUIS A. HERMANN, '04, on the 15th; MOISE H. GOLDSTEIN, '04, on the 17th; ISA W. KAHN, '06, on the 19th; JAMES H. FENNER, '07, on the 21st; JOHN A. SHEPHERD, '06, on the 24th; MARSHALL G. MERIAM, '05, and MRS. ROBERT SPENCER, '11, on the 26th; and RICHARD D. GATEWOOD, '06, on the 29th.

# Class News

## '95

As required by the '95 constitution, the annual meeting for the election of officers was held after luncheon in the tents on the Great Court on M.I.T. Alumni Day, June 11. Future uses of the '95 Alumni Fund were discussed and various changes in their application were suggested in order to make it of more use to the present and to the future offspring of '95 family connections. . . . Our '95 Eighty-Plus Club has held its members so far to 15, of which five live in Boston and adjacent towns.—**Andrew D. Fuller**, Assistant Secretary, 120 Tremont Street, Boston, Mass.

## '96

Here is a note from the unpublished autobiography of **Will Coolidge**: "M.I.T. was then located in Boston, and facilities for athletic sports were sadly lacking. There was, however, an old state armory which served for our military drill and as a gymnasium. Here I often climbed up a rope attached to the ceiling, hand-over-hand, and, as the sequel shows, acquired too much confidence in my ability to do so. I was at the time sharing with a fellow student a room on the fourth floor at the back of an apartment house in Boston. Feeling that we should have an emergency fire escape, we bought a coil of rope. Late one night after studies I decided to test that device. So I pushed the desk up to the open window, tied one end of the rope around the desk, threw the other end out the window and started down. It went all right for the first few feet; but there at the back of the house I had four full stories to negotiate. I soon found that the rope was too small and that I was slipping. I tried hard, but vainly, to get my legs around it. By the time I reached the ground, the fingers of both hands were in bad shape with flesh hanging in shreds. It was late at night, but I finally found a doctor. He bandaged the hands, using a carbolic acid solution which was apparently too concentrated, as it took the remaining skin off of the fingers. It was a very painful job and was especially troublesome coming as it did just before a period of written examinations. I indulged in a good deal of self-recrimination, saying that I might have known enough to start at the bottom instead of the top to see whether the rope was large enough; and if it wasn't we could have tied some knots in it. Then, to make matters worse, the story of my escape from a non-existent fire got into a Boston newspaper, and this, plus my telltale

bandages, resulted in much ribbing from classmates. The scars are still much in evidence and have for 70 years served as helpful reminders to 'Look before you leap.'"

**Hermann C. Lythgoe** of 60 Highland Avenue, Newtonville, a former director of the Massachusetts Health Department's Food and Drug Division, died at his home April 30. He was born in East Boston and had been president of the American Association of Agricultural Chemists, treasurer of the New England Chemical Society, member of the Boston City Club, Rotary Club, Camera Club, Engineers' Club and the Harvard Musical Association. At the time of his retirement he was extolled by state and federal officials for his work in upgrading the standards which formed the basis for the stringent food and drug laws in the state. He was a pioneer in the use of photography in the detection of irregularities in food and liquor. During prohibition he exposed the dangers of home-made "booze" in many newspaper and trade publications. He was an avid amateur photographer, and his prints were shown in many exhibitions in the United States and abroad. He leaves a son, Albert H., of Newtonville, and a brother, Albert W., of Winthrop. The class was represented at the funeral in St. John's Episcopal Church by the secretary; in lieu of flowers a donation was sent to St. John's Episcopal Church Endowment Fund.—**James M. Driscoll**, Secretary, 129 Walnut Street, Brookline, Mass.; **Henry R. Hedge**, Assistant Secretary, 105 Rockwood Street, Brookline, Mass.

## '97

At this writing, May 7, it behooves your '97 temporary scribe to get in some Class of '97 news for the July issue of *The Technology Review*. **Jack Isley** was most faithful about this, getting in notes for each month's issue, even some years ago when the editor requested that odd and even classes alternate, lightening the secretaries' tasks. Your scribe will follow this alternating course until the substitution of a "volunteer" (not the Russian kind). . . . The past few months have been saddened for us by many losses reported in earlier issues, and this month we must express deep sympathy to **Charlie Hammond** who has recently lost his wife after 60 years of matrimony. We have learned of the death of **Charles H. Pope** in January and have no particulars. . . . As to the proposed '97 June reunion, our 65th, as this is written only **Will Binley** and **Charles Currier** have reported that they expect to be in Cambridge on June 11. It is hoped that they will report fully on the occasion. . . . Twelve replies have come in from class members in answer to my circular letter of two months ago, with no volunteer for secretary and only one nomination for the office and little news excepting from Gilbert, already published. . . . All of our really Western members—Gilbert, Osgood, Sweetser, and Wood—replied excepting Osgood, whose address in the Alumni

Register appears to be faulty. The percentage of our Easterners replying has not been so large. Replies came from ten: **Binley**, **Currier**, **Daniell**, **Guttridge**, **Hammond**, **Hawkins**, **Humphreys**, **Hunnewell**, **Noble** and **Woodman**. . . . Herewith a suggestion (too late for June) that on July 11 exactly at 3 P.M. Eastern Daylight Time we all drink a 65th toast, in a beverage of our selection, coca cola, tomato juice, highball, ginger ale, seven-up, milk or Sazarac cocktail, to the Class of '97 and a 70th Reunion five years from now.—**George R. Wadleigh**, Class Agent, 70 Flower Avenue, Hastings-on-Hudson, N.Y.

## '98

In the absence of Class Representative **Ed Chapin**, his assistant secretary represented the Class of '98 at the Alumni Council dinner at the Faculty Club in Cambridge on the evening of April 30. Professor **Ross H. Smith**, who joined the M.I.T. Faculty last fall as director of athletics, spoke of his concern in encouraging all students to participate in physical recreation and to develop life long recreational interests. He supervises a staff of more than 30 coaches and physical education instructors. He discussed some aspects of college athletics and how he sees M.I.T. charting its own course. He comes to us from Cornell University. . . . Another new department at M.I.T. is that of Nutrition, Food Science and Technology, headed by **Dr. Nevin S. Scrimshaw**. **Dr. Scrimshaw** is one of the world's foremost authorities on nutrition. He outlined how this department was formed around the former Food Technology Department, which has been a leader in the field for 33 years and has had a wide influence on the American food industry and, indirectly, on the eating habits of the American people. The new changes mean both an extension into new fields and strengthening of the food technology program in the direction of more basic research, particularly in the area of food toxicology and the effect of food processing on its nutritive value. . . . Incidentally it was mentioned at the dinner that as of April, 1962, the Second Century Fund totaled \$56.8 million with \$9.2 million to go. It was expected that the total of \$66 million would be reached before the end of the year.

Well, for our class this Nutrition Department, above mentioned, is 65 years too late. Most of us have now reached the age of 86 and are probably pretty much food conscious and have been so for several years. This is sensible and very likely accounts to some extent at least, for our longevity and will give us a source of pride when we all get together (note we say 'all') 11 months from now to celebrate our 65th. We can swap with one another our special diets. This subject, of course, is a favorite one for all octogenarians. . . . Our President, **Dan**, is in receipt of a letter from **Florence R. Clark** advising of the death on March 13, 1962, of her husband, our classmate in Course IV, **Henry Hunt**



**Clark**, at their home in Cleveland Heights, Ohio. From a clipping in the Cleveland Press received from the Alumni Register, we learn that Henry was a director of the Cleveland Institute of Art from 1931 to 1946. We quote further from this clipping: "Not only did the institute's enrollment double from fewer than 400 to more than 800 students, but many of its graduates went on to earn wide reputations in various fields of art. He and his wife, Florence, former president of the Cleveland Orchestra's Women's Committee, contributed greatly to Cleveland's cultural life." The Class of '98 regrets his passing and extends to Florence its deep sympathy.

Professor **Arthur L. Goodrich** has advised of his new address as follows: 297 Minnehaha, Ramon Trailer Park, Palm Springs, Calif. . . . **Edwin Kuttroff's** address should be 128 West 59th Street., New York, N.Y. . . . **Dave Fenner** wrote to our Secretary, Ed, under date of April 3, 1962, that his wife, Gertrude, was temporarily indisposed but that he, as usual, "felt awfully well for the shape he was in." . . . **Bob Lacy**, who is one of the many coming to our 65th, has been doing some traveling. He writes: "My wife and I flew to Hawaii this last March, seeing volcanoes, Pearl Harbor, strange plants and flowers, a restaurant revolving full circle in an hour on top of a 300-foot building, and Orientals. The population is only one-quarter Caucasian, one-third Japanese. Prices are high and land along Waikiki Beach is worth \$40 a square foot. Perhaps the most interesting to me was a lava tunnel about 12 feet in diameter and 400 feet long where the liquid lava had flowed out inside the cooling circumference about 50 feet below the surface." Thanks,, Bob, for an interesting letter. . . . These class notes for the July issue of The Review were forwarded to the editor the early part of May, and as of that date, a splendid response to our president's questionnaire has been made. If there should be any who may be reading these notes who have not responded, why not do so right now so that the records of the class may be complete. . . . Our Secretary, Ed, planned to spend the month of May with his daughter and son-in-law, Professor Holden Furber, at Gradyville, near Philadelphia, Pa., and to return to Marblehead as usual for the summer.—**Frederic A. Jones**, Assistant Secretary, 286 Chestnut Hill Avenue, Brighton 35, Mass.; **Edward S. Chapin**, Secretary, 2 Gregory Street, Marblehead, Mass.

'00

We were very interested in the Class News of '03 in the April Review which gave a splendid account of some of the events of our Commencement Week in 1900. It revived many happy memories and preserved a record which had been lost to us. We are grateful to the Secretary of the Class of '03. . . . For several months there have been no contributions from any living member of the class and happily there have been no deaths to

record. Now, however, there are two. **Stephen Badlam** passed away April 17, 1962. A letter from his nephew, William Badlam Pearce, '32, says: "He was a prominent engineer in the steel industry over the years since graduating from the Institute, both associated with steel companies and as a consulting engineer. He was very active up to his retirement at the age of 80 a few years ago. He was 85 when he died and had been ill only a short time when he died suddenly of a heart attack. He leaves his wife, Helen Boyd Badlam, in Carnegie, Pa., and several nieces and nephews around the Boston area." We have never been able to get much news about Steve, and his name has not appeared in these notes since 1928. We do know that he went with the Pennsylvania Steel Company soon after graduation and quickly rose to a position of authority in the rolling mill department. Later he was with the Carnegie Steel Company of Midland, Pa., Babcock and Wilcox of Beacon Falls, and was works manager of the Superior Steel Company. For some time he had his own office as a consulting engineer in Pittsburgh and then went to the Lewis Foundry (Blaw Knox) before his retirement. During World War I he joined the U. S. Infantry, becoming a major. He was first located at Camp Meade and later went overseas in the A.E.F.

**George D. Atwood** died May 6, 1962, in Overlook Hospital, Summit, N.J., of a heart attack. He was born in Brooklyn, N.Y., but was brought up in North Bennington, Vt. He was graduated from M.I.T. in mechanical engineering and first went to work with a Vermont granite firm as bookkeeper; soon, however, he went with the Wheeler Condenser and Engineering Company of Carteret, N.J., rising to the position of sales engineer and manager. In 1913, in partner-

ship with the late Leon R. Thurber, he purchased the Decorated Metal Manufacturing Company of Brooklyn of which he was president until a few years ago when he retired, remaining as chairman of the board. George lived in Brooklyn until 1943 when he moved to Short Hills, N.J., and in 1951 the business was moved to Milltown, N.J. While in Brooklyn he was a director of the Brooklyn Chamber of Commerce and former president of the Brooklyn Club. In Short Hills he was a charter member and a former elder of the Community Congregational Church. He also belonged to the American Society of Mechanical Engineers, the Engineers Club of New York, the Lake George Country Club, Bolton's Landing, N.Y., and the Associated Industries of New York. His first wife, the former Louise Rawson of Bennington, Vt., died in 1941. They had two sons, the late George D. Atwood, Jr., who died in 1960, and Rawson Atwood of Rumson, now president of his father's firm. In 1943 George married Estelle Bennett of Bennington who graduated in 1930 from the Pratt Institute and was with the Home Economics Bureau of the Consolidated Edison Company of New York. They have a daughter, Cynthia, a student at Kent Place School, Short Hills. Also surviving are five grandchildren and three great-grandchildren. George has been one of the most constant attendants at our reunions, usually accompanied by his wife and daughter.—**Elbert G. Allen**, Secretary, 11 Richfield Road, West Newton 65, Mass.

'01

These are the last class notes that you will read until November. The information that I give here will clean up all the

## Deceased

WILLIAM F. JORDAN, '86, August 3  
HERMANN C. LYTHGOE, '96, May 1\*  
CHARLES H. POPE, '97, Jan. 6\*  
HENRY H. CLARK, '98, March 13\*  
GEORGE D. ATWOOD, '00, May 6\*  
STEPHEN BADLAM, '00, April 17\*  
HARRY E. DART, '01  
HAROLD L. POPE, '02, April 4  
JOHN F. ANCONA, '03, Nov. 30  
EDWARD C. SCOFIELD, '03, April 25  
HARRY H. VALIQUET, '03, April 23  
GEORGE A. CLAPP, '05, April 22\*  
HAROLD C. STETSON, '05, Jan. 24\*  
LEIGH A. THOMPSON, '05, March 18\*  
LLEWELYN A. PARKER, '06, April 27\*  
HAROLD W. STREETER, '07, Aug. 5\*  
DESAIX B. MYERS, '08, March 30\*  
BALLARD Y. BURGHER, '09, April 25  
WILLIAM H. DUFFIELD, '10, Jan. 29  
VAN ZANDT BEALL, '10, April 2\*  
HAROLD M. TRUEBLOOD, '10, Feb. 12\*  
JOHN L. BAGG, '11, Dec. 29  
VINCENT L. GALLAGHER, '12, March 24\*  
CLARENCE A. STEWART, '12  
ROBERT H. WOODS, JR., '12, Nov. \*  
MAURICE E. LEVY, '13, March 3  
HENRY L. GARDNER, '14, Sept. 1960  
EDWIN C. PAUL, '14, March 22\*  
CHRISTIAN F. WOLFE, '15, April 17\*  
JOHN S. BREAKER, '16, Nov. 23\*

GEORGE P. PAUL, '16, March 24\*  
JOHN R. COFFIN, May 10  
FRANKLIN M. DAVIS, '17, Jan. 27, 1961\*  
AUSTIN KUHN, '17, April 19\*  
ALEXANDER S. BUTLER, '18, Nov. \*  
THOMAS S. FOGARTY, '18, March 4\*  
WILLIAM W. MURPHY, '19, Oct. 21\*  
BERTRAM H. SOUTHWICK, '19, Jan. 25\*  
WALLACE K. SPOONER, '21, March 21\*  
JAMES B. ARTHUR, '22, Nov. 28\*  
WILLIAM H. PICKETT, '22\*  
E. ELVIDGE TAYLOR, '22, March 4\*  
W. ALFRED ULBRICH, '22, Sept. 16\*  
BERNARD S. FALK, '23, March 20  
CHARLES R. MYERS, 2ND, '23, May 3  
GEORGE J. FERTIG, '24, May 7  
ROBERT C. ASHWORTH, JR., '25, April 19\*  
PERCY J. BENTLEY, '25, May 8\*  
HENRY V. CUNNINGHAM, '25 May 1\*  
NICHOLAS L. EASLY, '29, Aug. 12  
JOSEPH H. JENNINGS, '29, Dec. 4  
JOHN WORCESTER, '30, March 4\*  
JOSEPH P. DOUCETTE, '35, April 15\*  
WILLIAM SUSSMAN, '40, April 14\*  
ARNOLD S. SHAPIRO, '42, May 1\*  
MARION G. WELCH, '42, May 22, 1961\*  
CARL R. SEITZ, '44  
HARLAN F. HUNT, '48, March 22\*  
JOHN J. MCCARTIN, '49, April 2\*

\* Further information in Class News.

material that I have. If I receive no more class replies between now and the middle of September, which is when the notes have to go to the office, the class notes for the rest of the year will be very meager. If you have any interest in reading the notes send me something to write. . . . I have the following letter from Miss **Emma E. Ferris** of Rochester, N.H., who was a member of the class for a short time. "Dear Mr. Taft: There has never been any of my doings which I believed worth mentioning in the class notes, so I have not written. When I enrolled at M.I.T., I thought I wanted to teach math. A year here proved I wasn't suited for it. I tried a district school teaching job and was not fitted for that. I took a book-keeper's position in a grocery store. From that I went to one in an office of a branch of a New Haven concern selling Goodrich rubber tires for buggys, hearses, fire departments and later motor trucks. After a few years Goodrich took us to their general office on Boylston Street, where I became assistant manager to the truck tire department but had to put in the little word 'to' the manager because I was a woman. I also got woman's pay, not a man's. Internal friction caused my manager and me to resign. I went to Sinclair Oil in Brockton, then to Cadillac Auto in their parts department; and that was the end of my business career as Mother needed me. Part of the time I was a visitor at the Chelsea Naval Hospital. After mother went I was a secretary part time for an osteopath and until two years ago I did his bookkeeping. At the present time I am waiting for the weather to get settled and a functional heart to slow down so I may go to church and clubs again. I have never been to any of the class gatherings. This will show that I am still able to write and you can keep my name on the class roll."

**Charlie Tufts**, X, sends the following from New York: "It's always pleasant once a year to say 'Hello' and wish you well, but the only news these days is the slow attrition of the years with which, unfortunately all of us by now are only too familiar." . . . **Philip W. Moore**, II, Easton, Md., writes: "Dear Ted: Gathering news is a tough job especially when the sources of the news have so little of general interest. I think you do a wonderful job and the class notes are a great pleasure to read. Mrs. Moore and I have little to offer this time. We spent February and part of March in Florida. We drove down and back in easy stages of not over 300 miles a day. Now I guess we are here for the summer. Hope to get to Grafton, Vt., in June or July. Best regards."—**Theodore H. Taft**, Secretary, Box 124, Jaffrey, N.H.

'03

Your secretary enjoyed the extensive and jovial meeting of the Alumni Association on April 30 as guest of **Ike Attwood**, our M.I.T. Council member, at the Faculty Club on Memorial Drive. After a refreshing supper, we heard many interesting facts pertaining to the

wide range of athletic activities at the Institute. The address on food research by our biochemists explained the techniques of conserving flavors and fruit odors, now recognized as valuable requisites throughout the commercial industry. . . . **John F. Ancona**, II, passed away at 1359 Highland Avenue, Rochester, N.Y., November 30, 1961. . . . **Harry H. Valiquet**, II, 81 years, of 2630 North Humboldt Avenue, Milwaukee, Wis., died of uremia Wednesday, April 23, in Columbia Hospital. Born in Boston, he lived in Milwaukee about 30 years. He was a ventilating engineer at Employers' Mutual of Wausau for 20 years and retired in 1952. Mr. Valiquet was a member of St. John's Cathedral; a former member of its Holy Name Society; a life member of the American Industrial Hygiene Association; a former member of the Engineer's Society of Milwaukee and a former member of the American Society of Heating, Refrigeration and Air Conditioning Engineers. He attended M.I.T. with our '03 Class. Surviving are his wife, Helen; a daughter, Mrs. Virginia Smith, Green Bay; a sister, Miss Pierette Valiquet of Montreal, Quebec; and a brother, Thomas, Quebec, P.Q. Services were held at St. John's Cathedral with a parish vigil at the funeral home.

**Edward C. Scofield**, XIII, of 89 Myrite Avenue, Stamford, Conn., died suddenly April 25, 1962, at his home. He practiced as a naval architect after graduating from Stamford High School and M.I.T. A naval architect for the United States Navy Department during World War I, he then worked for Elco Boat Company, Bayonne, N.J., the Great Lakes Shipbuilding Company, Philadelphia Navy Yard and Newport News Shipbuilding Company. He was a member of the First Congregational Church; the Men's Club of the church and recently an active member of the Leisure Men's Club. He also belonged to the Civilian Navy Yard Employees Department and the American Association of Naval Architects. He was the husband of the late Gertrude Allen Scofield. He is survived by his son, Edward A. Scofield, of Stamford, Conn.; and grandsons Edward A. Scofield, Jr. and Richard D. Scofield, also of Stamford.

A more cheerful note from **Fred B. Crosby**, VI, of Creighton Drive, Golden, Colo., deplors his apparent lack of active interest in class affairs. However, he happily gives account of his retirement which ranged from active work in the electrical field in 1952 to his present quiet but happy and contented life in Redondo, Calif. In the summer of 1959, although in general good health, the increasing limitations inevitable with the years, led him and his devoted wife to move to Muncie, Ind., near his daughter, Mrs. Hamilton B. Easton. There again they were privileged to enjoy nearly three years of close and exceptionally happy companionship. Early in January of this year, with almost no warning, his dear wife passed away. His future plans now upset, he has made his home with an unmarried daughter, Eleanor. His health is generally good although he is nearing 82 years of age and at last is

soliloquizing with the wonderful memories of the past 50 years. We classmates join with him in hearty acclaim.—**John J. A. Nolan**, Secretary, 13 Linden Avenue, Somerville, Mass.; **Augustus H. Eustis**, Treasurer, 131 State Street, Boston, Mass.

'04

We were glad to have a note from **Bernie Blum** enclosing a contribution to the class treasury. The Blums had just returned to Saint Paul after spending the winter in Phoenix and before long will be taking off for Seattle where Bernie will cast his Course I eye over the fair which is now in progress there. From Seattle he and Mrs. B. go over the line to British Columbia for a visit. . . . **Harry Rollins** showed up in Boston early in May, and we were delighted to see him. He didn't bring Glendora with him on this trip but we hope to see her the next time he comes. . . . Soon after Harry departed we had a telephone call from **George Kaiser** who had arrived in Boston with his family to make one of their periodic inspections of antique shops. We had lunch with George but didn't discuss antiques. If the present rate of change in Boston continues there may be few antiques left. The morning Herald showed a picture of the Old Howard in the last stages of demolition preparatory to urban renewal. . . . A recent news item states that the University Club building which was built several decades ago on the site of the M.I.T. engineering buildings on Trinity Place has been sold to the Chandler Secretarial School for Girls. At this writing there is no information as to the future of the University Club.

**Katherine Dexter McCormick** appeared in the usual front seat at the spring meeting of Boston's Back Bay Neighborhood Association. She explained her absence from the previous meeting as due to spending the winter in California. The Back Bay Association is making a brave attempt to prevent further deterioration of the neighborhood and if possible reverse the trend. It is hoped that many Bostonians will tire of commuting to the suburbs and return to city living. . . . This is the last issue of the current volume of *The Review*, so you won't hear from us again until November. We hope to have seen some of you on Alumni Day in June. We wish you all a healthful and restful summer and suggest you send us an account of it for November notes (material due September 15). —**Carle R. Hayward**, Secretary, Room 35-304, M.I.T., Cambridge 39, Mass.; **Eugene H. Russell, Jr.**, Treasurer, 82 Devonshire Street, Boston, Mass.

'05

You have by now received the complete mailing list of the Class of 1905. A couple of the fellows have remarked that they find names of people on the list whom they never knew or heard of. This



list is a combination of my active and inactive lists. On the active list are all living members, who graduated with us in 1905, plus a few who did not graduate, but who have shown continued interest in the class, attended reunions, paid dues and sent in news items for *The Review*. Probably most of the names you do not recognize are of fellows who climbed Rogers Steps in September 1905 and climbed down (for good) not long afterwards. The Alumni Association lists as M.I.T. men all who entered and stayed at least six months. If you do not find in the list the name you looked for, it is because of death, with one exception. I made a terrible mistake—left out the name of **Andy Fisher**, who is alive and kicking (if you know what I mean).

The April issue of *The Review* should have contained a story from Rear Admiral **Julius A. Furer**, U.S.N. (Ret.). I received it on February 12, marked it for copy for April. Somehow it missed the boat. With further apologies to J.A.F. here it is. "I have a fellow feeling for all class secretaries as I am the secretary of my Naval Academy class of 1901 and am expected to provide news about my class for *Shipmate*, the monthly alumni publication of the Naval Academy, so I know how hard it is to come by news. I have an item which you may consider to have news value for '05. A number of years ago I undertook the writing of a book for the Navy Department entitled 'Administration of the Navy Department in World War II' as part of the Navy history writing program paralleling Samuel E. Morison's 'History of Naval Operations in World War II.' My book was published by the Government Printing Office late in 1960. Being government published, it has had no reviews in the regular reviewing media but it has had a fine reception. It is a slender(?) volume of some 1,042 pages and can hardly be considered bedside reading, but I have traced in it the history of the administration of the Navy Department since the beginning of the federal government. It is a fine reference book as well as being a comprehensible history of Navy Department Administration during the war and covers the extraordinary problems that had to be faced and how they were solved."

A word from your assistant secretary: Our devoted, dedicated secretary will have his 80th birthday on July 8, 1962. Nothing would please him more than a postal, especially if it had a bit of news on it.

**Errett M. Graham**, I, writes: "These San Juan Islands are getting more and more popular (and populated) each year. People are now paying anywhere from \$40 to \$75 per square foot for a piece of water front. New subdivisions are being put on the market all the time. Maybe it is getting time to move on to some less crowded place." By the way where is Shaw Island, Washington. Have the San Juan Islands moved? . . . **Dez C. Schonthal** writes from Huntington, W. Va., that he is well and retired and "well retired, which I guess one should be at 81 years." Thinking back to Dez and the basketball games in the freight shed on Exeter Street, I am reminded that Dez had the height of the

modern college basketball player, but the girth of the modern professional football player. How about either or both today, Dez? . . . I have received from time to time an indirect message from **Roy H. Allen** (from those who had seen him passing through Banning, Calif.) but here's a quotation from a recent letter, a ray of hope that spring may not be far behind: "Earlier this month Grace and I went to Santa Barbara and the Danish village of Solvang, to celebrate her birthday. On the way we visited another retirement home, which was quite attractive. With old age creeping up and with a little slowing physically and mentally, we have looked at several retirement homes, but each time we come back and decide we like our home best. We had a fine wet winter, with snow on the mountains, and two falls here, one of about three inches the other about one inch; the countryside had been unusually green and vegetation lush. Away from the desert the wild flowers have been marvelous, whole mountainsides and valleys covered with yellow, orange, blue or white. Our fruit trees blossomed well; the young figs, apricots and nectarines are developing well, the apple tree has just lost its blossoms, the lemons and grapefruits are still in bloom and saturating the air. Our early flowers have gone by, but the roses are gorgeous, as are the early summer flowers. California does have as many advantages as New Hampshire does. We haven't had to shovel snow; as a matter of fact I don't believe the street department or hardware stores have any facilities to handle the white stuff. I know the shoe stores do not stock rubbers."

A note from **Earl C. Weaver** gives this story of his recent misfortune: "I was hit by a stroke on my left side about two months ago, and now am home recuperating nicely, after a short stay in the hospital. I probably will not be able to indulge in any heavy activity, but I want to stick around a few years more to see how some of the problems facing the good U.S.A. are solved. Say hello to any '05 men you are in contact with who may remember me." In reply I might suggest that anyone traveling his way, 710 Deodora Drive, Altadena, Calif., drop in and give Earl a boost. . . . **George A. Clapp**, V, of 26 Abbott Road, Wellesley Hills, died at his home on April 22, 1962. He was with us taking special courses in chemistry during our sophomore and junior years. Leaving M.I.T., he went into manufacturing reclaimed rubber with the E. C. Clapp Rubber Company. Later he went to New Jersey, where he became president of the New Jersey Rubber Company. He was also an official with the Penobscot Chemical Fibre Company of Old Town, Maine, and of Tiletson and Hollingsworth, Hyde Park, Mass. Through his son I learned that he had had an incapacitating shock (about 1953), also recently that he had not left his room for five years. He was a member of Phi Gamma Delta, which apparently leaves **Ernest G. Schmeisser** as the only surviving '05 member of that fraternity. . . . I have to record the

death of **Leigh A. Thompson** of Manchester, N.H., on March 18, 1962. He was with us in Course II during part of our freshman and sophomore years, coming to M.I.T. from the Bridgewater High School. He was a Mason, also superintendent of the International Shoe Company of Manchester, N.H. In correspondence with his daughter I learned that her mother passed away eight days after her father. . . . **Harold C. Stetson**, VI, died at his home in New Haven, Conn., on January 24, 1962. No other information is available except that he was connected with the engineering department of the New Haven Railroad and that the burial was in Forest Hills Cemetery, Boston. I am indebted to **Converse Smith** of West Haven for this information.—**Fred W. Goldthwait**, Secretary and Treasurer, Center Sandwich, N.H.; **Gilbert S. Tower**, Assistant Secretary and Treasurer, 35 North Main Street, Cohasset, Mass.

## '06

Did President **Kidder's** Alumni Fund Letter last April give you sort of a lift? Your 49 per cent participation is commendable indeed and perhaps next time you can make it 50 per cent or better. Besides writing fund letters as class agent, **Sherm Chase** writes to the Boston Herald as a conscientious professional engineer who deplors the unethical performance of some so-called engineers in the corruption-ridden Old Bay State. He concluded that letter with this reminder: "The following excerpt from the Canons of Ethics of the American Institute of Consulting Engineers epitomizes the basic standard governing professional behavior. 'As the keynote of professional conduct is integrity, the engineer will discharge his duties with fidelity to the public, his employers, and with fairness and impartiality to all.'" The Chases were in London in May visiting friends and for Sherm to attend annual meetings of several professional societies of which he has long been a member, in some a life member. In acknowledging Sherm's kind words about these class notes and his call to send me some material for them, I suggested he might like to read a book by Thomas B. Costain entitled "The Chord of Steel." This is a factual story of the life of Alexander Graham Bell, his parents and brothers, and why when he was a boy they moved from London to Brantford, Ontario. All you telephone men would enjoy it I'm sure. Also I'm sure you all get a lift when you receive and read your M.I.T. News Letter; it's worth a second going over too.

Not a single letter or postcard came up from Florida while the sun worshippers were there during the winter, but **Abe Sherman** did send me a long letter soon after he and Sadie had returned to Rochester early in April. As I had expected, they spent the usual three months outside Sarasota at 5144 Gulf of Mexico Drive and had enjoyed a visit from **Cy Young** who had "made it out of the snow belt around Minneapolis not

too long after Christmas and seemed to be in reasonably good shape." Cy was probably holed in at Pompano Beach again. Abe gets his exercise by taking care of the home grounds and hopes it won't look too much like an "old man's place." Otherwise, I suppose he recuperates by driving the car—they drive 15- to 18-thousand miles a year. We missed the Shermans on Alumni Day. They have been among the regulars through the years in attending all reunions and most Alumni Days too, so this year Abe sent his regards and best wishes to "any other spry youngsters of 1906 who can make it." In the November notes we hope to tell you more about the **George Guernsey's** western trip ending in Seattle. Who else attended the Century 21 Exposition? And how did it impress you?

Early in May came a much appreciated letter and clipping from Mrs. L. A. Parker from Los Angeles, where her husband had passed away on April 27. **Llewellyn Adelbert Parker, IV**, Phi Kappa Sigma, was born December 6, 1882, in Denver, Colo., but the family moved to Los Angeles where he attended high school and entered Tech with us, residing in Cambridge, I believe. Lewis, or Louie, as he was nicknamed, played the flute in the Mandolin Club and was general manager and treasurer of the Musical Clubs our junior year, becoming president senior year when **Clarence Powell** was vice-president and **Hermann Henrici** was secretary. He was a member of the Architectural Society of which **Ed Mayberry**, his partner later, was treasurer and **Bill Furer** was president our senior year. He was also a member of the new California Club when **Mesmer** was president senior year. Louie was business manager of the Architectural Manual in 1905. The title of his thesis was "Design for a Reinforced Coal Pocket." For a short period after graduating he was chief engineer with Charles F. Whittlesley and Company, architects, in Los Angeles, but by or before 1910 he had formed a partnership with the late **Edward L. Mayberry, IV**, which continued for 8 or 10 years, when he set up his own office as architect and structural engineer, still in Los Angeles. Around 1954 his two sons joined him and the firm name became Parker and Parker; his retirement followed soon after. During his active years "he designed many Los Angeles area structures, including the Richfield Building, schools, and industrial plants for U. S. Rubber, Convair, Astronautics, Douglas, and Pabst Brewery." He was a former member of the City Building and Safety Commission and a founding director of Orthopedic Hospital; a member of the University Club, Chamber of Commerce, Elks Lodge 99, and the M.I.T. Club of Los Angeles. Besides Mrs. Parker (Irene Bulfinch), he is survived by their three sons: Edward H. and Leland A. of the architectural firm; and Robert G., an executive and engineer with Continental Oil Company in Fort Worth, Texas. Among the replies Jim had received from the questionnaire prior to our 50th Reunion, was one from Llewellyn Parker in which he told of their plans to travel and hoped to land on our

East Coast on their return and see some of us and the M.I.T. campus. In her letter Mrs. Parker referred to that trip which was around the world, and to their nearly 50 years together. With the reply to her letter, the sympathy of the class is being sent to Mrs. Parker and their sons.—**Edward B. Rowe**, Secretary-Treasurer, 11 Cushing Road, Wellesley Hills 81, Mass.

## '07

Early in April, I sent out 124 notices about the reunion; and, as of May 10, I had received 68 replies. These, on the whole, were quite disappointing as to personal information about our classmates. Most of the men are fully retired; and I was at least able to obtain a correct home address for our newly printed list of class members, which was mailed in June to each person who did not attend the reunion. As a result of my request for class dues, I have received a total of \$496 from 71 members. An accounting of this, and the expenses for the reunion, will be compiled and mailed to each '07 man. I very much appreciated hearing from some of our members who have not previously helped out on the class expenses. . . . **Paul L. Cumings, IV**, continues working very actively as construction consultant for the John Hancock Life Insurance Company. He is responsible for the preparation of all plans and selecting furnishings and decorations for agency offices. This involves extensive traveling throughout the United States. Paul and his wife recently returned from their fourth trip to Europe. . . . **Howard Marvin, II**, was not able to be at the reunion because of Mrs. Marvin's health. Although partially retired, he does specially assigned research work for the firm of Stevenson, Jordan and Harrison, of which he is a partner. His present assignment is in the cataloging of 30 years of management reports and research articles for the University of Bridgeport.

It was nice to hear from **Alfred A. Brooks, II**, who is mechanical engineer at the Knik Arm Power Plant, of the Chugach Electric Association in Anchorage, Alaska. . . . **Willis G. Waldo, I**, continues his consulting engineering firm at 2070 Scott Avenue, West Palm Beach, Fla. They are presently engaged in design and supervision of all concrete construction for Arc-Rib Buildings Company at West Palm Beach. Willis is regional chairman for the Second Century Fund of M.I.T. for the West Palm Beach area. It was especially interesting to read of his activities among the Spanish-speaking people at the First Baptist Church. Willis is president of a Spanish-speaking class and gives a 15-minute talk in Spanish every Sunday morning. He is director of the Adult Training Union and superintendent of the Extension Department—a very satisfying activity. . . . **Wheaton I. Griffin, I**, was unable to attend the reunion, due to a health condition. He is vice-president of the Utica Fire Insurance Company and trustee of the Savings Bank of Utica. He is also trustee of the Faxon Home for Women,

as well as serving on three other boards. . . . **M. Herbert Eisenhart, X**, says he is fully retired with a big question mark. His activities include directorships in two manufacturing companies, two public utility plants, a trust company, and a savings bank. Also, he has emeritus connections with educational, charitable, and other organizations. "I find my time well occupied and am really enjoying my retirement."

**Charles (Carl) R. Bragdon, X**, carries on his consulting work and technical writing from his home address at 4 Rock Ridge Road, Larchmont, N. Y. He is editor of "Film Formation, Film Properties, Film Deterioration" published by Inter-Science Publishing, N.Y., in 1958, and author of "Metal Decorating from Start to Finishes," published by the Bond Wheelwright Company, Freeport, Maine, in 1961. . . . **Anthony B. Arnold, II**, is fully retired but keeps busy with gardening and travel. He is a "Friend of Old Sturbridge Village, a member of the National Geography Society, a Republican, Episcopalian, and a genealogist." . . . **Erskine P. (Tucky) Noyes, I**, could not make the reunion. He wrote of his activities in making family coats of arms. In the seven and one-half years of retirement, he has filled orders for over one thousand drawings in color of family crests and coats of arms. . . . **James M. Barker, I**, is a director of various corporations, such as Sears, Roebuck and Company, the Allstate Insurance Companies, Universal Oil Products Company, and the Chicago-Milwaukee-St. Paul and Pacific Railroad Company. He also serves on various committees of these boards. He is a trustee and chairman of the Investment Committee of the Sears, Roebuck and Company Employees' Profit Sharing and Pension Plan, which has a capital value of over \$2,000,000,000. . . . The Alumni Office has notified me of the death, on August 5, 1961, of **Harold W. Streeter, XI**, who resided at Old Indian Hill Road, Cincinnati, Ohio. He was carried in our class file as a non-associate.—**Philip B. Walker**, Secretary-Treasurer, 18 Sumner Street, Whitinsville, Mass.; **Gardner S. Gould**, assistant Secretary, 409 Highland Street, Newtonville, Mass.

## '08

Well we finally had a dinner meeting on May 9 at the M.I.T. Faculty Club. The weather was kind, although a little breezy, more like March than May. Bunny and Grace Ames, Heinie and May Sewell, Joe and Eudora Wattles and Nick Carter showed up. Several of our regulars were still on the ailing list, so couldn't join us. As is to be expected on Wednesday night, the club was crowded; it seemed more so than usual, but we were able to capture and hold our regular table in the corner of the cocktail lounge, so our party could sit together. While enjoying our favorite appetizers and the delicious cheese and crackers from the buffet, we swapped news of winter doings of ourselves and absent



classmates. About 7 P.M. we adjourned to private dining room number 4 and enjoyed the usual fine dinner of our choice. Plans for our 54th Reunion in June at Harwichport and Alumni Day at Cambridge were discussed. Around 9 P.M. we called it a day and so to home. We hope to hold another dinner meeting early in November at the M.I.T. Faculty Club. Let's try for a good turnout. Hope you all have a most enjoyable summer. Let us hear from you, won't you?

**Willard F. Rockwell**, Chairman of the Board of the Rockwell Standard Corporation of Coraopolis, Pa., must like to work, as in April he took over the presidency of the company. His directors at the same time elected his son, Willard Jr., vice-chairman. Colonel Rockwell, Pittsburgh, outspoken champion of private enterprise, told the annual meeting of stockholders that the prospects for the company are bright, following a substantial upturn in its earnings for the first quarter. . . . We are sorry to report the death of **Desaix B. Myers** on March 30, 1962, at his home in Pasadena, Calif.—**H. Leston Carter**, Secretary, 14 Roslyn Road, Waban 68, Mass.; **Joseph W. Wattles, 3rd**, Treasurer, 26 Bullard Road, Weston 93, Mass.

## '09

**King Bullens, III**, sent us a three-column clipping from *The Pilot*, Southern Pines, which began: "Highlighting the social season which reached its peak in the Sandhills on Easter weekend was the 50th wedding anniversary party given Thursday, April 19, by Mr. and Mrs. Denison K. Bullens at their Homewood Gardens Estate." At the heading of the clipping was a picture of spacious Homewood Gardens with trees, flowers, and garden seats, and in the foreground was an ivy arch where King and May and their children and grandchildren received. The article further stated: "The beautiful azalea gardens, opened annually for a garden tour in March, are well known to thousands of visitors throughout the state." Most of us have seen the Kodachrome showing the entrance to the gardens with the azalea lined road leading to the residence. Present to celebrate the occasion were Mr. and Mrs. Denison K. Bullens, Jr., and children Sherron and Scott; the Bullens' daughter and son-in-law, the Allen Kealleys, and their daughters Patricia and Jillian. Several hundred friends attended. There was music by an orchestra and dancing. The class certainly congratulates King and May on this notable occasion and wishes them many happy years to come. . . . In an earlier Review we noted that **Arthur W. Lunn, VI**, of Maplewood, N.J., was made chairman of the United Hospitals' board of trustees. Carole A. Clarke, Secretary of '21, has sent us a clipping from the Newark Evening News stating that Arthur had been named to the new post of honorary chairman of the hospitals. Arthur also served as president from the time of the merger of four Newark hospitals until

he became chairman in 1958. We congratulate him on his service to these hospitals and the honors which have been accorded him.

Ever since **Hardy Cook** retired we have been attempting to obtain from him some news item telling about his family and what he is now doing. He has finally written asking for information relative to the 1909 Scholarship Fund inasmuch as he has two grandsons who may be interested in going to the Institute. We have arranged through Mr. Pitre of Student Aid to send him complete information. He writes further: "I have been retired 18 years and living here (Sarasota) 13 years. We have seven acres, a lawn of two acres and fruit trees—only about 25. I haven't taken any other job since my retirement. My daughter Margery is living with us. She is a kindergarten teacher in the neighboring town of Bradenton, and got her master's degree last year in education at Wheelock College in Boston. She stayed with my sister in Milton. My oldest son is on a business trip to Australia. On the way home he will stop for a week at Honolulu. Hastings is executive vice-president and one fifth owner of the Paul Mulligan Company, a consulting engineering firm. His territory is the West Coast. He has two girls, Janet and Judy. Merrill works for Western Electric in Baltimore. He has two boys and a girl." Hardy also inquired after Professor Clifford and **Karl D. Godfrey, VI**. As many of you will recall, Hardy was one of the tackles of the '09 football team and Karl Godfrey was captain and halfback. . . . This is the last number of *The Review* until November. When you receive it many of us will have met on Alumni Day. We were all glad to receive Molly's letter urging us to support the Institute in its Second Century Fund and to meet on Alumni Day. The class officers wish you all a most pleasant summer.—**Chester L. Dawes**, Secretary, Pierce Hall, Harvard University, Cambridge 38, Mass.; Assistant Secretaries: **George E. Wallis**, Wenham, Mass.; **Francis M. Loud**, 351 Commercial Street, Weymouth 88, Mass.

## '10

**Howard M. Trueblood** died February 12, 1962, at his home in Dobbs Ferry, N.Y. . . . **Van Zandt Beall** died on April 2. He was a retired civil engineer. He attended Fort Worth public schools, was graduated from Texas A & M College and received an S.B. degree at M.I.T. He was a Mason and a member of the Fort Worth Club and the Christian Church. **Frank F. Bell** wrote as follows about Van Zandt: "I knew Zanny very well as we worked on our thesis together and later on, my oldest son, Frank, married Zanny's daughter, Varner Beall. Zanny had not been able to do any active work for some 20 years on account of stomach ulcers and punctures which confined him mostly to home. He went through M.I.T. with less study than any individual in my knowledge; in fact, he spent most of his time

playing bridge, which was his hobby. He later played on Fort Worth's bridge team. I don't suppose he averaged an hour to hour and one-half study a night".

Frank also wrote in regard to himself: "Personally, I have very little to add. Our land at Hi-Line and Industrial Boulevard got too valuable to use for contracting, so we traded out and moved our shops, yards, asphalt concrete plant, and main offices to a site at 2645 Irving Boulevard, which move we have now completed, and we are very pleased with our new location. My son Frank's and my interest in the Rio Grande Valley took a severe blow this winter by the worst freeze in valley history. We lost all of our crops and Frank lost his oranges, grapefruit and avocados and all the trees under six years old and over 16 years old. How many of the interim trees can be saved and come back within four or five years, he doesn't know as yet and will not know for a couple of months. The beautiful Rio Grande Valley of Texas looks as though an atomic bomb had hit it; and it will be probably six years or more before it comes back to its normal attractiveness, providing there are no more devastating freezes. I do not believe that I will get East this June as my wife has been very ill, but is now recovering and it is inconvenient to leave at this time. Our youngest son, Edwin S., who graduated from M.I.T. in 1948, is now a vice-president of this concern and manager of construction. Outside of that, there is nothing much else to tell you, except that Dallas is getting to be quite an M.I.T. hub on account of Texas Instruments, Chance Vought, etc."

I have a letter from **Allen A. Gould** as follows: "I am still anything but retired but I take my own time with the morning paper and don't always put in my full union hours and being my own employer can't be fired or retired. Guess we both can taper off gradually." . . . I have had a letter from **Walt Spalding**, and it would appear that he is ready to give up the strenuous life, as follows: "I feel that I have not kept my resolution to write you as I did intend to, and this is especially remiss when I think of how very kind you two were to us in Boston last June. My alibi is that I have been closing out my architectural practice in order to be free to give full time to helping Romalda in her work, which is far more important than designing buildings. I have just moved my office to the house and my last building, a state training center for the blind, will be completed this month. You will be glad to know that **Maurice Anderson**, Course XIII, asked a neighbor and friend of his in Seattle to look me up while here, and since then I have had two letters from him. He is retired and well, and says he is going to drive us around a bit when we are in Seattle next August. We were high school friends there and Andy persuaded me that I should try to enter M.I.T. some 55 years ago. Romalda and I leave for Mexico for a fortnight's holiday before she starts teaching two groups of teachers in the Houston area. Then we visit her family near St. Louis

for a week before her two-week class at Oberlin, Ohio, with weekends at my son's family of four in nearby Cleveland. Then comes a week's class at Lincoln, Mass., and we shall certainly contact you before going on to her two-week class in Peterborough, N.H. After that a few days driving about New England, New York City and a flight to Seattle and the fair, before flying to Anchorage, Alaska, for another two-week class, and then home by late August."—**Herbert S. Cleverdon**, Secretary, 120 Tremont Street, Boston, Mass.

# '11

**Harry R. Tisdale, V**, of Fort Myers Beach, Fla., sent a note about the death on February 2 of Rose Harrington, widow of our classmate **Joseph F. Harrington**, who died in 1958. Rose had two daughters and four grandchildren. The note said that Rose and Joe had attended all 1911 class reunions. . . . **Willis Hodgman** and his wife, Barbara, went from Taunton, Mass., to Florida in April and paid the Tisdales a surprise visit. . . .

**William H. Coburn, XI**, of Chestnut Hill, Mass., and Blue Chip Farm, Hampton Falls, N.H., whose first wife died last year, married widow Pamela Fedde, of 1150 Fifth Avenue, on February 16 in New York City. Coburn, in addition to his services as an investment counselor and head of the firm William H. Coburn and Company of Boston, Mass., is active in a number of clubs, engineering societies and fraternal organizations. He also belongs to the American Saddle Horse Breeders' Association, American Horse Show Association, New England Horse Show Council, and American Hampshire Sheep Association. . . . A news clipping reports that **Luis de Flores, II**, has retired as a trustee of the American Optical Company.

**Roy G. MacPherson, II**, of Framingham, Mass., has not fully recovered from the fracture reported in the May Review, and is still wearing the steel corset. Best wishes for a continued recovery, Roy. . . . I visited **Carl G. Richmond, I**, of Winchester, Mass., and **Charles A. Linehan, I**, of Belmont, Mass., in May. Both were having a hard time in moving around and in their general health, but were trying hard to conquer their troubles. Best wishes to them. . . . We have two address changes: **William J. Wilson, I**, 23 Millwood Circle, Framingham, Mass., formerly of Quincy, Mass.; **Alexander W. Yereance**, 27 Old Wharf Road, Harwich Port, Mass., formerly of Falls Church, Va.—**Henry F. Dolliver**, Secretary, 10 Bellevue Road, Belmont 78, Mass.; **John A. Herlihy**, Assistant Secretary and Treasurer, 588 Riverside Avenue, Medford 55, Mass.

# '12

Word has just been received of the death of two of our classmates. **Robert H. Woods, Jr., VI**, passed away at his

home 315 Montford Avenue, Asheville, N.C., last November. . . . **Vincent L. Gallagher** passed away on March 24 at his home in Miami. He had planned to come north for the 50th Reunion, but was suddenly stricken with heart failure. . . . **Philip T. Redfern** of 316 Chestnut Street, Ravenna, Ohio, had planned to be with us for our 50th Reunion, but unfortunately he is very ill and was unable to come East. He will certainly appreciate hearing from any of his old friends at the above address. . . . **Ray Wilson**, who has always been interested in out of the way doings, has now taken on the task of photographing all the covered bridges in Pennsylvania, working from there to the eastern states and Canada. Ray brought some of his slides taken at the 1952 and 1957 reunions to show us at Snow Inn.—**Frederick J. Shepard, Jr.**, Secretary, 31 Chestnut Street, Boston 8, Mass.; **John A. Noyes**, Assistant Secretary, 3326 Shorecrest Drive, Dallas 35, Texas.

# '13

Eleven months to go before the countdown for the 50th Reunion of the M.I.T. Class of 1913. Are you making your plans now to attend. We go first to the Institute on Class Day and then to Oyster Harbors Club in the afternoon June 9. We shall spend Saturday, Sunday there, then return to Cambridge on Monday for Alumni Day.

In **George Richter's** letter of last fall he said: "I am a great believer in living in the present and tried to express that general thought in these verses. Thought you would be interested in this monosyllabic offering. It goes—

I may have been,  
I hope to be  
More sure am I  
That I am he  
Who lives this life  
That lives in me.

Perhaps old suns  
Blazed Egypt's sands  
New suns may warm  
Some future lands,  
My sun shines now  
It warms my hands

That birds have sung  
Will sing again  
Has been retold  
By singing men,  
But listen, pray,  
I hear the wren.

I may have been  
I hope to be  
This much I know  
That I am he  
Who lives this life  
That lives in me.'"

We are indebted to Mrs. Levy for a newspaper clipping from the Washington Star relating to our dear classmate, **Maurice Eli Levy**, who passed on to his maker, March 13, 1962. We quote: "Maurice Eli Levy, a retired architect who worked on projects at Fort Knox, Alca-

traz Prison, and the White House, died Friday at Washington Hospital Center. He was 71. Mr. Levy received an engineering degree from the Massachusetts Institute of Technology. After his graduation in 1913 he joined the U.S. Coast and Geodetic Survey in the Philippines. He joined the Navy in 1918 and served in the Atlantic as a gunnery officer. Following his discharge he returned to the Coast and Geodetic Survey, this time to go to Alaska and the Aleutian Islands. Two years later Mr. Levy returned to Boston and opened an architectural office which he maintained until 1931 when he joined the old Public Buildings Administration here. He served as specifications architect for the National Institutes of Health Medical Center and the Federal Trade Commission building here. Mr. Levy is survived by his wife, Bertha, of the home address, 2800 Quebec Street, N.W., and a son, Dr. Charles K. Levy of Framingham, Mass." Mrs. Levy informs us that the doctor will soon be leaving the Worcester Foundation and will be on the staffs of Boston and Harvard Universities. Also, they had another brilliant son who died in France while serving as an Air Force pilot about four years ago. To Maurice's dear family we of 1913 offer our most sincere sympathy in these hours of grief.

When these notes appear, we who are fortunate to have been able to attend the Alumni Day of 1962 will be looking ahead to June of 1963 when we shall all meet for that ever important reunion, the 50th. **Phil Burt** wrote us a very appreciative note in which he stated that he and Clara had planned on attending the 50th in 1963. It is possible that Phil may still join us with his daughter, whom we shall be very glad to welcome. . . . **Bill Mattson** has honored your secretary with two letters this month. The notes would be more newsy if more of you unemployed would take a few minutes and inform us of your activities, and we would still enjoy an explanation from you laborers who are still keeping young with Jack's Youth Movement. Jo and Bill certainly are enjoying their life in the Rockies. Several of our classmates have stopped in Denver or rather Golden, Colo., and through this media they invite any or all travelers of 1913 to stop over at the Mattson Lodge. Bill, of course, continues with his usual enthusiasm and good advice for our coming reunion. This is very much appreciated. Jo has organized the Easter Seal Drive for the Denver Society for Crippled Children, and is vice-president of the society. Bill is still vice-chairman of the Jefferson County Chapter of Red Cross, also co-chairman of the local precinct Republican Committee. So with the addition of a very strenuous social life and the supervision of the upkeep and landscaping of their estate, I guess the Mattsons are busy and very happy. Again, many thanks for your splendid suggestions and advice. Our suggestion to you Bill is: "Come back home in June, 1963." So after many weeks of rest, many medications and a week's treatment of penicillium, the streptococcus germ has left for parts unknown. This is the last you will hear from us through The Review until



November. Here's wishing you and yours a happy and pleasant summer.—**George Philip Capen**, Secretary and Treasurer, 60 Everett Street, Canton, Mass.

# '14

How time passes! This is the last issue of *The Review* for this year and just two years from now we will have already celebrated our 50th Reunion. We must decide soon where we will hold it. The Institute's usual plans set Commencement on a Friday morning with our class seated on the platform in caps and gowns. Saturday and Sunday are set aside for the class reunion, the wives also being present except for some special sessions which will be for '14 classmates only. Separate plans will be made for the ladies. Monday will be Alumni Day with the usual luncheon and dinner; wives may participate as desired, and we hope they will on that day. It will be noted that Commencement and Alumni Days rather restrict the location of our reunion to a location close to Boston. Now that **Charlie Fiske** is back from Barbados, he and your secretary have been working on this.

**Hib Busby** from Springfield dropped in to see your secretary the other day. He was full of pep and he made me think that the older '14ers get the more lively they are. Hib is at the Western New England College doing part teaching and part administrative work. . . . Similar to the recent article about **Dean Fales**, there has just appeared a fine item about **Ray Dinsmore** in the April 1 Akron (Ohio) Beacon Journal. The article is really a humdinger, and it gives Denny a well-deserved pat on the back. Space limitations do not permit me to list the accomplishments and patents with which he is credited. Fourteeners who know him will appreciate this: "Dinsmore was born in a small farm center town in Massachusetts; when he isn't solving problems he likes to collect—and write—limericks." We are just waiting to hear from him at our 50th Reunion. . . . Fourteeners will all be sorry to hear that our class agent and assistant class secretary, **Herman Affel**, has had a recent visit in the hospital for a month. He hoped to be out early in June, but doubted that he could attend Alumni Day. . . . **Edwin C. Paul** died of a heart attack on March 22, 1962, in Portland, Maine, where he was the owner of a telephone answering service. He is survived by a son and daughter. Paul did not stay at the Institute the full four years.—**H. B. Richmond**, Secretary, 100 Memorial Drive, Cambridge 42, Mass.; **C. P. Fiske**, President, Cold Spring Farm, Bath, Maine; **H. A. Affel**, Assistant Secretary and Class Agent, R.F.D. 2, Oakland, Maine.

# '15

It won't be long now! Only 35 months before our 50th Reunion. This is a good time to begin your plans to be there. No wonder 1915 has such a mountainous

reputation amongst the Alumni. On May 11, at the M.I.T. Faculty Club, Cambridge, 31 classmates and friends gathered for a spectacular class dinner. After a cocktail hour, the **Pirate** opened the evening with a rousing "We are happy" cheer. Following one of Bill Morrison's delicious dinners, we had an evening of nostalgic fun, highlighted by the attractive and useful take home gifts generously donated by classmates. Present were: Larry Bailey, Bill Brackett, Wayne Bradley, Whit Brown, Alan Dana, Sam Eisenberg, David Hamburg, Jim Hoey, '43, Clive Lacy, Azel Mack, Archie Morrison, Harry Murphy and son, Peter Murphy, Frank Murphy, Charlie Norton, Stan Osborn, Wally Pike, Pirate Rooney and son, Gerry Rooney, Chet Runels, Al Sampson, Frank Scully, Jac Sindler, Bill Sheils, Speed Swift and guest, William F. Kidder, Fred Waters, Easty Weaver, Max Woythaler and Lou Clements, Louie Young. The hot long-distance competition was fought out among Archie and Fred from Marblehead; Larry from Duxbury; Whit from Concord; Al from Beverly; Max and Clem from Framingham; Chet from Lowell; Charlie, who walked on the waters from Martha's Vineyard; Alan from Seymour, Conn.; Wayne from Moosup, Conn.; Dr. Stanley from Hartford, Conn.; and Speed with his guest Bill Kidder from New London, N.H.—splendid examples of class interest and loyalty in this wide geographical distribution. The winnah, **Alan Dana**, came the farthest from Seymour, Conn. **Speedie** appeared with his red beret and a pair of king-sized dark sun glasses that looked like a pair of locomotive wheels in white frames. Ever the youthful Swiftie. Nice going men! Unfortunate last minute cancellations hurt us: Larry Landers, Pop Wood, Reggie Foster and Ed Sullivan were taken suddenly sick. **Wink Howlett** was on the West Coast visiting his grandchildren; **Doug McMurtree** and **Boots Malone** had not yet returned from Florida (ah, me!); **Bur Swain** willed us all a very good time and **Loring Hayward**, Taunton wrote: "My progress is slow. I appreciate the 1915 cards but better not venture out. It would be a long crawl back to Taunton, and I am liable to have to try crawling. My legs seem to be filled with rubber and give out on short order. I got fairly well and seemed to be coming along all right but had a relapse the other day and need to start all over again on staging a recovery, which I will try to do!"

In line with our established dinner policy, there were no speeches. **Frank** said a few words about class spirit and interest carrying on from the old days of 1915. **Al**, in his inimitable way with poignant humor described the Class Cocktail Party to be held, traditionally, on Alumni Day. Top billing for the evening went to the gifts: **Jac Sindler** gave a package of assorted colored cocktail picks and cardinal and gray cocktail stirrers suitably embossed with the M.I.T. seal. **Max** presented a rubber band book carrier and book mark and a pocket memo book with calendar. And that good **Pop Wood**, unable to attend, sent

his check for the dinner and some do-it-yourself quick shoe shine and hand wash packets. All these gifts were enthusiastically received. Pop Wood wrote: "I am very sorry I cannot be with the gang at the Class Dinner, but I am enclosing my check and thinking of the poor (old) soaks who tax the class treasury for more bottles than they should. So the degenerates can have my share. However, I am not certain of the correct amount." . . . **Sam Eisenberg** eased that class treasury and tickled our palates by supplying a tasty rosé wine with our dinner. I had made a scrap book of old class memorabilia from which I read and showed pictures of humorous and hauntingly nostalgic doings from our dim distant past. The old Class Dinners at 98 cents, then increasing way up to \$1.50 certainly were in contrast to our present inflated costs. The loyal spirit has carried on for many years and has kept us all close together with an interest in M.I.T., in 1915 and in one another—long may it wave!

If you and your families are going to be in Northern New England this summer, be sure to stop at **Wayne Bradley's** Forty Acres Inn at Pike, N.H. He has everything there to make you comfortable and happy. Fran and I have been up there and thoroughly enjoyed it, and we feel sure you would, too. Fran and I are sorry not to have been with you at our Class Cocktail Party on Alumni Day. We did not really run out on you and truly missed being with you all. But the New Haven **Maconi's** and the Bronxville **Coldwells** sold us on a North Cape cruise that each couple had taken last summer. The only booking we could get was on June 9 on the 'Oslofjord' so we just had to go then. We'll tell of our experiences in the November column. . . . Under the able direction of **Al Sampson** and **Barbara Thomas**, we know everything must have been superbly set up and that you all enjoyed the usual gay time at this annual Class Party. See you there next year! I spent the night of one of our raging New England blizzards in February at Bea and **Charlie Norton's** house on Martha's Vineyard. They are both doing fine down there. Charlie is the moderator of the Chilmark town meeting, and you can just see how thoroughly and meticulously he handles his town meeting members and voters. . . . **Bill Campbell** has retired to his ancestral estate in Manchester, Vt. This is a farm of several hundred acres of beautiful hilly, wooded land which has been in his family since 1794. The house was built in 1824 with an addition later around 1850. It is the only working farm in that area. Bill has spent a great deal modernizing the house and has made it into a lovely, comfortable place. It is full of priceless Americana. He is a great student of the Revolutionary and Civil Wars and has an extensive old library on these histories. His ancestors fought in both wars. Fran and I spent the weekend of the middle of April up there with Bill and ran into three days of cold weather with snow, sleet, hail and rain. We hugged the fireplace and the bourbon.

Supplementing the letter quoted below from Los Angeles, **Ray Stringfield** and his bride spent an evening with Fran and me. We were delighted to meet this charming lady, whom Ray too modestly described in our November, 1961, Class News. In fact, we might go so far as to say he's very lucky. "In case you were wondering why your ears were burning yesterday, it was because **Elbridge Casselman** and I and our wives were driving around viewing parts of this metropolis and talking about what a wonderful job you do as secretary of our outstanding class. We took them down to Marineland, where we watched the seals and the porpoises perform. Cass is sure a handsome brute with his grey hair and slim 180 pounds. Too bad some of the rest of us have such poor self control, although I pat myself on the back as I've gradually crawled down from 250 to 223. Thirty more and I'll be almost decent. Cass, as you know, is one of the world's authorities on razor blades, and thinks I'm degenerate because I use an electric. Margaret and I will be in Boston the week of April 23, attending the meeting of the Rubber Division of the American Chemical Society and if you and Fran can stand it we'll drop over to see you." . . . Senor Monsiero **Ernesto Lovelando** wrote from LaCoruna, Spain, that he is still driving all over Central Europe fishing wherever he can. He is studying Spanish and French, can read French newspapers and translates Spanish into French. What next? He plans to stay over a year or two longer to visit Austria, Germany and Scandinavia.

It's sad to record the passing of one of our well known and well liked classmates. **Chris Wolfe** died in Brooklyn on April 17. For several years he had had a heart condition. An operation last September taxed his strength, but he seemed to recover successfully. He tired easily and early in April Mrs. Wolfe and he went to Warm Springs, but he did not do well and they returned to Brooklyn on April 14. Chris had attended every five year reunion and every New York City class dinner and had always been a liberal and loyal supporter of all class and M.I.T. affairs. Chris owned and operated a very successful business in Brooklyn making large, heavy specially-designed steel sections like the gates for the St. Lawrence Seaway Locks, tanks, hatch covers for cargo ships and other similar products. We'll all miss him and we send our sincere sympathies to Mrs. Wolfe. . . . So, here endeth the column for this year, with the friendly wish that all you classmates and your families enjoy a healthy, happy and successful summer. Many thanks to you for all you've done to help Azel.—**Azel W. Mack**, Secretary, 100 Memorial Drive, Cambridge 42, Mass.

## '16

In late April and early May we received three postcards in a row from you'll-soon-know-who, that read some-

thing like this: 1) from Davos, Switzerland, a picture of four funny-looking somebodies, entitled: "Wir kommen! Hi, ho; 46th, 1916!" and the message: "will be back at the grindstone the first week in May; in the meantime, a week in Vienna. Ski all finis for the season. Wonderful two weeks here—sun and snow;" 2) from Vienna, a picture of Staatsoper, with the message: "A fine place for an after dinner snooze now and then. All in German but 60-piece orchestra, very fine, gut, sehr gut, see you in June—skiing finis"; and 3) a highly significant card from Rôtisserie Coq d'Or, rôtisserie française in Zentrum, Wien, bei der oper. Specialities: Coq au vin, escargots à la bourguignone" (oh boy, those escargots! Ed.), and bearing the message "I sat at Table 16!" Yes, you guessed it—our own **Ralph** and **Sibyl Fletcher**, rounding out another season.

The 46th Reunion has come and gone, held at Chatham Bars Inn in Chatham, Cape Cod, June 8, 9, 10, and a report of doings will be given in the first issue next fall, November. As we write this (early May) it appears to be a well-above-average-in-attendance interim reunion. The following names appeared on the likely list, some with a Mrs., and others without: Barrett, Best, Berke, Brophy, Burbank, Claussen, Dodge, Drumme, Evans, Fletcher, Freeman, Guething, Hastie, Hatch, Jewett, Lawrance, McDaniel, Mellen, Page, Patten, Richmond, Stern, Stone, Ullian, Webster, Whitney, and Wilson. A number of the notes-of-regret are of interest. **Marcel A. Gillis**: "Sure would like to be there;" **Emory L. Kemp**: "I note that we are only about 50 miles south of **Stew Rowlett's** new home; we are remaining here in Florida until May, 1963, and then, God willing, we shall attend the 47th and spend a month with our children;" **Howard A. Hands**: "Sorry, Ralph, I don't get back up North in time for these things;" **Charles T. Paugh**: "Not a chance from here;" **Bruce N. Stimets**: "Best regards to you; if I had spare time and no Florida obligations I would be with you;" **Dina Coleman**: "Best wishes, men!;" **Al Pettee**: "Sorry, will be in England;" **Norman Thompson**: "Sorry, Ralph, on account of my wife's health, I can't leave home for a day;" **Gene Lucas**: "We can't make it, Ralph; we are in the process of preparing to move from our present home to a smaller place in Watertown, Conn., only four and a-half miles away; this will tie us down pretty tight for the next few months; we both had a grand time last year; am sure this year will be fine; we will be sorry not to be there; best to all from both of us;" **Dick Berger**: "Trying to write a book dealing with my favorite subject;" **Ted Striely**: "Sorry, hope to next time;" **John Gore**: "Sorry—have engagements I can't very well get out of;" **Charles Cellarius**: "Sorry, not able to get away;" **Norm Vile**: "See you at the 50th;" **Frank Darlington**: "I shall not be on the Cape until too late—next year, maybe;" **Lewis Dow**: "Will be with y'all on the 50th in 1966;" **Vert Young**: "Have trustees meeting at Trinity on 8th and 9th and must stay for commencement this year; sorry to miss the reunion;" **Harry Whitte-**

**more**: "Sorry, maybe next time;" **Ken Sully**: "Kindest regards and best wishes to all for a good reunion;" **Frank Ross**: "Sorry, I'll be out of town." And **Rudi Gruber** sent a card to Ralph from Landau which read in part: "This is the place where I expect to be over the date of the '16 reunion! Being mindful of our delightful get-together with you and your charming wife, I am sorry not to be able to attend this year. This is Landau, the home of the 'Gruber Stamm'; my ancestors were citizens back in the Thirty Years War. Our family estate, The Lindenhof, adjoins 'Bad Schachen.' I am sure you must know this part of Bavaria from your many ski-safaris to Arlberg, Garmish, etc. All best wishes for a successful reunion!"

The **Harold Millses** took off from Mountain Lakes, N.J., in mid-April for a six weeks' auto trip, most of which was spent in exploring and picture-taking in southeast and other parts of Arizona. They carried with them an envelope marked "open exactly at 109 degrees longitude," and we had word that they had read the message "right on the spot, although we couldn't see any line on the landscape. Later we hope to show you evidence of the event." They found the Chiracahaus very scenic, camped there for four nights, then headed north to Monument Valley in the Navajo Reservation. . . . In late April **Bill Leach** wrote that he was feeling stronger every day, and said: "The letters and good wishes I received from the various classmates while laid up during the winter were very much appreciated. After being hospitalized for an operation, then under doctor's orders for rest in bed most of the time with medication, I feel like the southern woman who was having a medical check up. When the doctor asked her if she had ever been x-rayed she answered: 'No sir, doctor, but I've been ultra-violated!' The report of **Irv McDaniel's** trip up the Nile River was exceptionally interesting. I enjoyed it while in the hospital in Houston and the nurses did also." Bill says that if possible he and Helen will make the 46th on the Cape. Unfortunately, his 1914 Class Reunion and "C" Dinner of the University of Chicago comes on June 7. He says he wants to negotiate for some sort of recognition of the 1913 football team who were "Champions of the Western Conference that year and rated number one nationally." Bill played right guard. "There are only 5 or 6 of the 15 lettermen left. As you see, times have changed. Now they have a hard time to thin the squad to 80 or so, and also find room for the shiny convertibles to park."

**Norm Vile**, from way down in Tavernia, Fla., (look it up in your atlas) sent us a nice full letter but then told us just what we were permitted and not permitted to quote. And that's the way it is! But it's good to hear he is "retired, happy, and healthy, and has attended all reunions in spirit and a few in person." Says he's living in a very wonderful climate and area, "the Florida Keys, and on the shore of Florida Bay." (As we said above, look it up in your atlas; this is a part of our education as a secretary!)



Norm winds up with: "Plan to see 'you-all' (that's Deep South) at the 50th and with the approval of 'Upstairs' the 60th. Beyond that my crystal ball seems a bit cloudy."

Not every secretary has a chance to publish a war correspondent's message written directly for his little old column, so now, that we have one such from **Irv McDaniel** in Rangoon, we just can't resist. This is just the way we got it: "Flash! Exclusive! Special Report from our Famous War Correspondent, I. (Intrepid) B. (Battlescarred) McDaniel. Special wire: Rangoon, March 3. Hello folks. This is Intrepid Battlescarred as my many and affectionate readers love to call me. I recently wrote to the President that whenever our country was in peril or danger, you will always find a McDaniel answering the call. Today was no exception. I was returning from an inspection trip in the North of Burma, looking over the New Burma Road, and returning to Rangoon. We had just passed the quaint village of Pegu when I noticed convoy after convoy of armed soldiers. I love to joke and I said jokingly to my guide: 'The war is on.' My guide explained that those were just war exercises. With my extensive experiences I knew otherwise and prepared for the worst. When we came to the airport, there was considerable commotion. Everyone asked me if I had heard all the shots and shooting. They didn't know that I had had both of my eardrums shot out years ago so naturally I had heard nothing. When we passed the prime minister's house (Mr. U Nu) there was considerable activity. We rushed to our hotel, the Strand, and there my staff informed me that there had been a coup d'état, that U Nu was in jail, all the airports were closed, that the back country was tense and jittery, that Mr. Harriman would not be allowed to land, and there would be a big putsch that evening. I got chicken! It took hours to commandeer an auto and all the way to the airport we huddled in the bottom of the rear seat. When we got to the airport it was ringed with armed soldiers with fixed bayonets. We got the first plane out. Now that we are safe, I can assure you that I was not really scared; I was only worried about the safety of Katharine (she's my wife). As we say in the newspaper game, that's 30. Intrepid B." How's that for a scoop?

Irv continues his absorbing account of the McDaniels' visit to the Near East and Far East, the most recent stories coming from Japan. His newspaper clippings and comments about a proposed canal across Thailand's Kra Peninsula are things to read and absorb at the reunion. His reports on night clubs in Penang and Singapore—how shall we put it?—are also perhaps best for reading up in Chatham. If this column were only a month earlier, we could promise something of an education for those who attend; sorry these notes are too late for advance notices. One of the earliest items we received from Irv in Japan was a letter from Oshima which started off: "We have really gone native; we are off on an island that very few tourists have ever heard of. They have an active volcano (Mt. Mi-

hara) and it is the original home of the camellia. They grow here wild and are trees. Also thousands of wild cherries here in full bloom; we saw one cherry tree over 800 years old. The virginal camellias in the U.S.A. (Mobile, then Charleston) probably came from here." Irv included a card showing the top floor of the tower of the Atami Castle, Shizuoka Prefecture, Japan, with the message: "Almost back in tourist country. There are four Australians, two British, two Americans and ourselves. This is a beautiful and unspoiled place. I notice that if the girls have the equipment they wear sweaters in lieu of kimonos. About 10 per cent at the most (nearer 5 per cent) wear sweaters. Me? I prefer kimonos." In a letter dated Easter Sunday, Irv says: "Japan gets better every day. We have been seeing the real Japan, away from tourists, and we are curiosities—Itsukushima, Ogori, Moji (now on the Island of Kyushu), Beppu, Oita, Kumamoto, Aso, Misumi Shimabara, we loved Nanpuro, then Unzen, and then here Nagasaki. You will be surprised with my reactions on Japan." Irv asked Ralph for full information on the reunion, for he and Katharine planned to attend—all the way from California. And by the way if anyone wants to send a few thanks directly to Irv for all the wonderful material he has sent to the column, he can be reached at 520 Magnolia, South Pasadena, Calif. He has certainly kept us interested for a good many months. We can only look forward to what's next!

**Lee Jones** mentioned in an April 17 letter that **Ted (Moose) Jewett** got home from his Florida recuperation "about two weeks ago." Said that in upper New York State they had been having more "bum" weather since Moose got home "than in all March, but it can't last forever. He has a nice place in the country to go to as soon as it warms up." . . . **Bob O'Brien** sent us a fine complete report of the annual 1916 Boston Dinner at Joseph's Restaurant on Thursday April 12 with the following in attendance: Messrs. Berke, Comiskey, Crosby, Fletcher, Hunne-man, O'Brien, Patten, Richmond, and Ullian. Before the dinner Bob had the report from Mrs. **Woods** that **Jack** was making good progress, and were he able to come to the dinner he would drive from Cohasset himself—a real sign of progress. He had apparently much appreciated the many letters he had received from '16ers during his illness. Bob also reached Mrs. **Duff** who reported that Dr. **Paul** had that very day returned home from a four-week stay in the hospital—food poisoning—and loss of 25 pounds in the seige. With some complete rest he would probably soon be back on a normal routine (a pretty heavy one, if we know Paul!). Bob reached **Nat Warsaw** and reports he is "working regularly, but it was too long a drive too late at night to and from Hull." **Steve Whitney** didn't make it because of a trip to the New England Deaconess Hospital in Brookline. We had word he was back home in May and we know the chances are high he'll be at the reunion. Here are Bob's interesting observations on the Boston dinner: "**Izzy Richmond** is

still piloting his own (rented) plane, even going in with the big boys at LaGuardia. Recently he flew to Martha's Vineyard and for the first time his wife flew with him. Now she is looking forward to many like trips with hubby as chauffeur. Izzy looks great, as testified by the fact that at his recent physical for renewal of his pilot's license, the doctor questioned the date of birth Izzy entered on his application, then just couldn't believe 1893 was correct! On the very day of the dinner, Izzy had spent two hours at a local ice skating rink taking lessons in dancing on ice skates. When Ralph Fletcher heard that, he suggested that Izzy had better watch out, that skating is a very dangerous sport, much more dangerous than skiing. To those present Ralph continued to be an amazing individual because of his continued skiing. **Steve Berke** looks well even though he had that recent attack. Because of his diet he didn't eat with us but was with us for the entire evening. He's just as sharp as ever, and kept prepping Ralph on the importance of the speech Ralph will have to give at the 50th Reunion." Bob mentioned that **Dave Patten** had to take some ribbing because of his poetry, and that "Dave told us about one of the companies in which he has invested which drills down through the earth's crust to a point where extreme heat and steam is reached" and as Bob understood it, this is used to make electricity. Our thanks to Bob for a good report!

Further, from Dave Patten, a note explains at least something about prior systems of causes as he admits writing that poem in the Boston newspaper: "You must have scouts reading the papers for you. I'm guilty of the 'Merrie-Go-Round.' Must be my grandmother's inheritance from her father Major David Longfellow whose forebear Stephen was also the ancestor of Henry W." . . . **Len Best** keeps busy as chairman of the New Jersey Committee for School Support. He was the opening speaker at recent hearings of the New Jersey Commission on Tax Policy. And on May 11 he was to talk to the N.J. Association of C.P.A.s on "Broad Base Taxes." He says his son, Richard, has been selling Best Pencils now for some time working in the metropolitan area, New Jersey, and Eastern Pennsylvania, and has a son three months old—the eighth grandchild for Len. Also says his daughter Beverly was married last June and is now a teacher in the New Providence, N.J., schools. . . . **Henry Shepard** had a double conflict with the 46th Reunion. His youngest son was getting an M.I.T. doctor's degree in mechanical engineering on June 8, and his famous nephew, Alan Shepard, was coming north for a big celebration to be held June 9 in Derry, N.H. Henry notes: "As of January 1, I gave up all but one of my sales accounts and now consider myself semi-retired. I kept one line to keep myself occupied if I started to wonder what to do next. As things have worked out, I am busy all of the time with family, business affairs, travel, and the restoration of the 1910 Cadillac. No, it is not finished yet but should be on the road this summer. My 1914 Stanley

won first prize for steam cars in this region last summer. Grandchildren? Two grandsons and four granddaughters, all near enough to visit us and to enjoy."

**Don Webster** answers a call for news with: "I hasten to reply. I am a news gatherer for my Tech fraternity for 10 classes so I know something of the cross you so blithely and willingly bear. Nothing much new with the Websters and their four sons, wives, and kids. We had a wedding in January, our youngest son Philip to his charming German sweetheart, Irmhilde. Very gay! 'We' had an operation in February and recuperation in March. Now to reward ourselves for being good soldiers we're off for a three-week Mediterranean cruise. Then back to Cape Cod to loaf, dig clams, catch fish, and do some more philosophizing."

... **Russ Lowe** wrote in March from his retirement haven, St. Lucie Village on the Indian River, and says this past winter has lived up to all the claims of the chamber of commerce—cool nights, perfect for the out-of-staters who are there by the millions to escape the ice and snow. Says his little colony was started by yachtsmen who sailed there long before there was any form of land transportation. He notes: "South of the colony there was nothing but a few fishing villages who were supplied by a sailing store that also carried the mail. Since the Indian River ended at Jupiter, the mailman walked the beaches to complete his task. A rather famous book, 'The Barefoot Mailman,' deals with his trials and tribulations. How did we find this very old and beautiful location? That is a long, long story." Maybe Russ will tell if you insist! His address: 110 Yacht View Lane, Fort Pierce, Fla.

Our thanks to **Theron Curtis** for kind remarks. He says he's completely retired now, that the Curtises live a quiet sort of life between their homes in Barrington, R.I., and Falmouth, and that with seven grandchildren and three of them nearby, they can occasionally babysit and make themselves useful. At April's end, Theron expected to have his "motor boat in Vineyard Sound waters near." Says he's worried about things but is not sure as to timing. "Hooray for Goldwater!" ... We have a dossier on **Tom McSweeney**, abstracted from a stenographic record of Tom's appearance in a land damage case in Massachusetts for which he was an expert witness. He was project manager for E. J. Rapolli Company (Cambridge, Mass.) in World War II and built a building at the Watertown Arsenal, built the airfield at the Squantum Naval Air Station and three of the buildings in the Hingham Shipyard. Since 1942, he has been operating his own group, Thomas F. McSweeney Associates, in general engineering work. He has testified in the Superior Courts of the Commonwealth of Massachusetts as an engineer for the Commonwealth of Massachusetts, the City of Boston, City of Brockton, Lowell, Lawrence, Methuen, Somerville, for the Massachusetts Turnpike Authority, for the United States Navy, and for the Department of the Army.

**Blythe Stason**, as retired dean of the

Law School of the University of Michigan, has a specialty that doesn't let him really retire. In a letter in late April, Blythe writes: "Since last summer I have made two trips to Japan, one in September in the interest of a series of conferences on World Peace Through Law, under the sponsorship of the American Bar Association, and the other in December, a Japanese venture in the peaceful uses of atomic energy." The latter was at the request of the Japan Atomic Industrial Forum, and under the auspices of the Japan Fund for Peaceful Atomic Development. He delivered lectures and engaged in conferences with respect to some of the unique legal problems of atomic energy. He notes: "The lectures and conferences dealt with diverse but interesting groups of people: faculty members, industrialists, college students, and even high school students. My wife and I became very adept in handling chopsticks and sitting on the floor at Japanese style banquets, very lovely affairs, by the way. More recently, in fact early in April, my wife and I went to Rome where I participated in another World Peace Through Law Conference. So in one way or another we are keeping the time well filled with interesting events." ... We regret to report the death of **John S. Breaker** last November 23. A letter from his daughter, Mrs. Earl G. Thomas of Corfu, N.Y., mentioned he had wanted to attend his 50th high school reunion last June in Northampton, but a coronary condition prevented. ... We also regret to report the death of **Dr. George P. Paul** on March 24, in Kitchawan N.Y. He received a master's in public health (MPH) degree in 1916.

We have an uncomfortable message from the executive committee of the class. It comes down to asking each and every one—Have you done your something for the Second Century Fund yet? On May 1, the number of '16ers contributing to the Fund so far was sharply less than for Classes 1915, 1917, and 1918! We have fallen far behind in numbers at this critical period—way behind contemporary classes, and this just shouldn't be. If you have delayed, the time to bolster our record is now! ... This closes the column for the current season. A full report of the 46th Reunion will be given in November. Many thanks to the many who have helped to make the secretary's job a pleasant one by sending letters or cards this past year. The generous response to requests has resulted in generous Class News. So just keep it up; we'll be proud to receive more of the same. And now the best wishes of your officers for a good summer and that special vacation you've been talking about.—**Harold F. Dodge**, Secretary, 96 Briarcliff Road, Mountain Lakes, N. J.; **Ralph A. Fletcher**, President, Box 71, West Chelmsford, Mass.

## '17

The July issue of Class News, written in May, always seems in the nature of an anti-climax to the year's activities. It will

be particularly true this year, when, by the time you receive this copy of The Technology Review, our 45th Reunion and the 1962 Alumni Day at M.I.T. will be a matter of history. For those who were not privileged to attend the reunion at Cape Cod, we promise a complete account in the first fall issue of The Review in November. We would also appreciate letters from those who cannot attend to supplement "the reunion chatter of pleasant reminiscences" which can be included in the November Class News as suggested in the letter of April 16 sent to each member of the class by **Ray Stevens**. ... **Bill Hunter** explains why he was not at the reunion: "For the past several months, I have been waiting for the Company (Diehl Manufacturing Company) to make a decision as to where I will be located, and that decision has now been made. I am supposed to leave the United States sometime before June 1 and live in Zurich, Switzerland, for the next two or three years. The company is sending me over there to organize an intensive sales effort in the European countries. Both Doris and I look forward to our new assignment with much pleasure. But our pleasure is mixed with some regret because we will miss the reunion." ... **Dean H. Parker** is keeping busy as follows: "I reached the age of compulsory retirement in May, 1961, and had to retire from the Allied Chemical Corporation. I have been keeping as busy as I want to be since that time as a technical and marketing consultant in the pigment and surface coating fields and am still connected with the Chemical Engineering Department of Wayne State University in Detroit as a special lecturer in surface coating technology. I see that Ralph Ross is claiming the class championship with 21 grandchildren, but maybe we are in second place with 18. We have triplet grandsons, however. Can anyone beat that or tie it?"

**Albert J. Ferretti** explained why he was not at the reunion with the following: "I will be unable to attend the 45th Reunion as I will be in Colorado at that time. I retired from the teaching field at Northeastern University in June 1961, and am enjoying the new life immensely. I can't seem to find time to do everything I plan as I find plenty of projects, mostly charitable, to dip into." ... The St. Johnsbury and Burlington, Vt., newspapers ran several columns in mid-April announcing the appointment of **Ralph H. Ross**, by Governor F. Ray Keyser, Jr., to the State Highway Board. This adds one more to the growing list of Ralph's retirement activities of a civic nature. ... Mrs. **Austin Kuhns** advised us recently of the death of her husband on April 19. After graduating from Wesleyan University, Middletown, Conn., Austin spent 1916 and 1917 at M.I.T. and received his S.B. in Course X-A. He spent two and one-half years in the army and was discharged in 1919 as first lieutenant 29th Engineers. In the early 1920's he joined the Farrel Birmingham Company, then known as Farrel Foundry and Machine Company. He continued with this company until his retirement on April 1,



1959. Prior to retirement he held the position of senior vice-president and chairman of the finance committee. His home was in Bridgeport, Conn.

**John R. Coffin** died on May 9 in New York while returning from a Texas business trip. John had continued as a consultant with Jackson and Moreland, Boston engineering firm, after his retirement as president last January. He joined Jackson and Moreland in 1921, became junior partner in 1943, vice-president in 1953 and president in 1960. He worked actively in the planning, design and construction of many important projects, including major railroad electrification programs, numerous large generating stations and the promotion of peaceful uses of atomic energy. He served for 15 months in France in World War I, eventually as a pilot with the 104th Aero Squadron on infantry reconnaissance over the Argonne for which he received an Army citation. . . . General **Leslie R. Groves**, who received the Distinguished Service Medal for his work as head of the Manhattan Engineer District, in charge of the research, development, construction and use of the atomic bomb in the early 1940's, has just published a book, "Now It Can Be Told" by Harper Brothers. Many will want to get this book and learn about the many problems faced in developing the atomic bomb.

In case **Ray R. Gauger**, owner of Gauger and Associates, Architects and Engineers of St. Paul, Minn., did not get to the reunion, you will be interested in knowing that he is training his two sons to follow in his footsteps. The oldest son is with his father as a registered mechanical engineer, and his younger son is in college working for a degree in architecture and engineering. . . . A report from M.I.T. headquarters of the Second Century Fund shows that as of March 16, 1962, ninety-one 1917'ers have contributed to the fund. . . . The monthly class luncheon on May 10 at the M.I.T. Club of New York produced nine members of the class. The guest of honor was Bill Hunter, whose move to Switzerland is recorded in the earlier paragraphs of these notes. Others present were: **Gus Farnsworth**, whose long absence from class luncheons cost him several rounds of drinks; **Dix Proctor**, M.C. of the luncheons, recently returned from a two month's Mediterranean cruise and planning another next year to the North Cape; **Enos Curtin**, busy with his many charitable supervisory jobs plus the big one of managing the construction and business arrangements for the building to rise over the New York Pennsylvania Railroad Station; **Bill Sullivan**, recently returned from a winter in Arizona, Mexico and Southern California, with loud praise for Death Valley as a spot to be free from winter respiratory ailments; **Joe Littlefield**, the proud possessor of pictures of his two-and-one-half-year-old son and his five-year-old daughter, and up to his ears in running the Research Foundation of the Controller's Institute; **Bill Neuberg**, up from Florida after several months promoting a new product; **Dick Loengard**, who doesn't like the jokes that appear in the Class News; and

your Secretary, who needed material to fill out this last issue of class notes until next November. Out of deference to Dick, we'll suspend the customary joke for this issue.—**W. I. McNeill**, Secretary, 107 Wood Pond Road, West Hartford 7, Conn.; **Stanley C. Dunning**, Assistant Secretary, 1572 Massachusetts Avenue, Cambridge 38, Mass.

## '18

When a man really stops working he begins to rust, and when he stops every form of singing, he is likely to begin to curse because then he sees shadows which have no validity. If asked why he doesn't retire, **John W. Kilduff**, who is president of the Amesbury Metal Products Company, will tell you that life would then hold less of a challenge. He doesn't want to get up in the morning and not know what to do with himself. . . . On the other hand, for those who sing—or at least make some kind of music—there are real joys and definite self-fulfillments in retirement as well as adequate areas of work. **Harry U. Camp** reports that "After living in Reading, Mass., for about 40 years, during which my efforts were principally concerned with electrical contracting, it is nice to be retired and free of any sense of urgency. We built a lovely home in Southampton (not too far from Smith College in Northampton) to which we moved last December. I keep up the musicianship which has been such a source of joy to me all my life. We have a 40-foot music room in the house and a nice organ. This is professionally useful too, for I have several organ pupils in addition to serving some neighboring church occasionally as a supply organist. I've lived a modest life, never making much of a stir in the world and never piling up sizeable amounts in the bank. On the other hand, we managed to bring up three nice children, to give them good educations, and we now rejoice with them in our six grandchildren. If any of the brethren are ever out this way we would welcome seeing them. It's only a small town and Brickyard Road takes off from the College Highway (Route 10) right at the railroad crossing."

The 1915 Tech Show is still singing in the hearts of many as is further testified to by the following communication from Carole A. Clarke, Secretary of the Class of '21. He encloses a clipping about **Charlie Tavener** (see below) and goes on to say, "That was an interesting story about the Tech Show you ran in the May Review. I too was in the orchestra—violin. No mention is made of J. Paul Gardner, '17, the wonderful dancer, unless he is the Joe Gardner who is mentioned; or the beautiful 'girl'—Johnny Coldwell, '19. Were you around when one of our eager beaver thespians miscounted his steps walking backwards towards the footlights at the last performance on the little stage at the Somerville Theater? He backed right over the footlights into the orchestra, breaking a cello and messing up all the music stands

in that area so we practically had to do the rest of the show from memory? A number of people in the audience remarked later that it was so realistic they couldn't see how we had managed to get the effect! Being a good trouper, said actor told us to boost him back onto the stage, disheveled but unbowed, whereupon he picked up a red bulb that had been knocked out of its base but not broken, and tossed it into the wings with the aside: 'Hmm, red light district of Somerville!' Boy, if a book had been written on the real human side of Technology, entitled, say 'Why Tech isn't Hell!' wouldn't it have been a humdinger for the Centennial!" While we're at it, let us also recall the time **Ralph Mahony**, taking the part of a girl in the pony chorus, got too close to the curtain as it went up for a curtain call, and whoops! Guess what got lifted up with the curtain! As I recall, it was at Smith College where Ralph thus made history while others were merely scurrying on stage to take a bow. Again, some thought it was done on purpose by some cunning series of undetected signals. For shame!

Now about Charlie Tavener. He got several sticks of type in the Newark Evening News of May 1 because, as chairman of the West Orange Technical Advisory Committee, he became involved in a vital and dramatic campaign issue. It seems the two aspirants for the high office of mayor were in dispute as to whether the new East-West Freeway should be elevated or depressed. The paper reports that Charlie said, "According to the latest highway department maps, the freeway will emerge from a deep cut in First Mountain to an overpass at Prospect Avenue. Continuing west for 600 feet at an elevation ranging from 10-30 feet, the freeway will then run for 1,000 feet at approximately grade level" and so on, in the mystical reverberations of engineering detail, practically all the way to Newark.

Among the few who will never stop working with rare patience and maturity of spirit is **Bill Foster**. Because of his efforts the rest of America, as well as all his classmates, can sing with lighter hearts. This current lyric of exhilaration and hope stems from his television appearance on April 27 during which he discussed the mutual fears and risks nations think will attend the dismantling of our weapons system. It was also his 65th birthday. As the first man to head a disarmament agency for the U.S., he said he hoped that after his group finished their work no other would be necessary. For the last three years, reaching farther back than his present appointment, Bill's attention has been focused on negotiations seeking to end nuclear explosions. Up to the spring of 1961 he felt an agreement with the Russians would be reached. Then their attitude toward international controls suddenly changed. However, the charge that inspection would constitute espionage was not true because the international commission would go only to the locations of the instruments designed to reveal whether an atomic explosion had been set off. Bill pointed out that scientific, psychological,

sociological, and economic questions are involved in disarmament. The tests are such a burden on the economy that their discontinuance for financial reasons alone is in the interest of both sides; but in spite of that the terrible cycle does and will continue until both sides reach a point where their fears and suspicions are overcome. The need is for an honest, realistic plan which convinces everybody there can be no clandestine testing. This is impossible without effective, peace keeping and dispute settling machinery involving a new climate of worldwide political structure which supports an international police force and a trusted international court. With his unmatched judgment of the problems involved, Bill hopes for a progressive system of disarmament. First, a three year beginning of reduction in arms, followed by appropriate inspection so we can go on to stage two: another three years involving more of the same. After that appraisal, the final stage to complete disarmament would be of presently indeterminate length. Bill concluded his remarks with words of praise for the recent 18-nation conference in Geneva. Progress was improved because of the moderating influence of the non-aligned nations. Here was a worldwide concern functioning at the level of disarmament negotiations. Thus can united nations (with either small or capital letters) serve as a stimulus toward peace. If only the possibility of terrible destruction in the world can be terminated, a lot of high class brain power can turn to more constructive objectives than war.

Among those achieving a variety of mixtures between work and song are George O. Ekwall, Max Seltzer, Phil Dinkins and yours truly. **George Ekwall**, now archdeacon of the Episcopal Church for northern Massachusetts, preached in Fall River on March 25. He was a delegate to the last Anglican Congress, has served as a deputy to the Episcopal Church's general convention and as a member of the Joint Commission on Theological Education. . . . On April 6 the Geigy Chemical Corporation, Ardsley, N.Y., announced the election of **Philip M. Dinkins** as a director. . . . About that same time **Max** and **Selma Seltzer** were in Spain. They had already been throbbingly alive in Amsterdam, Paris, Lisbon, and Madrid. From Seville they went to Cordoba and Granada, thence to the chateau country of France and finally home, pondering the meaning and implications of all they had seen. . . . Your scribe worked in the garden a little this morning, filled with the fierce determination to do some physical work, and with a warm glow of song for that much renewal of life. On January 24 I came down with mononucleosis, the fourth person in United States medical history to have the darn thing after the age of 65. It is a horrible disease with a cruel depletion of all energy. Recovery involves weeks and weeks in bed (two months for me), and a lasting reminder afterward which may not disappear for a year. Most people get hit under the arms or in the glands of the neck. My tantalizing memento is unsteady legs. You'd

think I'd been through a mild case of infantile paralysis. But so far, in spite of the treachery of unresponsive muscles, I will not use a cane! Just wait till next October—I'll race you! . . . **Tom Fogarty**, who retired to Winter Park, Fla., some time ago, will neither work nor sing again. He died on March 4. No further information presently available. Belatedly, I also have the meager news that **Alexander S. Butler** died last November in Oakland, Calif.—**F. Alexander Magoun**, Secretary, Jaffrey Center, N.H.

## '19

News has been received of the retirement of **John M. Erving** from the factory Insurance Association. At the time of his retirement John was inspector supervisor in the New England Department. . . . We regret to report that **Elliot D. May** has been in the hospital with a slight stroke. He has been working at Newman Machine since 1955. . . . **George Michelson** of Brookline has been elected a member of the Board of Governors of the American Association for Jewish Education. This is a national service agency for co-ordination, promotion and research in American Jewish education. . . . Another member of 1919, **Bernard S. Coleman** was recently presented a plaque by the Los Angeles Chamber of Commerce as the local business man who has done the most to promote public health during the past year. . . . New chairman of the board of the Foxboro Company, Foxboro, Mass., is **Benjamin H. Bristol**.

A long letter from **Arklay S. Richards** tells of his activities during 1961: "Last year was a fun year like '58 with a couple of months motoring through Europe on business and pleasure in the spring and two months in California in the fall, partly with my daughter in Los Angeles and with Mary's family in Sacramento. The highlight of this our third trip to Europe was living with a German family of four while attending the Industrial Fair at Hanover. An exceptionally fine group of people who made our stay very pleasant. . . . I still play tennis four times a week the year round." . . . Mrs. Smoley and I left in February for a trip to the West Coast which, incidentally resulted in no class notes for two months. We drove west as far as Fort Wayne, and then south to Houston, Texas, stopping at Tucson and Phoenix before we reached California. We stayed for a month in San Francisco, where one of our daughters is living and returned via Route 66. It was a long trip but most interesting, and I think we both agree that the Grand Canyon was the highlight. I expect to be in Scarsdale for some time now, so please send lots of news for the class notes. . . . The following changes of addresses are reported: **Ellwood H. Aldrich** from Bala Cynwyd, Pa., to 348 Coconut Palm Road, Boca Raton, Fla.; **Francis T. Coleman** from New Bedford, Mass., to 72 Chestnut Street, South Dartmouth, Mass. . . . We regret to report the death of **William M.**

**Murphy**, Milton, Mass., on October 21, 1961, and also **Bertram H. Southwick**, East Lynn, Mass., on January 25, 1962. —**Eugene R. Smoley**, Secretary, 30 School Lane, Scarsdale, N.Y.

## '20

Since the closing date for these notes is in advance of Alumni Day, all I can do is predict that we shall have had the usual rally of the faithful plus one or two whose faces haven't been glimpsed hereabouts for quite some years. When we have 20 men of '20 on hand we consider it a success, and it's surprising how regularly we equal or exceed that number. . . . **Norrie Abbott's** listing in his class letter of the past class reunion locations brought back pleasant memories, and I am sure was appreciated by all of us who have attended. I tried to recollect how many men and which ones besides **Norrie** and myself were present at every single one. What with the great depression and the war, not many, that's for sure. Among the longtime loyal dependables, one thinks of **Al Burke**, **Flossie Buckland**, **Karl Bean**, **Buzz Burroughs**, **George Burt**, **Warren Chaffin**, **Buck Clark**, **Herb Fales**, **Herb Federhen**, **Dick Gee**, **Jim Gibson**, **Al Glassett**, **Pete Lavedan**, **Jimmy Moir**, **Johnny Nash**, **Bob Patterson**, **Dorothea Rathbone**, **Chuck Reed**, **Pete Ryer**, the **Wason twins**, **Scotty Wells** and **Ernie Whitehead**. Not all of these may have checked in every time but if they were absent, it was for reasons beyond their control. If I've overlooked others equally faithful, and am scolded for it, I'll promise to give them due credit next time. . . . Thinking of the past reminds me of a picture sent me the other day by **Wally Ross**, longtime secretary of the T.C.A. and still going strong as financial secretary of the Student Christian Movement in New England. The picture appeared, if I am not mistaken, in the issue of *Technique* that came out our senior year. If you still have your copy take a look at page 281. It's a group picture of the M.I.T. delegation to the Student Volunteer Movement convention held at Des Moines December 31, 1919. It being a cold, winter day, the boys are wearing their big, wide brimmed fedoras that were the then collegiate style (nowadays there'd be no hats, even if it was zero). Nevertheless, the ease with which you can pick out our classmates is testimony to the distinctive personalities involved. Right away you can pick out **Abbott**, **Reed**, **Kepner**, **Spooner**, **Whitaker**, **McKenney** and **Roman**, intermingled with such well known '21 contemporaries as **St. Laurent**, **Harvey**, **Button** and **Norton**.

**Ted Bossert** recently made an excellent address before a meeting of the New York Society of Security Analysts in behalf of his company, Aluminum Company of America. He discussed his particular specialty, research and development, and made a strong case for the bright future of aluminum and Alcoa. Under **Ted's** able direction as vice-president in charge of R. and D., we would have no doubt that his predictions will



come true. . . . **Ed Burdell** is back from Ankara and, the last we knew, could be reached at the old home base, Cooper Union, N.Y.C. . . . **Jack Coyle** has moved from Fairfield to Norwalk, Conn., 5 Lynes Place. . . . **Ken Roman** has moved into town, 10 Emerson Place, Boston, the glamorous, new apartment skyscraper near the Museum of Science. . . . **Lee Thomas** has his office in the Western Savings Fund Building in Philadelphia. I just caught a glimpse of **El Wason** coming out of his office at 75 Federal Street, Boston, and looking fit as a fiddle. . . . Harking back to Norrie's listing of reunion places and dates, the site of the 1965 reunion has not yet been determined, in case you're wondering. If you have any ideas and suggestions, better relay 'em to **Frank Bradley**, Stone and Webster, 49 Federal Street, Boston. Frank is chairman of the 45th Reunion Committee, and will be pleased to hear from you.—**Harold Bugbee**, Secretary, 21 Everell Road, Winchester, Mass.

## '21

Alumni Day 1962 is now a pleasant memory to be added to that long array of similar happy events of previous years. Chronicling its news items as they relate to the Class of '21 will be accomplished in detail in the next issue of *The Review* in November. Don't fail to join us around the friendly 1921 fireside when we resume meeting here in the fall. . . . **G. Howard LeFevre**, Vice-president of the U. S. Smelting, Refining and Mining Company of New York, is also the treasurer of the American Zinc Institute and was active in the association's recent annual meeting in St. Louis. . . . Adding to last month's note about **Dr. Arthur E. Raymond**, who was with Douglas Aircraft for 35 years, and is retiring as vice-president of engineering, his new duties as special consultant to James E. Webb, administrator of the National Aeronautics and Space Administration, will be directed towards the organization and management of research and development programs, particularly those involving advanced research and system planning. He had previously served for 10 years as a member of the National Advisory Committee for Aeronautics, parent organization of NASA. On retiring from Douglas in 1960 he continued to serve in various advisory capacities for the government in addition to his association with the Rand Corporation as a consultant to the president and also as a member of the board of trustees of the Aerospace Corporation. . . . **Allen D. Addicks** says his new home address is Box 6, Old Westbury, N.Y.

**Henry R. Kurth** was the speaker at the opening luncheon of the North Eastern District meeting of the American Institute of Electrical Engineers, held in Boston early in May. . . . **Robert S. Cook**, **George F. B. Owens** and **George Schnitzler** are in the van of the exodus of Florida commuters making their semi-annual pilgrimage on the northward

tack. **Bob** to his home in Canandaigua, N.Y., and the two Georges respectively to Islip, N.Y., and Boston. . . . The mention of Boston is a reminder that Technology is, as usual, the focal point of a wide range of news in an equally wide range of news media with, for example, the remarkable crew performances reported on the sports pages week after week and the national television pictures of the bouncing of the initials "M.I.T." from the Institute's field laboratory in California to the Lincoln Laboratory at home base, via the orbiting Echo I satellite 1,000 miles above the earth's surface. **Maxine** told us about the latter when we missed seeing it and then **Ellie** sent us the television picture in a news article from a Grand Rapids paper.

**Robert F. Miller** writes from his home in Falls Church, Va., and says, in part: "Our son, **Bob, Jr.**, will end his two-year Army stint plus extension early in May and will then resume his work at the Paterson, N.J., plant of the Continental Can Company. Our youngest daughter, **Jeanie**, will complete her third year of high school this June and **Kathleen** completes her secretarial studies at the same time." The annual high school and college closing and commencement dates of the six Miller children have for years presented a nice timing problem for **Bob** and **Helen** to solve in making their yearly trip to Alumni Day and the old family home in Taunton, Mass. . . .

**Ralph S. Wetsten**, retired illumination engineer formerly with Public Service Electric and Gas Company, reports a new home address at 24 Forest Drive, Springfield, N.J. . . . **Milford P. Graham** says he has moved from Wellesley, Mass., to 33 Carolan Avenue, Hampton, N.H. . . . **Harry A. Goodman** gives his business address as 82 Devonshire Street, Boston 9, Mass. . . . **Oliver Williams** confirms his address as 414 West 20th Street, New York 11, N.Y. . . . In accordance with established Alumni Association procedure, the names of **Charles A. Hill, Jr.**, whose last address was Dorchester, Mass., and **John D. Richardson**, formerly of Billerica, Mass., have been removed from the Alumni Register.

A phone call from Class President **Ray St. Laurent** just before he and **Helen** took off for a seven-week trip to the West Coast, the Seattle Fair, Canada, Alaska and points north, brought the news that **Chick Kurth** had also been a visitor to the West Coast. **Ray** was in Boston, meeting with some of the class officers. For his many friends in the Class of '21, we take this opportunity to express to **Harold E. Lobdell**, '17, our sincere good wishes on his retirement from active duty after 45 years of service to Technology in many major capacities. **Lobby** and **Conchita** will make their home near Mexico City, and we sincerely hope they will return to Cambridge to be greeted on every coming Alumni Day. . . . **Rufe Shaw** is the author of a communication on the steel price situation printed in the *Wall Street Journal*. . . . **Joseph Wenick** writes, in part: "I was very happy to attend another meeting of the Alumni Council at the Faculty

Club on March 30 and enjoyed immensely the talk given by **Dr. Stratton** on the responsibilities and problems faced by the trustees of a foundation; he is identified with two of them. **George A. Chutter** was there, and we enjoyed dinner together. My younger son, **Martin**, has been officially appointed third secretary and vice-consul of the American Embassy in Afghanistan. He will leave for Kabul some time in July. I am certain he will roll out the red carpet for any '21er who has the good fortune to visit that country. I have had the honor of serving as a judge at two recent science fairs, one at Bayonne High School and another at the Jersey City State College." **Joe** has been re-nominated for the 10th successive year as treasurer of the M.I.T. Club of Northern New Jersey. Elections will be held later in the week these notes are being prepared, at a ladies night dinner of the club, which will be addressed by **Doc Warren K. Lewis '05**, Emeritus Professor of Chemical Engineering.

**Elliott B. Roberts** writes from his home, 4500 Wetherill Road, Westmoreland Hills 16, Md., via **Ted Steffian** and says: "The '21 alumni notes end with the injunction 'Please write,' so here goes: After more than 40 years with the Coast and Geodetic Survey, with duty in all parts of the U. S. A., Alaska and the Philippines, I have now retired with the rank of captain. My last duty was as assistant director of the Bureau for Research and Development. My work included the accomplishment of hydrographic surveys and geodetic control surveys, geophysics investigations, administration, attendance in behalf of the United States in numerous international scientific congresses, and membership in many organizations, including the U.S. National Committee for the I.G.Y. . . . In recent years I have done some writing and have published papers and articles on technical subjects. My book, 'Deep Sea, High Mountain,' was published last year by Little, Brown and Company and others are in prospect. I have one daughter and two wonderful grandchildren living in Iowa. I now know every turn of the road from here to there." Thanks, **Elliott**. We recall a most interesting letter from you, post-marked at Dutch Harbor just before the hostilities began which became known as World War II. Meanwhile, we have tried to keep the brethren informed on your excellence in photography and the outstanding record you have achieved as 'Mr. Electronics' of the Coast and Geodetic. Please try to join us in future class gatherings.

**Wallace Kellogg Spooner** of 174 Oak Hill Road, East Auburn, Maine, died on March 21, 1962, and we extend to his family the sincerest sympathy of the Class of '21. Born on February 1, 1894, at Sherman Mills, Maine, he prepared for Technology at local schools. He was associated with us in Course IV and later attended the Beaux Arts School in Paris. During World War I, he served as a private with the 29th Engineers and, on being sent to France, he was assigned to the Topographical Division of the Intel-

ligence Section of General Headquarters of the A.E.F. After the armistice, he served with the American Peace Commission. He had been an architect with Densmore, LeClair and Robbins and later was on the staff of the Alonzo J. Harriman Corporation, architects of Auburn, Maine. He was a member of the Masonic Lodge and the Congregational Church of Sherman Mills. He is survived by his wife, the former Helen P. Linton of East Auburn; a son, John, of Waynesboro, Va.; a daughter, Mrs. Janie P. Distant of Stoneham, Mass.; and two grandchildren. We are indebted to Mrs. Spooner for aid in preparing these notes. . . . All of your class officers wish you and yours a most pleasant summer. Your secretaries will greatly appreciate hearing from you in advance of our resumption of monthly sessions on these pages with the November Review. Cheerio!—**Carole A. Clarke**, Secretary, c/o International Electric Corporation, Route 17 and Garden State Parkway, Paramus, N.J.; **Edwin T. Steffian**, Assistant Secretary, 376 Boylston Street, Boston 16.

## '22

Notes being written on May 11 may be dull and out of date when this July issue is read, as many of us are certainly looking back on one of the greatest 40th Reunions ever held. We will be thinking of our beautiful accommodations at Swampscott, the wonderful entertainment programs of June 8 and 9 and the final glorious skyrocket of gift announcement to the Institute on June 11. Our main thoughts will be how wonderful it was to see many of our friends and talk of days gone by as well as present activities. Congratulations to those diligent and generous members of the class who made all of this possible. A healthful and happy summer to you all. A great welcome and blaring of trumpets to the new officers and directors and hearty thanks to **Parke Appel** and his gang for the past five years of glorious class history. . . . The latest SCF roster of Alumni donors lists 181 names in the Class of 1922, and they are not all in yet. Hopefully all will have signed up and been counted in the great total on Alumni Day. Congratulations to Don Carpenter, Fred Dillon, Parke Appel and many others for their constructive efforts.

**Edward C. Keane**, vice-president, Fay, Spofford and Thorndike, participated in a seminar on social and political factors in engineering under the title of "Some Problems of Changing a Building Code." . . . Classmates in new locations include Dr. **Lester C. Lewis**, Capitol Apartments, Washington 24, D.C.; **William C. Gilman**, 115 Broadway, New York City; **Charles C. Fulton**, Washington, D.C.; Colonel **Robert Barr**, Cambridge, Mass.; **Fletcher M. Devin**, Fort Lauderdale, Fla.; **Harold E. Koch**, Peawaukee, Wis.; **Duncan R. Linsley**, Fairfield, Conn.; **George C. Maling**, Greenfield, Mass.; **Donald S. Phelps**, Mountain Home, Idaho. The sympathies of our class are extended to the families of

**James B. Arthur**, Houston, Texas; **Dr. William H. Pickett**, Cambridge; **E. Elvidge Taylor**, Berkeley, Calif.; **M. Alfred Ulbrich**, Wellesley Hills. . . . And as a final note may your sunburn and aching muscles received during the reunion cause little trouble. Best wishes from your two secretaries.—**Whitworth Ferguson**, Secretary, 333 Ellicott Street, Buffalo, 3, N.Y.; **C. George Dandrow**, Assistant Secretary, Johns-Manville Corporation, 22 East 40th Street, New York 16, N.Y.

## '23

It is always pleasant to hear of marriages and we have recently been advised that the youngest son, Antonio, of **Bernardo** and **Esperanza Elosúa** was married to **Maria del Carmen Gonzales** in Monterey, Mexico, on June 9. . . . Members of our class seem to be in demand on the speaking circuit as evidenced by the following: **Robert C. Sprague**, Chairman of the Board of the Sprague Electric Company, was the keynote speaker at the Electronic Components Conference held in Washington, D.C., in May. His subject was "New Directions at the Crossroads." . . . **Dr. Miles N. Clair**, President of the American Society for Testing and Materials, was the principal speaker at the March meeting of the Connecticut Building Congress. His subject was "Construction Materials—Tests and Inspections." . . . **William Webster**, President of the New England Electric System and Yankee Electric Company, was the principal speaker at the Eighth Annual American Nuclear Society Meeting held in Boston in June. He revealed the results of operations to date of one of the first completely privately owned nuclear power stations, located in Rome, Mass. He previously had told a joint Congressional Committee on Atomic Energy that the 140,000-kilowatt plant had come closer to being economically competitive with conventional power plants than expected.

Your class officers hope that you all have a very pleasant summer; we will be with you again in the fall. . . . We wish to report the following address changes: **Dr. Robert V. Burns**, Engr. Consultants, Inc., P.O. Box 1010, Bangkok, Thailand; **George I. King, Jr.**, 208 Fernwood Avenue, Upper Montclair, N.J.; Colonel **Fred Lindtner**, P.O. Box 83, Falmouth, Mass.; **Stephen B. Metcalfe**, 572 Oakley Drive, Shreveport, La.; **Paul R. Plant**, Grasshopper Lane, Lincoln, Mass.; **William Stevenson**, 1264 Wood Valley Road, Mountaintside, N. J.—**Herbert L. Hayden**, Secretary, E. I. du Pont de Nemours and Company, Leominster, Mass.; **Albert S. Redway**, Assistant Secretary, 47 Deepwood Drive, Hamden 17, Conn.

## '24

Your secretary had a very pleasant duty recently when he gave **Henry** and **Mrs. Rau** a guided tour of the Institute.

It was the first time Henry had been back since 1948, and that was a very brief visit. He was impressed by all the new structures, of course, but seemed to get the greatest kick out of seeing Walker and his old dormitory again. Henry is in Washington, D.C., where he is president of the Washington Broadcasting Company. . . . There are several new honors to report this month. **Dr. Clarke Williams** has been chairman of Brookhaven's Nuclear Engineering Department for some years. Clarke was a physics professor at C.C.N.Y. before the war, then worked on the Manhattan Project. He has been with Brookhaven Laboratory since its inception in 1946, now becomes its deputy director. . . . **Otto E. Kirchner, Sr.**, Boeing's air safety adviser, has had many honors. The latest is the **Laura Taber Barbour Air Safety Award** for 1962, presented by **Dr. Hugh L. Dryden** of NASA, for "many years of dedicated effort to improve aircraft safety, especially in respect to air transport operations." . . . **Dr. Hudson Hoagland**, executive director of the Worcester Foundation for Experimental Biology and president of the American Academy of Arts and Sciences, is now dabbling in banking. In March he was elected a director of Worcester's Guaranty Bank and Trust Company. . . . The Baltimore Evening Sun reported a forthcoming speech by **Dr. Thomas K. Sherwood** at Johns Hopkins under the heading "Professor Set to Speak." For an old mountain climber that sounds as though Tom is on the downgrade. . . . And the last item has **William H. MacCallum**, movie mogul, elected treasurer of the National Science Teachers Association.

As we were writing these notes, who should pop in the door but **Vin Lysaght**. He was here to donate a new microhardness tester to the Department of Metallurgy. Seems he discovered that M.I.T. was using foreign imports, and since he believes a tester made by his company and in whose design he played an important part is a superior machine, he presented one to the Institute. We noted a couple of issues ago that **Vin's** second son enters next fall as a freshman. Now it develops that his oldest boy, **Vin, Jr.**, has been accepted for Graduate School at the same time, and that his daughter, **Mary Helen**, has leanings in this direction. The Lysaght dynasty is becoming stronger every year. . . . Last report of the monthly New York class luncheon showed a small attendance, but it had competition. Present were Messrs. **Cardinal**, **Forsyth**, **Littlefield**, **Rudd**, **Schooler**, **Scott**, **Tanck**, and **Liebman**. Don't forget, if you're in the city on Wednesday of the second full week of any month, you will be most welcome at the M.I.T. Club in the Biltmore. . . . A note from the Virgin Islands informs us that **Richard H. Walker** is looking it over as a possible retirement spot. He is planning an early retirement for next January. Dick is a member of the executive committee of Fisk University's Alumni Association, his alma mater before coming to M.I.T.

Again we regret the necessity of an-



nouncing the death of two classmates. **George J. Fertig** died in Birmingham on May 7. A consulting engineer for many years, George got around the country quite a bit and became known to many of us who did not know him as an undergraduate. . . . This news is very belated, but we have just been informed that **W. King Flavin** died in January 1959. He was with us for two years, graduating in mechanical engineering. . . . Summer will be here by the time you read this, so here's hoping you have a restful, athletic, aquatic, busy, productive, delightful (choose one, or maybe two) vacation. Don't forget the picture postcards, so we'll have some sort of idea what the members of a class do with themselves in their 38th summer after graduation. Back again next fall. —**Henry B. Kane**, Secretary, Room 1-272, M.I.T., Cambridge 39, Mass.

## '25

It is my sad duty to announce the death of three members of our class during the past month. **Bob Ashworth** died suddenly of a heart attack at his winter home in Fort Lauderdale, Fla., on April 19, 1962. Bob was president and director of Ashworth Brothers, Inc., having succeeded his father as president in 1938. He was widely known throughout the country among textile manufacturers, his company having plants in Fall River, Mass.; Greenville, S.C.; Charlotte, N.C.; Atlanta, Ga.; Winchester, Va.; and Granby, Quebec, Canada. Bob was active in very many organizations, being a member of the M.I.T. Club of Fall River and serving on the executive committee of the Southern New England Textile Association. He was vice-president of the Southern New England Textile Club, and a member of the Northern Textile Association, American Cotton Manufacturers' Institute, the Alabama, Georgia, and North Carolina Textile Associations, and the Society of Mechanical Engineers of Providence. He was also a past president of the Quequechan Club, and a member of the Rhode Island Country Club, New Bedford Country Club, the Montaup Country Club, the University Club of Boston and the Hope Club of Providence. Active as a yachting enthusiast, he was a member of the Tiverton Yacht Club and the Royal Palm Yacht Club of Boca Raton, Fla. **Fred Dolan** and **Chip Chippendale** were able to attend Bob's funeral service which was held at St. Christopher's Church in Tiverton, R.I.

On May 9, 1962, **Percy J. Bentley** died at the Warren Hospital in Phillipsburg, N.J., after a short illness. He was the director and former vice-president and general manager of the Ingersoll-Rand Company's plants in Phillipsburg, N.J., and Easton, Pa. He received the Phillipsburg Chamber of Commerce Outstanding Citizen Award in 1955 and was one of 100 New Jersey industrialists named economic ambassadors by Governor Meyner in 1957. He was born in Brookfield, Nova Scotia, and received his bachelor

of science degree in mechanical engineering from the Nova Scotia Technical College and his master's degree from M.I.T. He served in the Canadian Expeditionary Forces from 1914 to 1918 in World War I and was discharged as a captain. He joined Ingersoll-Rand as a student trainee in 1925 and had lived in Phillipsburg and Easton since. He served in various Ingersoll plants in the United States, Canada and England and became general factory controller in 1933, assistant general manager of the Phillipsburg and Easton plants in 1934 and plants general manager in 1936. He was elected to the board of directors in 1943 and to vice-president in 1945. He was transferred to the executive offices of Ingersoll in 1936. He was former president of the boards of the Phillipsburg Development Company and Hopatcong Water Company. He had served as a member of the Warren Hospital board of trustees since 1937 and as a Y.M.C.A. trustee in Easton. He collected timepieces and was a member of the National Association of Watch and Clock Collectors. He was a member and former trustee of the First Presbyterian Church in Easton, the Engineers Club of the Lehigh Valley, the Easton Y.M.C.A., the Easton Anglers Association, and the Newcomen Society and the Canadian Club, both in New York. . . . On May 1, 1962, **Henry V. Cunningham, Jr.** died in Calais, Maine, after a few days' illness. Henry will be remembered by many in the class as the class secretary-treasurer for an extended period beginning in 1930. He lived in the Boston area for many years up to rather recently; a few of us have seen him during the years since he moved to Calais, Maine.

In the Boston Herald on April 29, 1962, appeared the announcement of the engagement of Miss Barbara Gow to George M. Yeager of Pelham Manor, N.Y. Miss Gow is the daughter of Mr. and Mrs. **Ralph F. Gow** of Worcester, Mass. In the same section of the Herald on that day was the announcement of the engagement of Miss Susan Kurtzner of Rochester, N.Y., to Alden T. Foster of Cambridge and Chatham, Mass., the latter being your secretary's younger son. . . . In order that this column may be completely up to date, word has reached us that **Harold W. Washburn**, who is with the Jet Propulsion Laboratory in Pasadena, Calif., is responsible for the scientific aspects of the instrument system of NASA's Ranger 4 Project.—**F. L. Foster**, Secretary, Room 5-105, M.I.T., Cambridge 39, Mass.

## '26

Here we go on the last issue of notes for the current season. I am writing once again without the horse collar and the pinched nerve appears to be gradually getting unpinched. But even so I am being lazy and instead of writing the notes longhand, am using my Dictet in the living room here at Winchester. We have been to Pigeon Cove for the weekend but having missed so many weekends

this spring, I was too busy getting caught up on projects to write notes in that more inspiring atmosphere by the sea. It's quiet here this evening though so let's look into the envelope I have been accumulating and see what we have. Usually this issue is written from some vacation spot such as Bermuda or the Virgin Islands, but we skipped the trip this spring. But we have one classmate who never skips; he seems to have found out how to live and how to be where he wants to be at any season of the year. **Ben Howe** is very faithful with his travel reports and we quote from his latest one: "Greetings from San Diego. We are in the big trailer court south of San Diego now; it's a beautiful place; flowers on every lot and most all have big mobile homes. It seems to be the spot to retire but I have too many places to see yet, so we are in a 28-foot Traveleeze trailer, living the life of a gypsy. We leave here next week for Los Angeles and then Salem, Ore., to visit some friends; thence to Seattle for the fair, and then the Northwest for salmon fishing. We plan to stop in Hope, Idaho, and then meet some friends in Gardner, Mont., which is on Yellowstone River just north of the park. Fabulous trout fishing there. We plan to be home in Denver the latter part of July. Best regards to the class from Ben Howe."

Last month we reported the passing of **Paul V. Jewell**, and when we wrote to Mrs. Jewell extending the sympathy of the class she sent us clippings telling of Paul's many achievements since he graduated from the Institute. Paul was a native of Cambridge, Mass., and attended M.I.T. on a four-year scholarship. At the time of his death he was professor of mechanical engineering at A and T College, Greensboro, N.C., where he went for two years immediately after graduation. In the interim and until 1957 when he returned to A and T College, he taught at South Carolina State College, Maryland State College and Tennessee A and I University. Paul took time out to pick up a master's degree from Ohio State University and had completed all of the residence requirements for his Ph.D. at the University of Indiana. Paul is survived by his wife, Lucille, to whom I have already extended sympathy for the class, and a daughter, Paula, who is a sophomore at Howard University.

We have another traveler in the Class of '26, and he always manages to send me the most aggravating postcards that make me wish I were somewhere other than where I am, and he has succeeded again. This one is from Amalfi and the photograph is a panoramic view of the Gulf of Salerno which looks like one of those dream places. The houses are all built on a cliff down to the sea, white with red tile roofs and steeply terraced. Mountains off in the distance and flowers in the foreground make it one of the most interesting looking places I have seen in a long time. The culprit who sent me this postcard is one **Earle D. Lissner**. Earle is not the best penman in the world with the result that although I am sure he started the card with "Dear

George," it looks like "Poor George." Earle says that his wife has just driven through Germany, the Rhine Valley, Belgium, France and Italy, then met him in Rome and "here we are at Amalfi one of the most beautiful places in the world, sun and beautiful blue water, as pretty as Pigeon Cove, says Alice." That last makes me feel a little better because for the next few months we will have as pretty a spot as anywhere and all without traveling to get there. You have made me want to see Amalfi, however. . . . Here is a very brief but important message about classmate **Rex Bristol**. Rex has recently been elected president of the Foxboro Company. That's all the information we have but what more do you need? Congratulations, Rex! . . . Here are a couple of clippings from a publication of the Bell Telephone Company in Pennsylvania accompanied by photographs of two extremely distinguished looking classmates. **Bill Davidson** has been appointed vice-president, engineering and **Jim Crawford** has been appointed general facilities manager. Bill and Jim both joined Bell Telephone of Pennsylvania in 1927 and have had long and distinguished periods with the company that led to these new, high positions. The class congratulates Bill and Jim on their fine records and their new appointments. . . . Here is a new address for Fred Walch: **Frederick E. Walch, Jr.** is now located at 101 Rue du 19 Janvier, Garches, Set O, France. . . . **Pink Salmon** recently sent us a clipping from the New York Times which is captioned "Foster Wheeler Picks Chief for English Unit" and beneath the caption is a photograph of another distinguished looking classmate, **Charles E. McCulloch**. Charlie has been vice-president in charge of process engineering in New York and now becomes managing director and chief executive officer of Foster Wheeler, Ltd., the English subsidiary. Congratulations Charlie! I don't know when we have had so many achievements and promotions to report as this month. This is one of the nicest parts of the job of being class secretary, and I am always very proud when I make reports like this. Don't let me miss any of them. If you know of a classmate who receives a promotion be sure and let me know; and to the wives who read these notes, you be sure to send me a clipping when your husband gets a promotion. And all of you send me something so I can keep this column going even though it is an aggravating postcard like that one from Lissner. We'll be talking to you again in the fall and hope that all of you have an exciting and restful summer, if such a combination is possible.—**George W. Smith**, c/o E. I. du Pont Company, 140 Federal Street, Boston, Mass.

## '27

We noticed **Paul S. Vaughan's** name on the agenda for the 42nd annual meeting of the Society of American Military Engineers, to be held in Washington at the end of May. At the symposium on

"Engineering for Space" he was scheduled to talk on "Precise Diesel-Electric Power Plants for Military Radar Installations"—the development tests, installation, and operating experience in diesel power generating plants for the PRESS program. Paul is chief engineer, engine development, of Alco Products, Inc., Schenectady, N.Y. . . . **Laurence Burns**, former Revere, Mass., resident and at one time a member of the Immaculate Conception Church in that city, was recently the guest speaker at their monthly meeting of the Holy Name Society and gave a scientific talk on "The Expanding Universe." Laurence is research engineer and patent attorney for the Sylvania Electric Products Company. . . . **John W. Norris's** name recently appeared in the New Haven News in connection with a publication on Lennox Industries, Inc., of Marshalltown, Iowa, (of which firm he has been president since 1948) and their franchise dealer for the territory of Greater New Haven, the Hendricks Heating Company. Lennox Industries, Inc., is a leading manufacturer of warm air heating and air conditioning equipment. . . . Your class secretary has been away from the office for the past several weeks recuperating from the effects of virus pneumonia contracted about the middle of March, very shortly after his return from a Florida vacation, but he is feeling greatly improved now and looks forward to being back on the job again within the next couple of weeks. . . . The following new addresses have been received: **Walter F. Fathauer**, Route #4, Box 132, Tucson, Ariz.; **F. Hall Hatley**, KM 42, Route #20, Guaynabo, Puerto Rico; and **Albert A. Peer**, 709 Dunn Avenue, Lancaster, N. B., Canada.—**J. S. Harris**, Secretary, Shell Oil Company, 50 West 50th Street, New York 20, N.Y.

## '28

At the 46th Annual Meeting of the Federation of American Societies for Experimental Biology (April 14-18), our good classmate, **Bob Harris** presented a paper on "Role of Food Analyses in the Solution of Food Nutrition Problems." Bob is professor of the biochemistry of nutrition at the Institute. . . . **Dick Hoak** is another well-known contributor to technical literature. A recent paper on the "Thermal Pollution Problem" appeared in the Journal of the Water Pollution Control Federation for December, 1961. The subject makes excellent reading, especially for those concerned with the effects of industrial operations on fish life. This should cover a very large and interested group since Dick's estimates indicate that there are more than 30 million sport fishermen that spend a half-billion man-days of time and \$2.7 billion per year. . . . We have a brief note from **Charlie Southwick** who wrote The Review for a point of information. We learned that Charlie did the packaging terms for Merriam-Webster's new unabridged dictionary recently published. His name appears in the dictionary as a special consultant.

**Jim Donovan** sent in a copy of the Cambridge Chronicle and The Cambridge Sun for Thursday, May 10, which carried an account of a reception and dinner given in honor of **Gus Solomons**. The list of notables who spoke of Gus' many qualities and achievements included Edward Crane, Mayor of Cambridge; G. Bruce Robinson, Special Justice of the Boston Juvenile Court; George Haddad, President of the Cambridge Boy Scout Council; Dr. Malcolm Taylor, Democratic National Committeeman; Professor Edwin Newman, of Harvard; Edward Brooke, Chairman of the Boston Finance Commission; and attorney Harry Elam of the Governor's Council. Outside of his professional activities, Gus has been a dedicated worker in many matters of civic importance, including membership on the Executive Board, Cambridge Community Center; Board of Managers, Cambridge Tuberculosis Association; Board of Managers, Mount Auburn Hospital; and Executive Council, Cambridge, Boy Scouts of America. He is at present a school committeeman for Cambridge. Gus' son, Gus, Jr., '61, is an honor graduate of the Institute. Another son, Noel, who will graduate from high school this year, was accepted by Harvard, M.I.T., University of Chicago, and Cornell. He plans to enter Harvard.—**Walter J. Smith**, Assistant Secretary, 15 Acorn Park, Cambridge, Mass.; **George I. Chatfield**, Secretary, 11 Winfield Avenue, Harrison, N.Y.

## '30

This has indeed been a red letter month. For the first time since my assumption of the duties of class secretary two years ago, I have received an unsolicited communication from a classmate. The author of this most welcome missive is **Hal Spaans**, who tells of his move to Philadelphia after some 16 years in Harrisburg. He has been appointed to the staff of the Bell Telephone Engineering School as "working dean," which apparently involves a certain amount of teaching, helping new instructors, editing texts and doing some administrative work. His new address is 1257 Muhlenberg Drive, Wayne, Pa. Hal's family includes a very active 15-year old daughter and a son who graduates from the University of Missouri as a civil engineer this year and will coincidentally receive an NROTC ensign's commission. At a recent M.I.T. Club meeting in the "City of Brotherly Love," he met **Harold C. Plant**, who is "busily engaged in computer work for RCA and enjoying it." . . . Those who attended the 30th Reunion will recall that **Yicka Herbert** has one of the youngest families in the class comprised of Scott, 9, Maurice, Jr., 7 and Mark, 5. Yicka reports that he has recently seen **Jim Morton** and **Ernie Fell**, and expects in the near future to see **Herb Wampner** who has been transferred to the Boston area, still with Reichold Chemical. Yicka lives in Franklin, Mass., where he is president of Franklin Paint Co., Inc. . . . **Wayne S. Hertzka** is practicing architect-



ture in San Francisco with William H. Knowles, '32, under the firm name Hertzka and Knowles. In recent years he has seen three Course IV classmates: John L. Reid, '31, in San Francisco; **Eric Pawley**, A.I.A. Secretary in Washington, D. C.; and Kenneth E. Wischmeyer, '31, in St. Louis. Wayne, his wife and 17-year-old son live in Kentfield, Calif. He is past president of the Northern California Chapter and California Council of A.I.A. . . . By the time these notes appear, **Phil Holt** will have started on a new job as manager, executive development, for Esso Research and Engineering Company. He moves to his new assignment after some eight years as manager of process licensing. His daughter, Frances, graduated from Vassar in 1955 and is administrative assistant at the Institute of Contemporary Art in Boston. Son Philetus, 4th, is Yale, '58, Yale Law School, '61. Extra-curricularly, Phil is a trustee of Overlook Hospital in Summit and paints "(pictures, that is)."

Once again it becomes necessary to report the passing away of one of our classmates. **John Worcester** died in New York on March 4. He had apparently spent much of his time in South America since graduation and at the time of his death was president of National Lead Company, S.A., with headquarters in Buenos Aires. He is survived by his wife, three sons and a daughter. . . . We have changes of address for: **Joe Devorss**, 538 Waterway Drive, Falls Church, Va.; **Charles H. Lutz**, 5128 New York Avenue, La Crescenta, Calif.; **Jeff Wyman**, 2510 Parkway, Coffeyville, Kansas; **Ronald L. Youngson**, 4140 Fond du Lac Road, Oshkosh, Wis.—**Gordon K. Lister**, Secretary, 530 Fifth Avenue, New York 36, N.Y.; **Ralph W. Peters**, Assistant Secretary, 249 Hollywood Avenue, Rochester, N.Y.; **Louise Hall**, Assistant Secretary, Box 6636, College Station, Durham, N.C.

## '33

Honors of the month to several of our mates who have distinguished themselves in a variety of pursuits; let's take them alphabetically. **Morris Cohen** was appointed one of the five Ford Foundation professorships in engineering, for his distinction in the field of materials. . . . **Philip S. Cook** is now technical superintendent, development and special studies, at the Baker and Adamson Works of Allied Chemical Corporation. . . . **Roland D. Glenn** has been appointed vice-president of container operations of Union Carbide Plastics Company; Roly has been with Carbide Plastics Company; since he left M.I.T. . . . **Ralph Hayden** has recently been made a vice-president of the Foxboro Company. . . . **Cal Mohr** continues in his present post but has added the interesting extracurricular job of professional speaker. Says Cal, "50 miles from home, and I'm an expert." . . . And by no means least, **Athelstan Spilhaus'** "Man and the Sea" is one of five featured articles selected by McGraw-Hill for their yearbook of science and technology.

April 18, **Ed Goodridge** announced his retirement to his associates in Induction Heating. Before drawing the conclusion that Ed is folding up his tent, listen to his neat bit of hedging: "Will continue an active association with the company in the capacity of consultant and adviser." We bet he does! And the company can't get along without him in our judgment. Ed reports on several of the class: "**Charles Fulkerson** recently purchased a beautiful home on top of a mountain in Roxbury, Conn., surrounded by approximately 100 acres. Charley is building a new, larger plant in Waterbury, Conn. (Waterbury Pressed Metal Company). . . . Another classmate has joined the retirement ranks. **Malcolm Fleming** plays golf about 75 percent of the time, the balance consulting for the reptile leather industry. . . . **Guido Garbarino** has been traveling to the Far East, Near East and farther than that for the Westinghouse Company. He has been behind the iron curtain looking for new business." Perhaps our friends will elaborate so we can have the full story in the News. . . . **Frank Vanucci** thoughtfully sent a clipping from the Glasgow Herald about M.I.T.'s Centennial. Frank is in the licensee and affiliate department of Owens-Corning, with headquarters in Newark, Ohio. Frank does a good deal of traveling and visits their Canadian affiliate regularly. He reports that his son enters high school this fall and has M.I.T. as his objective four years hence. Frank's daughter trails by two and-a-half years so doesn't yet have her sights on any college. . . . Speaking of daughters, **Dayt Clewell's** young Nancy broke into the local pictorial press for her part in the tree planting ceremonies at Lasall Junior College. . . .

While you read this, friends **Warren** and **Leona Henderson** are on the high seas, just starting a six-weeks cruise to the North Cape. They will visit several unpronounceable places en route, with nary a '33er in any view of them. But we wouldn't wager any money that Warren won't unearth at least one classmate while wetting his whistle.—**R. M. Kimball**, Secretary, Room 7-206, M.I.T., Cambridge 39, Mass.

## '34

This has certainly been a wonderfully promotive year for the Class of 1934. I think the following newsnotes will be of interest to you in showing the many fine things accomplished by our fellow classmates. **Cassius C. Belden** has been appointed manager of employee and public relations for the Dominion Bridge Company in Montreal, Canada. . . . Another classmate, also working in Canada, **Jacob J. Jaeger**, has been appointed vice-president-engineering of Massey-Ferguson, Ltd. Jacob was on the staff of M.I.T. for about six years, after which he became president of Pratt and Whitney Machine Tool Company in Connecticut. . . . In addition, congratulations are in order for **Bernard N. Stiller** who has been named Paducah area manager for the Atomic

Energy Commission. Bernard has been with our nation's nuclear energy program for 18 years. The Paducah site is operated for the commission by Union Carbide and is one of the A.E.C.'s large diffusion plants producing enriched uranium. . . . The Class of '34 was very well represented at the meeting of the Alumni Council on January 29, 1962. **Henry Morse** invited a group for cocktails, after which they all attended the meeting and heard Professor Kindelberger speak on the Common Market and Professor John T. Norton, '18, on the Graduate School. Roger Coffey, Joe Bicknell, Carl Wilson, Walt Wrigley, Charles Ellis, Charles Sanders, Joe Fishman, Del Keily, Walt McKay were at the meeting.

A wonderful article appeared recently in The Delta magazine about **Frank M. Hartz**, who is at present senior communications engineer for the Detroit Edison Company. The article is entitled "The Miracle Man," and reported: "The miracle of sound flowed from the speaker of a television set recently for little Susan Hasselhuhn of Detroit, Mich. Born deaf, Susan's hearing nerves were so damaged that ordinary hearing apparatus used in cases of this kind proved useless in the fight to help her hear the world around her. Her doctors said that only some type of electronic instrument, yet to be developed, could make her conscious of the sounds that others take for granted. Susan's father, however, thought that he knew just the man to turn out the hearing device that his daughter needed. The man was Frank M. Hartz (Epsilon Theta, M.I.T.), Senior Communications Engineer for the Detroit Edison Company, where Susan's father is employed. Hartz listened sympathetically to the story of Susan's problem. Then he went to work devoting all of his spare time to developing an electronic instrument of such high frequency that it could catch sounds far beyond the normal reach of hearing aids. He designed this first instrument to utilize the sound box of a television set.

"Then came the day for the test. Susan was connected to the Hasselhuhn's television sound box. A program was tuned in. A picture appeared on the screen, and then Susan clapped her hands to her ears, her lips moved, and her eyes told the story. Brother Hartz had made Susan hear for the first time—not well enough to distinguish words—but at least she could hear sounds. He is working currently on an improved model, outfitted with a microphone, which will enable her to hear words spoken to her by her parents. . . . 'Even though my first device wasn't completely successful as far as Susan was concerned,' he says, 'it has already found wide application in helping elderly people who have lost a substantial amount of their hearing.'" . . . Last, but not least, the following note was sent in by **Earl K. Murphy** and his wife, Sheri. "Reporting: Twins (girls), seniors at Duke; Carol, freshman at Radcliffe; K.O., runs second grade; Sheri, runs EKM; EKM, broke."

**Ray P. Holland, Jr.** wrote in March: "For the past two years I have been working as registrar and director of admissions at the New Mexico Military Institute. The change of address which you

noticed was caused by the fact that I live in one of the houses on campus. My duties keep me very busy, as you can imagine, but I still find time to do some consulting in aeronautical engineering. I have nurtured what might be called an independent viewpoint. I find this to be very satisfactory even though not always remunerative." . . . **John T. Burwell, Jr.**, since 1956 Director of Research for the American Radiator and Standard Sanitary Corporation, has recently been elected vice-president for research. . . . M.I.T. keeps the class secretaries advised of address changes and every so often a classmate will send us an interesting story behind the change. A few recent changes include: **Henry B. Backenstoss**, 3114 Quebec Place, N.W., Washington 8, D.C.; **Robert G. Henry, Jr.**, 160 Green Street, Annapolis, Md.; **Roger H. Williams**, Macalester College, Box 218, St. Paul 1, Minn.

Dr. **William R. Haseltine** is now senior research scientist at Naval Ordnance Test Station, China Lake, Calif., and has established quite a reputation in the field of aeroelastics. He has published around 60 formal and informal reports on ballistic subjects. . . . **Leland S. Person**, of Ware, Mass., has been a member of the local school committee for several years and a March 1 newspaper clipping shows that he is running for re-election. . . . **Gerhard Ansel** has recently been promoted to plant manager of the Madison, Ill., plant of the Dow Metal Products Company. Thank you all for sending along the news. Keep these notes coming. Have a happy and healthy summer. —**H. E. Thayer**, Secretary, 415 W. Jackson Road, Webster Groves 19, Mo.; **G. K. Crosby**, Secretary, 44 Deepwood Road, Darien Conn.; **Malcolm S. Stevens**, Secretary, P. O. Box 93, West Barrington, R.I.; **J. P. Eder**, Secretary, 1 Lockwood Road, Riverside, Conn.

## '35

By the time you receive the next issue of the Class News, the second annual battle for the President's Cup, symbolic of golf supremacy for Class of '35, will be down to the last four players. The following 16 were the first to sign and will play in the first flight: Bob Granberg, Leo Beckwith, Bob Forster, Bill Bennett, Hal Bemis, Jack Orchard, Dick Bailey, John Kiker, Lester Brooks, Paul Daley, Ned Collins, Art Marquardt, Allan Mowatt, Sid Grazi, Wes Loomis, and Bill Barker. The first round of matches starts June 15. Successive rounds will be played each three to four weeks. **Hal Bemis** reports we will have no trouble with him this year, his first round April 28 was a 101. My first one on May 5 was not much better—a 97. . . . A notice of the Golf Tournament was sent to **Al Alschuler** on the chance that he might have slowed down and taken up golf. Here's his reply: "When you find some other classmates young enough to play tennis and figure out how to handicap and compete through the mail, I'll sign up."

**Gordon Scowcroft**, as you know,

moved from Weston last year when he joined Lever Brothers. He is now living at Lakewood Circle, North, Greenwich, Conn., for those who would like his present address. He wrote: "It was nice of you to invite me again to join in the Class of '35 Golf Tournament. As you will remember, last year I was unfortunately forced to withdraw at a time when some chance of further progress seemed possible. My situation at the moment is not one that lends itself to reasonably comfortable participation. Although I am still a non-resident member at Weston and applying for membership at Greenwich Country Club, the infrequency of probable visits to the former and unlikelihood of early achievement of the latter, leads me to believe that my golfing opportunities this year will be limited. Rather than enter the tournament on a half-hearted basis, I prefer to hold participation in abeyance for this season. It was certainly nice to hear from you. I hope everything is going well with you and your family. Perhaps we will be seeing you soon on one of our visits to Weston."

. . . **Ned Collins'** offer to continue the work **Elmer Szantay** had started as regional class secretary has been accepted by **Leo Beckwith** with much appreciation. Ned sent along the following letter: "The attached copy of letter verifies that I am following through, as you suggested in your note. Located centrally in the Merchandise Mart I certainly should be able to drum up some news under your aggressive leadership. If you can take the time to bring me up to date on your program, plus offering suggestions, mailing lists, etc., I'll do my darndest to stimulate our non-corresponding classmates of which, I too, have been typical. . . . The passing of Elmer and other of our classmates jolts me into realizing how easily we become negligent and carelessly overlook the importance of keeping in touch with our good friends and acquaintances of many years standing." . . . I hope each of you in the Midwest who received Elmer Szantay's February letter followed by Ned Collins' thought-provoking follow-up of May 5, will take the time now to write in a few lines. This is an open invitation: Ned's address is Suite 904, Merchandise Mart, Chicago 54, Ill. Many thanks to you, Ned, from all of us, for taking on this responsibility.

**Otto Zwanzig** wrote a most interesting letter describing his recent activities: "Want to drop you this note before the literary urge is dispelled by the practical necessity of such urgent matters as completing the income tax returns—U.S. and Canadian. Am still with Foster Associates but took a leave of absence as member of the firm early in February to serve as a consultant to a World Bank mission in New Zealand, where I spent about three and-a-half weeks and then continued around the world, spending a week in Germany and a day or two en route in Sydney, Australia; Bangkok; Beirut; London; and in Neuchatel, Switzerland, where my son is currently attending school. What made the whole affair all the more exciting was the fact that it developed unexpectedly. Arrangements were completed with four days here in

Washington before I had to leave for a client assignment on the West Coast, from whence I left directly for New Zealand. Just a few days earlier, I had the opportunity to go to Iran with a group to review that country's plans for its third Five Year Development Plan, but unfortunately, I could not be ready to leave in time.

"Our New Zealand mission's function was to survey and appraise the major facets of that country's economy—its status and problems, present and prospective. New Zealand had just recently become a member of the World Bank, and our report, when completed, will provide the background and framework within which subsequent development loan applications will be studied. My particular areas of responsibility have been the assessment of telecommunications industry and the over-all energy economy. The latter was assumed to involve about 95 per cent electricity production and utilization, but this was again broadened quite suddenly by the recent natural gas discoveries in the North Island of New Zealand. There is really much that I found interesting, technically, politically, and philosophically; I might easily expand it into a full length article—might even do that one of these days. For now, I'll just concentrate on one aspect: the striking contrast between the New Zealand and German ways of life. New Zealand, as you may know, really believes in and practices the welfare state. Earnings and other incentives have been remarkably equalized with the partial result that some of the more enterprising souls seek greater challenges abroad. Withal the country has enjoyed a remarkably high standard of living, thanks in good part to its traditional good market in the United Kingdom for wool, lamb and butter, but which market may be in a state of transition. The country is reputedly second only to the United States in autos per 100 population, if this is a useful criterion of standard of living. I saw relatively fewer dilapidated houses there, and quite a few folks have their weekend cottages and/or boats.

"I was struck immediately upon my arrival in Wellington on a Saturday by how rigorously the people practice their five-day week. The downtown shopping centre was shut down just as tightly as on Sunday. In part, I learned the necessity for this is that New Zealanders are perforce great do-it-yourselfers. The government, regardless of what party happens to be in power, tried and succeeded in maintaining a status of over-employment. There are many more listed job vacancies than there are people to fill them. Under the circumstances, most bosses are careful how they even look at their employees, lest they leave without any assurance that the replacement, if any, will be an improvement. Anyhow, this circumstance and the New Zealander's understandable desire to enjoy what Nature offers, creates difficulties in having someone paint your house or do housework for you. Incidentally, what Nature offers may be exemplified by this amateur's one day deep-sea fishing outing when I caught a 230-pound marlin.



... Mind you, I am not being critical of the New Zealanders in my foregoing account. They like that way of life and it seems to me that this is fundamentally what matters. Who are we to say that they should work harder to replace some obsolete telephone exchange, for example, this year rather than three years from now, if they place a higher value on leisure? I am sure that relatively fewer men die prematurely of heart attacks.

"This brings me to the second part of my sermon; namely the extreme contrast to this which I noted in Germany, even though I am mindful of the different post-war starting points in the two countries. Certainly there has been an impatience, intensity and personal drive to rebuild Germany industrially with relatively little intervention and direction from the government (but with considerable initial impetus from Marshall Plan Aid). Relaxation, two-day weekends, etc., have been foregone in the desire to rebuild (although this appears to be changing). In one's effort to be brief, one frequently runs the risk of making too sweeping generalizations. Nevertheless, in my first visit to Germany in 28 years, I sensed a decided diminution of the traditional, possibly over-sentimentalized 'Gemuetlichkeit.' Possibly more significant than my personal impression is the fact that many of my ostensible business conversations with German bankers and industrialists veered, without effort on my part, into philosophical discussions. As one of these men put it: 'We have in many ways out-americaned the Americans.' This monologue is already too long for the Class News so 'Schluss,' even though I could easily keep going. As I said earlier, I am currently preparing my part of the World Bank report which I hope to be completed by the end of the month. Then I plan at least two weeks home with the family in Vancouver. Nice and interesting as my round-the-world experience was, it loses much of its appeal when I can't have the family along to share it with me." Thank you, Otto, for taking the time to write. For those of you who would like to have it, Otto's present address is Governor Shepherd Apts., 2121 Virginia Avenue, N.W., Washington, D.C.

Professor **Walter H. Stockmayer** was appointed by the trustees of Dartmouth College to be the first occupant of a new endowed faculty chair named the Class of 1925 Professorship. . . . **Ermano Garaventa** has been named assistant to the general manager of Hamilton Standard, division of United Aircraft Corporation. Ermano lives in Manchester, Conn., is a member of the Town Planning Commission and a director of the Manchester Branch of the Connecticut Bank and Trust Company. . . . Professor **William W. Buechner**, Professor of Physics at M.I.T., read a paper entitled, "Surface Analysis by Means of Nuclear Particle Scattering" at the June meeting of the American Nuclear Society in Boston. . . . **Robert F. Flood** has been appointed executive vice-president of Linde Company, division of Union Carbide Corporation. Bob has been with Linde since graduation, and has been a vice-presi-

dent since 1959. . . . **Philip P. Johnston** has been named vice-president, planning, for Ametek, Inc. This is a newly created position in the New York headquarters. Phil has been with the company since 1938, and was most recently general manager of U. S. Gauge, a division of Ametek, and vice-president of Ametek. He lives with his wife and three children at 428 Clement Road, Jenkintown, Pa.

We regretfully announce the death of **Joseph P. Doucette**, Munn Road, Newbury, Ohio, on April 15, 1962. . . . Among the address changes received this month was one giving **George E. Agnew's** new address: 4106 Paseo de Las Tortugas, Torrance, Calif. **Buckley Crist**, formerly Muncie, Ind., is now at 115 Spencer Road, Devon, Pa. **William A. Leary** is now associated with Cycloid Engineering Company, 28 Carleton Street, Cambridge. **Gerald C. Rich**, our West Coast Regional Secretary, has apparently moved into his new house overlooking the fairway of the Pasatiempo Course and only 10 minutes from his plant. His new address: 105 Pasatiempo Drive, Santa Cruz, Calif. Gerry was commuting from his Los Altos home 50 miles away for over a year so it must be a real pleasure now. . . . Your secretary would like to repeat some words **Jack Orchard** first used a couple of years ago: "At a time when most of the class are counting new grandchildren, I am still working on the first generation." The Mowatt's anticipate a single (hopefully) sibling about October 6 to add to identical blonde twin sons almost 7 and a daughter almost 8, also blonde. . . . And finally, to all who rowed or were interested in crew at Tech, isn't it a tremendous thrill to read of the success of the M.I.T. crews this year? Just ponder this: they swept the first two racing weekends in 14 separate races against such opponents as Harvard, Princeton, Cornell, Dartmouth, Yale, Columbia, and B.U. We had fun in those days but we lost many shirts. . . . Have a fine summer. And if you do have a moment to drop me a line, please do.—**Allan Q. Mowatt**, Secretary, 11 Castle Road, Lexington 73, Mass.; Regional Secretaries: **Edward C. Edgar**, Kerry Lane, Chappaqua, N. Y.; **Hal L. Bemis**, 510 Avonwood Road, Haverford, Pa.; **Edward J. Collins**, 900 Merchandise Mart, Chicago 54, Ill.; and **Gerald C. Rich**, 105 Pasatiempo Drive, Santa Cruz, Calif.

## '36

This month we have the usual change of address: Prexy **Jack Austin** has asked that his address be listed as Time, Inc., Time Life Building, New York 20. . . . Last month we reported that Major General **Marshall S. Carter** had been named deputy director of the C.I.A. This month we are happy to report that he has moved from Fort Bliss, Texas, to Washington and added another star so he is now Lieutenant General Carter. . . . A new address for **John R. Graham** is 2245 Irvine Avenue, Newport Beach,

Calif. He formerly lived nearby in Costa Mesa. . . . Similarly **Douglass Hawks, Jr.'s** mail should now go 4224 Oliver Street, San Diego 9, instead of to La Jolla. . . . In February we reported that **Tommy Kato** was now in New York City and he can be found, when at home, at 2441 Webb Avenue, University Heights, New York 68, N.Y.

By the time you read these notes Alumni Day will have been and gone and I shall undoubtedly be full of juicy tidbits and no chance to report until fall. Meanwhile I'll warn you that your secretary is planning a trans-Canada automobile trip with Seattle as our ultimate goal. My daughter, Pru, is entering graduate school at the University of Washington. We expect to return across the northern edge of this country to Minneapolis and then home in a hurry. I plan to make as many telephone calls as circumstances will allow on our trek, but we are generally hoping to avoid civilization as much as possible so, please, send in your news and don't wait for me to get to your part of the country, or the world.—**Alice H. Kimball**, Secretary, 20 Everett Avenue, Winchester, Mass.

## '37

The 25th Reunion is over, but will never be forgotten. The first issue in the fall will contain all the details and will give those who did not attend a chance to share in this event. . . . **Leo B. Moore**, professor at M.I.T., spoke on "The Changing Management Scene" at a recent meeting of the New Bedford Chapter of Apics. . . . Major General **Ellsworth I. Davis** is president of the Mississippi River Commission and head of the Lower Mississippi Valley Division at Vicksburg, Miss. . . . **Milton Lief** was recently elected mayor of Olivette, Mo. He has served as a councilman for the past 10 years.—**Robert H. Thorson**, Secretary, 506 Riverside Avenue, Medford, Mass.; **S. Curtis Powell**, Assistant Secretary, Room 5-323, M.I.T., Cambridge 39, Mass.; **Jerome Salny**, Assistant Secretary, Egbert Hill, Morristown, N.J.

## '39

Did you ever idly aim a flashlight at the moon and wonder whether that tiny beam could be seen on the moon? Well, **Louis D. Smullin** did just that on May 9, as reported widely in the nation's press (and doubtless his feat will be covered here in The Review). But Smullin used a 50-joule beam put out by an optical maser—no mere flashlight—and proved that his light bursts had been received upon the moon by detecting and recording their reflections on electronic instruments. Incidentally, Smullin, VI-Grad, rated a note in this column last month for one of his activities as an M.I.T. professor of electrical engineering. . . . Colonel **Leo A. Kiley**, X-B, U.S.A.F., Deputy Chief of Staff, Weapons and Tests Group, Field Command, Defense

Atomic Support Agency, Sandia Base, Albuquerque, N.M., is the commander of Task Unit 8.1.3, Joint Task Force 8 for Operation "DOMINIC," the Joint AEC-DOD nuclear test series. Leo is also the military deputy test manager for the underground nuclear test series currently being held at the Nevada Test Site. After graduation, Leo went on to get his master's and then his doctorate in nuclear chemistry. He and Luna have three children: Michael J., Karen Lee, and Thomas L.; the Kileys live at 3018 Indiana Street, N.E., in Albuquerque.

**William S. Brewster, II**, is now president of United Shoe Machinery Corporation, 140 Federal Street, Boston, and living in Plymouth. He was recently elected to the board of directors of Liberty Mutual Insurance Company, Boston. Bill and Lucile Brewster's home address is Wellsbrook, Plymouth, Mass. . . . Brigadier General **Thomas J. Hayes, 3rd, I-Grad**, who was mentioned here in both January and in June, won the cover story for the May 3 issue of Engineering News-Record magazine, along with a fine two-page article on his contributions to military construction via the Corps of Engineers. Another well-deserved honor: Hayes has won the George W. Goethals Medal for 1961, the highest award for engineering achievement offered by the Society of American Military Engineers. The presentation was made at the Annual Military Engineer Dinner at the Mayflower Hotel, on May 21. . . . Lucille and I dined recently at Chris Cella's famous restaurant, operated now by classmate **Richard T. Cella, IX-B, Dick**, who took on the restaurant after his father's passing, is carrying on the family tradition of fine food with enormous helpings of supreme taste. Dick and Ginny (for Georgina) live in Princeton Junction, N.J., and have an apartment in Manhattan. Dick also operates a small manufacturing business in Florida, and is currently working on the production and marketing of a new invention.—**Oswald Stewart**, Secretary, 31 Birch Road, Darien, Conn.

# '40

**Charles M. Edwards** has been appointed general manager of the Bendix Corporation's Computer Division. Charles had been Bendix western corporate representative for 15 months prior to this appointment, and has been active in computer design and development work since 1945. . . . It is with regret that I must report the death of **William Sussman** who was with us in his third and fourth graduate years in Course XVII. His last residence was in Miami, Fla., but I have no further details. . . . In view of the brevity of this column, your secretary has had to manufacture some news—Mark Julius Guttag arrived April 7, 1962. . . . In the course of your pleasant summer vacations, don't forget to mail a picture postcard to the class secretary.—**Alvin Guttag**, Secretary, Cushman, Darby and Cushman, American Security Building,

Washington 5, D.C.; **Samuel A. Goldblith**, Assistant Secretary, Department of Food Technology, M.I.T., Cambridge 39.

# '41

In the news this month we find the announcement that **D. Reid Weedon, Jr.** has been promoted from vice-president to senior vice-president of Arthur D. Little, Inc. Reid joined the company in 1946 and was for some years in charge of ADL's work with Puerto Rico's "Operation Bootstrap" to build a strong industrial base for the island's economy. He was elected vice-president in 1954 in charge of the company's business development program with over-all responsibility for client relations. After receiving his chemical engineering degree in '41, Reid spent four years as a lieutenant commander in the U.S. Navy during World War II in the Pacific Theater. He is currently president of the M.I.T. Alumni Association, and member of the American Marketing Association and the National Security Industrial Association. He lives at 4 Overlook Way, Winchester, Mass.

Our "rags-to-riches" classmate, **Howard J. Samuels**, is reportedly being boomed by Democrats for the gubernatorial race in New York state. Howard has confirmed the reports saying, "I have been approached by several county leaders who are encouraging me to run. I am flattered and pleased in being asked. I have not rejected the offer. I asked them to review the situation. They are talking to other county leaders. I feel like the girl who went to the dance but didn't know how to dance. It's still nice to be asked." Howard is one of 26 men named by President Kennedy to study poverty troubles in the nation. Last year he was a member of a citizen's committee helping to win approval of a school bond issue which had run into difficulties. One of Howard's remarks: "They've started me dreaming. And many success stories started with a dream." His own success story may have started that way. After the War, he and his brother and their father founded the Kordite Company, renting an unused school house in Victor, N. Y., from the county for \$35 per month. The firm, now a division of National Distillers and Chemical Corporation, has four plants in this country and three being constructed abroad by affiliates. Its main product is plastic bags for garments and foods. But that is not Howard's only success story. In his pre-Tech days he became a Rochester and Western New York tennis champion. In 1940, he was named to the All-New England basketball "Player of the Year Roster" as captain of the M.I.T. team. He has been a director of the Canandaigua Chamber of Commerce, Thompson Memorial Hospital, the Y.M.C.A., and was named "Mr. Canandaigua" last January by that city's Chamber of Commerce. He lives with his wife and their eight children on a Smith Road farm in Canandaigua, N. Y.

**Howard A. Morrison, Jr.** has been appointed director of marketing at Schae-

vitz Engineering, Pennsauken, N.J., producers of measuring, indicating, recording and controlling devices for industrial and military applications. In his new position, Howard will direct the company's market analysis, sales, sales forecasting, sales budgets, product planning, and advertising. He has previously served as marketing manager of the Control Division of the International Resistance Company, Philadelphia, and technical sales manager and director of Market Development of Trans-Sonics, Inc., Burlington, Mass. A native of Winchester, Mass., he is a member of the American Management Association, Phi Gamma Delta, and a former editor of the Boston Chapter of the American Marketing Association's journal. . . . Dr. **Ralph Landau**, Executive Vice-president of the Scientific Design Company, of which he is a co-founder, was guest speaker on March 20 at the Mid-Winter Meeting of the M.I.T. Club of Northern New Jersey held at the Hotel Suburban, Summit, N.J. Raiph received his doctor of science degree in chemical engineering in 1941. His firm is engaged in designing and building chemical plants and the development of chemical processes.

**John C. Sluder**, Vice-president-Manufacturing of the Nestlé Company, Inc., has been elected a director and member of the executive committee of that company. He is responsible for the manufacturing of all Nestlé products in the United States, as well as engineering and production planning. John received his doctoral degree from M.I.T. in 1941. From 1950 to 1960 he served three two-year terms on the visiting committee of the M.I.T. Corporation. He is a member of Sigma Xi, the Institute of Food Technologists, Harvard Club, and M.I.T. Club. He lives in Armonk, N.Y., with his wife and three children. . . . **Neil Burgess, Jr.**, a veteran of 20 years in jet engine business, has been named manager of the western region for General Electric's newly formed Defense Programs Operation. He was formerly manager of the company's commercial engine operation in Cincinnati and will be responsible for full technical representation and other customer liaison in connection with all General Electric defense and aerospace activities in the western United States. He received his master's degree in electrical engineering at M.I.T. in 1941 and completed the Advanced Management Program at Harvard Business School in 1952. . . . **Joseph H. Myers** has been elected a director of the Acme Steel Company. Joseph, Vice-president, Marketing, joined Acme Steel in 1946 and has held various positions in production, being named general superintendent of the Riverdale Plant in 1957. He was elected vice-president, marketing in 1958. He is a resident of Hinsdale, Ill., and presently holds membership in the Economic Club of Chicago, American Iron and Steel Institute and the Association of Iron and Steel Engineers. . . . **Charles F. Peck, Jr.** has been appointed director of research and development of Ceco Steel Products Corporation, Chicago. He was formerly chief engineer of the Structural Products Division. For three years before joining Ceco



in 1960, Dr. Peck was professor and head of the Department of Civil Engineering at Cooper Union in New York City. Previously, he served as assistant and associate professor of civil engineering of Carnegie Institute of Technology from 1949 to 1957, and as instructor at M.I.T. from 1943 to 1947. For two years, he was with United States Steel Corporation as an engineer for its railroad research bureau. He is a fellow of the American Society of Civil Engineers, a member of the American Concrete Institute, American Society for Testing Materials, Chi Epsilon and Sigma Xi. He lives with his wife, Charlotte, and their three children, George, Lorraine and Elouise at 118 South Scoville Avenue in Oak Park, Ill.

**Joseph S. Quill** has been appointed manager of marketing for the General Electric Receiving Tube Department. Joseph is a holder of the Coffin Award, G.E.'s highest employee honor, and has been advanced marketing manager of the Advanced Product Planning Operation in Schenectady, N.Y., since 1960. In his new post, he will direct all marketing activities for the Receiving Tube Department. This includes sales, marketing research, government relations, advertising and sales promotion for the department's distributor sales, original equipment and headquarters operations. . . . **Roy W. Brown, Jr.**, a member of the Development Engineering Department at Good-year Atomic Corporation in Portsmouth, has been named a supervisor in Good-year's Iceguard development program. . . . Please keep sending us information as to your activities, etc., for insertion in this column by mailing to one of the secretaries.—**Walter J. Kreske**, Secretary, 53 State Street, Boston 9, Mass.; **Henry Avery**, Assistant Secretary, 169 Mohawk Drive, Pittsburgh 28, Pa.; **Everett R. Ackerson**, Assistant Secretary, 16 Vernon Street, South Braintree 85, Mass.

# '42

We were very deeply saddened by the death of Professor **Arnold S. Shapiro**. He was a friend, a scholar, a creative mathematician, a very modest gentleman and fine and inspiring teacher. He had joined the faculty of Brandeis University in 1957 and in 1960 became a full professor. Arnold served with distinction as an officer in the Signal Corps, in the European theatre, in World War II after receiving his B.S. in physics. He was awarded his M.S. in mathematics by the University of Michigan in 1948 and two years later received his Ph.D. from the University of Chicago. From 1951 to 1957 he was assistant professor of mathematics at Cornell. Among his several honors he held a senior post-doctorate fellowship from the National Science Foundation in Paris in 1960-61, and he was a fellow of the Institute for Advanced Study, Princeton, in 1955-57. He has contributed to such scientific publications as the *Annals of Mathematics* and the *Bulletin of the American Mathematics Society*. He leaves a wife, Janine (Freyens); a son, Gregor; a daughter, Tamar;

his parents, Mr. and Mrs. Abraham Shapiro; and a sister, Mrs. Shirley Goldis.

Among the candidates for the Republican nomination for governor of Connecticut is former State Senator **Newton Marsilius**. He opened his campaign with a strong appeal to implement the "1960 report of a state blue ribbon committee on economic planning and development." He said that steps can be taken in Connecticut to hold present industries and attract new ones. He opposes local taxes on manufacturers' inventories, advocates uniform property tax assessment for purposes of equalizing state grants to towns and cities, and said that the assessment of taxes on this uniform base should be adopted gradually and by local option where existing tax structures would be seriously impaired by too hasty action. . . . In another important non-engineering arena **Alfred Goldis**, executive vice-president of the Trimount Clothing, spoke at a labor rally, sharply criticized both management and labor for selfish practices and received the biggest applause of the session. The occasion was a meeting of the Massachusetts State Labor Council. Al warned that the American economic system is on trial, that failure to solve our unemployment problems could lead to the Communists capturing the free world without firing a shot. At the same time he told the partisan assembly that both labor and management must put their respective houses in order. He warned management that it cannot continue to refuse to recognize its social obligations and that the nation cannot afford price fixing. He warned labor that it must see to it that "some in your ranks" stop blocking American economic progress and cited featherbedding, sweetheart contracts and unauthorized slowdowns and strikes as some of the things labor must eliminate. "Let us demonstrate," he said, "not with words alone but with action that it is we and not the Soviet Union who are able to carry the twin torch of economic plenty and political liberty for all peoples everywhere." In addition to his presidency of Polytechnic Capital Corporation and his reunion chairmanship, Al has long been known in the garment industry for his astute handling of labor problems and his wise introduction of modern manufacturing and data processing methods.

**David Cristison**, formerly manager of Mobil Oil Company's Buffalo refinery, has been appointed manager of the Coryton, England, refinery of Mobil Oil Company, Ltd. Dave joined Mobil in 1943, after receiving his M.S. in chemical engineering, and has been with the company continuously except for a leave of absence as a Sloan Fellow at the Institute. . . . **James K. Littwitz** has been named administrative assistant to the manager of the Eastman Kodak photographic paper manufacturing organization. He joined Kodak as a research chemist in 1945, has served as staff engineer, senior development engineer and supervisor of the emulsion melting department. Jim is a lieutenant colonel in the U.S. Army Reserve, president of the Board of Education of the West Ironde-

quoit (near Rochester, N.Y.) Central School District, and active in several community and engineering organizations. . . . We were saddened by a recent report of the death last year of **Marion C. Welch** in Lexington, Ky. After World War II service in the Navy, he worked in Louisville as a mechanical engineer and then was a consulting engineer in Lexington. . . . **Richard J. Hammerstrom** is now with the International Cooperation Administration in Lima, Peru. . . . **John R. Borchert** has recently joined the faculty of the University of Minnesota as Professor of Geography. . . . Transcontinental moves were made by **Manuel Lukoff** from Hollywood, Calif., to Newport, R.I.; and by **John E. Simonds, Jr.** from Red Bank, N.J., to Escondido, Calif. . . . These notes are the final record of this five-year administration of our class and complete 10 years of reporting by your secretary. It has been an intriguing activity—receiving letters from close friends and from distant acquaintances; writing of the technical, community and family accomplishments of several hundred men and women located all around the world; and participating in the Alumni Association activities at the Institute. Thank you one and all for your help, your interest and your kind words. Best wishes for many years of further achievement from your area secretaries, Bob Keating, J. J. Quinn and Ed Edmunds.—**Lou Rosenblum**, Secretary, 24 Cedar Road, Belmont 78, Mass.

# 2-'44

This is the last set of notes for this volume of *The Review*, and after the assist I got last month from **King Cayce, II**, things didn't seem to come in in the way of news. I shall therefore have to end the year with a plea for more information from the reading audience next year. To paraphrase an old poster—*This Means You!* . . . A note with some very impressive stamps came in from **John Lednicki, XIII**, who is with E. J. Nell Company in Manila, Philippine Islands. John tells of running into **Bill Sadler, XIII**, who has been touring the Far East and is currently assigned to help direct the Philippine Navy in the construction and operation of its growing fleet of warships. He is the U. S. Naval representative with the joint military advisory group. Bill was instrumental in re-awakening the Manila M.I.T. Club. His tour of duty in the Far East is due to expire soon and he is scheduled for Treasure Island as his next assignment. John ends the letter saying that he extends his best wishes to the other members of the class, and will be glad to see anyone dropping over the other side of the date line.

A note in a Park Ridge, Ill., newspaper called *The Advocate* tells of the election of **Frank Carroll, I**, as a director of the Gypsum Roof Deck Foundation, a national association of building contractors and manufacturers. Frank, who lives in Park Ridge, has his own company, Decks, Inc., with branches in Clearwater, Fla.,

and Davenport, Iowa. Congratulations Frank on the election. Frank also asks about any plans for a reunion in 1964. I haven't heard of any recent plans of committees, other than the information that space has been reserved at a hotel in Massachusetts. I don't know what hotel. This summer I'm planning to be up in Boston, and shall try to find out more about the plans for the notes. . . . A note received on a publicity release indicates that **R. Stanley LaVallee, XVI**, has been named director of the System Sciences Division of Technical Operations of Burlington, Mass. Stan, who went on to obtain a master's degree from University of California, lives in Wayland, Mass., with his wife and five children. . . . For the sake of better notes, how about dropping your secretary some notes about your doings this summer. Until next fall, I hope that you all have a fine summer season.—**Paul M. Heilman**, Secretary, Reflectone Electronics, Inc., W. Main Street, Stamford, Conn.

## '45

Fortunately, **Ed Stoltz** of Johns-Mansville in Pittsburgh has sprung for Springer! In a letter dated May 1 Ed reports the following: **Tom Stephenson** (Alcoa) is now back in Pittsburgh and will probably be in the area for about two years. Although your secretary reported that Tom and Jimmie had returned to Knoxville, Tenn., Ed reports that Tom has spent a considerable amount of time in the British Isles during the past year or so. . . . **Bill Humphreys** is being transferred by Westinghouse to the Boston area upon completion of the school year. He has sold his house (you will all agree that this is a neat trick) and Bill and family look forward to their return to Beantown after several years in Pittsburgh—the smokeless city. . . . You will recall that I recently made a comment about our old PT instructor Chuck Cherundolo. Ed adds that, in addition to his coaching activities with the Pittsburgh Steelers, Chuck runs a fancy bar in Pittsburgh where the sporting crowd assembles. Ed reports that he is completing a successful year with the M.I.T. Club in Pittsburgh; in addition, Ed was a S.C.F. area chairman directly under I. W. Wilson, '11, Chairman of Alcoa. Ed deserves the whole hearted congratulations of the class since you will note that Pittsburgh has exceeded its S.C.F. quota. . . . Ed's concluding thought is noteworthy: "See you in '65 at Snow Inn and in 1970 at Nassau—Yes?"

The Hartford Times recently reported that **Ronald R. Remorenko** has been named chief research engineer at Fafnir Bearing in New Britain. You will recall that Ron was with SKF industries in Philadelphia before joining Fafnir in 1958. . . . **Vince** and **Bobbie Butler** of San Francisco produced an heir apparent, Vincent, 3rd, on April 18. The baby must have been born early in the morning for Fran and I received a birth announcement postmarked 6:30 P.M., April 18, some two days later. Congratulations to Vince,

Bobbie, Baby Vince, and others as well. . . . Class Agents, **Bill McKay** and **Dave Flood**, were quite impressed by the array of '45ers that appeared in the S.C.F. Roster Alumni Donors dated March 15. We sincerely hope that additional names of '45ers will appear in the final summary. . . . As **Dave Trageser** indicated in his class letter of April 16, your secretary needs news items to survive. Please take five minutes during your summer sojourn and send us a postcard telling of your summer activities. In conclusion, may we wish you all a most pleasant summer. Yes, we anxiously await the news items necessary to make this column a successful endeavor.—**C. H. Springer**, Secretary, Firemen's Mutual Insurance Company, 420 Lexington Avenue, New York 17, N.Y.

## '46

My apologies for missing the May issue of this rag. The column was all typed up and ready to go when I was summarily hustled to the hospital for a 10-day vacation. The article remained ready to go all that time and when I got out I discovered it still unmailed. By then I had missed the deadline date. As constant readers already know, there is a standing invitation for all '46ers traveling through the Twin Cities to give me a call and come out for a free meal. **Bill Cahill** reversed the invitation and called me the other day and took me out to lunch. It was fun to see Bill. He was traveling around the country visiting his sales representatives. Bill is hopeful that shortly his business will be prospering so much that it will be necessary for him to move to Chicago, his original home. . . . **Daniel M. Kelley** has been appointed advertising manager of The Nation's Schools, and College and University Business, F. W. Dodge Corporation publications. Dan has been with the firm since 1954, and prior to his promotion served as advertising representative in New York and New England. Dan will be moving to Chicago. . . . **Allan L. Bralove** is a senior management consultant with Documentation, Inc., 7900 Norfolk Avenue, Bethesda 14, Md. . . . **Arthur Y. Taylor** has been elected president of Jackson and Moreland, Inc., consulting engineers of Boston. . . . **William J. Rapoport** has been promoted to midwestern regional manager of American Cyanamid Company's paper chemicals department. After M.I.T., Bill took a master's in business administration from the Wharton Graduate School. He joined Cyanamid in 1949. . . . While on the subject of promotions your correspondent has just been promoted to section head in the aerospace support equipment design department of the Aeronautical Division of Minneapolis-Honeywell, and is in charge of design of checkout equipment for launch escape and stability control systems for Apollo.

We received a very nice letter from **Warren Turner's** wife, Lee. After two lovely girls, Pam, 9½, and Cindy, 8, the Turners are proud to announce the continuation of the family name in Richard,

1. Continuing with the promotion list, Warren has recently been named division traffic manager for New Jersey Bell Telephone. What with all the extra money, and the need for an extra bed, the Turners are moving to 18 Crescent Drive, Convent Station, N.J., in August. . . . **Dr. Thomas F. Malone** was a symposium chairman at the 202nd national meeting of the American Meteorological Society last April. . . . **Oscar Luis Briozzo** is chief engineer of the Puerto Nuevo Power Station in Buenos Aires, Argentina. He is married, has three children and lives at Laprida 526, San Isidro, Buenos Aires. . . . **Robert T. Galbraith** is vice-president in charge of sales for the Associated Steel Company in Houston, Texas. The Galbraiths have five children and live at 2131 Pelham Drive, Houston 19, Texas. . . . **Frank H. Low** is manager of the Nuclear Division of Picker X-Ray Corporation. He makes his home at 33 Joan Drive, Chappaqua, N.Y.

**Walter A. Sauter** is a section head at Lear, Inc., Guidance and Control Department, Santa Monica, Calif. Walter, Karl, Karen, Susan and mother, Leah, all live at 19667 Valley View Drive, Topanga, Calif. . . . **John B. Blottman, Jr.**, is a senior member of RCA Burlington, Mass., technical staff, working on advanced development of missile systems and electronics equipment. John received his M.S.E.E. from Northeastern in 1954. The Blottmans live at 4 Shelby Road, Reading, Mass. . . . That is that for this year. I have completely run out of news, interesting or otherwise, to start up this column in the fall. If you have any compassion at all you will sit down immediately and send me a post card or a short letter telling of your latest job, child, address change, or anything else of even the mildest interest. If you wait until tomorrow night you know you won't get to it, so do it now. Have a happy summer everyone and look for us again in November.—**John A. Maynard**, Secretary, 25 Pheasant Lane, North Oaks, St. Paul 10, Minn.

## '47

Information concerning classmates up to the time of this writing is rather meager. **Bill McClelland** has been appointed director of programming standards at the New York office of IBM. Bill lives with his wife and their three children in Rowayton, Conn., and is a regular commuter to the city; in his new job, he will be responsible for IBM's participation in standardization of programming activities with industry and national associations. . . . We received an interesting reprint from the Canadian Travel News, concerning the whereabouts of **Murray Heifetz**, who is now managing Dominion Travel Office, Ltd., located in Toronto. Murray is married, is the father of two children, and has been active manager of the travel agency since 1948. He notes that 95 per cent of his business is obtained from referrals and personal contacts, which further attests to his successful management. . . .



**Torstein Strand**, who graduated in Course XVI, has recently written a most interesting article concerning the possibilities of the design of a vehicle which uses an air cushion instead of rubber tires for its elevation above the ground, and an air jet for its propulsion. This article was in the April, 1962, issue of *Aerospace Engineering*, and was enlightening. . . . **Joe Riley** has been appointed a marketing executive for the New Jersey Bell Telephone Company. Joe graduated in Course VI, and presently lives in Chatham, N.J.; he is married and has four children, and has been active in civic and fraternal organizations.

**Ed Bennett**, also Course VI, has been named associate head of the MITRE Corporation's System Sciences Department. MITRE is located in Bedford, Mass., and Ed will be responsible for the various subdepartments involved in applied research in the information and organization sciences, human factors, design methodology and biophysics. Ed had received his Ph.D. from Purdue in 1951, and presently lives with his wife and child in Lexington, Mass. . . . **Dr. John G. Truxal** has been appointed a vice-president for educational development of the Polytechnic Institute of Brooklyn, N.Y. He joined the Polytechnic faculty in 1954 as an associate professor of electrical engineering. . . . We have learned that at the 46th annual meeting of the Federation of American Societies for Experimental Biology, **Ted Merrill**, Associate Professor of Chemical Engineering at M.I.T., presented (with colleagues from Peter Bent Brigham Hospital and Harvard Medical School) a paper entitled "Influence of Plasma Proteins upon Blood Viscosity." . . . Also, **William W. Seifert** of the Department of Electrical Engineering, is teaching, along with Professors Li, Miller, and Paynter, a course for graduate students on information systems. . . . It is with great pleasure that we announce the naming of **Jim Phillips** as a vice-president of Vance, Sanders and Company in Boston. Jim is presently living in Manchester, and was active in the arrangements and execution of the 15th Reunion. Jim has been our class agent since graduation, and has always been an active supporter of class functions.

It is always quite difficult to produce a farewell address which will adequately express the feelings of the addressor. My five-year term as secretary of the Class of '47 is over. New officers were elected at the June reunion, and will be announced in the first fall issue of *The Technology Review*.—**Arthur Schwartz**, Secretary, 8355 Blackburn Avenue, Los Angeles 48, Calif.

## '48

Now that we have fair summer weather ahead, let's see what some of our classmates have been doing. **Thomas W. Folger**, electronics industry specialist for Kidder, Peabody & Co., recently addressed a luncheon meeting of the Security Analysts of San Francisco. He claims

"Electronics still hold promise for investors." . . . Congratulations and best wishes go to **Frank Joseph Heger**, who has received the doctor of science degree recently in the field of civil engineering. His thesis topic was "Theory for the Structural Behavior of Precast Reinforced Concrete Pipe." **Alan K. Jeydel** was named to the newly created post of technical director at the Salt Institute. He was formerly a product engineer at Celanese Corporation. . . . **Thomas R. Scanlan**, who was formerly senior project engineer of the American Machine and Foundry's Maxim Division in Waterford, Conn., has been appointed to the newly created post of general sales manager of the division. . . . Please note that the Class of '48 was represented by **Edward A. Mason**, Associate Professor of Nuclear Engineering of M.I.T., who presented (with colleagues) two papers at the Boston meeting of the American Nuclear Society on June 18-21, 1962. . . . We find that **John J. Yostille** was the co-author of the article "Electronic Switching Control Techniques" in the April issue of the *Bell Laboratories Record*. Currently, he is in the Systems Engineering Department as head of the Electronic Switching Planning Department.

It is with great sadness that we learned of **Harlan Hunt's** untimely death. He was employed as an aeronautical engineer at United Aircraft Corporation. Aviation has always been his cup of tea and among his many achievements, he won the Air Medal with eight oak leaf clusters. Our deepest sympathy to his family.

**Ken Brock** has been named chairman of the 15th Reunion of the Class of '48 to be held in June, 1963, "somewhere on the seacoast." He will be happy to hear from any members of the class who are willing to lend a helping hand. If you are interested, you may drop him a note at 87 Adams Street, Medfield, Mass.—**Richard H. Harris**, Secretary, 26 South Street, Grafton, Mass.; **Harry G. Jones**, Assistant Secretary, 94 Oregon Avenue, Bronxville, N.Y.; **Herbert S. Kindler**, Assistant Secretary, 128 Elatan Drive, Pittsburgh, Pa.; **Robert R. Mott**, Assistant Secretary, Box 113, Hebron, Maine.

## '49

We have sad news this month. **John J. McCartin** died on April 2 after a short illness. At M.I.T., Mac was a commuter who resided in Belmont. His "Technique" listing notes that he was enrolled in the Physical Science Option of Course XV and that he was a member of Phi Mu Delta. At his death he was assistant sales manager for the Philco Corporation in Philadelphia. Our sympathy goes to his family, and especially to his three children, Judith Lynne, 10; J. Daniel, 8; and Elizabeth Anne, 6.

Here is some pleasant information on new posts. **Richard H. Witherell**, VI, is purchasing agent of materials for electronic production for the Foxboro Company. . . . **John Fairfield, Jr.**, VI-A, is director of sales communications for the

I.T.T. Federal Laboratories, in Nutley, N.J. He joined I.T.T.F.L. after 11 adventurous years with the international branches of the General Electric Company, located at various times in Caracas, Venezuela, San Juan, Puerto Rico, and New York City and Syracuse, N.Y. . . . News of publications this month: Professor **Thomas Hilton**, XIV, has an article in the *Carnegie Alumnus* for April, 1962, entitled "Antidote to Educationism" describing the steps Carnegie Tech is taking to reaffirm the principle that it is a privilege to teach. . . . **Warren Joy**, XVI, is co-author of "Performance and Economic Evaluation of Supersonic Transports Optimized for Various Propulsion Subsystems," in *Aerospace Engineering*, March, 1962. . . . **Benjamin Lax**, VIII, was scheduled to present a paper "Microwaves and Solid State" at the 1962 P.G.M.T.T. National Symposium at the National Bureau of Standards at Boulder, Colo. . . . That's all the news for this year. Happy summer to all and "write if you get work."—**Frank T. Hulsmit**, Secretary, 14 Nadine Road, Saxonville, Mass.

## '50

This is the final issue of *The Technology Review* until the end of the summer months when we all will be resting, bathing, sailing, golfing, and writing short notes to the Class of '50. I must say that it's been a real pleasure for me to receive the information that I have been passing on to you through the Class News, and I am looking forward to continuing to receive your short biographical sketch since your exit from M.I.T. One matter I would want to mention to the Class of '50 men who are in the New York area, and which I have failed to do, is that the M.I.T. Club is located in the Biltmore Hotel and has set the first Monday of each month, as the luncheon day for the Class of '50. This means that there is a table reserved for the Class of '50. I must say I have enjoyed eating by myself there alone. You might want to contact me one of these days if you are in this neighborhood and set a specific appointment for lunch if this is possible. We can bring the '50 men out of their convenient glass walls of New York City into the small, crowded, but atmospheric M.I.T. Club of New York.

**Phil Vance** has been named head of the MITRE Corporation's new Tactical Systems Department according to an announcement by R. R. Everett, Vice-president, Technical Operations. In his new post Phil will be responsible for directing MITRE's work on military electronic systems as they apply to peacetime, cold war and limited war planning and operations. MITRE is an independent system engineering organization formed in 1958 to provide technical advice and support to such government agencies as the Air Force Electronic Systems Division and the Federal Aviation Agency. Prior to joining MITRE in 1959, Phil served for four years on the staff of M.I.T.'s Lincoln Laboratory and four years with Goodyear

Aircraft Corporation. He is a member of the Institute of Radio Engineers and Tau Beta Pi. Phil lives at 7 Adams Road, Concord, Mass., with his wife and two children. . . . **Norton Belknap**, formerly an assistant regional co-ordinator with Standard Oil Company (New Jersey), is now serving in Japan as a senior managing director of Jersey's new affiliate, Esso Standard Sekiyu, K.K. Before moving to Japan, Mr. and Mrs. Belknap and their three children resided at 190 Oak Ridge Avenue, Summit, N.J. . . . **Richard L. Green** of Wakefield has been named New England district manager for Electrical Design News, a Cahners publication. . . . **Jim Broderick** has recently been appointed rubber chemical sales representative for the West-central and Southwest portions of the country. In his new post, Jim will maintain headquarters at the company's Chicago office, 3505 North Kimball Avenue. He formerly was located at department headquarters in Bound Brook, N.J., from which he handled rubber chemical sales in the Middle Atlantic states, Georgia and parts of Kentucky and Tennessee. Jim and his wife, the former Constance Cullman of Radburn, N.J., and their two children have resided in Berkeley Heights, N.J., for the past two years. They will relocate in the Chicago area in the near future.

Dr. **Lawson P. Harris** and Dr. George E. Moore presented a joint paper on "Some Electrical Measurements on MHD Channels" at the Third Annual Symposium on Engineering Aspects of Magneto-hydrodynamics held at the University of Rochester in March. Magneto-hydrodynamics, dubbed MHD for short, involves the motion of an electrically conducting fluid in the presence of a magnetic field. The paper is based on recent experiments performed in the General Electric Research Laboratory on an experimental MHD generator which burns hydrogen and preheated air mixed with small quantities of potassium hydroxide. When the mixture passes through a magnetic field at about 5000 degrees F. and at a velocity near that of sound, electricity is generated. The Research Laboratory MHD Project has been conducted in close co-operation with the Company's Electric Utility Engineering Operation and the General Engineering Laboratory. . . . **Charles Chase** was awarded a grant from the Department of State. This award is made under the provision of the Fullbright Act, Public Law 584, 79th Congress. It is one of more than 600 grants for lecturing and research abroad included in the program for the academic year 1962-63. The purpose of this grant is to conduct research in physics in Leiden, Netherlands. Charles' home address is 39 Edgewater Drive, Waltham 54, Mass. . . . Your classmate, Professor **J. Lowen Shearer**, is teaching the first part of a two-part sequence on dynamics systems being taught this spring for the first time at Tech. . . . **Floyd L. Wideman, Jr.**, Director of New Products at Johnson and Johnson, has been elected to the company's Management Board. Floyd is one of the youngest men ever to be elected to the board. Floyd is married to the former Lois Gunas of Cleveland. They

live on Sheraton Lane, Rumson, N.J., with their two children, Kendall Caroline and Floyd L., 3rd.

Now I have some address changes you might want to note: **Dean R. Thacker**, 38 Juneau Blvd., Woodbury, N.Y.; **Helmut E. Weber**, General Electric Company, Room 1326 M, P. O. Box 8555, Philadelphia 1, Pa.; **Frank K. Bennett**, 12 Stonicker Drive, Trenton 8, N.J.; **Richard K. Bennett**, Lincoln Road, South Lincoln, Mass.; **Paulo S. Castillo, Jr.**, 19216 Thelborn Street, Covina, Calif.; **Cosimo L. Cataldi**, 5709 West Wildbrian Drive, Palos Verdes Estates, Calif.; Captain **Otto F. Meyer, Jr.**, 4345 Acacia Avenue, Bonita, Calif.; **Kent Moore**, 14 Heath Street, Mystic, Conn.; **James F. Stengel**, 3610 King Street, Seattle 44, Wash.; **Lawrence E. Cotter, Jr.**, 1760 State Street, South Pasadena, Calif.; **Howard F. Crombie**, 703 South Foley Avenue, Champaign, Ill.; **Alphonse J. Dell'Isola**, 306 Randolph Street, Fairfax, Va.; **Meir Drubin**, 474 Abramam Avenue, Pacific Palisades, Calif.; **Gerald G. Fisch**, 470 Mountain Avenue, Montreal, P.Q., Canada; **Thomas F. Furlong**, The Chemstrand Corporation, P.O. Box 5564 Station B, Greenville, S.C.; **Harold N. Mulford**, 806 Silverside Road, Wilmington 3, Del.; **William A. Shinnick**, 3506 Cardenas Place, N.E., Albuquerque, N.M.; **G. Allan Smith**, 10113 Parkwood Terrace, Bethesda, Md.; **Louis Stark**, 2210 Yucca, Fullerton, Calif.; Captain **Joseph M. Glasgow, Jr.**, 1100 Esplanade, Redondo Beach, Calif.; **Eric S. Graham**, Royal Roads, Victoria, B. C., Canada; Captain **Roy E. Hale, Jr.**, 27612 Avenida Delmesa, San Pedro, Calif.; **Charles R. Hanson**, 1748 Twin Bluff Road, Red Wing, Minn.; **Joseph F. Hasselgren**, 1635 Springer Road, Mountain View, Calif.; **C. John Jacoby, 3rd**, 44 Duval Drive, Godfrey, Ill.; **John B. Lawson**, Lawson Engrg. Company, 543 Mineral Springs Avenue, Pawtucket, R.I.; **Richard D. Lemmerman**, Weems Creek Drive, Annapolis, Md.; **Richard L. Mathews**, 2021 Dean Street, Schenectady, N.Y.; **David L. Sutter**, 56 Narragansett Avenue, Ossining, N.Y.; **Paul A. F. Mourier-Petersen**, Rua is de Novembro, 16430, Sao Paulo, Brazil, S. A. . . . Have a nice summer; I hope to do the same.—**Gabriel N. Stilian**, Secretary, American Management Association, 1515 Broadway, New York 36, N.Y.

## 51

Last month we reported regretfully the death of **Jerry Hartstein** from Hodgkin's disease last March. Many of you will want to know now that his widow, Pat Hartstein, has established a small memorial fund at M.I.T. in Jerry's memory. Called the Gerard L. Hartstein, '51, Memorial Fund, its principal and interest will be available for student loans in conjunction with the Technology Loan Fund. Pat has asked that any contributions in memory of Jerry be sent to the fund at M.I.T.

Over 300 postcards were returned, providing your secretaries with ample

news to report for the next several Class News. Incidentally, our mailman is still grumbling to himself. We certainly appreciate this excellent response, and hope that those who forgot to send in their cards will send them along. . . . **Noel Adams** reports that he is studying for a M.B.A. at New York University. . . . **Nick Badami** is president of the Retangela Construction Corporation and is engaged in New York state highway construction projects. . . . **Roger Baumann** received a Sc.D. in physics at the University of Paris and is now an assistant professor at the Polytechnic Institute of Brooklyn. . . . **John Bergmann** has been traveling in Puerto Rico, Mexico, and Canada with a short visit to Europe thrown in. . . . **Marshall Blank** is with the Corps of Engineers, and worked on the San Francisco Bay Study. . . . **Aaron Brody** reports that **Leon Hong** recently visited him and that **Charles Murphy** and **Jim Chin** are neighbors of his in Morristown, N.J. . . . **Byron Burch** has four children under five years of age who help manage to occupy his spare time. . . . **Roald Cann** has been re-elected to the school board of Springfield, Vt., and is chairman again. . . . **Charles Chadwick** has traveled to Hawaii, Seattle, and Key West for Sikorsky Helicopter and now is a test supervisor. . . . **John Conley** reports that he will marry Mary Villers of San Francisco in September. Congratulations, John. . . . **Frank Davis** received his M.S. in electrical engineering at the University of Arizona and has been assigned to West Point as an instructor.

**John Dowds** is general manager of Anabaco in Oklahoma City, and has been pioneering with the use of information theory and statistical mechanics to explore for gas and oil. . . . **Stephen Eisen** has just returned from a vacation at Miami Beach, and purchased a new home on Long Island last winter. . . . **Evan Evans** is just completing a two-year training assignment at the Caltex Rotterdam refinery in Holland. . . . **Bill Gable** has recently returned to engineering work and is heading up a project for the development of simulation and training equipment for Nike-Hercules radars. . . . **Bob** and **Rachel Gooch** moderated a great books group this winter, and Bob has been working on water supply and flood control problems in Fort Worth. . . . **Dick Hammer** is a director of the Rotary Club in Sheridan, Wyo., and is active in numerous other civic affairs. . . . **Harry Harding** is president of Industrial Distributors, Inc., and obtained his private pilot's license last October. . . . **Sheldon Hershkovitz** is chief of the Gaseous Electronics Section of the Air Force Cambridge Research Lab. . . . **Charles Hieken** is president of the M.I.T. Club of Boston, and is still practicing patent law. . . . After four years of geological work in the Sacramento Valley District, **Rodney Huppi** has been assigned to the San Joaquin Valley. . . . **Doug Jones** reports recent activities of "sailing, skiing, flying" in Menominee, Mich. . . . **Robert Keefe** has been working on airport and building design.



**Earl Kletsy** received his Ph.D. from Syracuse last year and now is an assistant professor of electrical engineering. . . . **Loring Lee** has worked in New Orleans, Trinidad and Colombia in the last year, and saw John Small, '52, in Trinidad last summer. . . . **Robert Lewis** has been serving as a chaplain at Chanute AFB, Ill., for the past three years. . . . **Bob Lord** is now chief engineer of the Arwood Corporation and believes our class "deserves a better looking secretary." We agree! . . . **George McClary** has just transferred to the Thiokol Chemical Corporation in Brigham City, Utah. . . . **Charles Miller** was appointed head of the Civil Engineering Department at M.I.T. last November. . . . **Ray Moore** supplemented his work in cryogenics with skiing in New Hampshire and Colorado. . . . **Mark Nelkin** just returned from a year as a research associate in Utrecht, Netherlands, and next fall will be joining the Cornell faculty as an associate professor of engineering physics. . . . **Russell Osborn** has been elected regional vice-president of the American Institute of Industrial Engineers. . . . **Mason Phelps** received a Ph.D. in mathematics from Harvard in 1958 and is now with the MITRE Corporation. . . . **Thomas Rebarchak** has seven children and is building a five-bedroom colonial house. . . . **Augustas Rigas** has been occupied for the past three years setting up a company for industrial contracting and demolition work, and extends a cordial invitation to those passing through Youngstown, Ohio.

**Winfield Salter** has been working on the planning of the \$800 million rapid transit system for the San Francisco Bay Area. . . . **Bill Shenkle** is the general manager of the Rockwell Plant in Tulsa, Okla. . . . **James Staples** is working towards a M.B.A. at Rollins College. . . . **Ed Stringham** has developed equipment and chemicals for Penetryn System, Inc., to inspect sewers by closed circuit television and repair joints internally. . . . **Alfred Wheeler** was married June 30, 1961, and is now plant engineering superintendent for U.S. Gypsum in New Braunfels, Texas. . . . **Anthony Winifsky** is an associate professor in the Fine Arts Department at the Salem State College. . . . **John Wright** is a physicist at the Naval Research Lab, and if the scribbling under recent activities is indicative, his two children are similar to mine. . . . **George C. Vogel** received a M.B.A. from the University of California in 1956 and now is an assistant professor at the San Jose State College. —**Forest C. Monkman**, Assistant Secretary, 46 Lincoln Street, Hingham, Mass.; **Richard W. Willard**, Secretary, Box 105, Littleton, Mass.

# '53

Our 10th Reunion plans continue to roll. A number of classmates have already responded to the call with offers. Hopefully, more of you will volunteer help, particularly classmates in other regions who will be willing to handle phone

or postcard contacts. . . . Bits and pieces. . . . This June **Ed Profio** presented two papers at the Boston Meeting of the American Nuclear Society; the titles are: "Measurements in Natural Uranium-Heavy Water Lattices" and "Measurements in the M.I.T. Lattice Facility." . . . **Rudolph Cypser, G**, has been appointed assistant director of patent engineering on the research and engineering corporate staff at the IBM Research Center, Yorktown Heights, N.Y. . . . **Allen Potter** has received another promotion, and is now chief development engineer of the Air Impeller Division of the Torrington Manufacturing Company, Torrington, Conn. . . . **Paul Cootner** recently published a technical paper in the Industrial Management Review which was entitled "Stock Prices: Random versus Systematic Changes." (I must read that; maybe I'll stop losing my shirt.) . . . **Walter Brown** is in charge of the experiment on radar reflectivity and also cognizant scientist of NASA's Ranger 4 Project. . . . We just learned **Dick Salter** has a year-old son and is now living in Cleveland. He was also recently appointed head of the Fluid Mechanics Section of the Engineering Specialists group in Mechanical Product Development at Thompson Ramo Wooldridge. . . . **Douglas Harvey, G**, was the honored guest at the thirtieth annual Honors Night Dinner of the Institute of Aeronautical Sciences where he received the Lawrence B. Sperry Award "for contributions to space flight through his direction of the design, development and testing of the first nuclear auxiliary power plant to be put into orbit. June 29, 1961." (As the newspaper put it, "A 33-year old Govans father of two has been named America's space age rookie of the year.") Douglas lives in Baltimore, and is Project Engineer in charge of Space Systems, Auxiliary Power Systems Department, Nuclear Division, Martin Marietta Corporation.

One of our classmates is leading a different life, if that's what you call skipper of a nuclear submarine (the U.S.S. Shark). The newspaper summarizes what apparently is the key to **John Fagan's** success as the captain; it reads: "He lives on four hours sleep, he averages four packs of cigarettes every day, he drinks coffee at a heroic rate, and maybe someday he'll unwind with a tremendous twanging noise." (I can't help but observe that this description also fits young professors at the Toot.) . . . We received a fine letter from **Bob Schrieffer**, who presently is on the faculty at the University of Illinois. Bob completed his Ph.D. in 1957 at Urbana, sojourned in Europe for a year (meeting his future wife for the first time; he married her on his second European tour in 1960), spent a year at the University of Chicago as an assistant professor of physics, and then returned to Illinois. He reports, however, that he has accepted a full professorship in the Physics Department of the University of Pennsylvania and will take up residence there in September. During the summer, he and his wife Ann will spend a month touring in Europe and "fitting in conferences along the way." Thanks, Bob. . . . As for yours truly, I have re-

signed from the M.I.T. Faculty (effective at the end of the academic year) and accepted a position with Systems Analysis and Research Corporation (home office in Boston). As some might say, after five years I am going to work for a living. I'm looking forward to some intensive research in transportation systems development and evaluation, and so forth. Note change in address. Do write over the summer. Best regards.—**Martin Wohl**, Secretary, 21 Coolidge Road, Belmont, Mass.

# '54

Our plaintive plea of several months ago has really produced results. Not only have numerous members of the class sent letters about their recent doings, but even several wives have written. The many letters are greatly appreciated, and we hope the flow continues unabated during the summer. If you feel the urge to write, please note my new address below. . . . **Sam Losh** writes from Los Angeles that he is still active in both politics and bachelorhood. He is currently president of the Sunset Young Republicans, modestly known as "the largest YR Club in the free world." Sam sends word on various other people out West. **Reed Margulis** has left Microdot in South Pasadena, Calif., and opened an office as Los Angeles area representative for Alto Corporation. . . . **Bill Moody** has resigned as executive vice-president of United Convalescent Hospitals, Inc., to enter into business for himself (Sam didn't say what his new business is). Bill, his wife, who is a professional model, and their three children, live in La Puente, Calif. . . . **John Melavas** is an engineer for Cannon Electric Company in Highland Park, Calif., and lives in Hollywood. . . . **Dick Tooley**, having acquired his Ph.D. in physics at Tech, moved himself and his wife to La Mirada, Calif. Dick is a research physicist at California Research Corporation, La Habra, Calif.

**Harry Taylor**, who apparently lives almost next door to Sam Losh, informs us that he left Aerojet-General Corporation in Sacramento, Calif., and has joined the technical staff of Aerospace Corporation in El Segundo, Calif. He is working on the booster rockets for the Dyna-Soar orbital glider. He also says that he greatly enjoys his work for the M.I.T. Educational Council, and even thinks he would like to run for a class office. Hoo, boy! How about a job as secretary-treasurer, Harry, old boot? Harry also reports that **Walt Kroy** is pursuing a doctorate at U.C.L.A. . . . **Dean Jacoby** writes from Alton, Ill., that minor details are snowing him under in his furniture business. However, he hopes that he and Judith can return to the relatively gay life in the near future. . . . **Art Kaplan** sends word from East Syracuse, N.Y., that he is now manager of the experimental operations unit of the Radiation Effects Operation of the Defense Systems Department, General Electric Company. Since graduation, Art says he has managed to acquire a master's degree in nuclear en-

gineering, spend two years in the Air Force, get married, spend three years with Technical Operations, Inc., in Burlington, Mass., and finally join the General Electric clan. He says he missed our reunion in 1959 because of his son's birth at the same time, but fully intends to get to our next one two years from now. . . . **Dave Borenstein** informs us that he has left Celanese Corporation, and is now with the National Aniline Division of Allied Chemical. He is still, however, in the research and development phase of the synthetic fibers game. Dave and his family now live in Petersburg, Va. Dave reports further that **Ed Hair** is still working for Procter and Gamble, and is expecting, along with his wife, child number 5. **Tom Molnar** is now living in Tenafly, N.J., with his wife and two children; Dave didn't say what, if anything, Tom is doing for a living.

**Paul Spreiregen** writes that he was married last October to Mademoiselle Rose-Helene Bester in Paris, France, and that they honeymooned in the Caribbean, and that they are now living in Washington, D.C., where Paul has left his job with Downtown Progress and has joined the national headquarters of the American Institute of Architects, where he will work on a special project in urban design, and that Paul is now a registered architect in the District of Columbia. (Paul's letter actually had more than one sentence, but it did give the impression that he has been busy.) . . . Turning to the letters from wives of members of the class, we learn from Lois **Brody** that **Howard** has been promoted to assistant professor of physics at the University of Pennsylvania. Howard, Lois and their two daughters are living in Haddonfield, N.J. . . . Lynn **MacKenzie** writes that **Al** is now a chemist for the Escambia Chemical Corporation in Wilton, Conn. Al, Lynn, and their two children are living in their new home in Redding, Conn. . . . And, Margie **Leonard** informs us that **Larry** has been appointed assistant professor at Case Institute. The Leonards expect their number two child in September, about the time they're moving to Cleveland. That's about the situation Marcia and I were in last year, so the Leonards have my sympathy.

From news clippings and other sources, we have acquired the following items. **John Bremer** has written a book, "Superconductive Devices," published by McGraw-Hill Company. As far as I know, this is the first book written by a member of the class. John is a senior research engineer at the General Electric Computer Laboratory, Sunnydale, Calif. . . . **Gregory Constantine** has received a \$1,000 Invention Award from IBM for his work on magnetic core computer memories. Greg is currently at Tech working on his doctorate on an IBM Scholarship. His regular employer is the IBM Development Laboratory in Poughkeepsie, N.Y. . . . **Shel Dick** has been promoted to captain by the Army, and recently was moved from California to Fort Monmouth, N.J. . . . **Joe Hurley** has been promoted to plant process and engineering supervisor for the B and C factory of Corning Glass Works in Corning, N.Y.

Joe and his wife Kathleen now have three children. . . . **John Lovasz** is working for the Gerber's Foods Company in Oakland, Calif., where he helped develop the food used by Astronaut John Glenn on his trip around the world. . . . **Joe Peters** has been appointed factory controller of the Phillipsburg and West Easton plants of the Ingersoll-Rand Company. Joe lives in Jordan Park, Fullerton, state unknown. . . . **Dave Springsteen** has been made assistant treasurer of the Chase Manhattan Bank in New York City. . . . **Roy Kaplow** conducted a seminar on "A Review of Theories of the Liquid State" in February, apparently at Tech. . . . **Art Eckert** has received his master's degree in civil engineering from Tech. . . . And it is with great regret that we must report that **Jim Wood** was killed in an automobile accident in Philadelphia while on a business trip. Jim was president of Harvey Wells Electronics, Inc., East Natick, Mass. Our sincerest sympathy to Jim's wife and three small sons. . . . Finally, the Eigel clan is in North Carolina for six weeks this summer while I take part in a National Science Foundation Summer Institute on Advanced Topics in the Computer Sciences. Next month, however, I shall be back in St. Louis, but at the new address given below. I hope to find lots of news from all of you when I get back. In the meantime, thanks again to all of you who have written.—**Edwin G. Eigel, Jr.**, Secretary, 4945a Sutherland Avenue, St. Louis 9, Mo.

## '55

As of this writing, we have received a wonderful response to the questionnaires sent out with **Jim Eacker's** president's letter a short time ago. It's a pleasure to see so many of us doing so well in the industrial and academic world, as well as in adding to the next generation. . . . **Mike Kennedy** writes from Port Washington, N.Y., that he is doing field engineering for the New York division of Shell Oil Company. He and wife, Rachel, have three children—two boys and a girl. . . . **Hal Cohen** has become a licensed New York state professional engineer, and is working with Dave N. Cybul, Architect, as the office manager. He and Sheila are living in the Bronx. . . . **Fred Lupton** writes from Chicago that he is doing computer programming for the Pioneer Service and Engineering Company. . . . **Roger Broadwell** is the eastern district technical service representative for Titanium Metals Corporation. He and Phyllis have a boy, a girl, and girl twins in Chatham, N.J. . . . **Donald Burress** received his M.D. from Columbia this June. He will be interning in surgery at the Presbyterian Hospital, New York, beginning in July. Don was elected to Alpha Omega Alpha last fall. . . . **Ed Pulsifer** is area sales manager for Sanborn Instruments Company (Midwest). He and Alice live in Sudbury, Mass., and have two boys and a girl. . . . **Jim Storey** writes from Westport, Conn., that

he finally got to Europe for a short business trip in February. He and Carolyn have two children—one of each. . . . **Dan Brown** has been working at developing artificial lungs and kidneys as well as integrated life support systems for space vehicles and nuclear submarines. Dan is chief of the Bionomics Section, Ionics, Inc. He and Louise live in Wayland and have a little girl. . . . **Marty Gilvar** is a project engineer for Morgan Construction Company. Sporting around in a black TR-3, he visited company installations in Germany, Luxembourg and Belgium this spring. He and wife Meg live with their boy and girl in Westboro, Mass.

**Charles Ladd** says he finally concluded his professional student career with an Sc.D. in civil engineering at M.I.T. in June, 1961, after 11 years of college life. He was appointed assistant professor in the Civil Engineering Department shortly afterward. This was celebrated with an N.S.F. sponsored trip to Europe to attend the international conference on Soil Engineering in Paris. He is now teaching two graduate courses, doing research, and advising 13 freshmen. Charlie and Carol live in Concord, Mass., and have four children, two of each. . . . We have received much more than the above, but will have to ration it over the next few issues so that this magazine will not have the Class News for '55 with The Technology Review attached. Thank you all for writing in. Hope you have a good summer.—Co-secretaries: **Mrs. J. H. Venarde**, 2401 Brae Road, Arden, Wilmington 3, Del.; **L. Dennis Shapiro**, 15 Linnaean Street, Cambridge 38, Mass.

## '56

This article draws to a close our sixth Alumni year. For myself it marks the end of two years in which I fear you have been somewhat neglected. . . . In a letter just received, **Jack Saloma** announced his return to Cambridge as assistant professor in the political science section of Course XIV. Jack has been in Washington working on the staffs of Senator Saltonstall and Congressman Thomas Curtis as a congressional fellow. This program is sponsored by the American Political Science Association and the Ford Foundation. Before going to Washington last fall, Jack finished the work on his Ph.D. at Harvard with a dissertation entitled "British Conservatism and the Welfare State." . . . The Northern New Jersey Chapter of the American Production and Inventory Control Society held an annual seminar at Farleigh Dickinson University in April. **Morton Allen** spoke on "Job Shop Scheduling." Mort is in production control service at General Electric. . . . The April 22, 1962, Boston Herald contained a feature article on **Richard Barakat**. Dick is an optical research mathematician at Itek Corporation, where he performs research on diffraction, including propagation of electromagnetic radiation through transparent media. Before joining Itek, Dick was with the Woods Hole



Oceanographic Institution where he studied statistical theory of water waves. . . .

**John Basile** has received his S.M. from the School of Industrial Management. His thesis topic was "Multi-Echelon Inventory Theory: A Case Study." . . . We note that Lt. **Tom Cleaver** is now with the 29th FIS at Malstrom AFB, Mont. . . . In June **Mort Cohan** presented a paper entitled "X-Ray and Fission-Product Gamma Spectra of Spent Fuel Elements" before the Boston meeting of the American Nuclear Society. . . . **Steve Conviser** is at the Molecular Sieve Products Laboratory of the Linde Division of Union Carbide. . . . **Fred Jelinek** has received his Ph.D. in Course VI. His thesis topic was "Coding for Discrete Memoryless Two-way Channels." . . . Professor **Dean Karnopp** has designed a device to indicate physical motion as a plot on an oscilloscope for use in a new course in dynamic systems.

**Donald Koffman** has given a seminar at Tech on "Grain Boundary Diffusion in the Silver-Zinc System." . . . **John Patierno** has written an article entitled "Instrument Flight Simulator Study of the VTOL Controllability-Control Power Relationship" for the March issue of Aerospace Engineering. John received his M.S. from the University of Southern California and teaches there part time. He is also a senior research engineer in the Research and Advanced Systems Branch, Norair Division, Northrup Corporation. . . . **Jack Rosenfeld** has been promoted to first lieutenant at Fort Leavenworth, Kansas, where he is the doctrine and development officer at the U.S. Army Command and General Staff College. . . . **Marty Saltarelli** has been promoted to director of research at the E. D. Jones Corporation, a subsidiary of Beloit Iron Works. . . . **Dan Schurz** has been awarded a 1962 N.S.F. Fellowship to continue his work at M.I.T. . . . **William Wolf**, head of Wolf Research and Development Corporation, has been chosen one of the outstanding young men of the year by the Greater Boston Junior Chamber of Commerce. . . . Captain **Bob Alter** will return to civilian life in August and is planning a four-month trip around the world to celebrate. . . . As for myself and the wife, after a month in Europe we will take up permanent residence in the Boston area this summer. As of August I will be with the investment counseling firm of Loomis, Sayles and Company as a securities analyst, initially specializing in the chemical industry.—**Bruce B. Bredehoft**, Secretary, 1094 Center Street, Newton Center 59, Mass.

# '57

**Pete Franklin** is with the Peace Corps in Tanganyika surveying remote feeder roads near the coast of Tanga. . . . Dr. **Melvin J. Glimcher** has been promoted to associate professor of orthopedic surgery at Harvard. . . . Dr. **Tom Alden** spoke before a Metallurgy Department seminar on "Fatigue in Metal Crystals" and **Keung P. Luke** spoke before a Nuclear

Engineering Department seminar on "Work Function of a Single Crystal Tantalum in the Presence of Cesium Vapor." . . . **Ted Gautschi** has joined the Farrugut Square Investment Corporation of Washington, D.C., as vice-president for operations. . . . **Dionysios E. Speliotis** recently received his Ph.D. from the University of Minnesota. . . . **Al Drake** has been instructing at the Lowell Institute this past semester. . . . **Ken Alexander** has been appointed associate professor of business and engineering administration at Michigan Tech. Among those at a pre-reunion cocktail party held in New York were Hugo and Barbara Liepmann, Milt and Tish Lilie, Tom and Carol Pacinda, Karl Schmidt, Norm and Ina Lerner, Hank and Sue Salzhauer, Jim Havender, Bill and Janet Alcorn, Fred Morefield, Elliot Wolk, Dick and Hope Hirschhorn and David Wolsk. . . . This article completes five years of writing for The Technology Review. I'm afraid we missed three issues: two because we didn't make the deadline and one because we were away on vacation and forgot all about it. I have certainly enjoyed this opportunity to be of service to the class. Frankly, this column has not been as much fun as putting out Voo Doo; on the other hand, we've kept it a lot cleaner. By the time you read this, I trust that my successor will have been selected. I take this opportunity to say a quiet, modest, thank you to Gary, Hank and Marty and to each of you who has written to us.—**Alan M. May**, Secretary, 201 East 66th Street, New York 21, N.Y.; **Martin R. Forsberg**, Assistant Secretary, 11 Scottsfield Road, Allston 34, Mass.

# '58

**Ken Auer** recently at Procter and Gamble saw **Dave Savage**, who after Tech went to the University of Virginia with his sights set on a Ph.D. but decided to enter the business world upon receiving his master's degree in chemistry. Dave, his wife and their sons, 3 years and 6 months old, have settled in Cincinnati. . . . **Chuck Vicary** has a new son, Jonathan Grant. . . . I ran into **Dick File** while in New York City last week. He is temporarily sleeping on **Dick Child's** couch while working for Raymond International in the city. Dick's jobs as a civil engineer in New York have varied from taking borings in the harbor in the middle of the night to a possible African trip in the future. . . . **Mel Copen** is back in the academic world at Harvard Business School on a new Ph.D. program dealing with international trade management, in which he is pioneering. Mel is doing some good work on the reunion committee, and we hope that we don't lose him to Japan or Africa this fall. . . . **Warren Heimbach**, who is our new class and reunion treasurer, has joined forces with **Arnie Amstutz** and company at Scientific Development Corporation. You'll be hearing more from Warren in the fall. . . . **Dick Gottlieb** has one of the jobs we all wish we could

get. He is settled fairly permanently with wife, Bobbie, and two boys—Geoffrey, 3, and Seth, 1, in Milan, Italy, as a systems engineer for Olivetti. Dick got his M.S. while in the Army and then went to work for Olivetti here in the U.S. If any of you go through Milan this summer, the welcome mat is out at Piazza Libia 7.

We hear that **Bill Banker** has recently changed jobs to join National Polychemicals as a process development engineer. . . . **James Mulholland** has gone from the ways of that vanishing race of bachelors. In April he married Marilyn Schuman in the chapel of the Yale Divinity School. They will live in Bethany while Jim is at Scovill Manufacturing Company and Marilyn supervises the Day Prospect Hill School in New Haven. . . . **Duncan Ewing** is in the Army in Germany. A whole raft of M.S. degrees were awarded to classmates at Tech this fall. M.S., Chemical Engineering: Alton Frabetti, Robert Previte; M.S., Metallurgy: Mark D'Andrea; M.S., Physics: Frank Galeener; M.S., Industrial Management: Michael Brose; Ph.D., Chemical Engineering: Sheldon Dean. . . . **William Paar**, G, has been appointed development engineer, manager, Electronic Development, at IBM's Space Guidance Center in Owego, N.Y. . . . **George Bobelis**, G, was named assistant superintendent of Electric Boat's major department—welding, employing some 1,600 people. . . . **Merrill Kaufman**, G, after being chairman of the Retail Merchants' Committee of the Washington Chamber of Commerce, has purchased the People's Store in Delaware. . . . **Bernard Shapiro**, G, has been appointed to the faculty of Lowell Technical Institute in the Department of Economics and Management. . . . At the Boston meeting of the American Nuclear Society **Philip Palmeo**, G, and **Joseph Robertshaw**, G, presented two papers.—**Cornelius Peterson**, Secretary, 262 Housatonic Avenue, Stratford, Conn.; **Antonia D. Schuman**, Western Associate, 2240 Napast, Canoga Park, Calif.; **Kenneth J. Auer**, Midwestern Associate, 12955 Harlon Avenue, Lakewood 7, Ohio; **William Daly, Jr.**, Eastern Associate, 125 White Street, Waverley, Mass.

# '59

Taking inspiration from the old adage "No News is Good News," I'm happy to report that our classmates are doing well. Some news clippings announcing fellowships awarded to members of our class have been received. Recipients of NSF Graduate Fellowships for 1962 are: Joe Burgiel, Harold Gilliland, Steve Oston, and Lawrence Vaughan. . . . **George Henry** has been awarded an NSF Fellowship to study in Switzerland. George is presently studying for his Ph.D. at the University of California in Berkeley. . . . News from the working world is that **Norm Miller** recently received an appointment as humorous writer for Rust Craft Publishers. Norm was previously assistant advertising and public re-

lations manager of Tracerlab. . . . The usual ending for the class news is a plea for more. To change the theme slightly, there's a game I heard about that I thought you'd find interesting. It's a question and answer type of game where the answer is given and an appropriate question must be thought of. As an example, a typical answer is 9W. The best question which I've heard is: "Do you spell your name with a V Herr Viener?" The answer of the month is Juno, Alaska. Incidentally, please include some class news with your question (no box-tops). —**Al Oppenheim**, 1200 Commonwealth Avenue, Allston, Mass.

## '61

There is lots to impart, but first things first. The Cocktail Party on May 5 was a great success, in spirit if not in numbers. The problem, of course, was the publicity, and those who did not read this column in the March, April, or May issues received the first indication that there would even be a cocktail party on or after the day it occurred. This was because of a misunderstanding as to the date by which Ira's letter would be distributed. Chairmen **Bill Swanson** and **Sandy Wagner** certainly deserve a round of heartiest thanks from the class, for running a smooth event, and it is only too bad that more people didn't know about it. . . . Your secretary managed (between drinks) to gather reams of data in his obnoxious little notebook on all those present, so here we go on a cruise through the crowd as it was assembled last May in Burton House Dining Room. (The latter being, it was agreed by all, a very impressive addition to that dorm.) . . . First on the scene were, of course, chairmen Swanson and Wagner. Originally behind the bar, they were seen in front of it more and more frequently, until all pretense of businesslike operation was abandoned at 5:30. Both are currently working in the Registrar's Office; Sandy will be teaching at Browne and Nichols School next fall, while Bill plans on Navy O.C.S. in September. . . . **Tom Hastings** arrived shortly, with his record player. (I am quite sure on this point as I helped him lug it down to Burton House from our room in the Graduate House.) Tom will be here another year, in Course VI, will take his predoctorals in the fall. . . . **Ken Singer** soon arrived (Columbia Medical School—no field of specialization in mind yet), closely followed by **Ev Tingley** and **Claude Phipps**. **Bill Lenior** and **Pete Gray** were the next two I spotted. Pete will be a tutor in Senior House next year, I learned. Right now he is living with **Ernie Rogers** and **Ted Jarmain** at 135 Magazine Street. The latter two were not long in arriving, by the way, bringing with them **Bob Nagro**. Bob was up for the weekend from his Philadelphia job with Fischer and Porter Company.

Who else? **Bill Leffler**, **Chan Coyle**, and **Dorsey Dunn**, for three. The latter with American Cyanamid in Wallingford, Conn., with plans set for Harvard Busi-

ness School in September. **Parvin Lippincott** continues in physics here at M.I.T. . . . President **Ira Jaffe** arrived, having come in from Michigan especially. He is finishing up law school at Ann Arbor, finds it a change from M.I.T., to say the least. **Grady Harris** appeared shortly thereafter. Also **Mike Wechsler**, now at Harvard Business School. He is getting married on August 26, by the way, to Miss Joan Olshen. **Clement Vaturi** was there; he is engaged to Joan Rindler. **Harry Bluestien** was also present, and by the time you read this, he will be married too. June 16 was the day. The last legible notes I find in my little book state that **Bennet Zarren**, as well as **Haim Alcalay**, were at the party. So 23 of us made it.

Back slightly in time now, to April 30, when our class had an overly large representation at the Alumni Council meeting. Asked to bring five of our number to the meeting, I found Pete Gray, Grady Harris, Tom Hastings, Ted Jarmain, and Ernie Rogers to be interested. The point to make is that any of these meetings are very much open to many of you who are interested in going to one or more. They are held the last Monday of each month; just get in touch with me a little in advance if you are going to be in town and are interested. I'll take care of the details. . . . Well, here I go with my first 'I goofed' notice. Postcard from **Art Silverman** reads: "Sorry my handwriting was so bad that it could hardly be read. With regard to '61's April Notes, my wife is Donna L. Zolov and is employed as a speech therapist! She teaches for the New York School for the Deaf in Manhattan, and is doing experimental work with children afflicted with aphasia. A little better than a 'speed typist' I guess." It most certainly is, and I will split the honors for this one with Art's handwriting. My heartiest apologies to Mrs. Silverman. . . . Congratulations to the following men, who received National Science Foundation Co-operative Graduate Fellowships to continue their studies at M.I.T.: Richard de Neufville, Frederick Hanser, Raymond Lewis, Parvin Lippincott, Roger Lucheta, and Harold Mayer. These grants are not easily come by. . . . I have a note here that says that **Charles Levine's** engagement to Miss Marcia Klosk was announced last spring, with an August wedding planned. . . . **John B. Sabel**, II, was married last March, to Miss Elizabeth A. Cole. . . . And as we went to press, the engagement of **Dick Spann** to Miss Audrey Rhine of Boston was announced. They plan a November wedding.

And so, after a year of writing these columns for the class and for The Review, comes a little vacation, as the next issue will not appear until November. If I may inject a personal note on myself, it has been an interesting year in many ways. The switch to engineering from Course XIV was not made without some strife. The initial problems seem to be over at this point, however, and my own outlook now is for a summer of thesis work (experimental) at the M.I.T. Reactor, followed by a second year in the Nuclear Engineering Department. I'll take a crack at the predoctorals in February, if present

plans hold. . . . Looking back on the '61 Class Notes for the past year, I see very little save rehashes of the clippings that the Alumni Association sent me each month. These cannot have made very exciting reading, since they weren't exactly personalized. I shall omit any apologies for this, and skip as well the traditional pitiful wail of class secretaries, "Why don't you guys write?" (I tried this, it doesn't work.) I'll be frank and put it this way: there is just so much that I can do with a packet of clippings and press releases. I shall continue to use them, and try to write interesting columns as I promised to do when elected, but feel that there is little hope of success until I get some personal word to back up the routine news. So, suit yourselves. I'll hold up my end of the bargain. If you, individually and collectively, hold up yours, the News can be informative, lively, and personal—fun to write and interesting to read. If you don't, don't gripe! You've got no news, you say? Sixty address changes per month for the Class of '61 must mean something! Have a good summer. See you next November.—**Joseph Harrington, 3rd**, Secretary, M.I.T. Graduate House, 212-A, 305 Memorial Drive, Cambridge 39, Mass.

## '62

The Class of '62 is spreading its talents all over the country. I'll try and mention as many of your names and destinations as I can in this issue. As for those who aren't mentioned here, don't feel left out; just keep looking in succeeding issues and your name is bound to turn up. For faster action, write me and let me know what you're doing. . . . **Dick Pickett**, II, is going to work for General Dynamics. . . . **Chuck Gamble**, XVI, is going to work for the Martin Company in Denver. . . . **Steve Banks**, VIII, **Bojey Salmon**, I, **George Wyman**, X, and **George Offen**, II, are bolstering U.S. defenses in the Army. . . . **Tom Burns**, XV, **Steve Levy**, XV, **Steve Helpern**, XV, **Pete Thurston**, XV, **Alan Loss**, XV, and **Bob Morris**, XV, are continuing in Industrial Management at M.I.T. Bob is being married to Ileen Urnstein of B.U. in September. . . . **Pete Anderson**, XVIII, is staying at M.I.T. . . . **Lloyd Armstrong**, VIII, is going to the University of California. In fact, there is a whole contingent heading Horace Greeley: **Gordie Mann**, XV, **Barry Roach**, XV, and myself, I, are heading for Stanford Business School. . . . **Art Samberg**, XVI, is going to work for Lockheed. . . . **Mike Parlamis**, I, is going to Stanford for construction management. . . . **Donald Dible**, VI, **Paul Olmstead**, VI, are going to Stanford for electrical engineering, and **Howie Plotkin**, XVIII, is going to Stanford for operations research. . . . **Firouz Vakil**, I, is going to the University of California at Berkeley. . . . **William Bails**, II, **Ray Landis**, II, **John Rupert**, II, **Al Bellows**, II, and **Greg Brown**, II, are at M.I.T.

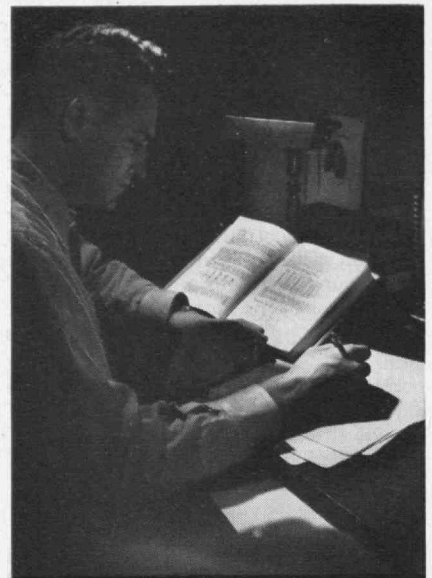
**Richard Clayton**, VI, **Dan Smythe**, VI-A, **Murray Sachs**, VI-B, **Herman**



Schneider, VI, Larry Pitts, VI, Leland Jackson, VI, Max Snodderly, VI, Brandy Qualls, VI, and Al Cameron, VI, are staying at M.I.T. in electrical engineering. . . . **John Dobson, XXI**, is going to the University of Wisconsin. . . . **Mickey Haney, VI**, will be working for United Weather Systems in Conn. . . . **Tom Sheahan, VIII**, will be at M.I.T., as will be **John Prussing, XVI**, **Bill McFarland, XVI**, **Dave Koch, X**, **Bill Koch, X**, **Jim Draper, XVI**, **Bill Margetts, X**, **Don Fraser, XVI**, **Dale Gladding, I**, and **Dave Korkosz, Ed Linde, I**, **Mike Jablow, VI**, and **John Rollwagen, VI**, are going up the Charles to Harvard Business. John will be married this summer. . . . **Karl Sladek, X**, will be going to practice school in New Jersey. . . . **Terry Bray** will be at the University of Texas Law School. . . . **Chet Riley, XVI**, is going to General Electric Industrial Management Training School. . . . **Joe Perkell, II**, is switching from pliers to incisors at Harvard Dental School. . . . **Tom Morgenstern, XV**, will be at University of Pennsylvania Dental School. . . . **George Meyer, VII**, will be attending Tulane Medical School and **Lynn Whelchel, VII**, will be at Dartmouth Medical School. . . . **Jan Hyde, I**, will go to M.I.T. in Course XVII. . . . **Joe Bloomer, XXI**, is going to Western Reserve Medical School. . . . **Steve Handel, XIV**, will be studying psychology at Johns Hopkins University. . . . **Steve Woo, XVI**, and **Tom Alexander, XVI**, will be working for Douglas Aircraft. . . . **Ernie Kendall, XII**, will be with the Peace Corps in Ghana. . . . **Steve Kukulich, VIII**, after marrying Joan Gardner, '64, will attend M.I.T. . . . **Mike Reid, VI**, will be working at R.L.E. and going to M.I.T. part time. . . . **Erich Ippen** has a fellowship to study in Zurich, Switzerland. . . . **Tal-**

**bot Huff, VI**, will be working for Sanders Associates in New Hampshire. . . . **Bob Johnson, X**, and **Pete Ommundson, II-B**, will be in the Navy. . . . **Jed Engeler, VII**, will be going to Indiana University Medical School.

**Dave Stare, I**, is going to Northwestern Business School. . . . **Dick Sutton, V**, will be at the University of Pennsylvania Medical School. . . . **Tim Vogt, XVI**, is working for the Martin Company in Denver. . . . **Al Snyder, VII**, is going to University of Ohio Medical School. . . . **Ed Schwartz, XV**, is going to University of Chicago Business School. . . . **Dave Stein, VII**, will be at Albert Einstein Medical School in New York. . . . **Bill Edmiston, III**, is going to Purdue University. **Claron Anderson, VI**, and **John Ohlson, VI**, will be working in California. . . . **Oliver Smoot, XIV**, will be studying political science at Johns Hopkins University and **Howie Fineman, II**, will be working in Baltimore. . . . **Wilton Hall, II**, will live and work in Texas. . . . **Jim Kesler, I**, was married in June and will be going into the Army. . . . **T. J. Lageman, X**, will be working in New Jersey. **Earl Ruiter, I**, is going to Northwestern studying transportation. . . . **Bill Bloebaum, X**, will be at Stanford. . . . **Henry McCarrl, XII**, is going to Pennsylvania State. . . . **Charles Gerheim, X**, will be at Purdue. . . . **Nicholas De Nunzio, XIII-A**, is going to work at the New York Naval Shipyard. . . . **Yaakov Elkon, XVI**, will continue at M.I.T. . . . **John M. Stopford, II**, plans to continue at M.I.T. . . . **Eugene Finkin, II**, will go to R.P.I. . . . **Gerald Gottlieb, VI**, and **Jim Burke, V**, will continue at M.I.T. . . . **John Rothschild, VII**, plans to attend business school.—**Jerry Katell**, Secretary, Stanford Business School, Stanford, Calif.



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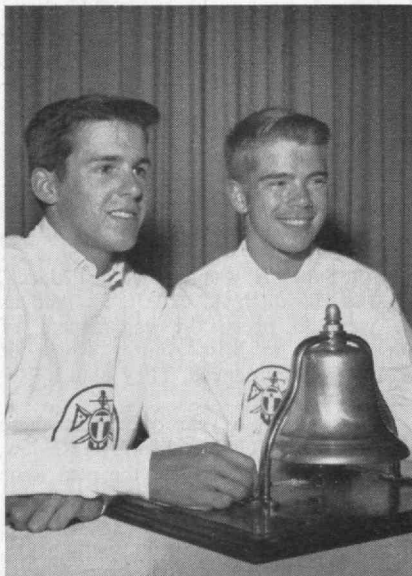
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**KENNETH A. KLARE, '63**, sailing team captain, holds the Monotype Championship Trophy won in May for Olympic Finn Class dinghys. The trophy bears medals for participation in Olympic Games during 1948, 1952 and 1956.



**AN UNDEFEATED SEASON**, through the efforts of Captain **Scott J. Hynek, '65**, and **John Navas, 2d, '65**, brought the Nickerson Bell, trophy for the Freshman Team Championship of New England, to the M.I.T. Sailing Pavilion trophy room again.

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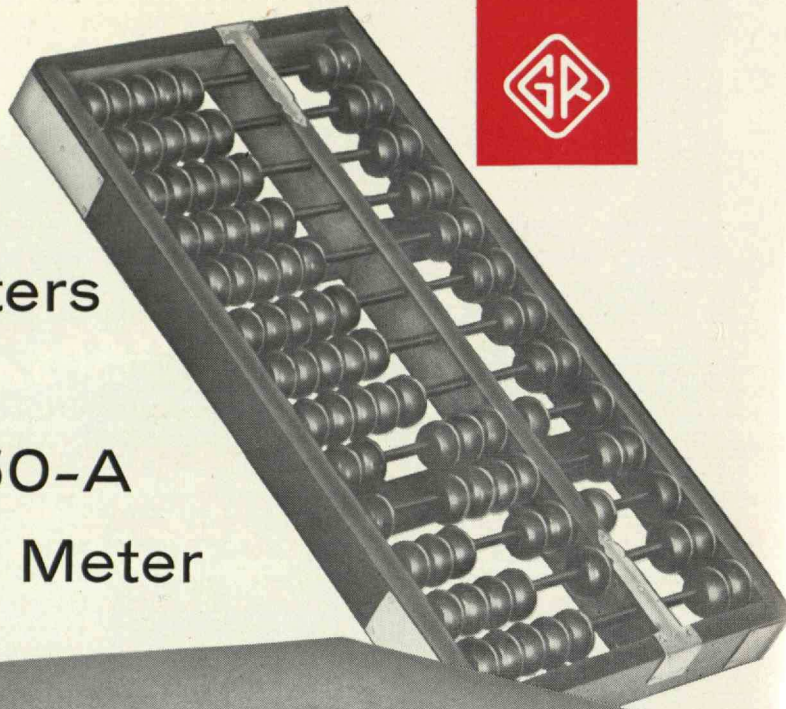
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