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# Oregon State University

## A Major Research University

by Thomas T. Sugihara

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### Cover

Upper left: Dean Thomas T. Sugihara addresses guests at the dedication of new, powerful NMR spectrometer. Upper right: NMR operator Rodger Kohnert (seated) gives a demonstration to attentive audience—Dean of Research George Keller (left) Assistant to President Stefan Bloomfield, and Vice President Theran D. Parsons. Lower left: President John V. Byrne addresses a distinguished audience at the dedication of NMR spectrometer. Lower right: John Irving, associate director of the OSU Foundation, Dean Thomas T. Sugihara, and Violette Gilfillan, widow of the former dean, at the Gilfillan Memorial Award presentation.

A research university can be characterized in many ways. One criterion is its role in graduate education. For a technical university like Oregon State University, one of the benchmarks is the level of activity in science and engineering at the graduate level. How active has OSU been in graduate education in comparison with the best research universities in the nation?

An analysis of some statistics in a recent report of the National Science Foundation indicates that OSU is a leader among the nation's public universities and that it has played an outstanding role in graduate education nationally.

### Doctorate Degrees in Science and Engineering

The report entitled "Science and Engineering Doctorates: 1960-81" gives the number of science and engineering (S/E) doctorates produced during 1960-81 at the 100 leading institutions in the United States (Figure 1). Leading the list are University of California at Berkeley, University of Illinois at Urbana, and University of Wisconsin at Madison. Oregon State is number 44 on this list, having graduated 2341 S/E doctorates during this period. OSU is just behind Duke University and just ahead of California Institute of Technology.

"Science" in the NSF compilation includes the physical sciences, earth and environmental sciences, marine sciences, mathematical sciences, biological sciences, and agricultural sciences. "Engineering" refers to all the usual subdisciplines of engineering.

The top 100 institutions include private as well as public universities. When OSU is compared only with other public universities, the result is as shown in Figure 2; sixty-one institutions remain, and OSU is number 28 in this group, between University of Tennessee at Knoxville and State University of New York at Buffalo.

### A Correction for Size

A comparison among institutions would be more meaningful if the difference in size among the 61 universities could be taken into account. Larger institutions would naturally be expected to produce larger numbers of S/E doctorates. If it is assumed that all of the 61 institutions have grown at the same rate during the period since 1960, then a single enrollment figure for each

institution would be characteristic of its size. A relative number would be obtained for each university by dividing the number of degrees awarded by the enrollment figure. Since the assumption about growth rate is only approximately correct, some error is likely to be associated with the numerical values obtained. Nevertheless the relative order among institutions should be reasonably preserved.<sup>1</sup>

On this size-corrected basis (Figure 3), OSU is now ranked 16th among the 60 public universities, that is, at about the 75th percentile of all U. S. state-supported institutions. OSU has fulfilled well its role as a producer of highly educated graduate scholars in science and engineering.

### Biological Sciences

Institutions vary in the fields in which they specialize. Oregon State University has traditionally been strong in the biological sciences. If comparisons are made on the basis of biology alone as a field in which science doctorates have been awarded, how would OSU be ranked? The data from NSF show unequivocally the strength and importance of the graduate programs in the biological sciences at OSU.

In biology, OSU produced 708 doctorates during the period 1960-81, placing it in the top quarter, number 24 in fact, among the top 100 doctorate-producing universities in the nation, as shown in Figure 4. If only public universities are considered, OSU is 17th among 61 institutions.

When corrected for the size of each university, in the same manner as was done in the case of the total number of S/E doctorates, OSU rises to 7th in the nation in terms of its productivity of biology doctorates, a quite remarkable result that is shown in Figure 5. On this relative basis, OSU ranks higher than Purdue, UCLA, University of Michigan, University of Washington, and many other well known institutions.

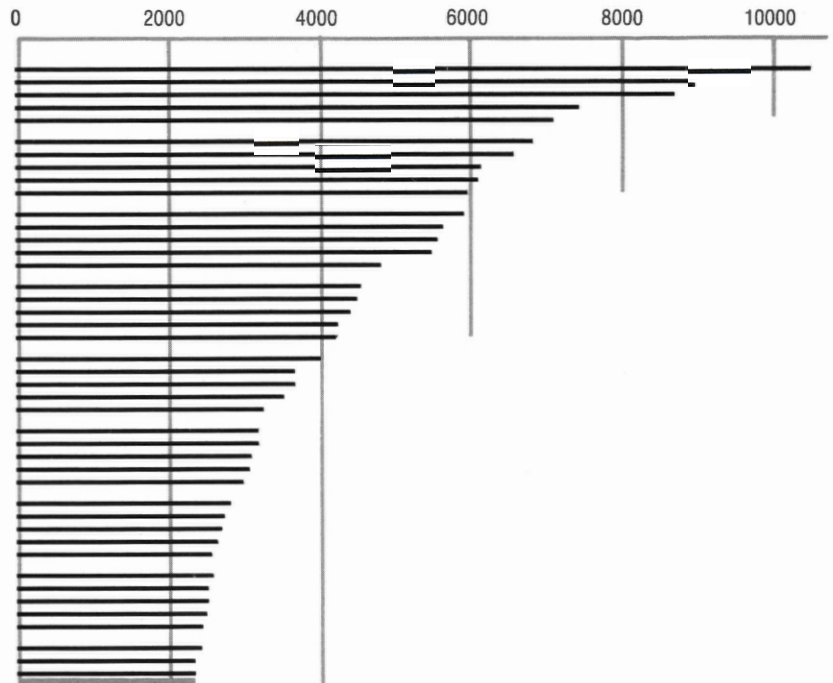
### Research Funding

The magnitude of federal funding for research and development is another often-used criterion to evaluate the productivity of a research university. It reflects also the quality of the research programs since federal grants and contracts are awarded as a

TOP 100 S/E DOCTORATE-PRODUCING UNIVERSITIES

NUMBER OF DOCTORATES PRODUCED (1960-81)

- 1. University of California at Berkeley
- University of Illinois at Urbana
- University of Wisconsin at Madison
- Massachusetts Institute of Technology
- University of Michigan
- Purdue University
- Stanford University
- Cornell University
- Ohio State University
- University of Minnesota
- Harvard University
- University of California at Los Angeles
- Columbia University
- Michigan State University
- University of Texas at Austin
- University of Chicago
- New York University
- Iowa State University
- University of Washington
- Penn State University
- University of Pennsylvania
- Yale University
- Northwestern University
- University of Maryland at College Park
- Princeton University
- Indiana University
- University of Florida
- Rutgers, State University of New Jersey
- University of California at Davis
- Texas A&M University
- University of Colorado
- Case Western Reserve
- University of North Carolina at Chapel Hill
- University of Pittsburgh
- University of Southern California
- University of Missouri at Columbia
- University of Kansas
- Johns Hopkins University
- University of Arizona
- North Carolina State University at Raleigh
- University of Iowa
- University of Tennessee at Knoxville
- Duke University



**44. Oregon State University**

- California Institute of Technology
- SUNY at Buffalo
- University of Rochester
- University of Utah
- University of Massachusetts
- Oklahoma State University
- Syracuse University
- University of Georgia
- Louisiana State University
- University of Oklahoma
- Colorado State University
- Washington University
- Florida State University
- University of Nebraska
- Brown University
- University of Oregon
- Virginia Polytechnic Institute
- Carnegie-Mellon University
- Washington State University
- University of Connecticut
- University of Virginia
- University of California at San Diego
- Wayne State University
- Kansas State University
- CUNY Graduate School
- Rensselaer Polytechnic
- University of Cincinnati
- University of Kentucky
- U.S. International University
- Polytechnic Institute of New York
- University of Notre Dame
- Boston University
- Catholic University of America
- Rice University
- University of California at Riverside
- Vanderbilt University
- University of Hawaii
- Illinois Institute of Technology
- SUNY at Stony Brook
- University of California at Santa Barbara
- Tulane University
- University of Houston
- Georgia Institute of Technology
- George Washington University
- Temple University
- West Virginia University
- University of Delaware
- Fordham University
- Lehigh University
- Utah State University
- Southern Illinois University
- Arizona State University
- University of New Mexico
- St. Louis University
- Brandeis University
- 100. American University

Figure 1

PUBLIC INSTITUTIONS  
AMONG TOP 100 S/E DOCTORATE-PRODUCING UNIVERSITIES

## NUMBER OF DOCTORATES PRODUCED (1960-81)

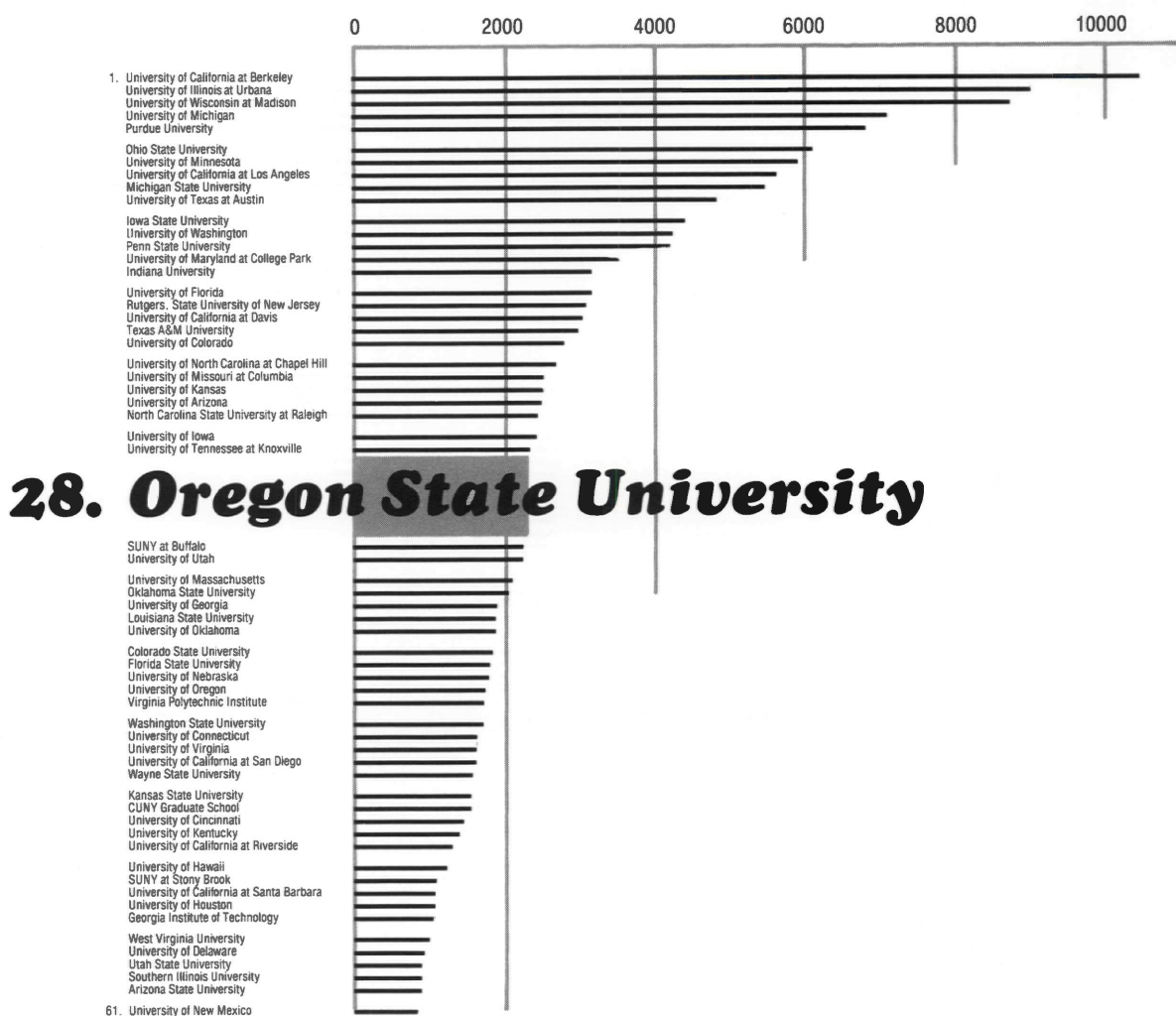


Figure 2

result of review by peers of proposals submitted by individual scientists or groups of scientists.

Oregon State University ranks well in this regard also. According to the National Science Foundation, in fiscal year 1982, OSU received \$33,245,000 in federal research and development funds, placing it 41st among the nation's academic institutions, similar to its standing in terms of S/E doctorates.

Top universities in the nation in research funding were Johns Hopkins, Massachusetts Institute of Technology, and Stanford, fol-

lowed by the public universities University of Washington, University of Minnesota, and University of California, Los Angeles. Other northwest universities on the list are Washington State University (\$15,262,000; rank 84), University of Oregon (\$10,374,000; rank 104), and Oregon Health Sciences University (\$9,546,000; rank 109).

### Recent Events and Signs of the Future

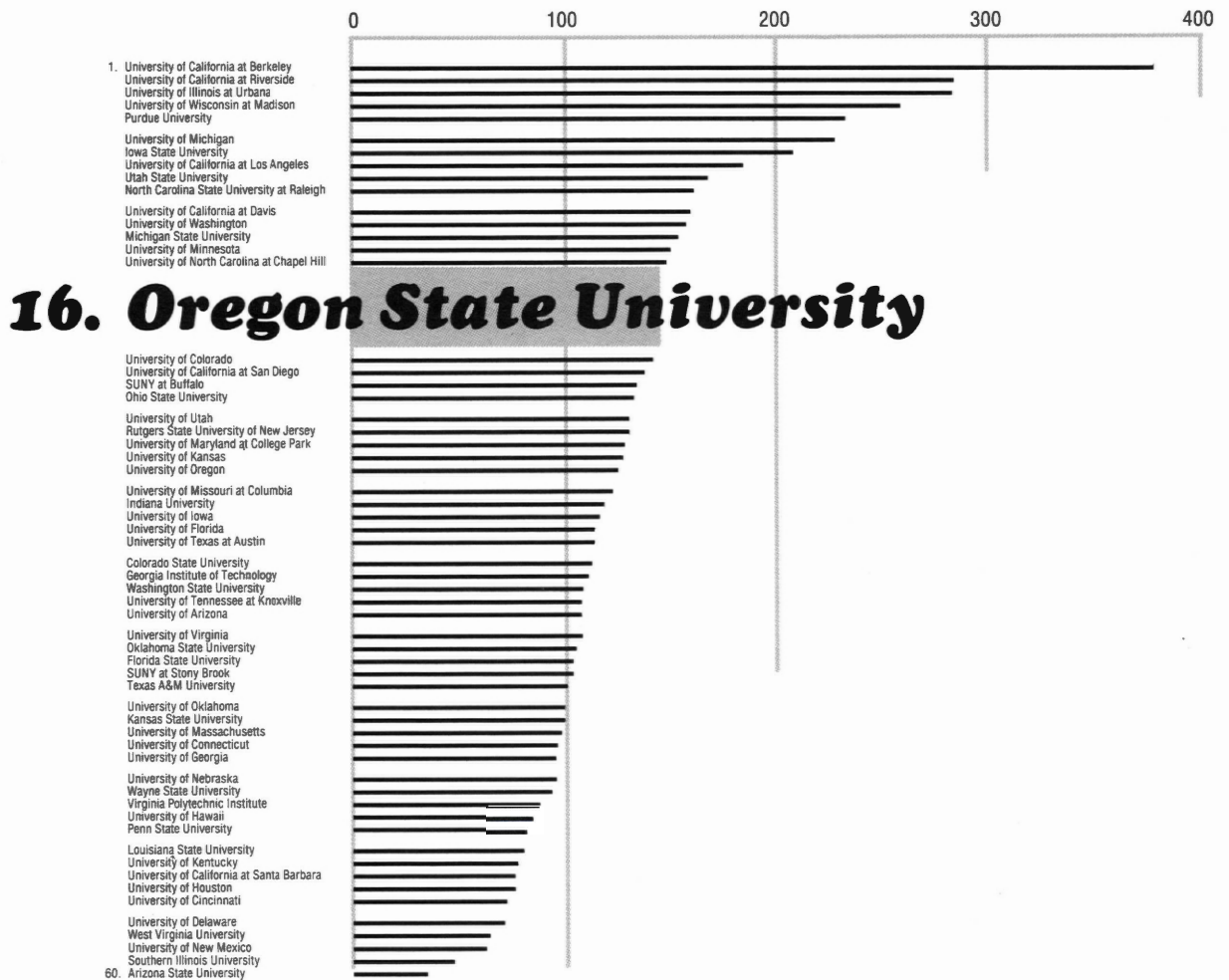
What about the years since the NSF compilation? Much has been said and written

about the difficult economic times that OSU has had to face in recent years. In the face of adversity, the productivity in terms of S/E doctorates continues as before. In the period 1982-84, OSU produced 373 S/E doctorates, an average of 124 per year, to be compared with the average rate of 111 per year during the preceding 21-year period.

Oregonians have every right to be proud of Oregon State University. It stands tall among the nation's major research universities, especially in the biological sciences, but generally in all of the sciences and engineering.

PUBLIC INSTITUTIONS  
AMONG TOP 100 S/E DOCTORATE-PRODUCING UNIVERSITIES

RELATIVE\* NUMBER OF DOCTORATES PRODUCED (1960-81)



\*NUMBERS CORRECTED FOR SIZE OF INSTITUTION  
 $\text{NUMBER OF S/E DOCTORATES} \div \text{NUMBER OF FTE STUDENTS IN THOUSANDS (1982-83)}$

Figure 3

The likelihood that OSU can continue to be an overachiever in the national order of research universities is less clear. Higher faculty salaries are essential to retain and recruit talented faculty. Salary levels at OSU are below average. Improved research facilities are required to replace a badly aging physical plant. A dramatic increase in state support for advanced instrumentation is needed to prevent the diminution of OSU as a research institution. It would be a tragedy if the long and proud tradition of excellence in science and engineering should somehow be lost. □

<sup>1</sup>Enrollment figures for the present purposes have been taken from the directory 1982-83 *Accredited Institutions of Postsecondary Education*, published annually by the American Council on Education. A relative number of S/E doctorates has been obtained by dividing the total number of doctorates awarded during the period 1960-81 by the number of full-time equivalent students (in thousands) for the year 1982-83. The result is shown in Figure 3. (One institution, the City University of New York, is only a graduate institution, and a relative value for it could not be obtained in this way.)

# NUMBER OF DOCTORATES IN BIOLOGY PRODUCED (1960-81)

TOP 100 S/E DOCTORATE-PRODUCING UNIVERSITIES

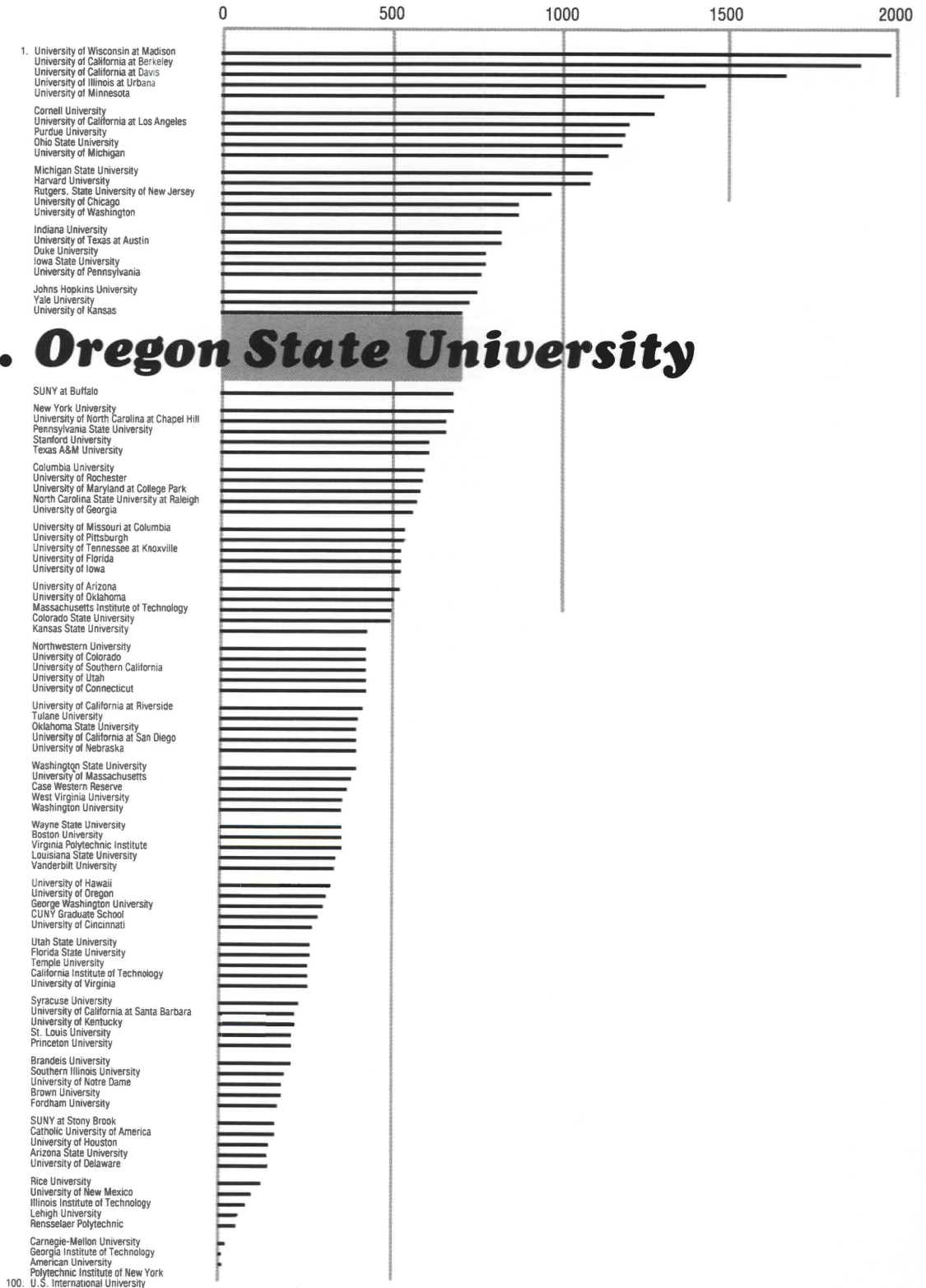
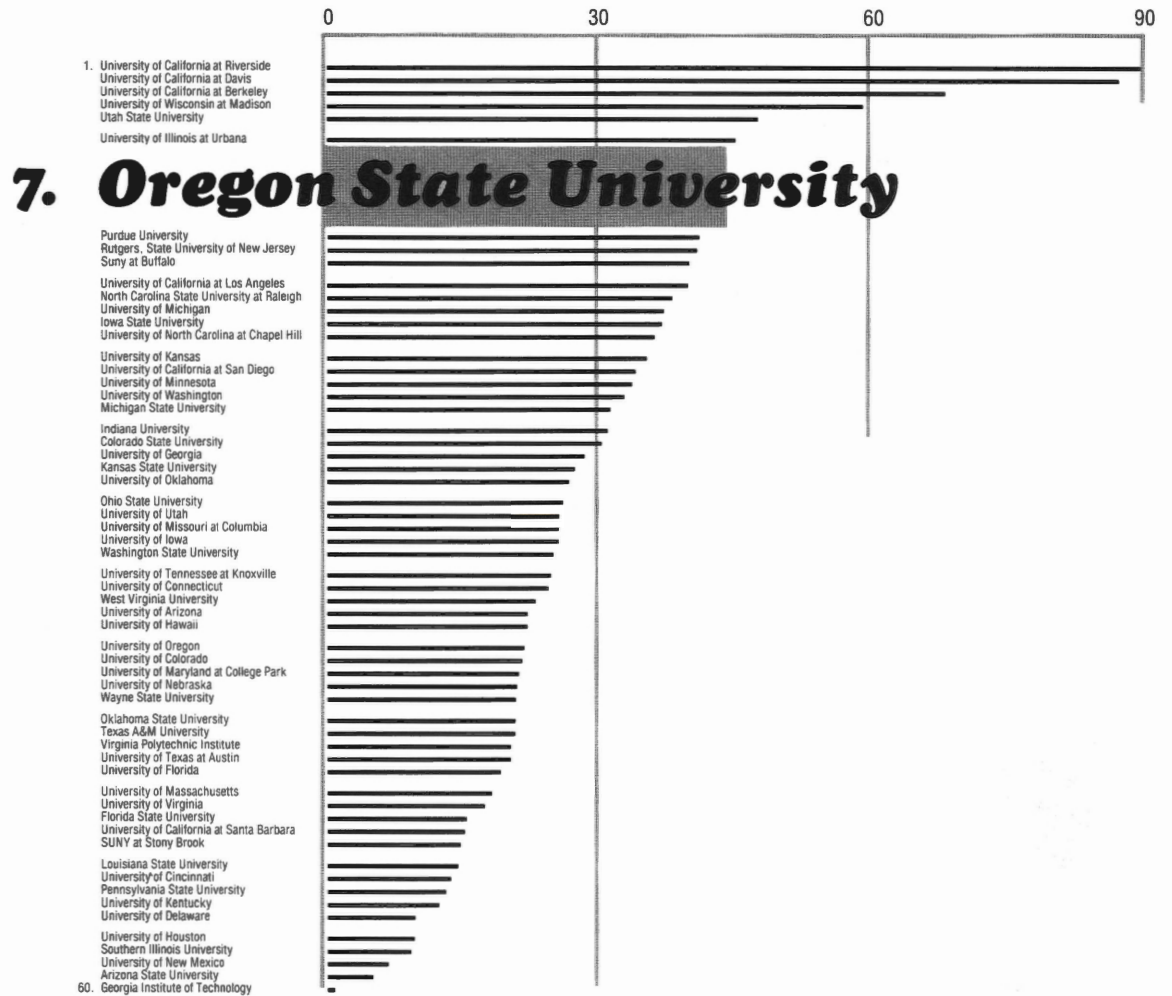


Figure 4

PUBLIC INSTITUTIONS  
AMONG TOP 100 S/E DOCTORATE-PRODUCING UNIVERSITIES

RELATIVE\* NUMBER OF DOCTORATES IN BIOLOGY PRODUCED (1960-81)



\*NUMBERS CORRECTED FOR SIZE OF INSTITUTION  
NUMBER OF S/E DOCTORATES ÷ NUMBER OF FTE STUDENTS IN THOUSANDS (1982-83)

Figure 5

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**LIVESEY, JOHN C.**

See Livesey, J. C., and D. J. Reed. (Under Reed, D. J.)

**MALENCIK, DEAN A.**

See Anderson, S. R., and D. A. Malencik.

See Malencik, D. A., and S. R. Anderson.

**MANAVALAN, PARTHASARATHY**

See Manavalan, P., W. C. Johnson, Jr., and P. Modrich. (Under Johnson, W. C. Jr.)

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# NEWS AND NOTES

## COLLEGE OF SCIENCE

Dean Thomas T. Sugihara has been selected by the Southeastern Universities Research Association (SURA) to serve on a distinguished, seven-member search committee for the director of a new national laboratory for research in nuclear physics.

The proposed electron accelerator, known as the Continuous Electron Beam Accelerator Facility (CEBAF), has been strongly endorsed by the nuclear science community as its highest priority. Expected to cost about \$200 million, CEBAF will be built at Newport News, Virginia, and will be managed by the Southeastern Universities Research Association.

In addition to Dean Sugihara, the search committee includes Edward A. Knapp, committee chair and former director of the National Science Foundation (now at the Los Alamos National Laboratory); D. Allan Bromley, former president of the American Association for the Advancement of Science and Henry Ford II Distinguished Professor at Yale University; John P. Schiffer, director, Physics Division, Argonne National Laboratory; Leon M. Lederman, director, Fermi National Accelerator Laboratory; Ernest M. Henley, dean of the College of Arts and Sciences, University of Washington, Seattle; and George W. Wheeler, provost of the University of Tennessee, representing the Southeastern Universities Research Association.

## ATMOSPHERIC SCIENCES

Steven K. Esbensen and graduate student Yochanan Kushnir presented a paper on the dynamics of simulated Northern Hemisphere wintertime variability at the Fifth Conference on Atmospheric and Oceanic Waves and Stability, held in early March in New Orleans. Kushnir, who recently completed requirements for the Ph.D., is now working at the Joint Institute for the Study of the Atmosphere and Ocean (JISAO), University of Washington.

In early January, W. Lawrence Gates presented a paper on the response of a coupled atmosphere-ocean model to doubled CO<sub>2</sub> at the Third Conference on Climate Variations, held in Los Angeles by the American Meteorological Society. During February 18-22, Dr. Gates participated in a meeting of the International Working Group on Numerical Experimentation held in Tallahassee. The meeting was sponsored by the World Meteorological Organization in support of the World Climate Research Program.

Young-June Han presented an invited paper at a December meeting of the U.S. World Ocean Circulation Experiment Numerical Modeling Working Group, held at the National Center for Atmospheric Research, Boulder, CO. In January, Dr. Han attended the Third Conference on Climate Variations held in Los Angeles.

Allan H. Murphy visited various gas transmission and distribution companies in the Midwest and Northwest in December. The purpose of this trip was to investigate the potential economic value of climate forecasts to the gas industry. In January, Dr. Murphy visited the National Center for Atmospheric Research in Boulder, CO, to participate in a two-day short course on artificial intelligence and its possible application in weather and climate forecasting. Dr. Murphy was recently invited to present a series of lectures on statistical weather forecasting at a short course sponsored by the World Meteorological Organization and to be held in July and August 1985 in Nairobi, Kenya.

Michael E. Schlesinger participated in January in the AMS Third Conference on Climate Variations and the Symposium on Contemporary Climate: 1850-2100, held in Los Angeles. He presented papers on the role of the ocean in CO<sub>2</sub>-induced climate change and on the transient response and detection of CO<sub>2</sub>-induced climatic changes.

## BIOCHEMISTRY AND BIOPHYSICS



Dean Thomas T. Sugihara congratulates Professor Kensal van Holde, the first recipient of the Gilfillan Memorial Award for distinguished scholarship in science.

W. Curtis Johnson was an invited speaker at the International Symposium on Biomolecular Structure at Bangalore, India, in mid-December 1984.

Donald L. MacDonald served in late February on an associateships panel for the National Academy of Sciences, National Research Council, Washington, DC.

In mid-December 1984, Kensal E. van Holde and visiting professor Dr. Channa Shalitin attended the Sixth Annual West Coast Chromatin and Chromosome Meeting in Pacific Grove, CA.

## BOTANY AND PLANT PATHOLOGY

Thomas C. Allen gave a talk on advances in potato virus investigations at the Oregon Potato Conference in Portland, OR, in late January.

H. Ronald Cameron attended the financial advisory and operation committee meetings at the mid-year council meeting of the American Phytopathological Society in Minneapolis, MN, in early February.

Mary L. Powelson was invited to speak at the following locations: the Idaho Seed Potato Seminar in Idaho Falls in early November 1984; the Third Annual North American Seed Potato Seminar in Chicago and the Department of Plant Pathology and Weed Science at Colorado State University in December 1984; the 17th Annual Idaho Potato School and the Columbia Basin Potato Disease Workshops at Pasco and Moses Lake, WA, in January; and the meeting of the Oregon Horticultural Society in Portland.

Ralph S. Quatrano presented a seminar, "Control of gene expression in wheat embryos," in the Department of Botany at the University of Texas, Austin, in mid-December 1984. He attended the annual editorial board meeting of the Annual Review of Plant Physiology at the Carnegie Institution, Stanford, CA, in January. In February, he attended an NSF-sponsored U.S./Australia workshop on seed proteins, held in Honolulu. Later in the month, he presented an invited lecture, "Gene expression during seed development," at the meetings of the Canadian Society of Plant Physiologists (Western Section), held in Calgary.

## CHEMISTRY

Steven J. Gould presented invited seminars on recent discoveries in the biosynthesis of antibiotics at the following locations during February and March: the chemistry departments at the University of Oregon; Reed College; Stanford Research Institute, Menlo Park, CA; Stanford University and the SYVA Research Institute, Palo Alto, CA. In December, he presented two papers at the 1984 International Chemical Congress of Pacific Basin Societies in Honolulu: one on the biosynthesis of streptothricin F (V. A. Palaniswamy, coauthor) and one on the biosynthesis of antibiotic sarubicin A (L. R. Hillis, coauthor). Dr. Gould also gave a talk in February at the OSU-U of O Snow Symposium in Bend, OR.

Walter D. Loveland participated in research at CERN in Geneva, Switzerland, in January and February 1985. He gave an invited talk on "Peripheral relativistic nuclear collisions" at the Gustave Werner Institute, Uppsala, Sweden, and participated in discussions of the CELSIUS project heavy ion steering group.

Joseph W. Nibler attended a meeting of the NSF Chemistry Advisory Board in Washington, DC, in November 1984. He and Dr. Mark Maroncelli, Brian Bozlee, and Glen Hopkins participated

in a U of O—OSU Chemical Physics Symposium at the Holiday Farms Resort on the McKenzie River.

**Edward H. Piepmeier** has been awarded a patent for a new electrical plasma source that can be used to atomize samples for the determination of trace concentrations of chemical elements (Patent No. 420,749, January 31, 1985, Multi-Electrode Plasma Source). Dr. Piepmeier received a donation of a Beckman Spectraspan IIIB Emission Spectrometer from Albany Titanium, Inc., to support teaching and research in plasma sources for emission spectrochemical methods to determine trace elements. Dr. Piepmeier presented an invited paper at a symposium on Laser Sources at the 1985 Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, held in New Orleans in late February. He presented another paper on atomic emission spectroscopy at the same meeting.

**Richard W. Thies** has received an "Outstanding Performance Award for sustained superior performance" in his work as Program officer for synthetic organic and natural products chemistry at the National Science Foundation. The award was made for work performed during the period January 1983-August 1984, when Dr. Thies was on leave at NSF.



President MacVicar (left), Professor Emeritus H. D. Reese, and Dean of Faculty David Nicodemus watch attentively as NMR operator Rodger Kohnert gives a demonstration.

## COMPUTER SCIENCE

**Bella Bose** attended a short course on system design for testability at the Oregon Graduate Center in mid-December 1984.

**Paul Cull** presented a paper entitled "Is Towers of Hanoi really hard?" at the 16th S.E. Conference on Combinatorics, Graph Theory, and Computing, held in Boca Raton, FL, in February.

**Ted G. Lewis** served as session chairman for Advances in Programming Languages at the Hawaiian International Conference on System Science (HICSS) in Honolulu, January 2-4.

**Joseph Minne** attended the Symposium on Principles of Programming Languages, held in New Orleans in mid-January.

Research assistant **John Sechrest** attended conference sessions and a tutorial at the International Conference of UNIX Users, held in Dallas, TX, in late January.

**Fred M. Tonge** and graduate teaching assistant **Michael Goul** presented a paper (written with **Barry Shane**, School of Business) at the Hawaiian International Conference on System Science, held in Honolulu in early January.

## ENTOMOLOGY

On December 15, **Bruce Eldridge** returned from sabbatical leave at the University of Notre Dame.

**Kathleen Johnson** is visiting the department for a one-year period from the Texas A&M University Experiment Station at Weslaco. She is conducting research with **Dr. Ralph Berry** on plant/insect interactions. She is also writing a summary of research on insects of sugar cane.

**John D. Lattin** was an invited speaker at the 17th International Congress of Entomology, held in August 1984 in Hamburg, West Germany. After the Congress, Dr. Lattin spent some time in the United Kingdom at Oxford University, the Commonwealth Institute of Entomology, and the British Museum of Natural History.

**Jeffrey C. Miller** presented three invited papers on the feeding behavior of the gypsy moth on flora of western forests. The presentations were made during October to the State Entomologist of the California Department of Agriculture, the Oregon Entomological Society, and the Gypsy Moth Advisory Committee of the California Department of Agriculture. In December 1984, Dr. Miller submitted two papers at the meetings of the Entomological Society of America (P. E. Hanson, coauthor).

In mid-December 1984, **Ralph Berry**, **Joseph Capizzi**, **Brian Croft**, **René Feyereisen**, **Ross Halliday**, and **Jeffrey Miller** attended the national meeting of the Entomological Society of America in San Antonio, TX.

## GENERAL SCIENCE

**Paul L. Farber** chaired two sessions at the meetings of the History of Science Society, held in Chicago on December 30, 1984. The sessions discussed current work on the history of modern biology and social science.

**Arthur G. Johnson** and **Brian Dodd** participated in the October 17, 1984, emergency exercise at the Trojan Nuclear Power Plant. As members of the staff from the State of Oregon, they monitored the radiological health and the safety of the public.

**Michael C. Mix** presented an invited paper at a workshop on Neoplasia in Lower Animals, which was sponsored by the National Cancer Institute in Bethesda, MD, in mid-December.

**Robert C. Worrest** directed a workshop on marine ecosystems and fisheries, sponsored by the U.S. Environmental Protection Agency and held in San Diego in January. Topic of the workshop was the impact of enhanced levels of solar ultraviolet radiation upon marine ecosystems.

## GEOGRAPHY

The Department of Geography has recently acquired over one half million dollars in hardware from the U.S. Defense Advanced Research Projects Agency. The equipment will be used for low-cost data fusion research in the OSU Geographic Information Laboratory.

In February, **Robert E. Frenkel** supervised the NASA Graduate Student Research Program at NASA-Ames in Moffett Field, CA. **Christen Kiilsgaard**, a Ph.D. candidate in geography from OSU, is enrolled in that program.

**Philip L. Jackson** is serving as President of the Oregon Academy of Science for 1985. He presented a poster session with **Charles Rosenfeld** and **Jon Kimerling** at the February meeting of the Oregon Academy of Science, held in Ashland, OR. Topic of the poster session was "Design and concept of an educational image processing and computer cartography laboratory: the OSU geography example."

**Steven R. Kale** served as geography co-chairman at the annual meeting of the Oregon Academy of Science in Ashland.

**A. Jon Kimerling** presented a paper at the meetings of the American Congress on Surveying and Mapping, held in Washington, DC, in mid-March. Kimerling and **Charles Rosenfeld** attended the bi-annual Auto-Carto Symposium at the same meetings.

**Keith W. Muckleston** spoke on "Different approaches to water management in the Federal Republic of Germany" at the Water Resources Research Institute in mid-October 1984. In February 1985, he presented a paper on flood control in the Willamette Valley at the meetings of the Oregon Academy of Science.

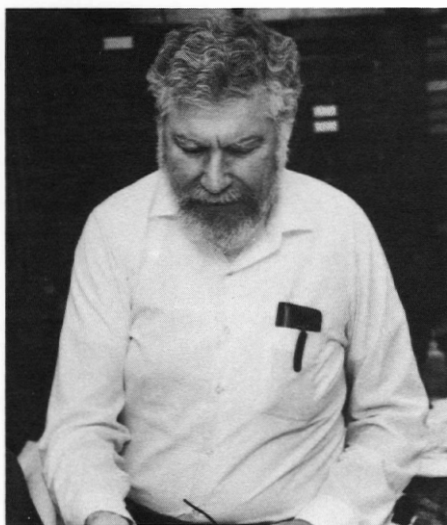
Mary Lee Nolan was a discussant in the session on "Diffusion and Prehistory" at the conference on The Transfer and Transformation of Ideas and Material Culture, held at Texas A&M University in November 1984.

James Pease participated in the International Agriculture Workshop sponsored by the Agency for International Development and held in Newport, OR, in mid-January. He presented a project for the development of Costa Rica.

Charles L. Rosenfeld served as keynote speaker and panel member at the Global Mega-Geomorphology Symposium, sponsored by NASA and held in Oracle, AZ, in mid-January. He also presented a paper at the American Congress on Surveying and Mapping, held in Washington, DC. Graduate students Michael Parsons and Monte Pearson collaborated on that paper.

## GEOLOGY

Allen S. Agnew was awarded the American Institute of Professional Geologists Public Service Award for 1984. The Award recognizes individuals who have made significant contributions in this area of professional activity. The citation notes that "Allen F. Agnew's 45-plus years of professional activity are a dissertation on public service." Dr. Agnew remains active in more than 16 scientific and professional organizations, including the AIPG, where he currently serves as President of the Oregon Section. He is also chairman of the Oregon Board of Geologists Registration.



Arthur J. Boucot

Arthur J. Boucot has been selected to receive the Raymond C. Moore Medal for Excellence in Paleontology at the 59th annual meeting of the Society of Economic Paleontologists and Mineralogists, to be held in New Orleans in March. The

award recognizes Dr. Boucot's contributions to paleontology, paleoecology, and evolution of the fossil record, especially during the Silurian and Devonian periods. Dr. Boucot is chairman of an international commission that is studying these two periods of the Paleozoic Era. Professor Boucot is also adjunct professor of Zoology.

Robert S. Yeats chaired a meeting of the Himalayan Active Fault subcommittee of International Geological Correlation Program (IGCP) 206, Worldwide Characteristics of Active Faults. The meeting was held in Kathmandu, Nepal, in December 1984. While in Nepal, Dr. Yeats presented a paper at a colloquium organized by IGCP: "Active tectonics in northern Pakistan—implications for Nepal."

## MATHEMATICS

Colin C. Adams, David S. Carter, Burton I. Fein, Dennis J. Garrity, Steven J. Harris, Krishnamurthi Ravishankar, Robert O. Robson, and Edward C. Waymire attended the annual meeting of the American Mathematical Society, held in Anaheim, CA, in early January. Dennis Garrity and James Henderson (Texas A&M) organized and ran a special session on Infinite Dimensional Topology.

Colin C. Adams spoke at a Conference on 3-Manifolds at the Mathematical Sciences Research Institute in Berkeley, January 12-19.

F. Tom Lindstrom, director of the Careers Program, and Edward C. Waymire presented the OSU Careers in Applied Mathematics Program to representatives of ten business and government agencies in Portland in December. The meeting was jointly sponsored by the OSU Mathematics Department and the OSU Careers Planning and Placement Center. It was hosted by Consolidated Freightways.

J. Michael Shaughnessy presented an invited workshop, "Stimulation with simulation, teaching probability in the company of microcomputers," at an NSF Honors Teachers Workshop, held at Michigan State University in December 1984. In February, he also gave an invited workshop on problem solving in informal geometry at the regional meeting of the National Council of Teachers of Mathematics in San Diego.

Edward C. Waymire gave invited colloquia to the Department of Mathematics and the Institute of Water Resources at Utah State University in December 1984. He discussed respectively models in ferromagnetism and mathematical problems in hydrology.

## MICROBIOLOGY

Penny Amy presented a poster session at the meetings of the American Society for Microbiology, held in Las Vegas, March 3-8.

Peter Bottomley gave a poster paper at the meetings of the American Society of Agronomy, held in Las Vegas in late November 1984. He also presented a paper (D. H. Demezas, coauthor) at the meeting of the American Society for Microbiology in March.

John L. Fryer has been appointed to the Editorial Board of the Journal of Fish Diseases (United Kingdom) for 1985. He has been appointed to the Membership Committee of the American Academy of Sciences for 1985-86, and he has been named chairman of the Examination Review Board of the Fish Health Section of the American Fisheries Society for 1985. In December, Dr. Fryer presented invited seminars at Kochi University, Japan; Taiwan National University, Taiwan; and at the marine biology laboratory at Kaohsiung, Taiwan. In March, he attended the meetings of the American Society for Microbiology in Las Vegas.

Dennis E. Hruby presented seminars at the University of Oregon and at Texas A&M University in December 1984. Titles of his presentations were: "Vaccinia virus: eukaryotic cloning and expression vector" and "Expression of foreign genes by vaccinia virus." Recent visiting scientists to Dr. Hruby's laboratory have been Dr. Bill Dougherty, North Carolina State University, and Dr. Rich Maki, LaJolla Cancer Research Foundation.

Stephen L. Kaattari gave a paper, "Evidence for organ-dependent lymphocytic heterogeneity in salmonids," at the 24th Midwinter Conference of Immunologists, held at Asilomar, CA, in January.

Gael Kurath, research associate with Dr. Leong, presented a seminar on cloning and characterization of the mRNA species of IHNV at the University of North Carolina.

Richard Y. Morita was elected Division Councilor of the Division of Aquatic and Terrestrial Microbiology of the American Society for Microbiology for 1985-87. He presented a seminar at the University of Maryland in November 1984, and in March he was the organizer and chairman of a session on Starvation-Survival of Microbes at the meetings of the American Society for Microbiology in Las Vegas. He gave a paper (R. D. Jones, coauthor) entitled: "Survival of a marine nitrifying bacterium under starvation conditions."

William E. Sandine chaired an international symposium on Plasmids and Genetics in Lactic Acid Bacteria at the meetings of the American Society for Microbiology in Las Vegas. He is the coauthor of a paper, presented by Dr. Paulo Orberg, that discusses findings from Oregon State University on *Leuconostoc*, bacteria important in helping produce flavor in fermented dairy products and wine.

## PHYSICS

The Oregon State University chapter of Sigma Pi Sigma, the Physics Honor Society, has been honored by its national office for electing the 500th member to the local chapter since its installation in 1934. Only 16 chapters in the U.S. have

# Employees Win Awards



Barbara Overholser

Jean Haynes and Barbara Overholser, both employees of the College of Science, were selected to receive management service awards from Governor Vic Atiyeh. The awards were established by the Governor to recognize employees for their outstanding service to the State.

Jean Haynes is management assistant to the dean of science. She began working in the College of Science in 1962 and has continued to work in that office without interruption. In over 20 years, she has assisted six consecutive deans.

Barbara Overholser is management assistant to the chairman of the Department of Microbiology. She began to work in the office of the assistant controller in 1957, remaining in that position until 1961. After an interruption of four years, Barbara returned to work at OSU—this time in the microbiology department.

Anyone who has ever sought assistance from either Jean or Barbara readily agrees that they are two of the most helpful people around.

Congratulations are in order.



Jean Haynes

## News and Notes (cont'd)

achieved this level. Sigma Pi Sigma was founded to recognize outstanding scholarship by students in physics.

Kenneth S. Krane spent two weeks in December 1984 collaborating on research with nuclei polarized at ultra-low temperatures at the Daresbury Nuclear Structure Facility in England.

Rubin H. Landau attended the annual users' meeting at TRIUMF, Vancouver, BC, in December 1984. In January, he gave an invited lecture, "Bound and continuum states of kaonic hydrogen," at the 8th International Meeting on Nuclear Physics, held in Oaxtepec, Mexico.

Victor A. Madsen has been selected as a Fellow of the American Physical Society for "his continuous efforts in furthering our understanding of nuclear reactions and their use in probing nuclear structure."

## STATISTICS

Lyle D. Calvin was appointed to the USDA panel to review statistics and economics programs in the USDA. Dr. Calvin participated in a series of meetings with data users in selected regions of the country during February and March.

G. David Faulkenberry met with ASA officials in early February in Washington, DC, regarding

the American Statistical Association Council of Chapters of which Dr. Faulkenberry is chairman-elect for 1986.

In late November 1984, Fred Ramsey reviewed research programs of the EPA National Acid Precipitation Assessment Program in Ashville, NC.

Justus F. Seely was an invited participant at the NSF-CBMS regional conference at the University of Florida, Gainesville.

David Thomas visited the University of Kuwait on December 24-January 11. He reviewed the statistics program in the School of Commerce, presented two research seminars, and advised two of his former students on their research.

## ZOOLOGY

F. Lynn Carpenter, outgoing Chair of the Ecology Division of the American Society of Zoologists, organized a symposium on "Territoriality: conceptual advances in field and theoretical studies" on December 28, 1984, at the annual meeting of the Society in Denver, CO. Dr. Carpenter also gave a talk at the above symposium on feeding territoriality in avian nectar-feeders.

Mark Hixon coauthored a paper that was presented by Dr. Carpenter at the meeting of the American Society of Zoologists last December.

Dr. Hixon chaired an afternoon session at that meeting and presented a paper on territory size as a determinant of mating systems.

Jane Lubchenco presented a paper at the meetings of the American Society of Zoologists last December. She spoke on "Relative importance of competition vs. predation during early seaweed succession in New England." She gave invited seminars at the University of Houston in January and at Ohio State University in February, where she spoke on rocky intertidal seaweed-herbivore interactions.

Bruce Menge was voted Chairman-Elect of the Ecology Division of the American Society of Zoologists. "Recruitment as a process structuring rocky intertidal communities, conjecture vs. evidence" was the title of the paper he presented at the meetings of the American Society of Zoologists and the Western Society of Naturalists last December.

While attending the annual meeting of the American Society of Zoologists, Frank L. Moore served as Program Officer for the Division of Comparative Endocrinology and co-organized a symposium entitled "Evolution of Hormone Diversity," which was sponsored jointly by the National Science Foundation and the American Society of Zoologists. In February, Dr. Moore presented a seminar at the Oregon Regional Primate Center, Beaverton, OR.

# Gilfillan Award Presentation



Present for the formal presentation of the first F. A. Gilfillan Memorial Award were, left to right, Dean Thomas T. Sugihara; Ellen Johnson, daughter of the late Dean Gilfillan; Professor Kensal E. van Holde, first recipient of the award; OSU President John V. Byrne; Violetta Gilfillan, widow of the late dean; Donald L. MacDonald, acting chairman of the Department of Biochemistry and Biophysics; and Alice Doty, daughter of Dean Gilfillan.

Dean Sugihara welcomed members and friends of the College of Science on November 19, 1984, for the formal presentation of the first F. A. Gilfillan Memorial Award for distinguished scholarship in science—an award made possible through the generosity of the family and friends of the late Dean Gilfillan. While it was to be a special occasion in honor of Professor Kensal E. van Holde, the first recipient of the award, the ceremony took on a special meaning.

The students, colleagues, and friends who came to share this happy moment with Ken van Holde witnessed a moving ceremony, in which significant memories of the past mingled with hopes for the future.

The occasion was made particularly meaningful by the presence of Violetta Gilfillan, the late dean's widow, the new OSU President John Byrne, and outgoing President Robert MacVicar.

Mrs. Gilfillan reminisced briefly about her husband's tenure (1938-62) as Dean of Science and his interest in scholarship and excellence. His first four years, she said, had been trying times in which he had to cope with disrupting events—the effects of the Great Depression, the reorganization of higher education in Oregon, and the beginning of World War II.

"After those first four very difficult years," noted Mrs. Gilfillan, "he worked vigorously and assiduously for twenty more years to make the School of Science the very best possible in light of the resources available. Always striving for excellence, he set very high goals for himself and also had high expectations for those around him for whom he felt any responsibility—family members and members of the School of Science. Quality teaching and continuing research he encouraged and placed high on his list of expectations from his staff."

"We think of this award," concluded Mrs. Gilfillan, "as an effort to perpetuate the excellence and high standards for which he strived. We think this is what he would have wanted."

President John Byrne, on his very first official day in office, also addressed the gathering noting that he was particularly pleased to be able to attend the ceremony. It had been "Doc Gilfillan" (as he was known to his contemporaries) who was ultimately responsible, some 23 years ago, for bringing a young Byrne to the OSU campus as associate professor of oceanography, then a department in the School of Science.

The ceremony concluded with Dr. MacDonald, acting chairman of the Department

of Biochemistry and Biophysics, reading the award citation, which stressed Dr. van Holde's contributions to physical chemistry, biochemistry and biophysics; his major work on the structure of chromatin, and the breadth of his intellectual interests.

Dr. van Holde accepted the award and the \$1,000 prize in his usual modest manner acknowledging that his graduate students and coworkers shared equally in his success since accomplishments in scientific research are almost always the result of cooperative efforts.

The occasion was made especially memorable by the presence of some very special people. Among those present, in addition to outgoing OSU President Robert MacVicar, were Vice President Theran D. Parsons (former associate and acting dean of Science), Professor Emeritus Wayne Burt (former dean of the School of Oceanography), Professor Emeritus J. Granville Jensen (former chairman of the Department of Geography), and Dean of Faculty David Nicodemus—all of whom knew Dean Gilfillan well. Other especially welcome guests were the two daughters of Dean Gilfillan who still live in Oregon—Alice Doty and Ellen Johnson.

# College of Science Dedicates Nuclear Magnetic Resonance Spectrometer

The Department of Chemistry officially dedicated the university's brand new spectrometer facility on 28 November 1984 with a special program that included a scientific seminar, several talks, and a detailed discussion of the instrument's capabilities given by chemistry professor **Steven Gould**. The installation of the Bruker 400 AM nuclear magnetic resonance (NMR) spectrometer is indeed a major event on campus.

Nuclear magnetic resonance spectroscopy is one of the most important analytical tools available to chemists today, and an instrument of this power (it uses a superconducting magnet with a field strength of 94,000 gauss) gives OSU researchers the opportunity to perform world-class experiments. The presence of this instrument on the OSU campus represents a giant step forward for the chemistry department and the university as a whole.

Installation of the new spectrometer is also particularly significant because it culminates a massive cooperative effort made by many individuals and departments. According to Professor Gould, one of those who gave initial impetus to this group effort, realization of this dream could not have been possible otherwise.

Gould noted in his afternoon talk that purchase of the Bruker AM 400 represents a commitment on the part of the OSU faculty and its administration to maintain the stature of Oregon State University as a true university—"a place where knowledge is generated as well as transmitted." Dr. Gould stressed that a relatively modest but indispensable investment of seed money by the university administration for this purchase will translate into major dividends—better research, better training for graduate students so that they may compete for jobs more effectively, and a more competitive position for OSU to attract new faculty, graduate students, and postdoctoral fellows.

Funds for the instrument, which cost close to \$400,000, came from many sources, but the largest contributors were the National Science Foundation, the M. J. Murdock Charitable Trust, and Dr. Milton Harris, a distinguished graduate of the OSU Department of Chemistry. Other contributors were the Dean of Science, the Vice President for Administration, the OSU Environmental Health Sciences Center, and several faculty members who donated varying amounts from individual research grants.



Left to right: Rodger Kohnert, operator of the NMR spectrometer; chemistry professor Steven J. Gould and President John V. Byrne.

What nuclear magnetic resonance is and what it promises to become in the future was discussed in detail by **Dr. John D. Roberts**, a professor at the California Institute of Technology and an authority on NMR spectroscopy, who was invited to give a special seminar during the morning portion of the day's celebrations.

The afternoon portion of the dedication program included brief remarks by several distinguished guests—all of whom came to share in this special occasion with the Department of Chemistry. **Professor Carroll DeKock**, acting chairman of the department, opened the program with the introduction of some special guests: **President John V. Byrne**, **Dean of Science Thomas T. Sugihara**, **President Robert MacVicar**, **Vice President Theran D. Parsons**, and **Dr. Raymond Honerlah**, program officer for the M. J. Murdock Charitable Trust.

Dean Sugihara in turn welcomed all who were present pointing out that setting up an instrument of this type is a monumental task. He also praised Professor Gould for his efforts in acquiring an instrument of such sensitivity and for his "entrepreneurial ability" in securing funds for the purchase. Dean Sugihara also stressed that OSU had made a step forward and that it could now offer the best available analytical instruments to its chemists.

In addition to brief remarks by President

Byrne, other speakers at the ceremony included Dr. Honerlah, who noted that the Murdock Trust and OSU have had a very good relationship for the last nine years. The Trust realizes that higher education in Oregon has been put into severe straits in recent years, he said, and it expects to continue its support of higher education.

While seminar speaker John D. Roberts also spoke briefly at the afternoon ceremony, Professor Gould gave a detailed discussion of what the instrument can do.

"The AM 400 represents a major advance for us in magnet size and in computational power, said Dr. Gould. "Magnet size translates into greater sensitivity and greater resolution. Computational power translates into handling larger blocks of data and handling them faster. New experiments, previously unavailable to us, are already routine within the three short months we've been running the 400."

Dr. Gould showed a number of slides of older instruments used in the Department of Chemistry, one of which was recently retired. He also showed slides of complex molecular structures and the corresponding spectra produced by the old spectrometers and the new AM 400. The increase in detail was obvious. When Dr. Gould completed his lucid presentation, few of those present had any doubts that chemists at OSU had indeed a powerful new tool. □