



Badger chemist : a newsletter from the Department of Chemistry of the University of Wisconsin. Newsletter 17 February 1970

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BADGER CHEMIST

A Newsletter from the Department of Chemistry of the University of Wisconsin

Newsletter 17

February 1970

THE EMERITI



The above picture of the living Emeritus Professors of the Chemistry Department represents two hundred and forty-seven years of service to the University of Wisconsin. The picture was taken early in December, 1969. Seated (left to right) are: Farrington Daniels, 80, who was an active member of the faculty for 39 years; J. H. Mathews, 88, 45 years; H. A. Schuette, 84, 41 years. Standing are: J. W. Williams, 71, 43 years; V. W. Meloche, 74, 41 years and S. M. McElvain, 72, 38 years. To a very significant degree, it was these men who built the department to the level of quality that it attained during the first half of the twentieth century.

Professor Mathews entered the chemistry department as a student in 1899, when the department had three professors. He received his B.S. in 1903 and continued on the campus as an assistant in physical chemistry. As an undergraduate he was one of the founders of Alpha Chi Sigma. He has maintained his interest in this professional fraternity throughout his lifetime and in 1965 was presented the fraternity's Kuebler Award for

distinguished service to the fraternity and the profession. After receiving his M.A. in 1905, Dr. Mathews left for Harvard where he became a student of T. W. Richards. Upon completing his Ph.D. in 1908 he became an instructor at Wisconsin where he had charge of the laboratory work in physical chemistry. During World War I he was a major in the Chemical Warfare Service. In 1919 he became Chairman of the Department, a

post which he held until his retirement in 1952. Early in his period as chairman he was active in promoting the development of colloid chemistry at Wisconsin. He was also called upon as an expert witness in a murder case involving a homemade bomb. This led to a lifelong interest in forensic science, particularly in use of scientific methods for identification of firearms. Since his retirement as chair-
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BADGER CHEMIST

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Editor's Column

I take this opportunity to thank you for past support, both financial and informational. This newsletter has successfully gone through seventeen issues as the result of cooperation from many quarters. In taking over as editor I have had wonderful support from Irv Shain and Henry Schuette. Emory Fisher had planned this issue before his untimely death and I tried to carry out his plans.

Future issues will depend on continued cooperation, as in the past. Each of you can be helpful by sending in news about yourself. As CEN condenses its "People" section more and more drastically it becomes less and less valuable

EMERITI

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man he has carried on an extensive project, photographing hand weapons and recording their firing pin and rifling impressions. This led to the publication of a two-volume treatise on identification of hand weapons. Dr. Mathews continues this work at the present time in the laboratory next to the chairman's office in the old Chemistry Building. When the chemistry faculty moved into the new building, Dr. Mathews remained behind in order to have convenient access to a darkroom. He is now surrounded by physicists who have taken over that part of the old building.

Farrington Daniels was born in Minneapolis and received his B.S. from the University of Minnesota in 1910. His Ph.D. was taken under T. W. Richards at Harvard in 1914. During World War I he was associated with the Fixed Nitrogen Research Laboratory in Washington, D.C. He joined the department at Wisconsin in 1920 and embarked upon a vigorous research program which included investigations of kinetics, photochemistry, nitrogen fixation, thermoluminescence, and nuclear energy. In 1931 he revised the widely used physical chemistry textbook of Frederick Getman and carried it through a succession of editions, each representing a major revision. He, together with Professors Mathews and Williams, also prepared a widely used laboratory manual in physical chemistry. During World War II Dr. Daniels was actively involved in the atomic energy program and from 1946 to 1948 he served as Chairman of the Board of Directors of the Argonne Laboratory. In 1952 he became chairman of the Chemistry Department, a post he held until his retirement in 1959. In 1953 he was

as a source of news about you. Therefore, will you please tell me about your work, family, activities, and interests. I would also appreciate your reactions to the contents and format of the Badger Chemist. Are there types of news we are not giving you that would be welcomed? Are there features we should discard because they have little interest? Your suggestions will be welcomed.

A. J. I.

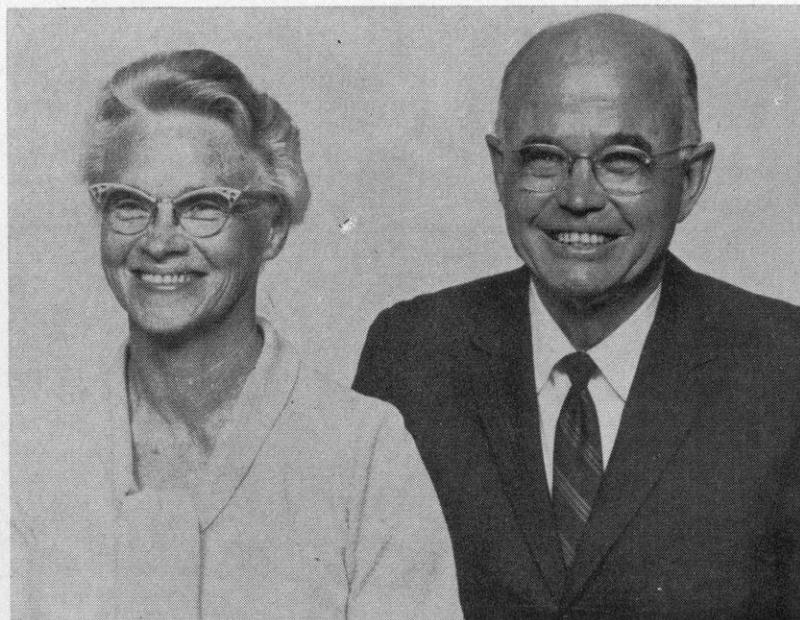
President of the American Chemical Society and in 1964-66, of Sigma Xi. He has had many honors, including the Willard Gibbs Medal, the Priestley Award, and the Norris Award. Since retirement he has vigorously pursued solar energy research, an activity which has taken him to many parts of the world.

Henry A. Schuette became a chemistry student at the University of Wisconsin in 1906, following four years as a country school teacher near Green Bay. Upon receiving his B.S. degree in 1910, he remained to pursue graduate work under the late Professor Richard Fischer. Very soon he was delegated teaching duties in organic analysis and food chemistry. In 1914 he was made an instructor. After completing his doctorate in 1916 he took over full responsibility for the program in quantitative organic analysis, water analysis, and food analysis. This was developed into a very popular program, not only among undergraduates, but at the graduate level as well. At the time of his retirement in 1955 he had supervised the studies of 33 Ph.D.'s. His studies on honey and fatty oils were particularly noteworthy. In 1933 he was Chairman of the ACS Division of Agricultural and Food Chemistry. He held the Presidency of the American Oil Chemists Society in 1941 and of the Wisconsin Academy of Sciences, Arts and Letters in 1944-46. He was one of the "Founding Fathers" of the Wisconsin Junior Academy of Science in 1945. Since his retirement he has given much of his time to the Badger Chemist, being responsible for detailed records regarding former students. He has written most of the text of 16 published issues and is responsible for the major part of the text in the present issue.

John W. Williams came to the department as a graduate student soon after receiving his B.S. at Worcester Polytechnic Institute in 1921. Upon completing the Ph.D. under Professor Daniels in 1925 he became a member of the faculty and took an important role in developing the program in colloid chemistry. The Svedberg had spent some time at Wisconsin in the early twenties and had developed a rudimentary ultracentrifuge at that time. Following his development of the full scale instrument

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EMORY D. FISHER (1908-1969)



The Department was deeply saddened by the sudden death of Professor Emory Fisher on August 25, 1969. He was well known to many of you as the editor of Badger Chemist. His death of a heart attack at the age of sixty-one is a serious loss to the Department, particularly in view of the many dimensions of Dr. Fisher's contributions. His participation in the freshman chemistry program and his editorship, were secondary to his principal role as Chairman of the Chemistry and Physics Departments in the University's Center System.

Dr. Fisher was born in Walker, Iowa on May 4, 1908. His family soon moved to Miller, South Dakota where he received his elementary and secondary education. He majored in chemistry at Dakota Wesleyan University, receiving his B.S. degree in 1931. He then undertook graduate work at Wisconsin, serving as a teaching assistant in the Freshman Chemistry Program, and carrying on research in colloid chemistry under Professor Harvey Sorum. The Ph.D. was granted in 1935.

Between 1935 and his return to Wisconsin in 1963 he held faculty positions at Kansas State College, University of Texas, East Texas State College and, for seventeen years, at the Missouri School of Mines and Metallurgy in Rolla. His

teaching activities were primarily in the field of general inorganic chemistry. His devotion to teaching was appreciated by many successive classes in the schools where he worked. In addition to his regular terms, he taught in N.S.F. institutes for one summer at Grand Forks, North Dakota and five summers at Rolla.

He was brought to Wisconsin in 1963 primarily to take responsibility for chemistry instruction in the Center System, a responsibility carried on for many years by Professor George Town, Ph.D. '22, from his position at the Milwaukee Extension Division and after Professor Town's retirement by Professor M. L. Holt, Ph.D. '30.

Professor Fisher took over his Center System duties with great enthusiasm and built a very sound program at the time that Center System instruction was expanding very rapidly and when suitable instructors were in short supply (A description of the Center System chemistry program is reported elsewhere in this issue). The Memorial Resolution presented to the faculty at their meeting of October 6, 1969 said of him, "A friendly unassuming man, Emory Fisher was appreciated by his associates for the quiet efficient manner in which he carried out his duties. Through his ceaseless efforts he was able to keep the center system

classes competently staffed at a time when qualified teachers were always in short supply. He had the capacity for drawing the maximum productivity from his staff and was respected by them for his fairness, sound judgment and the firmness with which he made decisions and carried them out. He visited the centers frequently and not only made everyone on his staff feel that his work was important but backed up good performance by sound support at higher administrative levels." His handling of the center system chemistry program was so much appreciated that he was soon made chairman of the center system physics program as well.

Professor H. A. Schuette, founder and long-time editor of Badger Chemist recognized ability in Emory Fisher as soon as he appeared on the campus. Newsletter 11 carries his name on the masthead as an associate editor and issue 12, sent out in the winter of 1965, has Emory as editor and Professor Schuette as editor emeritus. Dr. Fisher took his editorship very seriously and developed a smooth operation in which he and Professor Schuette kept the newsletter appearing on schedule. The present issue was well on its way at the time of Dr. Fisher's death. Since he wished to see the picture of the six emeritus professors on the cover we have gone along with his plans and left it there rather than putting Dr. Fisher's picture on the cover where it should so logically be in this issue.

It is appropriate that our picture of Dr. Fisher includes that of his devoted wife, Marie, since they complemented one another and functioned as a team. She was a Madison girl whom he met while he was a graduate student. They were married in 1935 and have three children. Michael Fisher is a member of the Episcopal ministry in Ironton, Missouri. Son Frank is a high school student in Madison and their daughter Mary Ellen is Mrs. Minkevich living in St. Louis. Emory had the pleasure of knowing one granddaughter. A second grandchild was expected at the time of his funeral and Mary Ellen was unable to be in attendance. Dr. and Mrs. Fisher were exceedingly active in Methodist Church work and at the time of his death

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EMERITI*(Continued from page 2)*

in Uppsala, Wisconsin came into possession of one of the few ultracentrifuges of the type ever built, a gift of the Rockefeller Foundation, in 1936. Dr. Williams was responsible for the research program utilizing the instrument up to the time of its retirement a decade ago. During World War II he was deeply involved in research dealing with the plasma proteins of the blood. In 1955 he received the Kendall Award for distinguished work in colloid chemistry. In 1938 he was chairman of the ACS Division of Colloid Chemistry; in 1936 of Physical and Inorganic Chemistry. Nearly 60 students received their Ph.D.'s under him and his laboratory attracted numerous post-doctoral fellows.

Villiers W. Meloche was the second of two brothers to take their degrees in chemistry at the U.W. Clifford C. received his B.S. in 1910, then continued as a graduate student under Professor Victor Lenher and received the Ph.D. in 1914. Most of his career was spent at the University of Michigan. The younger brother, V. W., received his B.S. in 1921 and his Ph.D. under Lenher in 1925. He was immediately made a member of the Wisconsin faculty where he was deeply involved in the development of the program in instrumental analysis. Before his retirement in 1966 he had seen this grow from a small secondary operation to one with a major impact on analytical chemistry. He not only trained numerous Ph.D.'s and students at lower levels but cooperated with scientists on all parts of the campus when they sought to utilize instrumentation in their research. "Mel" was also a leader in the

employment program. He had many connections with industrial chemists and created a viable interview program which brought students into contact with prospective employers. During the years that Chemistry Course seniors were required to take an Industrial Tour during spring recess Mel headed that program. He is also widely known among chemists for his activities as a leader in the activities of Alpha Chi Sigma and he once served as national president.

Samuel M. McElvain joined the faculty in 1923, immediately after completing his Ph.D. under Roger Adams at Illinois. He and Homer Adkins immediately raised the organic chemistry program to a level of distinction which placed it on a par with leading programs in the country. At the time of his retirement he had directed the graduate work of 80 Ph.D.'s and numerous post-doctoral fellows. His work on compounds with pharmacological

activity led to a number of patents. For many years he carried the responsibility for the "Characterizations" course and he became the author of a widely used text in the subject. At the same time, his research was broad-ranging and included work on reaction mechanisms such as the acetoacetic ester condensation and the relative reactivity of organic halides, the preparation and properties of ketene acetals, and the constituents of natural products such as catnip. "Mac" served as chairman of the ACS Division of Organic Chemistry and was a consultant to the National Defense Research Committee during World War II.

All six of these men contributed far more to their department, their university, and their profession than short sketches can ever reveal. The Editors of Badger Chemist are proud to honor them, not only for their contributions but for their wholesome influence on the lives of so many of us.

This 'n' That About Our Alumni

We have learned that **David Aelony**, M.S. '32, Ph.D. (Stanford '38), is now an employee of Ashland Oil Company, Minneapolis, as a special consultant in basic research. We understand that he is very busy in organic research "on the bench level," that the problems at hand are very interesting, and that he is enjoying himself immensely.



Sanford M. Aronovic, Ph.D. '57, is serving the chemical division of Thiokol Chemical Corporation, Trenton, New Jersey, as supervisor of analytical services

in its quality control department. Before joining Thiokol he was associated with Union Camp Corporation, where, we understand, he was responsible for several innovations in gas chromatographic techniques. Earlier he had been a group leader of analytical services for the Maumee Chemical Company, Toledo, and a research chemist in the analytical methods development group at American Cyanamid Company, Stamford, Connecticut. He had enrolled in our University as a research assistant

in 1952. The three child Aronovic family resides at 315 Franklin Avenue, Princeton, N. J.

Grant C. Bailey, B.S. '32, (Ph.D. '38 Iowa) has been elected chairman of the ACS Division of Petroleum Chemistry.

James P. Bays, Ph.D. '68, may be addressed at Sterling Chemical Laboratory, 225 Prospect Street, Yale University, New Haven, Conn. 06520. Our informant reported that Jim is a member of the University's research staff.

We have learned at press time, that **Ann Ratcliff Bergen** (Mrs. J. V.) B.S. '59, became a two-degree alumna in 1958 when our University conferred upon her the M.A. in library science, has a new address: From Pocatello, Idaho, to 6405 Lyric Lane, Falls Church, Va. 22044. We understand that her husband had resigned as Dean of the College of Pharmacy, Idaho State University; had spent a year at Manhattan, Kansas in the University there as lecturer in pharmacy and in postdoctoral study under the direction of Badger Chemist **Takeru Higuchi**, Ph.D. '43, of KU's School of Pharmacy; and that he, at this writing is the associate director of the National

Emory Fisher*(Continued from page 3)*

he and Mrs. Fisher held an important position in the First Methodist Church in Madison.

Dr. Fisher was a soft-spoken friendly man who went about his duties in an efficient manner. He was appreciated and admired by all of us who had the good fortune to be associated with him.

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ABOUT THE FACULTY . . .

Professor Richard B. Bernstein was New York State Visiting Distinguished Lecturer of Science in December. He gave lectures at Yeshiva University and several New York State Universities on "Molecular Beam Kinetics." During the past year he has also given lectures and seminars at a number of universities ranging geographically from Cal Tech to MIT and Texas to Toronto.

Last March, Professor Lawrence F. Dahl presented an invited talk at the Faraday Society discussion held in Cambridge, England. His subject was "Bonding in Metallic Organic Compounds." He also gave lectures at University College, Imperial Chemical Industries, and the University of Scheffield during that trip. In July he presented a plenary lecture on "Stereochemical and Bonding Principles in Organo Complexes: The Influence of Valency Electrons on Molecular Configuration," at the Fourth International Conference on Organometallic Chemistry held in Bristol, England. During a lecture at the University of Louisville, Professor Dahl was presented a plaque in honor of being the first Distinguished Alumni Lecturer at the University's Department of Chemistry. He was recently awarded a Guggenheim Fellowship and is planning to spend the second semester in Munich, Germany.

Emeritus Professor Farrington Daniels spent the first semester of the past academic year as visiting professor at Cranbrook Institute of Science.

Professor John D. Ferry was honorary president and opening lecturer at the Fifth International Congress of Rheology held in Kyoto, Japan in Autumn of 1968. He also gave lectures at Nagoya University, Kyushu University and the Japanese Society of Polymer Science. The second edition of his title: "Visco Elastic Properties of Polymers" is to be published in February 1970.

Prof. Larry A. Haskin is one of two U.W. Scientists making a study of lunar rocks brought back from the moon aboard Apollo 11 last summer. He is working with three student colleagues, making an analysis of this material for its content of trace and non-essential

chemical elements in the hope that the information so obtained will reveal certain factors pertinent to the history of the rock's formation.

Professor M. L. Holt has been named the recent recipient of the Joseph Howard Mathews Award for Distinguished Service to the Alpha Chapter of Alpha Chi Sigma professional chemical fraternity. "Les" was chairman of the building committee of our new building.

Dr. David Hopgood has been appointed as an Assistant Professor in the Analytical Chemistry Division. A native of England, he received the B.Sc. (Special) Degree in Chemistry from the University of London in August of 1963. In October of 1966, he received the degrees of D.I.C. from Imperial College and of Ph.D. from the University of London. His doctoral thesis entitled "Mechanistic Studies of Metal Carbonyls" was done under the supervision of Professor A. J. Poë. He had postdoctoral research experience at Iowa State University with Professor R. J. Angelici from 1966-1967 and with Professor D. L. Leussing at Ohio State University from October of 1967 to September of this year. His current research interests include kinetics and equilibria of inorganic reactions in solution, especially of transition metal complexes; and metal ion catalysis of reactions of biological importance.

In April Professor Aaron J. Ihde was the Rosetta Briegel Barton lecturer at The University of Oklahoma; his subject, "Stephen Moulton Babcock—Benevolent Skeptic." A month later he was speaker at The Northland College faculty banquet inaugurating their new curriculum. He had visited Ashland several times in connection with their curriculum planning. Lectures were also given by Professor Ihde at Arkansas AM and N College and at The University of Toronto.

Professor Alex Kotch has been appointed Consultant Examiner for the North Central Association of Colleges and Secondary Schools.

Professor E. M. Larsen has continued his work as Visitor in the Program of Visiting Scientists sponsored by the Division of Chemical Education and supported by

the National Science Foundation. In August, he gave an invited talk on "Salt" at the Gordon Research Conference in Meriden, New Hampshire and participated in a symposium at the New York ACS Meeting, discussing laboratory work for the non-science major.

Emeritus Professor V. W. Meloche has been enjoying retirement with a trip to the Caribbean; a winter-spring visit in Tucson, Arizona before spending the summer months at his cottage in upper Wisconsin.

Professor Worth Vaughan deserted the ranks of the departmental bachelors when he married Diane Ballinger of San Rafael, California on August 9. His book "Dielectric Properties and Molecular Behavior," co-authored with Nora Hill, A. H. Price, and M. Davies, all of England, was published by Van Nostrand, Reinhold recently.

Professor Robert West was NIH Senior Postdoctoral Fellow and Visiting Professor at the University of Würzburg in Germany in the Fall of 1968-69. Besides his activities at Würzburg he gave lectures and seminars at numerous universities in Germany and the Netherlands. In November he and the members of his family were the first tourists from the West permitted into Czechoslovakia after the Russian take-over. At the last ACS meeting, it was announced that he would receive F. S. Kipping Award in Organosilicium Chemistry next spring. He continues his interest in mountain climbing and in August he and members of his group ascended seven previously unclaimed mountain peaks in the Purcell Range in British Columbia.

Professor John E. Willard has participated in the use of ESR in Radiation Chemistry at the Chalk River Laboratories at Atomic Energy of Canada Limited, at the International Symposium on "Chemical Effects of Nuclear Transformations" held in England last July, and in the Second U.S.-Japanese Conference on Radiation Chemistry held at Hakone, Japan.

Emeritus Professor J. W. Williams was Nobel Guest Professor at the University of Uppsala during the first term of the academic year 1968-69.

Professor Howard E. Zimmerman gave Welsh Lectures in Texas
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Faculty . . .

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last February and lectured in Germany at the Universities of Karlsruhe and Würzburg last April. He also gave a plenary lecture before the Chemical Society during that trip.

Several members of the department have participated in ACS short courses. **Barry M. Trost** and **Edwin Vedejs** offered "Modern Organic Synthesis" at Hanover, N. H. in July. **Howard E. Zimmerman** (with Ruben D. Rieke) presented "Molecular Orbital Theory" in the Denver area about the same time. **Irving Shain** and **Dennis H. Evans** offered "Electroanalytical Chemistry" in New York City in August.

This 'n' That . . .

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Formulary of the American Pharmaceutical Society.

Warren Biggerstaff, Ph.D. '48 has been named Associate Vice-President for Academic Planning at Fresno State College, Fresno, California. He has been Chairman of the Chemistry Department for several years.

H. Byron Bird, Ph.D. '50, of our University's Chemical Engineering Department, has been elected to the National Academy of Engineering.

Edward G. Brame, Jr., Ph.D. '57, is associated with DuPont's Elastomer Chemicals Department. We understand that he "is involved with spectroscopy and structure determination research" where a knowledge of infrared, ultraviolet, and nuclear quadrupole resonance is a pre-requisite. Ed is currently the editor of *Applied Spectroscopy Reviews*. Last January (1969) by invitation he gave several lectures on NQR Spectroscopy, Analytical Chemistry, at the annual Louisiana State University Symposium. He is currently a member of a committee which is laying plans for a National Analytical and Spectroscopy Conference which would meet annually.

Edward R. Burgoye, Ph.D. '49, is a member of the chemistry staff of Arizona State University with full professor rank.

Visiting Professors

The Department is pleased to have the help of several visiting professors this year.

Dr. Allen A. Denio has been appointed a Visiting Associate Professor for the 1969-70 academic year. He received his Ph.D. degree in 1962 under the supervision of Prof. Alexander R. Amell at the University of New Hampshire. From 1962-64 he was a research chemist with DuPont at the Experimental Station in Wilmington, Delaware. In 1964 he joined the Department of Chemistry at Wisconsin State University-Eau Claire where he is an Associate Professor. His current research interests include the infrared absorption properties of various types of micas. Dr. Denio is teaching one of the introductory general chemistry courses for non-majors.

Dr. James L. Kinsey has an appointment as a Visiting Associate Professor in the Theoretical Chemistry Institute for the 1969-70 academic year. He received his Ph.D. degree at Rice University in 1959 and is on leave from M.I.T. where he is an Associate Professor in the Department of Chemistry. His current research interests include molecular beams; elastic, inelastic, and reactive scattering; intermolecular forces; and scattering theory.

Dr. Dieter Seebach has been appointed a Visiting Associate Professor in the Organic Chemistry Division for the 1969 Fall Semester. A native of Germany, he received the Diplomchemiker in 1961 and his doctoral degree (Doktor der Naturwissenschaften) in 1964 at the Technische Hochschule in

We have recently heard that **Dr. Thomas Bydalek**, who was a member of our Analytical faculty for several years, has recently been promoted to Professor of Chemistry at University of Minnesota, Duluth.

Two-degree (B.A. '42 and M.S. '44) Badger Chemist **William O. Caster** completed his formal education at Minnesota where the Ph.D. degree was conferred upon him in 1948, as a physiological chemist. A three-year association with the U.S. Public Health Service ended with his return to the midwest to accept an assistant professorship at Minnesota. This move was in a sense the prelude to his

Karlsruhe. In 1965, he spent a year at Harvard University on a joint appointment as Lecturer in Chemistry and Postdoctoral Fellow collaborating with Prof. E. J. Corey. He is on leave from the University of Karlsruhe where he is a Wissenschaftlicher Assistant in the Organic Chemistry Institute. Dr. Seebach is teaching one of the sections of the introductory organic course.

Dr. David J. Curran is on appointment in the Analytical Chemistry Division as a Visiting Assistant Professor for the 1969-70 academic year. A native of Canada, Dr. Curran received his Ph.D. degree in 1961 under the supervision of Professor A. M. Hartley at the University of Illinois. He was an Assistant Professor at Seton Hall University from September of 1961 to June of 1963. In September, 1963 he joined the Department of Chemistry at the University of Massachusetts as an Assistant Professor, a position from which he is now on sabbatical leave. His research interests include investigations of the usefulness of pressure transducers for analytical measurements; and study of new types of electrodes for use with electroanalytical methods of analysis. Dr. Curran is teaching Instrumental Analysis in collaboration with Dr. James W. Taylor.

In addition to the above visiting professors **Glen E. Dirreen** served as Lecturer during the fall semester. He was selected following the death of Dr. Fisher to teach the Chemistry 104 course. A graduate of the University of Nebraska, B.S. '54, with an M.A. from the University of Colorado in 1959, he is presently a Ph.D. candidate at Wisconsin under Professor Paul Treichel.

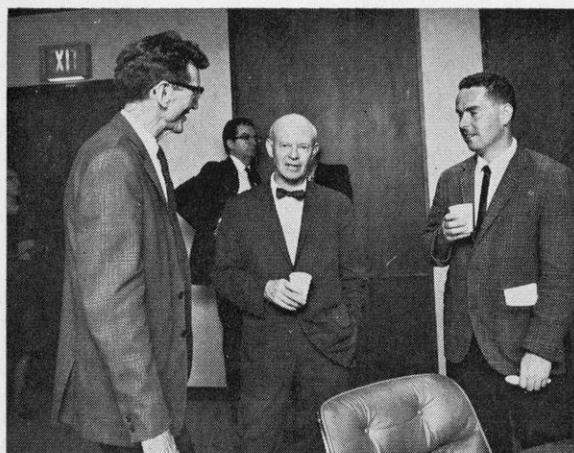
present position. He is a member with professorial rank on the faculty of the school of Home Economics, University of Georgia, Athens.

Robert E. Conary, Ph.D. '38, enrolled in our Graduate School in 1934 as an alumnus of the University of Minnesota (B.S. Chemical Engineering) and with an appointment as a teaching assistant in our department in hand. On graduation as a Badger Chemist he joined Texaco at its Beacon (N. Y.) Research Laboratories. Following supervisory positions of increasing importance in fuels research and chemicals research, he

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Professor Shain and Bette with testimonial volume.



Professors Sorum, Holt and Vaughan chatting at the party.
Professor Kotch is in background behind Holt.

was named Assistant Director of Research at Beacon in 1954, Director of Research in 1956, and Manager there in 1960. Some eight years later he was appointed Director of Research, Texaco Europe, Ltd. His business address: 149, Avenue Louise, Bruxelles 5; home address: Eikeldreef 1, St. Martens-Latem, Belgium.

Don T. Cromer, Ph.D. '51, was one of the 1969 recipients of the Ernest Orlando Lawrence Memorial Awards in a ceremony at the Carnegie Institute, Washington, D. C. on April 30, 1969. He has been a member of the scientific staff at Los Alamos Scientific Laboratory since 1952. He is a crystallographer in the Plutonium Physical Metallurgy group and is presently leader of the Crystal Chemistry Section.

A Badger Chemist—he is vice-president for research, Carnegie-Mellon University and a trustee—has been named director at large by the American Chemical Society for a four-year term ending in 1971. His name: **Paul C. Cross**. Paul is an alumnus of Geneva College, B.S. '28, and the possessor of two Wisconsin-conferred degrees, M.S. '30 and Ph.D. '32. Two Pennsylvania-based colleges (his own alma mater and Waynesburg) had conferred upon him the honorary D.Sc. degree. He has been a member of ACS for forty years and during this association with the Society he was chairman in turn, of three local sections (Puget Sound, Rhode Island, Pittsburgh), chairman of the Division of Physical Chemistry and a member of the editorial board of the *Journal of The American Chemical Society*.

He was a member of Brown University's faculty which he joined in 1936 as an assistant professor and left in 1949 as professor and department chairman. After heading the chemistry department of the University of Washington, 1949-1961, he joined Melton Institute as trustee, president, and chief executive officer.

Announcement was made last October that **Carl Dierassi, Ph.D. '46**—Professor of Chemistry at Stanford—had been named to receive the 1969 Intrascience Research Foundation Award. As we go to press we learn that plans have been made to present the award in January, in Santa Monica; a symposium will be held there in his honor; and that Carl will be cited for his outstanding contributions which he and his students
(Continued on page 8, col. 1)

Bette Germann Had a Party

And everybody came. The alumni room was the scene of a very pleasant party on the afternoon of May 6. The occasion was the completion of twenty-five years of service to the Chemistry Department by Bette Germann. The Department took advantage of the occasion to have a party in her honor.

Bette joined the secretarial staff of the Department during World War II. Her work was looked upon so favorably that when Vi Hendrickson Moore left as departmental secretary in order to have more time for her family, Bette was the obvious candidate for her replacement. Since that time she has held the position under four chairmen: Mathews, Daniels, Ferry and Shain. Highlight of the party was the presentation by Dr. Shain of a bound volume of testimonial letters and three \$100 bills.

As all of us realize and appreciate, Bette has been successful in retaining her pleasant disposition in the face of many crises which arise in a departmental office. Through her understanding of departmental affairs, as well as their place in a large university bureaucracy, she has saved many of us countless hours of frustration by having the right answer available when it was needed.

We congratulate you, Bette, upon completion of twenty-five years of service and hope that you will be in your present position for many more years. All of us appreciate the fine job that you are doing.

This 'n' That . . .

(Continued from page 7)

have made to the Chemistry of Steroids. Carl, a graduate of Kenyon College, B.S. '42, was honored by his alma mater when they conferred the D.Sc. degree upon him in 1958. His first honorary degree was bestowed in 1953 by the Universidad Nacional de Mexico.

Herbert J. Dutton, B.A. '36—he earned his doctorate in biochemistry—of the oil seed crops laboratory of Northern Utilization R and D Division, USDA is the 1969 recipient of the Applied Science Laboratories sponsored award in Lipid Chemistry. This \$2500 award is administered by the American Oil Chemists' Society of which our Emeritus Professor H. A. Schuette is a past president.

June Swift Ewing (Mrs. George) left the campus as a B.S. Badger Chemist in 1959 and the next year earned her M.S. at California. We have learned that, as of April 1969, she retired from her job doing research in brain chemistry at the University of Indiana in order to care for their daughter Alice Adair.

Warren A. Field, B.A. '35. At this writing has a 29-year record of service with Hoffman La Roche, Nutley, N. J., unbroken except for a three-year leave while in service in World War II.

Some-time teaching assistant **Theron C. Finzel**, M.S. '25 and Ph.D. '27—continued to serve the department as an instructor for a year after graduation—retired several years ago. His biography shows a five-year association with DuPont as a research chemist; one as a development chemist with the Manhattan District Project, Clinton Laboratories, Oak Ridge, Tenn., and twenty years with International Rayon Corporation. He joined the Association of Textile Chemists and Colorists in this active day and lists among other products, Viscose, Cellulose Rayon, Nylon, and Hydri Polymer Fibers. We understand that he "winters" in Florida and spends his summers in his native Michigan, this being his main interest.

Sydney J. French, Ph.D. '28, retired in 1964 as Dean of Academic Affairs, at the University of South Florida in Tampa. Retirement for him meant a change from an administrative post to his first activity as a teacher. At last report

he was conducting a graduate seminar at U.S.F. on college teaching. We understand that he is finding it "fun to work with the present generation just starting out in the profession." And that the University and his former students did not let his birthday—75th—pass unobserved. A "surprise" party and a host of messages and greetings from all over the world."

Chemistry Course graduate **Lavern A. Gilbertson**, BS '52, is Mill Superintendent, with the Menasha Division of Marathon Paper Company.

Chemistry Course graduate **Lester G. Graper**, B.S. '17, sometime vice-president, research and development, with Lone Star Steel, Dallas, Texas, on retirement became a Madison resident. He is currently a research chemist in the Employ of Bjorksen Research Laboratories.

We have learned that **Jack D. Graybeal**, Ph.D. '62, left his position at West Virginia University in 1968 to join the Chemistry Department at Virginia Polytechnic Institute in Blacksberg. Promotion to full professor came to him last September.

Announcement was made last August by the Technical Association of the Pulp and Paper Industry (TAPPI) of the appointment of a Badger Chemist as its chairman of a newly-organized physical methods committee which is concerned with the development and standardization of physical test methods for paper. The chemist in question is **C. O. Halverson**, B.S. '35. He is superintendent of test development and testing services in the R. E. Division, Kimberly-Clark Corporation, Neenah, Wis. His duties at Kimberly-Clark include supervising the development, standardization, and auditing of quality testing instruments and methods, and providing control testing and analytical services. His local activities include memberships in the Fox Valley Human Rights Council, American Civil Liberties Union, United World Federalists, and the Commission on Christian Social Concerns. He is a former school board member and justice of the peace.

Chemistry Course graduate **Robert H. Haman**, Ph.D. '29, is president of Minnesota Malting Company, Cannon Falls, Minn.

J. J. Heithaus, Ph.D. '50, and his wife are now grandparents for the first time. They have a seven child

family. He is with Shell Oil Company at its Wood River, Ill. plant and is serving as supervisor in the Advanced Product Development Laboratory.

Oberlin College Alumnus (AB '43) **Ralph F. Hirschman**, Ph.D. '50, was honored by his alma mater at last June's commencement when they conferred upon him a D.Scs. degree. Ralph is Director of Research at Merck and Co., Rahway, N. J., and a two-degree Badger Chemist, M.S. '48. Our readers will probably recall that Ralph is a member of the research group that synthesized the enzyme ribonuclease.

Hugh M. Hulbert, Ph.D. '42 is chairman of the Chemical Engineering Department of Northwestern University, Evanston, Ill. Hugh is an alumnus of Carroll College, BA '38 and during his graduate days in the department served it as a teaching assistant.

Alfred J. Johnson, B.S. '16 (Chemistry Course) is now a DuPont retiree. Al's association with the company began a few years after graduation from Wisconsin. It remained unbroken throughout this span. He became a recognized authority on practically all classes of dyes and their application to all sorts of materials. His specialty, however, was the class of thioindigo dyes. He is the author of a chapter on the indigoid dyes in ACS Monograph 127.

Sometime teaching assistant **Hal G. Johnson**, Ph.D. '41, a two-degree Beloit alumnus (B.S. '36 and M.S. '38) who had served his alma mater as an instructor enrolled in our Graduate School as a teaching assistant in preparation for a career in organic chemistry. Commercial Solvents was his first employer; Monsanto Chemical his second. We have recently learned that he is now a resident of Parkersburg, West Virginia, where he is associated with Borg Warner Company as the director of chemical development and its polymer group. His address: 106 Oakwood Place, North Hills Estates, Parkersburg, W. Va. 26101.

Jagannath G. Kane, Ph.D. '43 writes that although he has reached retirement age as Director of the Department of Chemical Technology, University of Bombay, he has been persuaded to remain at the post for several additional years. His Institute of Fatty Oil Technology has played a significant

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Badger Chemists Honored at 1969 Commencement



Presidential Party at 1969 Commencement

June commencement in 1969 was a noteworthy one for Badger Chemists, with two of the Department's graduates, Alexander Hollaender and Karl Folkers receiving honorary doctorates of science from their Alma Mater. The Presidential party shown in the picture includes from left: President Fred Harvey Harrington, Robben W. Fleming, LL.D., former Chancellor of the Madison Campus and now President of the University of Michigan; Alexander Hollaender, Karl Folkers, John K. Fairbank, Director of East Asian Research Center at Harvard University, LL.D., and Walter W. Heller, LL.D., Professor of Economics at the University of Minnesota, and advisor to Presidents Kennedy and Johnson; Governor Warren P. Knowles. All of the honorary degree recipients had received earlier degrees at the University of Wisconsin.

Alexander Hollaender is Senior Research Advisor and former Director of the Oak Ridge National

Laboratories in Oak Ridge, Tennessee. He was born in Samter, Germany seventy years ago and came to the United States in 1921. He earned three Wisconsin degrees, the B.A. in 1929, the M.A. in 1930, and the Ph.D. in Physical Chemistry under Professor John J. Williams in 1931. He also holds honorary degrees from the Universities of Vermont, Leeds, Marquette, and Cornell. In 1931-33, he was National Research Council Fellow in Biological Sciences, in 1934, Investigator for the Rockefeller Foundation, and in 1934-37, Investigator in charge of radiation work for the NRC Project in Wisconsin. He has had affiliations with the Washington Biophysics Institute and the National Institutes of Health, the U. S. Public Health Service, and the U. S. Office of the Surgeon General, U. S. Navy. He was Director of the Biology Division of Oak Ridge National Laboratory for twenty years starting in 1946 and was Professor of Radiation Biology at the University

of Tennessee from 1957-66. Since 1967 he has been Senior Research Advisor of the Biology Division at Oak Ridge and Professor of Bio-Medical Sciences at the University of Tennessee and the Oak Ridge Graduate School of Biomedical Sciences. In awarding the degree President Harrington stated, "In pure research, as well as in applied studies, he has worked to devise ways of minimizing the harmful effects of radiation. He has provided world leadership in research in all areas of biological investigation and has been instrumental in stimulating the establishment of research institutions in underdeveloped nations. Far from being one-sided, he combines his scientific accomplishments with a deep interest in art. He is as conversant with painting and sculpture, especially of the modern period, as with equipment in his laboratory, and has impressive collections of each."

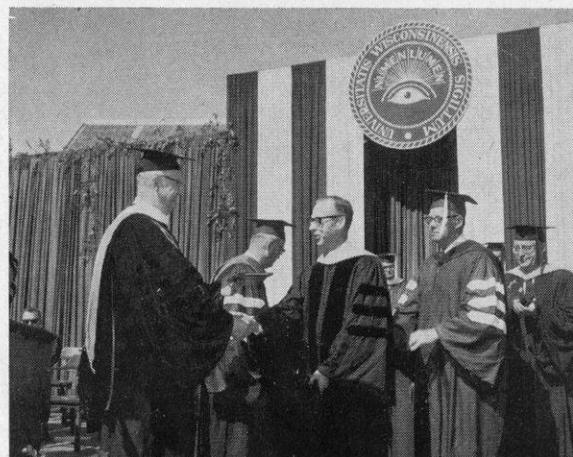
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COMMENCEMENT cont.

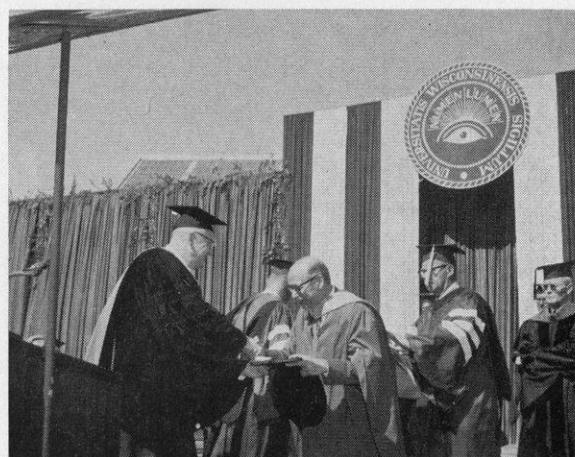
Karl Folkers received the Ph.D. in chemistry at the University of Wisconsin in 1931, working under the late Professor Homer Adkins on catalytic reactions at high temperatures and pressures. He carried on postdoctoral studies at Yale before joining Dr. Randolph T. Major's laboratory of pure research established by Merck and Company at Rahway, New Jersey. His work bringing together chemistry, biology and medicine led to

his selection for the Mead Johnson Award in 1940 and 1949, the Merck Scientific Citation in 1951, three American Chemical Society Awards and other honors from the U. S. Office of Scientific Research and Development, The Society of Chemical Industry, and the National Association of Manufacturers. The Merck Award of \$25,000 was divided between the Universities of Illinois and Wisconsin to establish Karl Folkers Lecture-

ships on the two campuses. He was elected to the National Academy of Sciences in 1948 and is a Past President of the American Chemical Society. In 1963 he became President of the Stanford Research Institute while also serving as Professor of Chemistry at Stanford and Visiting Lecturer at the University of California-Berkeley. He is now Director of the Institute for Biomedical Research at the University of Texas.



Karl Folkers receiving congratulations from President Harrington. At right are Faculty Marshal Henry Ahlgren, Chancellor of the Extension Division, and escort Robert Burris, Chairman of the Biochemistry Department.



Alexander Hollaender receiving certificate and congratulations from President Harrington. At right are Marshal Ahlgren and our own Professor J. W. Williams who served as Dr. Hollaender's escort.

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role in the development of the fatty oils industry in India. About two hundred students have graduated from the Oils Section which Dr. Kane heads and have taken important positions in the oil industry in the country. Dr. Kane has also been President of the Oil Technologists Association of India, a group which has been active in arranging seminars, lectures, and symposium. He is the author of a book "Chemistry and Technology of Soaps" and has published extensively in the journal literature of India.

Thomas J. Katz, B.A. '56, has been a member of Columbia's chemistry staff with professorial rank since 1964. Harvard conferred the doctorate upon him in 1959. He began his formal education as a National Science Foundation Fellow, and in his first year as a

Freshman at Wisconsin won the Francis Craig Krauskopf Award.

Alex Kotch, Professor and Associate Chairman of our chemistry department appointed a consultant-examiner for the 1969-70 associate program of North Central Association of Colleges and Secondary Schools.

Chemistry Course graduate Carl H. Krieger, B.S. '33, Ph.D. (Biochemistry '40) is president of the Campbell Institute for Food Research in Camden, New Jersey. Carl's Madison friends remember him as a some time director of the Wisconsin Research Foundation's general laboratories and that he left our campus to take employment with Campbell Soup Company, and that in due time he was made head of its then new food science and nutrition laboratories, which were planned to take care of the company's expanded program in basic food research. As we go to press we learn that he has been elected to the membership in the

University of Wisconsin Foundation which is dedicated to the task of raising funds from private sources for the benefit of the educational program.

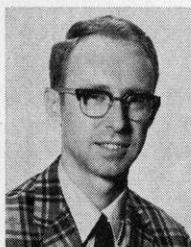
Fred A. Kummerow, B.S. '39, on achieving Badger Chemist status continued his education on the other campus—it is now known as the College of Agriculture and Life Sciences—where he earned his Ph.D. degree in 1943. During the following seven years he held posts at Clemson College and Kansas State College. He is currently Director of the Burnside Research Laboratory of the University of Illinois and a professor of chemistry in the Department of Food Science. We understand that many of his former students are active in Industrial Research, University Hospitals, and Research Foundations in Canada, Great Britain, France, Israel, Egypt, India, Korea, and Japan.

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The letterhead of Chemistry Course graduate **Jerold A. Last** read, Ph.D. with a New York, N. Y. address. We have learned that the doctorate was conferred upon him in 1965 by Ohio State University.



Chemistry course graduate, **Stephen C. Lawton**, '63, pursued his graduate studies at Iowa State University at Ames, where he earned the M.S. degree in 1966. He is now an employee of Mobil Research and Development Corporation in its Paulsboro Laboratory, N. J. His promotion to the position of senior research chemist in the composition and structure research group was announced last summer. We understand that in his assignments with Mobil he has been actively engaged in the determination of crystal structure of zeolite catalysts and lubricating oil additives using X-Ray diffraction techniques.

Sprague Electric Company retires **Wilbur Lazier**, Ph.D. '25. Wilbur and his wife Esther have made their home in Leisure World in Laguna Hills, California. A fellow Badger Chemist has described it to be a "fabulous retirement city" forty miles south of Los Angeles." Their address: P. O. Box 1102, Laguna Beach, Calif. 93652.

Samuel Lenher, B.A. '24, D.Sc. '59, is serving the Council of Delaware of the United Fund as its president for 1969-70.

We have learned that **Wendell A. Linbeck**, Ph.D. '40, has been made alumni secretary of the Department of Chemistry of Northern Illinois University, DeKalb, Illinois and that he has found Badger Chemist a very helpful source of ideas in publishing the first issue of their newsletter to the chemistry alumni. Wendell is a full professor and is taking a sabbatical leave to work at the Argonne National Laboratory.

Keith McLane, M.S. '44, has accepted a professorship in the Department of Aerospace Engineering Sciences. He had formerly been in government service with

CENTER SYSTEM CHEMISTRY

Robert Splies Ph.D. '51

The University of Wisconsin Center System is one of six units of the University of Wisconsin. The Center System conducts classes at seven campuses or "Centers" which are distributed throughout central and southern Wisconsin. The first two years of college chemistry are offered on most of the Center System Campuses. Courses include general chemistry (a one semester and a two semester course are available), organic chemistry, quantitative analysis, biochemistry and chemical calculations. These courses meet the general science requirements for liberal arts majors as well as serving as prerequisites for additional advanced work in chemistry. The chemistry courses offered in the Center System carry the identical numbers as the work given at the Madison and Milwaukee campuses of the University. Since Center System courses are correlated with those given at other University units the transfer of credits presents no problem to students who continue their work at the four year campuses.

There is an increasing trend toward the use of instrumentation in undergraduate laboratories and some of the centers are equipped with facilities for infra-red, ultra violet, and gas chromatographic investigations. This equipment is used not only by the students but

by faculty members in their research. Although the primary mission of the Center System involves teaching, research and other professional development programs by the faculty are encouraged. These programs are supported by private grants, graduate school funds, and special Center System faculty development awards.

All faculty members teaching chemistry at the seven centers constitute the Center System Chemistry Department. Madison chemistry alumni are well represented on the current staff. At the Marshfield Campus Margaret Ives Leonard (Ph.D. '45), Philip Hall (M.S. '65) and Thomas Marty (M.S. '67) are in charge of course offerings. Ray Brumblay (Ph.D. '38) joined the faculty at the Wausau Campus this fall where he will lecture in analytical and general chemistry. Charlene Steinberg (M.S. '48) and Mac Milleur (M.S. '69) are located at Sheboygan. West Bend, the site of one of the newer campuses, is the home of Alan Grimm (B.S. '55). The general chemistry courses at Janesville are taught by Janice Sukup (B.S. '61) and Kendra Davenport Tutsch (M.S. '68). In Waukesha, organic chemistry is taught by Robert Splies (Ph.D. '51). Only one campus, Baraboo, does not have a Madison graduate teaching in the field of chemistry.

National Bureau of Standards, and E.S.S.A.

Gerald R. Miller, B.S. (Ch.C.) '58 enrolled in the University of Illinois upon attaining Badger Chemist status. There he earned his Master's Degree in 1960 and the Doctorate in 1962. At last report he was a member of the chemistry faculty of University of Maryland.

Patricia Krecher Moyer, Ph.D. '54, is a group leader in Research and Development Department of Vulcan Materials Company in Wichita.

Some 31 years ago Chemistry Course graduate **Melvin M. Mueller**, B.S. '39, became an employee of the Robert A. Johnston Candy Company of Milwaukee; and during that time Johnston became a part of Ward Foods Inc., with added plants in New Jersey, San

Francisco, and Columbus, Ohio. Last September (1969) Melvin was named general plant manager of all of them. He continues to make his home in suburban Germantown. We understand that his route from the laboratory bench to managers post has not always been easy but rewarding and fun.

We have learned that **Richard D. Mullineaux**, Ph.D. '51, after 20 months as director, General Science at Shell's Emeryville, California Research Center, has been moved to its head office as General Manager of Manufacturing, Transportation and Marketing (MTM).

We have learned that **R. J. Nederrieb**, Ph.D. '58, holds a B.A. '53 from Miami (Ohio) and at last report he was a research chemist with Linde Division of Union Car-

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bide. He has a new address, from Williamsville, N. Y. to 37 Willowbrook Drive, Doylestown, Pa. 18901.

Wayland E. Noland, B.A. '48—Harvard conferred his Ph.D. degree in '52—has informed us that his two-year stint as acting Chairman of the Chemistry Department at Minnesota came to an end on June 30, 1969, and that he is chairman-elect (at this writing) of the Minnesota Section of ACS. Wayland has taken on the duties of Secretary to the Board of Editors of *Organic Syntheses*. It is a ten-year term.

Mary Jane Oestman, Ph.D. '54, is a member of the staff of Argonne National Laboratory, as an associate chemist with the Liquid-Metal Fast Breeder Program Office. We understand that her activities have involved the near-term and long range planning for the R and D in Sodium Technology which needs to be carried for the next fifteen years by Universities, and National Laboratories throughout the United States before the Commercial Fast Breeder Reactor will be built to meet the future needs of electrical power of our country. Mary's professional associations are impressive. They include election as Fellow of the American Institute of Chemists; Secretary—for the fourth term—of the Isotopes and Radiation Division of the American Nuclear Society; Executive Committee of the Phi Beta Kappa (Chicago Association); and member of a number of committees of the Chicago Section, ACS. She is mentioned in *Who's Who in Atoms*, *Who's Who of American Women*, *Who's Who of American Education*, and *Who's Who of the Midwest*.

Mrs. William Bruce Olson (the former **Barbara F. Tews**) B.A. '53, on acquiring Badger chemist status enrolled in the University of Washington for graduate work as a teaching assistant. At last report she was on the east coast. Her address: 101 Deerpark Drive, Gaithersberg, Md.

A "thank you" to DuPont **A. A. Pavlic**, Ph.D. '42, for his report on the ladies' night meeting on April 23, 1969; the Delaware Section of the American Chemical Society. Some 380 chemists and wives sat down to a gala dinner at the Du-

ACS Honors 50 Year Members

Only two Badger Chemists—last year there were six—were honored by the American Chemical Society in recognition of their half-century membership in it. One of them is a retired educator; the other is a federal employee who began his career as an educator. On attaining Badger Chemist status he applied his newly acquired talents to scientific research. His name: **George J. Ritter**, Ph.D. '20. George joined our department, as an experienced school superintendent, with the rank of instructor, and then upon graduation, remained on the campus as a member of the U.S. Forest Products Laboratory's scientific staff. His job carried with it fringe benefits, as a lecturer in Forestry and Forest Products.

An active association of over forty years with the University of Wyoming ended with the retirement of Milwaukee born **E. R. Schierz**, Ph.D. '22. His was an association which began in 1922 as a research chemist in this school's agricultural experiment station. Promotion to associate professor on the department with full professor rank came in due time. His latest recognition came from the Wyoming Section of the American Chemical Society which established a scholarship bearing his name. It will be awarded annually to a freshman chemistry student.

Pont Country Club to honor the feature speaker of the evening, a Wisconsin born Badger Chemist, the Honorable **Russel W. Peterson** Ph.D. '42, Governor of Delaware. The next speaker of the evening, **James S. Rumsey**, Marketing Manager, DuPont Textile Fibers Department, had something to say to the distaff members of the audience. He discussed some of the unique problems involved in the introduction of a fiber "Quina, the world's newest fiber." We understand can be woven into the satin, Jacquard Surab; Twill, Faille, Pear and Ottoman Classes of fabrics. The Haute-Couture creations designed by Christian Dior for the introduction were shown in motion pictures.

Albert F. Preuss, Ph.D. '55, has been appointed Director of Research, Ionac Chemical Company, Birmingham, New Jersey. Al joined Ionac a year ago after 15 years of research and development experience with Rohm and Haas.

We understand that Ionac is a division of Sybron Corporation, and that it is a leading producer of ion exchange resin. It also produces ion exchange membranes, especially polymers, water and waste treatment chemicals. Al has many patents and publications to his credit and has served as ASTM co-chairman on mechanical degradation of polymer thickened flouide.

Word came to us last June that **Therald Moeller**, Ph.D. '38, would leave Illinois and become chairman of the chemistry department of Arizona State University, Tempe, in September 1969. We understand that that change in affiliation is now a fact. He had served the University of Illinois since 1940. The milestones in his career as an educator to date are graduation from Oregon State College in 1934; appointment at Wisconsin that same year as a teaching assistant; a Du Pont fellowship during his last year on our campus; an instructorship during the next two years at Michigan State College; an associateship at Illinois, an assistant professorship and, in due time, full professor in 1958.

Dr. Armand J. Quick, B.S. '18, published his first paper fifty years ago, shortly after finishing his work as a student in the Chemistry Department. This spring he is publishing his sixth book "Bleeding Problems in Clinical Medicine." He continues his research in hemostasis at the Marquette University School of Medicine.

Jack K. Reek, Ph.D. '68 and his wife Judy became parents of their first child, Scott Andrew, on June 25, 1969. They are living at 1019-A, Arlington Place, 54481.

Jack A. Rider, B.S. '68, on completing the chemistry course program in January enrolled at the University of Minnesota for graduate work in analytical chemistry. In July of that year he was inducted into the army. As of last April he has been serving as a personnel records clerk at the U.S. Army Training Center at Fort Campbell, Kentucky. He was scheduled to leave in June for a one-year tour of duty in the Republic of Vietnam; upon completion of this duty he will have fulfilled his military obligation and will return to complete his studies for the Ph.D. in analytical chemistry.

Our latest information on Eastman's research chemist **Alfred C. Robertson**, Ph.D. '25, is that he (Continued on page 13)

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has retired. He, an alumnus of Oregon State College (B.S. '22) spent his last year on our campus as a DuPont Fellow. Badger Chemist status attained, he devoted the several years that followed to building up a professional background which included postdoctoral studies at California Institute of Technology, a brief association with the U. S. Bureau of Fisheries as a research technologist, return to the academic life as a research associate at the University of Illinois, and an American-Scandinavian Foundation Fellowship in Copenhagen, Denmark.

A thirty-nine year association with DuPont ended for **Chester K. Rosenbaum**, Ph.D. '30, last summer. He had reached the company's mandatory retirement age. Chester's Biography reads: born, Fond du Lac, Wisconsin, graduation from Ripon College with a B.A. degree in 1925; a two year stint as an instructor at Elmhurst College, Illinois; enrollment in our Graduate School in order to complete his formal Education; appointment as a Research Supervisor by DuPont in its Ammonia Department in West Virginia; promotion to a Research Managership in the Plastics Department in New Jersey; and, in 1950, named Manager of Polychemicals Department, Experiment Station.

Jerome F. Saeman, Ph.D. '42, is serving the American Chemical Society as Chairman of the Division of Cellulose, Wood, and Fiber Chemistry. He is currently the Associate Director of Forest Products Laboratory in Madison. His life story spells an association with the FPL which began in 1942, as a research chemist; promotion to Chief of the Division of Wood Chemistry; and advancement to his present position came in due time.

Clair N. Sawyer, Ph.D. '38, has been made a Vice President of Metcalf and Eddy, Inc. of Boston, New York, Palo Alto, and Cincinnati. He lives in Belmont, Mass.

Virginia Schelar, M.S. '53, completed her Ph.D. at Wisconsin in History of Science last spring, presenting a dissertation dealing with the scientific career of the Yale biochemist, Russell Chittenden. She teaches at Grossmont College, El Cajon, California.

In Memoriam

Chemistry Course graduate **Hugo Alder**, B.S. '26, M.S. '28, Oshkosh —time of passing unknown.

Stephen Dal Nogare, Ph.D. '48, was posthumously given a meaningful tribute last June by DuPont's Instrument Products Division in cooperation with the ACS Analytical Chemistry Division. The Memorial is a summer Fellowship granted to an outstanding third year student in need of support to complete his research project.

James B. Doedens, B.S. '50, sometime project leader at Dow Chemical in Midland, Mich., died on Sept. 27, 1966.

Chemistry Course graduate **Carl D. Geidel**, B.S. '11, also earned an M.S. degree in 1913, was at the time of his retirement president of a cannery in Adell, Wis., bearing his name. He died December 2, 1969, in Seminole, Florida. Surviving are his wife, a sister, two sons and eight grandchildren.

George Ritter, Ph.D. '20, long-time member of the Forest Products Laboratory died in late fall, 1969. (For other news see "ACS Honors 50-year Members").

Samuel Spero, B.S. '13, in his day active in a company dealing in specialties under the trade name "Spero-O" product in Milwaukee. Date of his passing is unknown.

Philadelphia Quartz Company retiree **William Steriker**, B.S. '17, had been employed by this company for 42 years, died August 8, 1969. He was born in Fort Collins, Colorado, grew up in Manitowoc, Wis., earned his doctorate at the University of Pittsburgh; and served our society at one time as chairman of the Pittsburgh section, and for several years as a councilor. He was a member of the Faraday Society, Electrochemical Society, American Institute Chemists, and the Franklin Institute. He was active in the ASTM for some time after he had retired.

After receiving the B.S. degree in chemistry in 1953, **John H. Schneider** earned an M.S. and then his Ph.D. in Experimental Oncology at Wisconsin's McArdle Memorial Laboratory in 1958. After that he taught Bio-Chemistry with associate professor rank at the American University of Beirut, Lebanon and at Vanderbilt. Then, in 1964 he left teaching and research to become Editor-in-Chief of *Biological Abstracts*. He is cur-

rently at the Scientific and Technical Information Office, National Cancer Institute of the National Institutes of Health in Bethesda, Md. His address: 3411 Fessender St., N. W., Washington, D. C. 20008.

The Ph.D. degree was conferred upon both members of the **J. P. Schroeder** family in 1948. Jule won his in June of that year and Dorothy, hers in August. After a fifteen year association with industry as research chemists in New Jersey, heeding a long-held urge to teach, they did post-doctoral work for two years at the University of Texas "to charge their academic batteries." Then, they joined the faculty of the University of North Carolina, Greensboro, Jule as a professor of chemistry and Dorothy as a lecturer.

We have learned that **Carl W. Seidel**, B.S. '59 is employed by New England Nuclear Corporation as Product Manager for its Nuclides and Sources Division.

Mark Shuman, Ph.D. '66 is replacing Dr. David Frasco for a year at Whitman College, Walla Walla, Washington. He had been a chemist with Atlantic Research Corporation.

Leslie L. Sims, Ph.D. '55, has informed us that after thirteen years as a research chemist for the Ethyl Corporation in Baton Rouge, La., he is no longer active in that field. His present occupation is Real Estate management in Mobile, Ala., a business that he inherited from his uncle and which demands his full time.

James R. R. Spindler, B.S. '55, is now Director of Quality Assurance at Interchemical Corporation, New York, N. Y.

Marshall R. Sprinkle, Ph.D. '32, on retirement from Shell Chemical in 1964, held a teaching post in general chemistry for the past three years at the Madison (Va.) Center of the University of Virginia's School of General Studies. We understand that he had found this job quite challenging and rewarding mentally and "to some extent financially." He now is the owner of a 146 acre farm in Madison County on which he has planted some 4500 Loblolly pine trees on about one-third of the acreage. His prime objective, we understand, in locating there, is the beautiful view of the Blue Ridge Mountains and proximity to the University at Charlottesville.

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Quentin E. Thompson, Ph.D. '51, is with Monsanto and we understand is closely associated with Loren Bannister, Ph.D. '52.

Preston L. Veltman, Ph.D. '38, enrolled in our Graduate School as a two-degree alumnus (B.S. '34 and M.S. '35) of Michigan College of Mining and Technology. His field of concentration was physical chemistry. He, a former employee of The Texas Company, N. Y., as assistant director of fuels research and for a brief time active in the Manhattan District Los Alamos Project, joined the research staff of Davis Chemical Corporation, in 1943. The company is now a division of Grace and Company. Preston is in its Research Division in the Washington Research Center, Clarksville, Md.

James C. Vlazny, Ph.D. '68, is now with the Morton Chemical Company in Woodstock, Illinois.

De Pauw alumnus (A.B. '22) Ph.D. '25, **Eugene J. Wechter**, served the Department in his graduate days with instructor's rank. He spent his entire professional career with the Louisville Cement Company. At one time he was director of research, and when he retired in 1965 he was director of laboratories. His activities, we understand, were primarily centered on research on masonry cement, Portland Cement and Lime; particularly in the selection of raw materials, procedures for burning and preparation of products for commercial use. Last June he was given the ASTM Award of Merit by the American Society of Testing and Materials. His citation reads "For significant leadership in developing ASTM specifications and methods, with particular interest in Committees C-1 on Cement and C-12 on Mortars for Unit Masonry, and for notable contributions to cement technology."

Professor Robert West is serving ACS as a member of its Advisory Board of Chemical and Engineering News.

Glenn R. Wilkes, Ph.D. '65, is employed by Eastman Kodak as a research chemist. Badger chemist status attained, he left the campus for a brief period to fill a postdoctoral position at the University of California. His present address: 1102 Shoemaker Road, Webster, N. Y. 14580.

Chemistry courseman **H. S. Williams**, B.S., M.S. '49 is now a resident of Huntsville, Alabama. He is with the U. S. Army Missile Command at the Redstone Arsenal. His home address is 5614 Woodbridge S. W., Huntsville 35802.

Robert A. Willhnganz, B.S. '37, is currently a member of the Environmental Technology group at the Northern Michigan Technology Center in Warren, Michigan. He is one of the relatively few Badger chemists who, to our knowledge, is now a member of the legal profession. In Bob's case, it is the Juris Doctor degree earned at Wayne State University. He has been admitted to the Michigan bar.

Ivan A. Wolff, Ph.D. '40, a U.S. Department of Agriculture scientist noted for his research in the development of new agricultural crops for industrial purposes, has been named director of the Eastern Utilization Research and Development Division of the Agricultural Research Service in Philadelphia. His transfer to Philadelphia marks the end of his 28-year association with the Northern Utilization Research and Development Division in Peoria, Ill., which is one of the five of this type operating with benefit of Federal subsidy. Ivan is a native of Louisville, Ky., and an alumnus of the University there (B.A. '37). He spent an extra year on our campus in postdoctoral work in biochemistry, after which he joined the Peoria staff. In 1966, the USDA's Superior Service Award was presented to the team headed by him that discovered new uses for the seed of the crambe plant.

F. Chandler Young, Jr., completed his college education as a chemistry major and in 1966 accepted a scholarship in Rice University, Houston, Texas, in anticipation of pursuing graduate work there, but circumstances beyond his control prompted him to make a change in plans until he will have absolved his military obligations. He was, at last report, serving on a Honolulu-based destroyer. His rank: Lieutenant (j.g.).

You Said . . .

"Congratulations on your Winter issue of Badger Chemist. It brought back many pleasant memories of Professors Mathews, Daniels, and Williams." Warren F. Busse, Ph.D. '27

"Here is my check. With great appreciation to Henry Schuette and

Emory Fisher for their splendid work for the Department of Chemistry, University of Wisconsin." Farrington Daniels

"The enclosed is in support of the Badger Chemist. I am looking forward to the next issue." Edward L. Engelhardt, Ph.D. '44

"On looking at the photo of the lobby of the New Chemistry Building it is a source of pride that I had classes under both Dr. Daniels and Dr. Mathews whose portraits hang in the lobby. I also appreciate Dr. Mathews' tolerance in letting chemistry students use the old Chemistry Building darkroom. I learned a lot of photography fundamentals in that darkroom at odd hours." Warren A. Field BA '35

"I especially enjoyed the front cover picture of Drs. Daniels and Mathews. Hope you can keep on the good work." Theron G. Finzel, Ph.D. '29

Of more than passing historical interest is the following note; it is "something for the books." "Back in those days Professor Mathews was experimenting with colored photography and **Bertha Kitchell Whyte** BA '12 and I were in one of the first slides that he took of ponies out beyond the old Dairy Building at the west end of the Ag. campus." Ada Richmond Griswold BA '12

"The Governor has appointed me trustee of the Daytona Beach Junior College, I presume in return for my many years as Justice of the Peace, and member of Florida State Republican Executive Comm." Ellery H. Harvey, Ph.D. '26

"Always enjoy the Badger Chemist. Good Luck!" H. H. Holmes, Ph.D. '54

"I am enclosing herewith my check to keep Badger Chemist on the road. I enjoy it and the 'This 'n' That' about our Alumni is particularly interesting; it is nice to learn what old friends and alumni are doing. Keep up the good work." Kenneth H. Hoover, B.A. '21

"It was good to see the picture of Professors Mathews and Daniels and to read again the tribute to Professor Schuette for having started and carrying on the Badger Chemist. I wonder if Emory Fisher is related to that wonderful teacher of organic chemistry of 1920?" (Not to our knowledge, Ed.) Walter J. Ingram, B.A. '21

From the rector of St. John's Episcopal Church, Hermiston, Oregon, came the note: "Here is a

(Continued on page 16)

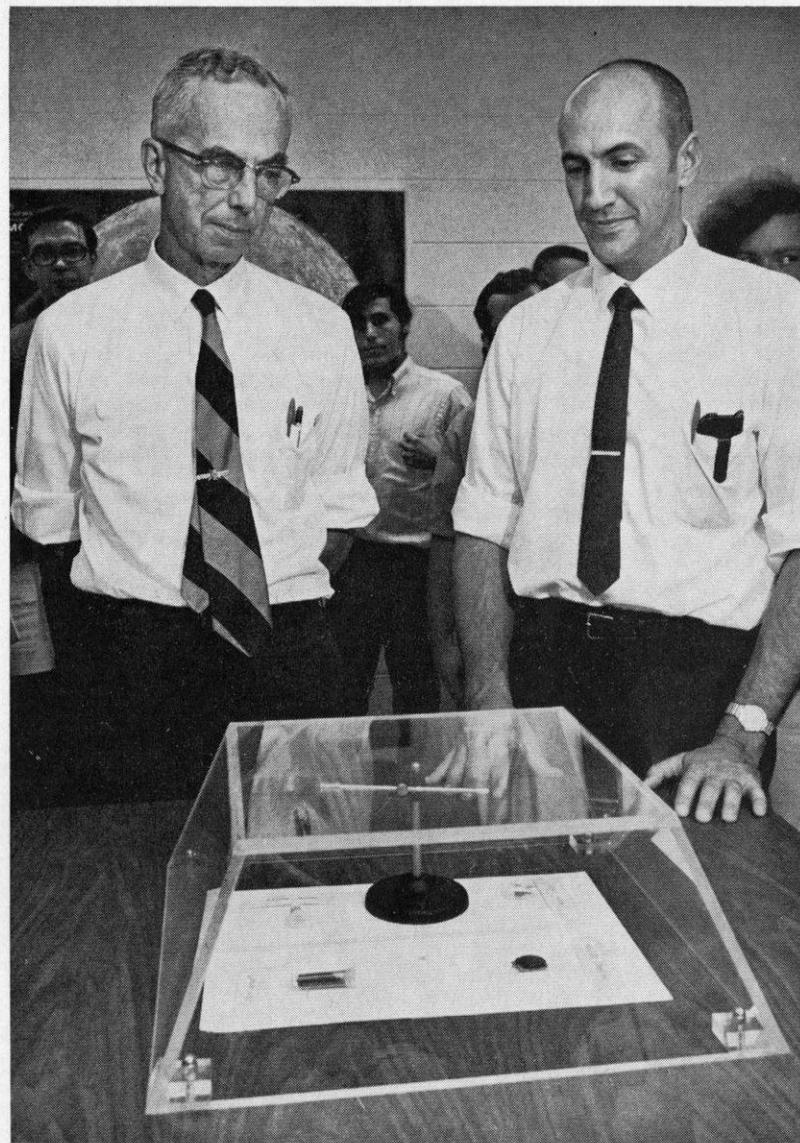
MOON SAMPLES

Larry A. Haskin

Soil and chips of rock from the moon were on display here in October. About 8,000 persons from the University and Madison communities came to the Chemistry building to see the materials brought back by the Apollo 11 astronauts. Despite their exotic origin, the chips of rock resemble nondescript pieces of common basaltic lava, and the soil looks like powdered charcoal. The materials are here as a result of separate proposals, submitted to the National Aeronautics and Space Administration in 1965, by Prof. Larry A. Haskin (Chemistry) and Prof. Eugene A. Cameron (Geology) for chemical and mineralogical analysis. Between them, Professors Haskin and Cameron received about 10 grams of lunar soil, eight 1-gram chips of rock, and five thin slices of rock for examination under the microscope.

Prof. Haskin, Chemistry graduate students Ralph O. Allen and Philip A. Helmke, and undergraduate Chemistry majors Michael Anderson, James Blackbourn, and Kathleen Zweifel are analyzing their samples for 38 trace and minor elements. The abundances of these elements provide evidence on the origins and histories of rocks that is supplementary to that obtained from studies of major element composition and mineralogy. For many years, it could be predicted with confidence that the major constituents of the moon would be Fe, O, Si, Mg, and Al. These are known from studies of meteorites and the sun to be the most abundant elements out of which such bodies could be constructed. Information about the relative proportions of these elements and the minerals they form is, nevertheless, vital to understanding the genesis of the lunar surface.

The rest of the chemical elements are also present in the starting material for the moon, but most of them only in trace amounts. These elements are not essential to the bulk composition and mineral structures, but most of them are accommodated in the major chemical phases. Their abundances in these phases (minerals) and the rocks that they comprise can vary over a much wider range than those of the es-



Professors Cameron and Haskin with some of the moon samples.

sential elements. This variation depends on just how the rock formed.

Studies of trace elements in terrestrial rocks has occupied most of the research efforts of Prof. Haskin and his students for the past several years. By taking pains to do accurate analyses on samples from rock systems that are geologically well characterized, the research group has found many correlations of trace element abundances with type and origin of the rocks.

Only now are sufficient data for terrestrial rocks becoming available for the partition of trace con-

stituents among rock and minerals to be understood in terms of chemical principles, so full interpretations of data for lunar samples will have to wait. Some examples of immediate comparisons and interpretations that can be made immediately are as follows. If the abundances of somewhat volatile elements such as Indium are found to be very low relative to the major elements as compared with the sun, then the surface of the moon has probably been subjected to very high temperatures. The concentration of Nickel will make it possible to set an upper limit for

(Continued on page 16, col. 1)

Moon Samples . . .

(Continued from page 15)

contamination of the lunar surface by meteorites that have fallen onto it. High abundances of the rare earths would imply that considerable amounts of the lunar interior had been extracted to produce the surface. Abundances of the individual rare-earth elements relative to each other may show that the lunar surface rocks formed by processes similar to that which produces continental volcanic rock on earth, or that which produces submarine terrestrial volcanic rock.

The results of the studies by Professors Haskin and Cameron will be presented at the first Lunar Conference in Houston, January 5-8.

(Ed. Note: The results of Prof. Haskins' studies appeared in *Science*, 167, 487 for Jan. 30, 1970.)

You Said . . .

(Continued from page 14)

little to help continue that most interesting work of love begun by Dr. Schuette. It is about the only contact I have with chemistry in these far parts." Chandler Jackson, M.S. '49

"The Badger Chemist serves not only as a source of information, but frankly I read it with great nostalgia and it probably brought back more memories to me than any other communication from the school. Also, I note that Aaron Ihde is on the faculty and I do feel that this is the gentleman that I rowed on the crew with in 1929 and 1930. Also, I note another chemistry Professor is John Willard, and if you ever run into him, you might question whether or not he went to Beloit High School and if he did, he was in my class." (Yes to both questions, Ed.) J. A. Keenan, B.A. '30

"I am enclosing a check to help pay the expenses of printing the Badger Chemist. I too enjoy receiving it and word of the changes in Madison." Jerold A. Last, B.S. '59

"Just received the last issue of Badger Chemist and derived a great deal of pleasure from it. It is a great institution and one that should be perpetuated." Roger H. Lueck, M.S. '21

"I surely hope you can keep up the good work. I always enjoy keeping in touch with the changes

down through the years." Charles S. Mohaupt, B.S. '33

"Sonoma State College is completing its eighth year of operation with an enrollment of nearly 3,000 students. We now have a Chemistry Department with five full-time faculty members and I even have the privilege of teaching one course." Ambrose R. Nichols, Jr.

"We always enjoy the Badger Chemist and we were particularly pleased to see the spread you gave our head Governor Russ Peterson. I suppose our class has the usual proportion of business and scientific successes but not many can match that achievement. Keep up the news and when in doubt ask for money." Al Pavlic, Ph.D. '42

"I am enclosing a check to help keep the Badger Chemist coming. It's a fine way to keep track of people." John C. Safranski, Ph.D. '50

"The front-page picture of the four department chairmen was most interesting; the gentlemen pictured, appear to have discovered that fountain of perpetual youth sought for so long by Ponce de Leon. It's most interesting that there have been fewer Chemistry school chairmen at Wisconsin than presidents of the university itself." Harry P. Schultz, Ph.D. '46

"Here is my contribution to the Badger Chemist, hoping it will help to keep the publication coming my way. It's great." Jane Ehrlinger Taylor, B.A. '31

"Congratulations on a great issue of Badger Chemist. It does a lot for us who can't get back to Madison very often. The picture on the cover showing our dauntless leaders, all smiling happily is priceless. It gave me a lift to see Farrington Daniels and J. Howard Mathews again almost as they were when I was in school at Madison in 1924." Vanderveer Voorhees, Ph.D. '24

"I should hate to see the Badger Chemist die from starvation so I am enclosing a few calories to keep it alive." Earl L. Whitford, Ph.D. '24

Penn Chemist

The Badger Chemist seems to have functioned as a catalyst at the University of Pennsylvania where a departmental publication, The Penn Chemist, was started two years ago. Paralleling the creation of a departmental newsletter has been the formation of an Association of University of

Pennsylvania Chemists. This association has been seeking to crystallize interest in providing outside support for the Chemistry Library. The association recently donated \$1500 from its treasury to the Chemistry Library Fund.

The staff of the Badger Chemists salutes the Association of the University of Pennsylvania Chemists and their publication "The Penn Chemist," and wishes them well in their endeavors.

Contributors to Faculty Alumni Room

In the last issue of Badger Chemist we showed pictures of the Faculty Alumni Room and included a brief statement about the room. In this issue we list all of those who contributed toward the furnishing of this room. The Department is deeply appreciative of the generosity of its alumni, faculty and friends in making this facility a reality. Needless to say, it is being extensively used for seminars, conferences, departmental meetings, and social events.

Adams, E. W.
 Albery, R.
 Albright, Penrose S.
 Alexander, Carl S.
 Alexander, John W.
 Amell, Alexander R.
 Andrews, Leslie H.
 American Home Products Corp.
 Gift matches gift of Wm. G. Hendrickson
 Aprison, Morris H.
 Arkens, Henry E.
 Arnold, Orlan M.
 Aronovic, Sanford M.
 Ashworth, John M.
 Aspelin, Gary S.
 Austin, Paul R.
 Ayres, Gilbert H.
 Babler, Bernard J.
 Baechler, Roy H.
 Baer, Norbert S.
 Bailey, Charles F.
 Bailey, George C.
 Bailey, Grant C.
 Baker, Ross A.
 Baldwin, R. E.
 Baumann, Carl A.
 Beck, Lloyd M.
 Beckham, Leland J.
 Beeman, Lyman A.
 Beimborn, David
 Benn, Walter R.
 Bennett, Marshall E.
 Bente, Paul F., Jr.
 Berge, John W.
 Bergum, Bernard
 Bernstein, Richard B.

(Continued on page 17)

(Continued from page 16)

Bernstein, Mrs. R. B.
Berson, Jerome S.

Bevilacqua, Edward M.
Biggerstaff, Warren

Bird, R. Byron
Birge, Edward A.

Black, C. S.
Black, Richard G.

Blaedel, W. J.
Blanco, Galo W.

Blau, Robert O.
Blodgett, Robert B.

Bock, Robert M.
Borchardt, Hans J.

Borer, William
Bott, Phyllis A.

Botts, Elbert D. Estate
(Mrs. E. D.)

Boutwell, Paul W.
Brant, David A.

Brewer, A. K.
Brinsmade, Akbar F.

Bridgman, Wilbur B.
Brown, Robert F.

Brown, W. Byers
Browne, Frederick L.

Bruhn, Mrs. H. D.
Buell, Mary

Buell, Mary V.
Burg, Clifford J.

Busse, Warren F.

Capuano, John B.
Carlson, Kenneth D.

Carnahan, James E.
Carnegie-Mellon Inst.

Castle, John E.
Carter, R. Owen, Jr.

Carter, Mrs. R. Owen
Christensen, Carol M.

Child, William C.
Chiang, Robert

Chiang, Ruby
Child, William C.

Chretien, Marcella B.
Christensen, Carl J.

Christiansen, James
Christenson, R. M

Clifcorn, La Verne
Cohen, Sheldon H.

Coleman, Judith
Collingsworth, Donald

Conary, Robert E
Conklin, Edward J.

Connor, Ralph
Coon, Ernest D.

Coon, Francis B.
Coon, Philip L.

Cornwell, Charles D.
Cowley, Milford A.

Cox, Eleanor H.
Crook, Kenneth E.

Cross, Paul G.
Crowell, A. B., Jr.

Cummings, Harold F.
Curry, Michael J.

Curtiss, C. F.

Dahl, Lawrence
Damon, Glenn H.
Daniels, Farrington
Davis, James W.
Day, W. U.
Deyner, Elmer F.
Dehm, Henry C.
DeMallie, Richard B.

(Continued from page 17)

Keller, Kenneth E.
 Kellogg, Michael S.
 Kepfer, Raymond J.
 Kesselman, William
 Kierzkowski, John E.
 Kittleson, Allen R.
 King, J. F.
 Kittsley, Scott L.
 Klang, Robert S.
 Klevay, Leslie M.
 Knudson, Harold W.
 Koch, John R.
 Koehler, W. A.
 Koerner, Anita
 Koerner, William E.
 Korfhage, Roy F.
 Korst, James J.
 Kraemer, Richard J.
 Krall, Harry J.
 Kratowicz, Marianne
 Kribben, Bertram D.
 Krister, Charles J.
 Kristof, Elma J.
 Kropf, Paul J.
 Krchma, Ignace J.
 Krchma, Ludwig
 Kruty, Margaret
 Kubota, Hisashi
 Kuceski, Vincent P.
 Kuettel, Mrs. Glen
 Kuhn, Roland J.
 Kusel, Robert F.
 Kutz, Walter M.

Landel, Robert F.
 Larsen, Edwin M.
 Larsen, Elmer C.
 Larson, Harold O.
 Latschar, Carl E.
 Lazier, Wilbur A.
 Leader, Gordon R.
 Lenher, Samuel
 Leroi, George E.
 Levin, Robert H.
 Lewinson, John
 Lindbeck, Wendell A.
 Loeffler, Harley C.
 Loshaek, Samuel
 Lowe, James T.
 Lueck, Roger H.
 Lueth, Charles S.
 Luker, William D.
 Lunsted, Lester G.
 Lyons, Philip A.

McBride, Edward F.
 McClure, Frank T.
 McElvain, S. M.
 McFerren, Patricia
 McLane, Keith
 McLoud, E. S.
 McMahon, Robert
 McNall, Lester R.
 McQueen, David M.
 Mac Darmid, Alan C.
 Mac Queen, Blair
 Magee, Ellington
 Magee, John L.
 Manion, Jean P.
 Markwell, Dick R.
 Mars, James
 Martin, David G.
 Martin, Sylvia
 Mason, Harold F.
 Mathews, J. H.
 Matsen, Helene

Meath, William J.
 Meek, John Sawyers
 Meloche, V. W.
 Merck and Co. (to match R.
 Hirschmann)
 Meyer, Fred
 Meyers, Alfred
 Miller, Alexander A.
 Miller, Lila
 Millett, Merrill A.
 Minne, Nels
 Mirviss, Stanley B.
 Moeller, Therald
 Montgomery, John A.
 Moody, Leonard E.
 Moore, Robert S.
 Moore, Stanford
 Morman, Donald H.
 Morton, Stephen D.
 Mullineaux, R. D.

Neptune, John
 Newell, Gordon W.
 Newsome, Philip T.
 Nichol, James C.
 Nichols, Amrose S.
 Nichols, J. Burton
 Nielson, Morris L.
 Nissen, Brynjulf H.
 Nieu, Hsien Y.
 Noland, Wayland E.
 Norman, John H.

Ode, William H.
 Oestmann, Mary Jane
 O'Konski, Chester T.
 Olleman, Elizabeth D.
 Olson, David
 Olson, Mrs. David
 Orvis, Roy L.
 Osborne, Clyde E.
 Owens, Dean L.

Paden, Joseph H.
 Pailthorp, John R.
 Palmer, Howard B.
 Parkes, Phillip H., Jr.
 Parsons, L. B.
 Patton, Dorothy E.
 Pavlic, A. A.
 Pearson, Tillman
 Peters, Fredus N. J.
 Peterson, Marshall E.
 Peterson, Merlin H.
 Pianfetti, John A.
 Pierson, Marden
 Pierson, Sarah P.
 Pinkney, Paul S.
 Phillips, P. E.
 Phillips Petroleum
 Pittsburgh Plate Glass Company
 Plazek, Donald J.
 Polcyn, Daniel
 Polin, Ruth M.
 Pomeroy, Shirley
 Potter, Andrew
 Potts, Nancy
 Powers, Robert S.
 Preuss, Albert F.
 PWF No. 1, c/o Ralph Connor

Quick, Armand J.

Radue, Robert W.
 Randell, Sterling P.
 Randall, Mrs. S. P.
 Rogowski, Ronald

Reid, James A.
 Reid, Willis A.
 Reinecke, Manfred G.
 Reinecke, Mrs. M. G.
 Reiner, Mabel D.
 Reinemann, Jean
 Rempe, Catherine B.
 Remy, David C.
 Reynolds, Robert B.
 Rice, Harold L.
 Rice, Mrs. Harold L.
 Rieck, Kenneth W.
 Rieke, Reuben D.
 Rinelli, William R.
 Ritter, George J.
 Robertson, Alfred C.
 Robertson, Wilbert J.
 Robinson, Rex J.
 Rodig, Oscar R.
 Rohm & Haas Co. (Matches gift of
 O. F. Preuss)

Rosenbaum, Chester K.
 Rosenow, James H.
 Rosenthal, Robert W.
 Roth, Donald
 Roth, Mrs. Donald
 Rothschild, Bill F.
 Ruhoff, James S.
 Ruhoff, John R.
 Russell, William J.

Safranski, Leo
 Salinger, Rudolf M.
 Saunders, Donald J.
 Sawyer, Clair N.
 Schelar, Virginia M.
 Schempf, John M.
 Schering Foundation
 Schiefelbein, R. S.
 Schlifski, Kenneth H.
 Schmidtke, David E.
 Schmit, Kenneth
 Schmitz, Robert S.
 Schneider, Howard A.
 Schremp, F. W.
 Schrenk, Walter T.
 Schroeder, Dorothy C.
 Schroeder, J. P.
 Schooler, James M., Jr.
 Schuette, Henry A.
 Schumacher, Mrs. Paul
 Seidel, Carl
 Semb, Joseph
 Sergeant, George
 Servais, Philip C.
 Setter, Lloyd R.
 Severinghaus, Elmer
 Seybold, Robert
 Shain, Irving
 Shapiro, Rubin
 Shaw, George R.
 Short, Robert W.
 Shuev, Henry M.
 Siegfried, Robert
 Sigl, Carol F.
 Silverman, Daniel
 Silversmith, Ernest
 Simonds, Paul W.
 Sims, Leslie L.
 Siner, Alvin W.
 Singer, Lester S.
 Siolander, Newell D.
 Skoustad, Marvin W.
 Slaughter, John I.
 Slifkin, Sam C.

(Continued on page 19)

(Continued from page 18)

Smith, Frederick A.
 Smith, J. Harold
 Smith, William
 Snooks, Eugene C.
 Snyder, Harold H.
 Sorum, C. H.
 Soulen, J. R.
 Spangenberg, George
 Spengeman, Willard T.
 Spero, Samuel
 Spotz, Ellen L.
 Stamm, Alfred J.
 Stare, Frederick J.
 Stark, Henry M.
 Stark, Mr. and Mrs. W. H.
 Starn, Roy, Jr.
 Stein, Bruno
 Steinberg, Charlene
 Steinle, J. Vernon
 Steiner, John
 Stern, Max H.
 Stogryn, Daniel
 Stout, Albert W.
 Stratton, Robert A.
 Strong, Frank M.
 Struss, Edwin F., Jr.
 Stutzman, Paul S.
 Suby, Howard I.
 Sudnick, Lois
 Sutton, Reid F.
 Svoboda, Glenn R.
 Svoboda, Mrs. Gordon
 Swanson, John M.
 Swanson, Terry B.
 Taliaferro, O. A.
 Taraszka, Mildred J.
 Tarkow, Harold
 Tarwid, Wesley
 Tate, Bryce F.
 Taylor, Charles W.
 Taylor, James W.
 Taylor, Mrs. Martin S.
 Taylor, Robert F.
 Templeton, Charles C.

Tennent, H. G.
 Ten Pas, Raymond H.
 Terry, Glenn A.
 Thiele, Carl F.
 Thompson, Warren E.
 Tischer, Thomas N.
 Tobey, Stephen W.
 Todd, Bertha
 Todd, Jerry W.
 Todd, W. R.
 Town, George G.
 Treichel, Paul M., Jr.
 Trubell, Oscar R.
 Tutas, Daniel
 Umland, Carl W., II
 Uniroyal Foundation
 Upjohn Company, The
 Urban, Frank
 Van Rheenen, Verlan
 Vanseth, Mrs. Richard
 Vaughan, Worth
 Vea, David M.
 Veazey, M. H.
 Veed, Alan M.
 Venerable, James
 Vetter, R. J.
 Voight, Gordon
 Voorhees, V.
 Voskuil, Donald J.
 Voss, Wilbur A.
 Vozza, John T.
 Wabers, Frank
 Waisman, Harry A.
 Wallace, Mrs. Stanley
 Walter, Lewis A.
 Walters, John D.
 Wang, Pei
 Warner, Charles
 Washburn, William H.
 Watson, Charles S.
 Wayne, Winston J.
 Webb, William H.
 Weber, Karl H.
 Yin, Theodore P.
 Young, Austin H.
 Young, F. Chandler, Jr.
 Young, Ward D.
 Yuan, Edward L.
 Zehnpfennig, Raymond
 Ziarnik, George J.
 Zophy, Walter H.

NEW BADGER CHEMISTS

The year 1969 saw the creation of a sizeable number of new Badger Chemists at all levels. True to form in recent years, Ph.D. production equals or exceeds production of B.S. chemistry majors. M.S. degrees fall at a lower level. Exact comparisons are difficult to make since departmental records are kept on a calendar year basis for B.S. graduates and on a July 1-June 30 basis for higher degrees. During calendar 1969 there were 52 bachelors degrees awarded. During July 1, 1968 to June 30, 1969 there were awarded 38 M.S. degrees and 55 Ph.D.'s.

BACHELORS

Bachelors degrees were earned by the following students during 1969. Unfortunately, our records are incomplete regarding the whereabouts of those who went into in-

dustrial or government work. Nine are studying medicine: Dennis Bathke, Albert Betz, Robert DeMaster, Stephen Herf, David Kashning, and Milton McMillen are at the UW in Madison; Howard Baim is at U of Illinois, Anthony Bochna at Marquette, and Elliot Williams, III is at Indiana U.

The remaining members of the classes of 1969 are listed below. The schools in which they are enrolled for graduate study are listed in parentheses when this information is available.

Jerome Adams, Stuart Augustin (Berkeley); Gray, Alan Brehm; Larry Curtiss (Carnegie-Mellon U.), Robert Dreyer, Robert Epley (Indiana), William Evans (UCLA), Michael Foster (Cal Tech), Charles Frihart (Illinois), Christina Gibbs, Jeffrey Gorski (UW biochem), Randolph Guschl (Illinois), Steven Hafner, Lois Chizukohirai, Richard

Hopefl, Jeffrey Jacobs (MIT), Gary Klein, Phillip Kleinschmidt (Penn State), Charles Kolpin, Thomas Lake, William Lazarz, Douglas Linden, Paul Lydolph, Michael Marks, Louis Mezei, Bernadette Nielson (UW Mil.), Thomas Niemczyk (Mich. St.), Barry Paull, Joseph Pemberton, John Pendleton, Lee Reich, Michael Robin, James R. Rokes, David Ruben, John Rubin, Alice Schumann, Jon Seymour (UW biochem), Leslie Sper, Patrick Stimart, Dennis Thomas, Harry Vaile J., Kyle Waxman, Dieter Werner (MIT), Diana Wied (Mich. St.).

M.S. DEGREES

Masters degrees went to the following students. When known, their present whereabouts are shown in parentheses.

Daniel W. Anderson; Laura C. Ardin (Notre Dame); Clark Bair;

(Continued on page 20)

(Continued from page 19)
 James L. Biggs (Air Force Academy, Colorado Springs); Douglas P. Blanchard (US Army); Michael J. Brownfield; Thomas V. Bruhns (US Army); Gary L. Clapper (US Air Force); Elna Clevenger; Wm. R. Costello; Sara C. Crooks; Penny Estabrooks; James R. Flesch; Wm. J. Frazee; James G. Fuller (Mautz Paint Co., Waukegan, Ill.); Jairo Gonzalez-Garcia (U. of Antioquia,

Medillin, Colombia); Lee A. Hoffman, Jr. (Otisville Union School, Otisville, N. Y.); Arunas V. Kavaliunas (Wis. State U., Eau Claire); Stanley T. Kosiewicz; Donald J. Larsen (Bur. Occupational Safety, Cincinnati); Linda Gamboa Lumba (Atomic Res. Center, Philippine Isl.); Gary S. Liuter (Firestone Tire and Rubber, Akron); Mary L. May (Indiana); Anthony P. Naples (Michigan State); Jean H. New-

berry; Alfred L. Norris, Jr.; Arnold W. Orvedal (Maryland State College, Princess Ann); Jeffrey A. Richards; Richard B. Rogers (U of Alabama); Marvin Rosen; Ralph S. Schwartz (U of Wis.); Heizz Stucki (U of Wis.); Richard D. Suenram (Rohm and Haas); Carol C. Sweeney (Dow Chemical); David R. Tallant; James E. Tear, Jr. (U of Wis., Meteorology); Edward Valenzuela (US Army);

DOCTORS OF PHILOSOPHY

Those receiving doctorates are listed below, together with names of their major professor and their present location where known. Where a school is indicated they are now members of the chemistry faculty there.

Robert A. Arnott (Haskin), Wis. State U-Oshkosh; Myrna Lynn Bair (Larsen), Beaver College, Glenside, Pa.; Merton D. Baird (Wharton), Shippensburg State Coll., Shippensburg, Pa.; Neil M. Ball (Shain), Natick, Mass.; Linda (Rathner) Bateman (Dahl), Dartmouth; Richard J. Bateman (Cornwell), Dartmouth; James P. Bays (Muffeldt), Yale University; David E. Bennett, III (Curtiss), Sandia Corp., Albuquerque, N. M.; Robert J. Beuhler, Jr. (Bernstein), Argonne National Laboratory; David H. Buchanan (Whitlock), Univ. of Calif., Berkeley; Edward A. Carberry (West), SW Minnesota State College, Marshall, Minn.; David R. Cosper (Goering), Nalco Chemical Co., Chicago, Ill.; Barton Denechaud (Haskin), U of Wis.; Leonard C. Dickinson (Cornwell), Univ. of Leicester, Leicester, England; Dennis S. Donald (Berson), DuPont, Wilmington, Del.; Earl F. Epstein (Dahl), Brookhaven National Laboratory, Upton, L. I., N. Y.; Richard E. Ernst (Holm), DuPont, Wilmington, Del.; Richard

A. Fass (Willard), Pomona College, Claremont, Calif.; Arthur C. Ferguson (Cornwell), U of Illinois, Champaign, Ill.; William G. French (Willard), Bell Telephone Lab., Murray Hill, N. J.; Francisco C. Gil-Arnao (Larsen), Universidad de Los Andes, Merida, Venezuela; Richard Hanauer (Whitlock), Rohm and Haas Co., Philadelphia, Pa.; Larry B. Handy (Dahl), Nat'l Bureau of Standards, Washington, D. C.; Theodore J. Haupert (Blaedel), U of Arizona, Tucson; James R. Henes (Blaedel), Amoco Chemicals, Whiting, Ind.; Edwin H. Hommeier (Larsen), Concordia Teachers College, River Forest, Ill.; Matthew H. Hulbert (Shain), Lehigh Univ., Bethlehem, Pa.; Hamid S. Kasmai (Whitlock), Pahlavi Univ., Shiraz, Iran; John E. Kaufman, Cornell Univ.; Dennis D. Klug (Vaughan), Nat'l Research Council of Canada, Ottawa, Ontario; David E. Kranbuehl (Vaughan), Nat'l Research Council, Nat'l Bureau of Standards, Washington, D. C.; Thomas E. Lantz (Willard), Cookridge High Energy Radiation Research Center, Leeds, England; William J. Libbey (Berson), Petrochemical Division, Continental Oil Co., Ponca City, Okla.; Donald L. Macalady (Cornwell), Grinnell College, Grinnell, Iowa; Patrick S. Mariano (Zimmerman), Yale; Jeffrey Michael

(Muxfeldt), Ithaca, N. Y.; Robert D. Minard (Muxfeldt), Ithaca, New York; Thomas J. O'Brien (Bernstein), Queen's Univ., Belfast, N. Ireland; Allan H. Olson (Whitlock), DuPont, Parkersburg, W. V.; Larry E. Overman (Whitlock), Columbia Univ., New York; James D. Power (Byers Brown), Seattle, Wash.; Sterling P. Randall, Green Bay, Wis.; Robert E. Roberts (Bernstein), Mass. Institute of Tech., Cambridge, Mass.; Eldrys E. Rodulfo de Gil (Dahl), Universidad de Los Andes, Merida, Venezuela; Gary E. Samuelson (Zimmerman), Cornell Univ.; James F. Sanders (Ferry), 3M Co., St. Paul, Minn.; Terry J. Scheffer (Cornwell), Bell Telephone Lab., Mountain View, Murray Hill, N. J.; Maynard A. Sherwin (Zimmerman), Union Carbide Research Lab., South Charleston, W. V.; Howard S. Stoker (Fenske), Weber State College, Ogden, Utah; Vernon A. Uchtmann (Dahl), Procter and Gamble Co., Cincinnati, Ohio; Theodore G. Waech (Bernstein), McGill Univ., Montreal, Canada; Pearl S-C. Wang (Byers Brown), Univ. of Georgia, Athens, Georgia; Lesley L. (Keedy) Williams (Cornwell), Chicago State College; Ronald J. Wingender (Kula), Ansul Chemical Co., Marinette, Wis.; Pak Kuen Wong (Ferry), Brookhaven Nat'l Lab., Upton, L. I., N. Y. 11973.