NOMINATION FORM
NATIONAL HISTORIC CHEMICAL LANDMARKS PROGRAM

_____ **Artifact**

__X__ **Site**

_____ **Collection**

__X__ **National**

_____ **International**

TO: American Chemical Society
Office of Communications
NHCLP Staff Liaison
1155 16th Street, NW
Washington, DC 20036

FROM: Vera Mainz, Chair, E. Cen. Ill. Sect.
Box 34-1 Noyes Laboratory
600 S. Mathews Ave.
Urbana, IL 61801 USA

Local Section **East Central Illinois Section**

Division(s) _____
_____

This form is intended as a cover sheet for nomination.

Fill in categories (a) through (c). Items (d) through (k) should be presented on additional pages. Submit an original and fourteen (14) copies to the American Chemical Society's Public Outreach Office.

a. Item:

Noyes Laboratory, Departments of Chemistry, Biochemistry, Chemical Engineering University of Illinois at Urbana-Champaign; Illinois State Water Survey

b. Location (address, city or county, state, country):

University of Illinois at Urbana-Champaign
505 S. Mathews Ave.
Urbana, IL 61801

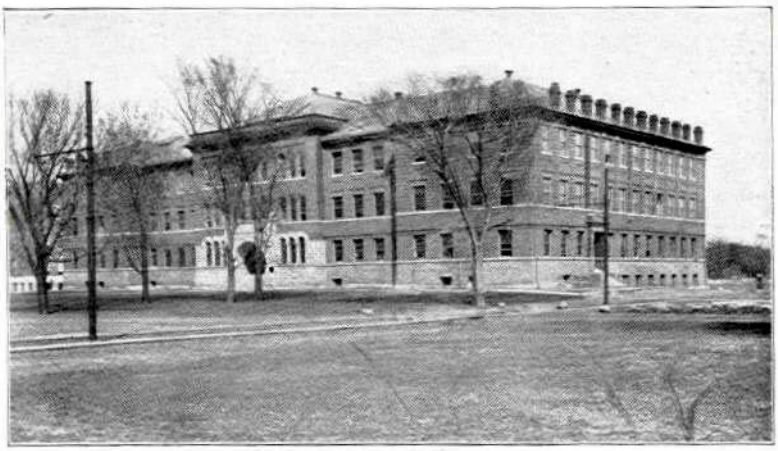
c. Significant historical date :

1902

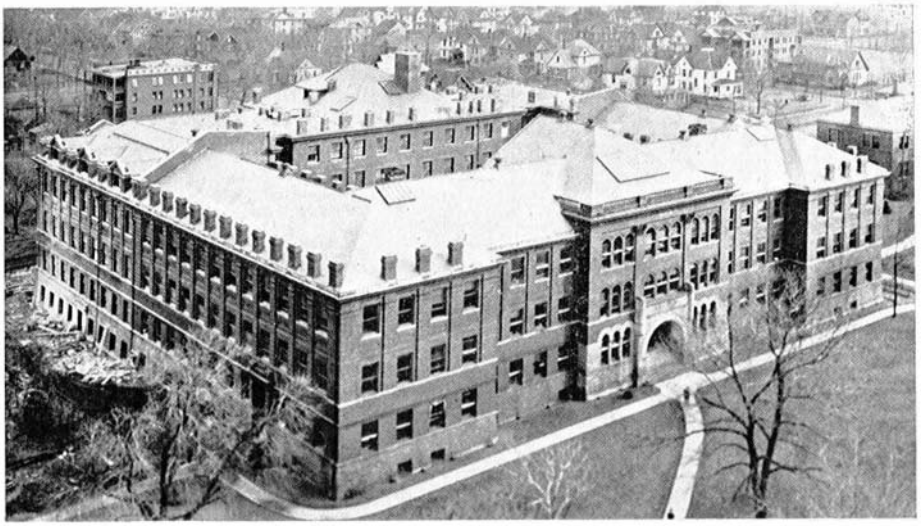
d. Persons involved in conception, design, construction, etc.

The Department of Chemistry was one of the first departments to be established at the University of Illinois at Urbana-Champaign (UIUC), its formation being accomplished in the same year as the University was founded (1867). In 1878, the Department was the first on campus to move into a building of its own, but twenty years later the Department had outgrown the capacity of that original building. In 1901, Professor of Chemistry and Head of Department Arthur W. Palmer convinced the campus and the State Legislature to build a large new building, which was opened in 1902. Within ten years, even further expansion was desperately needed, and Palmer's successor as Head of Department, William A. Noyes, successfully argued that an addition to the chemistry building was essential to accommodate the demands of the burgeioning research and instructional mission of the Department, which by that time had become the largest chemistry department is the U.S. The new addition, which was completed in 1916, more than doubled the size of the building.

When completed, Noyes Laboratory was the largest and best equipped laboratory for chemistry in the world. (See Tilden, William A. *Chemical Discovery and Invention in the Twentieth Century* New York: E. P. Dutton and Co., 1916, pp38-44; B. S. Hopkins J. Industrial and Engineering Chemistry, **8**, 537-547 **(1916)**; *University of Illinois Bulletin: University of Illinois Circular of Information of the Department of Chemistry* **XIII** (*25*), **February 21, 1916**, 31-38.) In 1939, a ceremony was held at the University of Illinois to rename the Chemistry Building as "Noyes Laboratory" in honor of Professor William Albert Noyes, head of the Department of Chemistry from 1907-1926. Today, the exterior of Noyes Laboratory looks much as it did 100 years ago. The arrangement of the rooms inside the building have changed slightly over the years as the research and teaching needs have changed (see Appendix II), but it is fundamentally the same space it was when built. Noyes Laboratory is the nucleus of a complex of four buildings dedicated to teaching and research in chemistry at the University of Illinois.



THE CHEMICAL LABORATORY AS IT APPEARED SOON AFTER ITS ERECTION IN 1902. PHOTO BY S. W. PARR, '84



THE NEW HOME OF THE DEPARTMENT OF CHEMISTRY AT THE UNIVERSITY OF ILLINOIS

e. Historical significance of this work

Noyes Laboratory, which was constructed in 1901-1902 (west half) and 1915-16 (east half), has been the home of chemical science at the University of Illinois at Urbana Champaign for almost 100 years. The building represented a groundbreaking design that has over the years provided ample "state-of-the-art" research and teaching environments for hundreds of faculty and many thousands of students in all areas of chemistry. Although principally home to the Department of Chemistry, it has also housed the Department of Biochemistry, the Department of Chemical Engineering, the Illinois State Water Survey, and the Department of Microbiology.

Among those who have worked or studied in Noyes Lab are ten Nobel Prize winners (E. J. Corey, Edward Doisy, Vincent du Vigneaud, Robert Holley, Edwin Krebs, Salvador Luria, Rudy Marcus, Martin Rodbell, Phillip Sharp, and Wendell Stanley). The first African-American Ph.D. chemist in the United States (St. Elmo Brady, Ph.D. 1916) did his thesis work in Noyes Lab.

The development of NMR spectroscopy as a tool for chemists (Herb Gutowsky), the elucidation of a theory of electron transfer (Rudy Marcus), the development of Fourier-transform microwave spectrometry (Willis Flygare), the founding of coordination chemistry in the United States (John C. Bailar, Jr.), the founding of the field of chemical information (Marion Sparks), and the synthesis of chloroquine and related antimalarials (Nelson Leonard, C. C. Price and H. R. Snyder) took place in Noyes Laboratory. Noyes also was the scene of key aspects of the development of synthetic rubber (Carl S. Marvel), the discovery of the amino acid threonine (William C. Rose), the chemical synthesis of threonine (Herbert E. Carter), the identification of the active ingredients in marijuana (Roger Adams), and the seminal studies on air pollution (Henry Fraser Johnstone). The discovery of the synthetic sweetener sodium cyclamate (Louis Audrieth and Michael Sveda), the discovery of lipoic

acid (Irwin C. Gunsulas), and the invention of the aerosol can (G. Frederick Smith) and high-intensity X-ray tubes (George L. Clark) were made at Noyes Laboratory. The transformation of analytical chemistry from a manual to a modern, electronic laboratory science took place in Noyes Laboratory (Howard V. Malmstadt) as did the training of the person responsible for the breakthrough discovery of Nylon (Wallace Carothers).

Organic Chemical Manufacturers was set up in Noyes Laboratory immediately after World War I to provide pure chemicals for research. This business, unique to the University of Illinois, eventually led to the establishment of Eastman Organic Chemicals. Two important book series originated in Noyes Laboratory: 1) *Organic Syntheses* (a series of volumes giving checked directions for the synthesis of organic compounds) was founded in 1921 by Roger Adams and others, and 2) *Organic Reactions* (a series of volumes compiling critical discussions of the more important organic reactions) was founded in 1942 by Roger Adams and others.

W. A. Noyes founded and published the first volume of *Chemical Abstracts* while still at the National Bureau of Standards in early 1907. Noyes Laboratory was home to *Chemical Abstracts* for those critical first three years before the new editor moved himself and the journal to Columbus, Ohio. W. A. Noyes was also the first editor of *Chemical Reviews* (1924-26) and was the founding editor of *Chemical Monographs* (1919).

f. What features or characteristics set this work apart from similar landmarks?

Similar landmarks are those for Gilman Hall (University of California, Berkeley), Havemeyer Hall (Columbia University), Chandler Chemistry Laboratory (Lehigh University), and Rockefeller University.

The Gilman Hall Landmark is intrinsically different from this nomination because it is fundamentally a landmark honoring Gilbert N. Lewis. Quoting from the nomination for Gilman Hall,

In the words of Glenn T. Seaborg and Kenneth S. Pitzer, "We recommend that Gilman Hall be designated a Landmark in honor of Gilbert Newton Lewis by the American Chemical Society."

The Rockefeller University Landmark recognizes the contribution of the faculty from this university to research on proteins and nucleic acids. The Havemeyer Hall Landmark recognizes the architectural importance of the building and its importance as a center for the study of chemistry at Columbia University. The Chandler Chemistry Laboratory Landmark recognizes the first laboratory built specifically to train industrial chemists.

The Noyes Laboratory nomination is different from all these landmarks in that the building itself is significant (as "when finished the laboratory will be one of the largest and best-equipped laboratories in the world"[7]), and for the breadth and depth of the discoveries made in it.

g. What contribution did this nomination make toward the development of the nation, or world?

Over 12,000 chemists of all degrees have passed through the portals of Noyes Laboratory on the way to their careers in science. Research by those who worked in Noyes Laboratory has contributed in a fundamental way to our understanding of chemistry, and recognition of these research achievements can be found in the honors received by those who were members of the faculty at the time of the award or who studied or taught at Illinois. Eighteen members of the Illinois faculty have been elected to the National Academy of Sciences, and as of the last thorough census in 1966, twenty other members of the Academy have studied or taught at Illinois. Twenty-three Illinois chemists have served as Presidents of the American Chemical Society. Thirteen Illinois chemists have been awarded the Priestley Medal, the highest honor the American Chemical Society can bestow. As stated in the summary, ten Nobel Prize winners received their training in Noyes Laboratory. Over 300 faculty members have done research in Noyes Laboratory, and their accomplishments are truly too many to detail in this nomination. The opening of the completed building in 1916 was combined with the Spring National Meeting of the American Chemical Society on April 17-21, 1916. It was the largest meeting of the ACS to date and "was a fitting testimonial to the influence which the University of Illinois was beginning to have on the chemical life of the country."[2]

h. Supporting evidence (documents, photos, etc.)

Included with this application is the following material:

1) *University of Illinois Bulletin: University of Illinois Circular of Information of the Department of Chemistry* **XIII** (*25*), **February 21, 1916**, 16-44.
2) *University of Illinois Bulletin: Special Circular of the Department of Chemistry 1916-1927* **XXIV** (52), **August 30, 1927**, 9-28.
3) *University of Illinois Department of Chemistry Development During the Period 1927-1941* **1941**, 5-45.
4) *University of Illinois Department of Chemistry 1941-1951* **1951**, 19-29.
5) *University of Illinois Department of Chemistry and Chemical Engineering 1951-1961* **1961**, 18-27, 37.
6) *University of Illinois Department of Chemistry and Chemical Engineering Centennial 1967* **1967**, 5, 17-35.
7) Fuson, Reynold C. "Chemistry at the U of I: A Centennial Review," from a lecture given on **Oct. 18, 1967** during the University of Illinois Centennial Celebration. See http://www.scs.uiuc.edu/chem/history/.
8) Tilden, William A. *Chemical Discovery and Invention in the Twentieth Century* New York: E. P. Dutton and Co., 1916; pp38-44.
9) Hopkins, B. S. *J. Industrial and Engineering Chemistry*, **8**, 537-547 **(1916)**.
10) Appendix I: Biographies and Histories
11) Appendix II: Noyes Laboratory Floor Plans
12) Appendix III: Reproductions of Assorted Photographs
13) Appendix IV: University of Illinois Instructional Staff 1867 - 2001

i. Present condition, past restorations, and availability to the public

Noyes Laboratory is currently occupied by the research facilities and offices of the School of Chemical Sciences, the offices of the Department of Chemistry, several research groups, the Chemistry Library, and the majority of the undergraduate classroom and laboratory space for the Department of Chemistry. A major renovation of Noyes Laboratory was carried out in 1951-1952, which included the installation of new fire proof stairwells and the remodeling of much of the research space. Smaller renovation projects have been underway almost continuously since the building was built. For example, renovation of the main lecture hall and three other classrooms was completed in time for classes to start in August 2001. A new plan for a $30,000,000 renovation of the building was recently approved by the Campus at the University of Illinois (although funding is not yet in place), and a search is presently underway for an architectural firm to handle the initial planning phase of the project.

The building is completely accessible to the public as it is in active use.

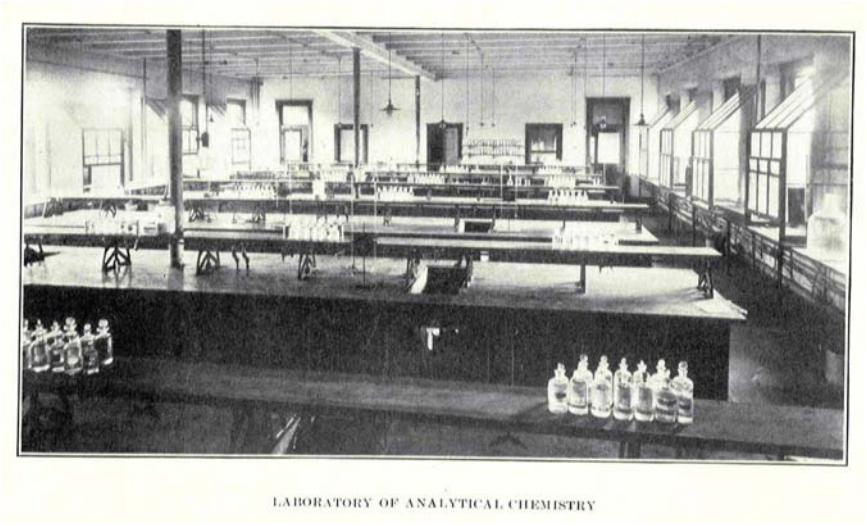
j. Technical specifications: Data, such as size, capacity, etc.

The west half of the building, constructed in 1901-1902, resembled the letter "E" in shape, the extreme dimensions being 230 feet along the front and 116 feet along the wings. This part of the building contained 77,884 square feet of usable space and was built for slightly less than the $100,000 appropriated for that purpose by the Illinois legislature. The architectectural firm was Nelson, Strong, Spencer and the contractors were V. Jobst and Sons as well as Field, Schorb and Co. Their contributions are memorialized on a brass plaque in the center entry to Noyes Laboratory. The east half of Noyes Laboratory was completed in 1915-1916, giving the entire structure the shape of a hollow square, 231 feet by 202 feet, containing 164,280 square feet of working space. The east "wing" added 86,396 square feet of additional laboratory space and cost $250,000, more than twice the cost of the original building.

There were many unique features designed for the completed Noyes Laboratory.

- Fireproof vaults and the elevator were available from all floors.
- Distilled water was produced by two special units designed by W. A. Noyes.
- Hydrogen sulfide was generated in an attic room and piped to the teaching laboratories for use in qualitative analysis.
- Steam was supplied to all teaching laboratories and research laboratories, as required.
- Vacuum equivalent to 16-20 inches of mercury was supplied to all teaching laboratories and research laboratories, as required. In many of the research room and some of the student laboratories a special vacuum system produced the equivalent of 1 millimeter of mercury.
- Compressed air was supplied to all teaching and research laboratories, as required, up to 80 psi.

- Special benches were designed for the inorganic and organic student laboratories.



LABORATORY OF ANALYTICAL CHEMISTRY

For more details, see a) Tilden, William A. *Chemical Discovery and Invention in the Twentieth Century* New York: E. P. Dutton and Co., 1916, pp38-44; b) B. S. Hopkins *J. Industrial and Engineering Chemistry*, **8**, 537-547 **(1916)**; c) *University of Illinois Bulletin: University of Illinois Circular of Information of the Department of Chemistry* **XIII** (*25*), **February 21, 1916**, 31-38.

k. List of commitments for financial support

East Central Illinois Section, ACS; School of Chemical Sciences, UIUC; Department of Chemistry, UIUC; Department of Chemical Engineering, UIUC; Department of Biochemistry, UIUC; Illinois State Water Survey, UIUC; University of Illinois Foundation

NOTE: ALL INFORMATION MUST BE COMPLETE FOR CONSIDERATION BY THE NHCLP ADVISORY COMMITTEE.

Date of Submission to ACS Headquarters: _____

Primary Preparer: **Vera V. Mainz, Chair, East Central Ill. Sect. ACS**
Address: **Box 34-1 Noyes Laboratory**
600 S. Mathews Ave.
Urbana, IL 61801
Telephone/Fax: **217-244-0564/Fax 217-244-8068**
Email: **v-mainz@uiuc.edu**

(to whom correspondence should be addressed)

APPROVED FOR TRANSMITTAL

by Section/Division Executive Committee

_____	_____
Chair, NHCLP Committee **Local Section/Division**	**Chair, Local Section/** **Division**
Date: _____	**Date: _____**

Nomination - National Historic Chemical Landmark

Noyes Laboratory, which was constructed in 1901-1902 (west half) and 1915-16 (east half), has been the home of chemical science at the University of Illinois at Urbana Champaign for almost 100 years. Although principally home to the Department of Chemistry, Noyes Laboratory has also housed the Department of Biochemistry, and the Department of Chemical Engineering, as well as the Illinois State Water Survey. In nominating Noyes Laboratory as a National Historic Chemical Landmark, we honor all those who have worked in it, whether as undergraduate, graduate, post-doctoral associate, staff member, or faculty member. It is the people who lived and worked in Noyes Laboratory, who either made the discoveries that contributed to the advancement of science or supported those who did so, that are being honored by this nomination. However, we also believe that the building itself is worthy of being honored in this way. The building represented a groundbreaking design,[1] when completed was the largest and best equipped laboratory for chemistry in the world, and has over the years provided ample "state-of-the-art" research and teaching environments for hundreds of faculty and many thousands of students in all areas of chemistry. It is the anniversary of the building that is providing the focus for this nomination. We believe that it is impossible to separate the work carried out in the building from the building itself.

Noyes Laboratory represented a groundbreaking design that has over the years provided ample "state-of-the-art" research and teaching environments for hundreds of faculty and many thousands of students in all areas of chemistry. Although principally home to the Department of Chemistry, it has also housed the Department of Biochemistry, the Department of Chemical Engineering, the Illinois State Water Survey, and the Department of Microbiology.

Among those who have worked or studied in Noyes Lab are ten Nobel Prize winners (E. J. Corey, Edward Doisy, Vincent du Vigneaud, Robert Holley, Edwin Krebs, Salvador Luria, Rudy Marcus, Martin Rodbell, Phillip Sharp, and Wendell Stanley). The first African-American Ph.D. chemist in the United States (St. Elmo Brady, Ph.D. 1916) did his thesis work in Noyes Lab.

The development of NMR spectroscopy as a tool for chemists (Herb Gutowsky), the elucidation of a theory of electron transfer (Rudy Marcus), the development of Fourier-transform microwave spectrometry (Willis Flygare), the founding of coordination chemistry in the United States (John C. Bailar, Jr.), the founding of the field of chemical information (Marion Sparks), and the synthesis of chloroquine and related antimalarials (Nelson Leonard, C. C. Price and H. R. Snyder) took place in Noyes Laboratory. Noyes also was the scene of key aspects of the development of synthetic rubber (Carl S. Marvel), the discovery of the amino acid threonine (William C. Rose), the chemical synthesis of threonine (Herbert E. Carter), the identification of the active ingredients in marijuana (Roger Adams), and the seminal studies on air pollution (Henry Fraser Johnstone). The discovery of the synthetic sweetener sodium cyclamate (Louis Audrieth and Michael Sveda), the discovery of lipoic acid (Irwin C. Gunsulas), and the invention of the aerosol can (G. Frederick Smith) and high-intensity X-ray tubes (George L. Clark)

were made at Noyes Laboratory. The transformation of analytical chemistry from a manual to a modern, electronic laboratory science took place in Noyes Laboratory (Howard V. Malmstadt) as did the training of the person responsible for the breakthrough discovery of Nylon (Wallace Carothers).

The scientists singled out in this nomination are but a few of those who have worked in Noyes Laboratory over the last 100 years. Over 12,000 chemists of all degrees have passed through the portals of Noyes Laboratory on the way to their careers in science. This total is larger than the number of chemists produced by any other single academic department in the United States. Over 300 faculty members have done research in Noyes Laboratory, and their accomplishments are truly too many to detail in this nomination (see listing in the Appendix).

Research by those who worked in Noyes Laboratory has contributed in a fundamental way to our understanding of chemistry, and recognition of this can be found in the honors received by those who were members of the faculty at the time of the award or who studied or taught at Illinois. We have already mentioned those who have been recognized by the Nobel Prize Committee (see above). In addition, twenty-three Illinois chemists have served as Presidents of the American Chemical Society (William A. Noyes, 1920; Samuel W. Parr, 1928; Roger Adams, 1935; Edward Bartow, 1936; Carl S. Marvel, 1945; Ernest H. Volwiler, 1950; Clifford F. Rassweiler, 1958; John C. Bailar, Jr, 1959; Albert L. Elder, 1960; Karl Folkers, 1962; Charles C. Price III, 1965; William J. Sparks, 1966; Charles G. Overberger, 1967; Wallace R. Brode, 1969; Byron Riegel, 1970; Bernard S. Friedman, 1974; William J. Bailey, 1975; Gardner W. Stacy, 1979; Robert W. Parry, 1982; Fred Basolo, 1983; Clayton F. Callis, 1989; Ernest L. Eliel, 1992; Daryle H. Busch, 2000. Thirteen Illinois chemists have been awarded the Priestley Medal, the highest honor the American Chemical Society can bestow, including the 2001 honoree: Roger Adams (1946), John C. Bailar, Jr. (1964), Fred Basolo (2001), Wallace R. Brode (1960), Ralph Connor (1967), Ernest L. Eliel (1996), Karl A. Folkers (1986), Carl S. Marvel (1956), William A. Noyes (1935), W. Albert Noyes, Jr. (1954), Robert W. Parry (1993), William J. Sparks (1965), and Ernest H. Volwiler (1958) (See Appendix for their Award addresses). Eighteen members of the Illinois faculty have been elected to the National Academy of Sciences (Roger Adams, 1929; Herbert E. Carter, 1953; David Y. Curtin, 1964; Harry G. Drickamer, 1965; Reynold C. Fuson, 1944; Irwin C. Gunsalus, 1965; Herbert S. Gutowsky, 1960; Lowell P. Hager, 1995; Thomas J. Hanratty, 1999; Jiri Jonas, 1985; Paul C. Lauterbur, 1985; Nelson J. Leonard, 1955; Carl S. Marvel, 1938; William A. Noyes, 1910; Worth H. Rodebush, 1938; William C. Rose, 1936; William R. Schowalter, 1998; Frederick T. Wall, 1961), and as of the last thorough census in 1966, twenty other members of the Academy have studied or taught at Illinois (Alfred T. Blomquist, 1960; Virgil C. Boekelheide, 1962; Wallace R. Brode, 1954; Theodore L. Cairns, 1966; Wallace H. Carothers, 1939; Elias J. Corey, 1966; Edward A. Doisy, 1938; Vincent du Vigneaud, 1944; Karl A. Folkers, 1948; Edwin R. Gilliland, 1948; Philip Handler, 1946; John R. Johnson, 1948; Rudolph A. Marcus, 1970; Samuel M. McElvain, 1949; Wendell M. Stanley, 1941; D. Stanley Tarbell, 1959).

Appendix I: Biographies and Histories

Roger Adams
Ludwig F. Audrieth
John C. Bailar, Jr.
St. Elmo Brady
George L. Clark
Willis H. Flygare
Reynold C. Fuson
Herbert S. Gutowsky
B. Smith Hopkins
Henry Fraser Johnstone
Herbert A. Laitinen
Carl S.Marvel
William A. Noyes
Arthur W. Palmer
Samuel W. Parr
Charles C. Price III
Worth H. Rodebush
William C. Rose
George F. Smith
Harold R. Snyder
Marion E. Sparks

Illinois State Water Survey

Roger Adams (1889 – 1971)

Roger Adams arrived at the University of Illinois in 1916 and enjoyed an illustrious long association with the Departments of Chemistry and Chemical Engineering. Beginning as an Assistant Professor, his career at Illinois spanned fifty-six years, until his death in 1971. "The Chief" served as Department Head from 1926-1954. He served as personal research director for 198 Illinois Ph.D. recipients and many more postdoctoral research associates and fellows. While the education and training of these chemists were his primary concern, he selected their research problems for interest and potential significance.

Innumerable methods of organic synthesis and natural products were discovered by Adams and his students. Among the first achievements were the finding that the combination of aldehydes and acid chorides produced chloralkyl esters, and the recognition that aliphatic acid anhydrides served very effectively for the formation of ketones in the Friedel-Crafts reaction. The structures of disalicylaldehyde and dehydro-acetic acid, which had puzzled scientists for decades, were established in the Noyes Laboratory by Adams and his students. A synthetic method for polyhydroxyanthraquinones was found which involved the use of phthalides and permitted a precise knowledge of the stereochemistry in the resulting products. The method was applied to the synthesis of such natural dyes as meodin, morindone, anthrarufin, and rufiopin. Chaulmoogra oil had been used for centuries as a treatment for leprosy. The structures of chaulmoogric and hydnocarpic acids obtained from this oil were clarified in detail and their dihydro derivatives were synthesized. Adams recognized the desirability of and succeeded in determining the structure of gossypol for the cottonseed industry. The Narcotics Bureau of Washington enlisted Adams to investigate marijuana. Adams group isolated and identified the cannabidiol and showed it relationship to cannabinol and to the physiologically active tetrahydrocannabinols. Synthesis of cannabinol and a series of analogs of tetrahydrocannabinol followed. His studies on the alkaloids of Senecio and Crotalaria opened up the fields of pyrrolizidine chemistry and large ring diester chemistry in general.

The stereochemistry of molecules in which rotation about a single bond is restricted was investigated by Professor Adams over a period of thirty years and constitutes one of the most extensive systematic studies of steric strain in organic molecules. Related to these studies were syntheses and reactions carried out on quinone imides, highly reactive substances related to the benzoquinones. Further contributions to stereochemistry lay in the introduction of *l*-menthoxyacetyl chloride and amine bisulfites as resolving agents, the use of oxalyl chloride as a synthetic reagent, and the Adams' simplification of Gattermann aldehyde synthesis.

The discovery of the platinum oxide catalyst deserves mention. In the first published account by V. Voorhees and R. Adams [*J. Amer. Chem. Soc.*, **44**, 1397 (1922)] the description of the catalyst preparation was the fusion of chloroplatinic acid with sodium nitrate. This is still one of the most active and readily prepared platinum catalysts for hydrogenation reactions. Its discovery and the development of a simple low-pressure catalytic hydrogenation apparatus have had a profound effect in the synthesis and structure knowledge in organic chemistry and biochemistry. No citation index will ever disclose how many problems on a research and on a technical scale have been solved by the use of the Adams' catalyst!

Scientific discoveries were not the only contributions of Roger Adams. He a teacher held in the highest regard as he "always took time for his students," "followed his student's careers", and "was always ready to assist his students when they came to him with personal or professional problems." In the 1920's and 1930's, Roger Adams, along with C. S. Marvel and E. H. Volwiler, was instrumental in an enterprise called Organic Chemical Manufactures. This business provided summer employment for his students and provided starting materials for research. He played a leading role in helping German industry rebuild after World War II.

Roger Adams was one of the founders of several new programs to benefit organic chemists. In 1921, the *Organic Synthesis* series was initiated, and in 1942, the *Organic Reactions* series followed. Adams served as Editor-in-Chief of *Organic Reactions* for 19 years. He only assumed that role when it was agreed that there be no royalties paid to authors for their contributions. All of the royalties were accrued by John Wiley and Sons and were the basis of the Roger Adams Award in Organic Chemistry, consisting of a gold medal and a cash prize, which is awarded biennially "to recognize and encourage outstanding contributions to research in organic chemistry." Under sponsorship of the American Chemical Society and participation of the Division of Chemistry, the first award was made in 1959.

He was the recipient of numerous awards for science, philanthropy, national service, and the arts. His contributions to the University of Illinois were acknowledged by the naming of the "east chemistry" building in his honor, Roger Adams Laboratory, in 1972.

1. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 15, p1-3.
2. *J. Chem. Ed.* **1979**, *56*, 163-165.
3. *J. Am. Chem. Soc.* **1969**, *91*, a-d.
4. *Proc. Welch Fdn. Conf.* **1977**, *20*, 204-228.
5. Tarbell, D. S.; Tarbell, A. T. *Roger Adams Scientist and Statesman*; American Chemical Society: 1981.
6. *Isis* **1980**, *71*, 620-626.
7. *Biog. Mem. Nat. Acad. Sci.* **1982**, *53*, 3-47.
8. *Am. Phil. Soc. Yrbk.* **1974**, 111-114.
9. *National Cyclopedia of American Biography*; James T. White & Co.: 1921-1984; vol. G, p336-337.
10. *McGraw Hill Modern Men of Science*; McGraw-Hill: 1966; vol. 1, p4-5.
11. *The Hexagon* **1979**, *70*, 9-17.
12. *American Chemists and Chemical Engineers*; Miles, W. D., Ed.; American Chemical Society: 1976; p4-5.

Ludwig Frederick Audrieth (1907 - 1967)

Lou Audrieth was born in Vienna, Austria, and became an American citizen in 1912. He was educated at Colgate and Cornell, taking a PhD from the latter in 1926 and remaining there as a fellow for two years. He worked with A. W. Browne during both his doctoral and post-doctoral studies. It was during this time that his interest in the study of nitrogen chemistry and non-aqueous solvent reactions began. He joined the Illinois faculty in 1928. He began studying the chemistry of nitrogen-phosphorus compounds and of sulfamic acid, sulfamide, and their derivatives, leading in 1939 to the discovery, with Michael Sveda, of the artificial sweetener, sodium cyclamate. Sucaryl, the sodium salt of cyclohexylsulfamic acid, was place on the market in 1950 as a non-caloric sweetener. In the 1950's, he developed currently used methods for the production of hydrazine, which he had as early as 1938 recognized as potentially valuable as high-energy fuels. Audrieth investigated the chemistry of rocket fuels, holding fifteen patents dealing primarily with rocket propellants and explosives. He became an innovator of chemistry in non-aqueous solvents.

He was one of the founders of and most prolific contributors to the *Inorganic Syntheses* series and a member of the Board of Editors from 1934-1967. He was the co-author with B. A. Ogg of *The Chemistry of Hydrazine* (1950) and with Jacob Kleinberg of *Non-Aqueous Solvents: Applications as Media for Chemical Reactions* (1953).

He went on leave from Illinois in 1959 to serve at the American Embassy in Bonn, Germany, as scientific attaché. In 1963 he became a visiting professor of science affairs at the Foreign Service Institute of the Department of State in Washington, DC. He was awarded the Prechtly Medal in Vienna in 1965 for his work in promoting closer relationships between American and Austrian science.

1. *J. Inorg. Nucl. Chem.* **1973**, *35*, 1757-1768.
2. *Chem. Eng. News* **1967**, *45(7)*, 85.
3. *World Who's Who in Science*; Debus, A. G., Ed.; Marquis-Who's Who Inc.: 1968; p75.

John Christian Bailar, Jr. (1904 – 1991)

John Bailar was born in Golden, Colorado in 1904 and received his degrees in chemistry from Colorado and Michigan. He became an instructor at the University of Illinois in 1928 and began a sixty-three year career in Illinois' Department of Chemistry. He became associate professor in 1930 and full professor in 1943. Although interested in organic isomerism as a graduate student, it was while teaching a general chemistry course that he realized that isomerism, the occurrence of different compounds with the same chemical composition, is a general phenomenon that could also exist among inorganic compounds. He trained several generations of coordination chemists (ninety doctorates, thirty-eight postdoctoral fellows, and numerous bachelor's and master's degree candidates), making the University of Illinois, already well-known for organic chemistry in the United States, equally renowned for inorganic chemistry.

Bailar was instrumental in establishing the monograph, *Inorganic Syntheses,* in 1939. He helped establish the ACS Division of Inorganic Chemistry in 1957 and became its first chairman. In 1962, *Inorganic Chemistry*, the first such journal in the English language, began publication, largely through his efforts. Bailar won the Priestley Medal , the highest honor the American Chemical Society can bestow, in 1964, and served as President of the American Chemical Society in 1959.

The resurgence of inorganic chemistry after World War II, known as "the renaissance of inorganic chemistry," owed much to the pioneering efforts of Bailar, who also, more than any other person, was responsible for the advancement of coordination chemistry in the United States. Bailar is widely acknowledged as the "father of American coordination chemistry."

One of his most significant achievements was his first work on coordination chemistry in 1934 with senior undergraduate student, Robert W. Auten, which established the inorganic counter-part of the well-known organic Walden inversion reaction. This work was the first installment in a 37-part series, "The Stereochemistry of Complex Compounds," issued from 1934-1985. He co-authored (1959) with Nobel laureate (1990) Elias J. Corey a classic article on octahedral complexes that led to applications of conformational analysis to coordination compounds.

1. *Coord. Chem. Rev.* **1993**, *128*, 1-48.
2. *McGraw-Hill Modern Scientists and Engineers*; McGraw-Hill: 1980; vol. 1, p42.
3. *Chem. Eng. News* **1991**, *69(43)*, 46-47.
4. *The Hexagon* **1972**, 101-104.
5. *University of Illinois School of Chemical Sciences Alumni News* **Fall 1991** (insert).
6. *Inorg. Chem.* **1992**, *31*, 3183-3184.
7. *Am. Chem. Soc. Symp. Ser.* **1994**, *565*, 74-80.
8. *Coord. Chem. Rev.* **1990**, *106*, 1-23.

St. Elmo Brady (1884 – 1966)

St. Elmo Brady was the first African American to obtain a PhD degree in the United States. He received the PhD in Chemistry at the University of Illinois in 1916 for work done in Noyes Laboratory.

St. Elmo Brady was born on December 22, 1884 in Louisville, Kentucky. Greatly influenced by Thomas W. Talley, a pioneer in the teaching of science, he received his Bachelor's Degree from Fisk University in 1908 at the age of 24, and immediately began teaching at Tuskegee Institute in Alabama. His outstanding abilities were acknowledged in 1912 when he was offered a scholarship to Illinois to engage in graduate studies.

Many years later, he told his students that when he went to graduate school, "they began with 20 whites and one other and ended, in 1916 with six whites and one other."

He completed his Master of Science in Chemistry in 1914 and continued his studies under Professor Clarence G. Derick, to complete his Ph.D. two years later, with a dissertation titled "The Divalent Oxygen Atom."

During his time at U of I, Brady became the first African American admitted to Phi Lambda Upsilon, the chemistry honor society (1914) and was one of the first to be inducted into Sigma Xi, the science honorary (1915). In November 1916, The Crisis -- monthly magazine of the NAACP -- selected Brady for its biographical sketch as "Man of the Month".

Brady published three scholarly abstracts in Science in 1914-15 on his work with Derick. He also collaborated with Professor George Beal on a paper published in Journal of Industrial and Engineering Chemistry titled, "The Hydrochloride Method for the Determination of Alkaloids." Professor Brady also authored three monographs on *Household Chemistry for Girls*.

Brady's legacy was his establishment of strong undergraduate curricula, graduate programs, and fund raising development for four historically black colleges and universities. In conjunction with faculty from the University of Illinois, he established a summer program in infrared spectroscopy, which was open to faculty from all colleges and universities. He served Tuskegee (1916-1920), Howard University in Washington DC (1920-27), Fisk University (1927-52), and Tougaloo College, following his retirement from Fisk.

1. Samuel P. Massie,"St. Elmo Brady the Lenthened Shadow," *Chemistry* **1970**, *43*, 7.
2. *Crisis*, **August 1916**, pp. 190-191.
3. *JACS*, *40*, 537-538, **1918**
4. *Fisk News* 40, **Winter 1966**, 19-20
5. *Fisk News*, **October 1928**, Vo. II No. 1
6. *Tougaloo Gazette*, **Nov. 11, 1961**, Homecoming Edition
7. *Tougaloo Southern News*, **October 1956**, No 1
8. *Fisk News*, **Nov-June, 1949-53**, Vol. 23-26, p. 10.
9. *Washington (DC) Star*, obituary **12/30/66**

George Lindenberg Clark (1892 – 1969)

George Lindenberg Clark (or "G. L." as he was know to his students) pursued his PhD degree with William D. Harkins at the University of Chicago, receiving it in 1918. Clark served in various academic positions, most notably as an assistant professor of Applied Chemical Research at the Massachusetts Institute of Technology, founding the first industrial research laboratory in the world. In 1927, Clark was invited to join the faculty at the University of Illinois' Analytical chemistry division.

Throughout his career, Clark applied X-ray analyses to a wide variety of materials, including metals and minerals, natural and synthetic fibers, natural and synthetic rubber, clays, carbon black, storage battery plates, corks and waxes. He was far ahead of his time in recognizing the strong inter-relationship between instrumentation and analysis and was among the first to introduce each newly-developed instrumental method into the research community. Over more than thirty years, Clark directed the research of more than eighty-five PhD students.

Clark was an expert in the application of X-rays in science, industry, and medicine. He used X-rays in stress analysis, determining whether particular metals (such as propellers) were defective. He invented, in 1945, an X-ray tube that could withstand the heat generated by a potential of 50,000 volts. The new tube meant that X-ray pictures could be taken in seconds instead of minutes, spawning the growth of the medical application of X-rays. Clark successfully isolated macromolecules found in the rubber plant and determined their molecular weight, a project that botanists had worked on for years with limited results. He was also the first to discover that rubber crystallizes when it is stretched, opening up an entirely new field of X-ray studies.

In 1952, following twenty-five years of applied X-ray research, the first consolidated X-ray facility was dedicated at the University of Illinois. G. L. Clark's contribution was acknowledged by a plaque. In 2000, the X-ray facility was rededicated in his name as the G. L. Clark X-ray Laboratory.

1. Advisor confirmed by referring to thesis title and publications with Harkins.
2. Personal communication, E. P. Bertin, confirmed death date (6Nov1993).
3. Korecki, Natasha *The G. L. Clark Days at the University of Illinois*; 1999.
4. http://www.scs.uiuc.edu/chem/x-ray/clark.html.

Willis Horney Flygare (1936 – 1981)

Willis Flygare was born and raised in a small farming community in Minnesota. He went to the University of California, Berkeley for his graduate work in chemistry and received his PhD in 1961 with W. D. Gwinn for his work in microwave spectroscopy. He joined the faculty at Illinois in 1961. He pioneered the technique of molecular Zeeman spectroscopy, using it to measure molecular quadrupole moments and magnetic susceptibility moments; showed, for the first time, the presence of formamide in interstellar space; devised a new and rapid method for determining electrophoretic mobilities and diffusion constants of large molecules; created a highly sensitive method for observing the direct rotational transitions of weak, transient molecular complexes.

1. Documents on file in the Univ. of Illinois School of Chemical Sciences, Physical Chemistry Office.
2. *Physics Today* **1981**, *34(Sept.)*, 114-115.
3. *Chem. Eng. News* **1981**, *59(28)*, 26.

Reynold C. Fuson (1895 – 1979)

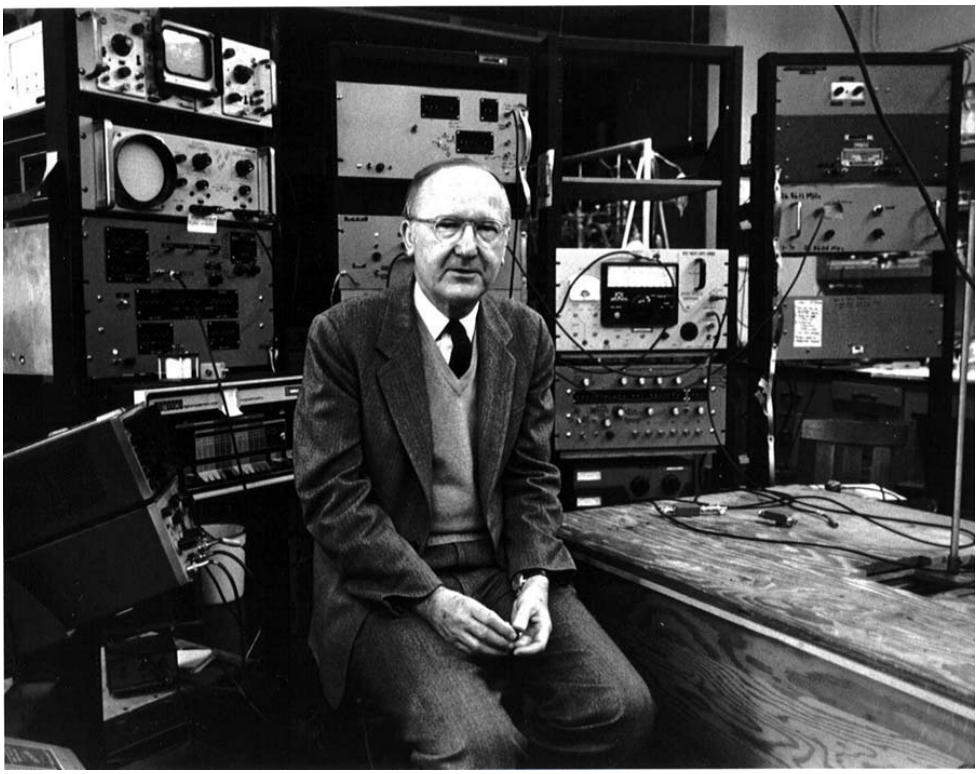
Reynold C. Fuson was born in Wakefield, Illinois, and received his degrees in chemistry from the University of Montana, the University of California at Berkeley, and the University of Minnesota. He held a postdoctoral appointment with Professor E. P. Kohler at Harvard, after which he served as an instructor for a brief period. He joined the Department of Chemistry at the University of Illinois in 1927 where he was a distinguished member for 35 years before retiring in 1963. He was a visiting professor at the Rice Institute during 1947-48 and at the University of Nevada in 1963-64. He then spent several years at Reno before returning to Champaign-Urbana for his final years.

Dr. Fuson enjoyed an outstanding reputation in research, teaching, and writing. During his active teaching career he supervised 76 undergraduate research students, 15 postdoctoral fellows, and 154 doctoral candidates. He published 285 scientific articles and was the author or coauthor of 5 textbooks, including *The Systematic Identification of Organic Compounds,* coauthored with R. L. Shriner and D. Y. Curtin. His research interests were broad and significant and included the enunciation of the principle of vinylogy, elucidation of the conjugate addition of Grignard reagents to unsaturated carbonyls compounds, and the discovery of stable enols and enediols of sterically hindered molecules.

His scientific contributions were acknowledged by many honors including membership in the National Academy of Sciences and the Center for Advanced Study at the University of Illinois. He received the Nichols Medal, the Manufacturing Chemists' Association Award for College Teaching, the John R. Kuebler Award of Alpha Chi Sigma, The University of Minnesota Outstanding Achievement Award, and honorary degrees from the University of Montana, and he was a member of the editorial boards of *Organic Syntheses* and the *Journal of American Chemical Society*.

1. *Chem. Eng. News* **1979**, *57(39)*, 65.
2. *McGraw-Hill Modern Scientists and Engineers*; McGraw-Hill: 1980; vol. 1, p412-414.
3. *McGraw-Hill Modern Men of Science*; McGraw-Hill: 1966; vol. 2, p172-174.
4. Fuson, R. C., unpublished autobiography.

Herbert S. Gutowsky (1919 – 2000)



Herb Gutowsky took his PhD in chemistry at Harvard University under George Kistiakowsky in 1948. He came to the University of Illinois as a young faculty member in the same year, intending to study molecular and solid state structure, infrared and radiofrequency spectroscospy (including nuclear magnetic resonance, pure quadrupole spectroscopy and electronic paramagnetic resonance). He and his students made great discoveries in the early days of nuclear magnetic resonance spectroscopy, and these discoveries shaped the development of NMR and set the stage for its central place in chemistry, medicine, materials, and many other areas. In particular, he discovered the phenomenon of spin-spin coupling and recognized its utility for the assignment of structure. In addition, he and his coworkers predicted and then demonstrated that NMR spectroscopy could be used to study exchange processes in chemical systems.

He was Professor of Chemistry, served as Head of the Department of Chemistry (1967-1983), and Director of the School of Chemical Sciences at the University of Illinois for many years, returning to teaching and research in 1984. He carried on an active and fruitful research program until his death, having moved into a second research career in Fourier-transform microwave spectroscopic studies of small, weakly-bonded molecules in the gas phase.

1. ACS Directory of Graduate Research 1954, p137.
2. Personal communication, R. L. Belford, 24June2000.

B. Smith Hopkins (1873 – 1952)

Hopkins was born in Owosso, Michigan, in 1873. He began his teaching career in the public schools of Menominee, Michigan in 1897. After receiving his PhD in 1906 with H. N. Morse at Johns Hopkins, he had various academic posts until joining the faculty at Illinois in 1912. He joined forces with Clarence Balke, who already had underway a series of researches on beryllium, yttrium, columbium (now called niobium), tantalum, and the rare earths. When Balke left the University in 1916, Hopkins carried on with this research, Specializing more and more in the chemistry of the rare earths. It was in this field that he made his great contributions to chemistry.

At that time separation of the rare earths from each other was a long and tedious task, depending upon repeated recrystallizations of the double magnesium nitrates, the bromates, and other salts. For some separations, there had to several thousand recrystallizations. In 1926, Hopkins with Leonard Yntema and J. Allen Harris announced the discovery of the long sought element 61, which they named "illinium." Additional work did not concentrate this element any further, and after the fission reaction was developed during World War II, it was found that element 61 is highly radioactive. Most chemists came to the conclusion that it did not exist in nature. Hopkins was bitterly disappointed that his discovery of illinium, which he considered to be the climax of his work, was not accepted. In any event, his contributions to rare earth chemistry were enormous and laid the groundwork for much of the research that followed.

1. *National Cyclopaedia of American Biography;* James T. White & Co.: 1921-1984; vol. B, p438-439.
2. *American Chemists and Chemical Engineers;* Miles, W. D., Ed.; American Chemical Society: 1976; p227-228.
3. *The Champaign-Urbana New Gazette* **(27August 1952)**, 3.
4. *Records of the Senate and the College of Liberal Arts and Sciences of the University of Illinois,* **December 1952**.
5. *Hexagon* **January 1981,** 16-19.

Henry Fraser Johnstone (1902 – 1962)

Henry Fraser Johnstone was a man of great energy, interested not only in teaching and research, in which he insisted on excellence, but in taking part in what was happening, in work and in discussion. He wanted to be with people who were active in present-day affairs.

He was born on December 16, 1902 in Georgetown, South Carolina. He graduated from the University of the South, at Sewanee, Tennessee, with the degree of Bachelor of Science in chemistry in 1923. For his graduate work, he attended the State University of Iowa, receiving the M.S. in Chemistry in 1925 and Ph.D. in Physical Chemistry in 1926. In 1928, he joined the Division of Chemical Engineering of the University of Illinois as a member of the staff of the Engineering Experiment Station on a co-operative investigation with the Utilities Research Commission of Chicago to study stack-gas problems related to atmospheric pollution. He became a member of the faculty in Chemical Engineering in 1935 and Head of the Division in 1945.

Johnstone was internationally known as a chemical engineer and a recognized authority on air pollution. He was Technical Advisor for the Los Angeles County Air Pollution Control District, Consultant for the Tennessee Valley Authority, Scientific Advisor for the U.S. Army Chemical Corps, and Consultant for the Texas Gulf Sulfur Company, and others. He had more than twenty patents in his name and was the author or co-author of approximately ninety articles. In 1943 he received the Walker Medal of the American Institute of Chemical Engineers.

During World War II, Johnstone directed a laboratory for the National Defense Research Committee to develop new munitions for chemical warfare. For the work, he received the Naval Ordnance Development Award the President's Certificate of Merit. He also received the Army Meritorius Service Decoration, its highest award for civilians, and the Army Exceptional Service Medal for services as Consultant to the Army Chemical Corps.

1. Swann, S., Bailar, J. C. Jr., Peters, M. S., private communication, **1962**.

Herbert August Laitinen (1915 – 1991)

Herb Laitinen received a doctorate from the University of Minnesota in 1940 with A. Kolthoff and joined the Illinois faculty the same year. He taught inorganic and general chemistry for a few years and in 1947 began teaching analytical chemistry. He became head of the analytical chemistry division in 1953.

In his thirty-seven years at Illinois, Laitinen was an important force in defining the intellectual content of the analytical chemistry curriculum both at Illinois and nationally. He doing so, he helped to define the discipline as its emphasis changed from the analysis of various materials to the principles and methods of electrochemistry, spectroscopy, separations, and instrumentation. In 1960, Laitinen published a classic text, *Chemical Analysis*, that led the field of graduate instruction with its rigor and completeness. The excellence of his contributions was recognized in 1961 with the ACS Award in Analytical Chemistry, while his devotion to teaching was honored in 1986 by the ACS Division of Analytical Chemistry Excellence in Teaching Award.

Laitinen became Editor of Analytical Chemistry in 1966, and served in this capacity until 1979. During his tenure, the journal became the leading scientific journal in analytical chemistry. One of his greatest legacies are the 168 editorials he published during his tenure as editor.

His research interests were many and varied. During World War II, he was a leader in synthetic rubber research. He also carried out research on electrochemistry, polarography, amperometric titrations, diffusion, polarization of microelectrodes, fused salts, environmental science, and surface chemistry.

1. *Inside Illinois* **2May1991**, *10(16)*, 11.
2. *University of Illinois School of Chemical Sciences Alumni News* **Fall 1991**, 9.
3. *Analytical Chem.* **1991**, *63(11)*, 609A.

Carl S. Marvel (1894 – 1988)

Carl. S. (Speed) Marvel had a spectacular career of seventy-two years in organic chemistry, spending over forty of those years at the University of Illinois. He consulted with the DuPont Experimental Station for nearly sixty years. He was a dominant figure in American organic chemistry and has been recognized as the "father" of synthetic polymer chemistry. The impact of his teaching, research, and consultation was matched by his important contributions to government, foundations, and the professional communities. His interest in organic stereochemistry was sparked by his Ph.D. thesis work under W. A. Noyes, "A Study of the Possible Asymmetry of Aliphatic Diazo Compounds," which was published in 1920 in the *Journal of American Chemical Society*.

It should be noted that Marvel was among the first to recognize the significance of stereo-regular polymers, which he endeavored to prepare by the principle of asymmetric induction using optically active initiators and monomers. He organized a research group at the University of Illinois, with the aid of his colleagues in organic, physical, and analytical chemistry, that concentrated on the synthesis and polymerization of 2-subtituted butadienes and styrene.

Among Marvel's first class of seniors in organic qualitative analysis were many impressive students including Wallace Carothers, who later invented Nylon at DuPont, and George Graves, who played an important role in the plutonium plant at Hanford, Washington, during World War II. Samuel McElvain, Vincent Du Vigneaud (Nobel laureate), Herbert E. Carter, William J. Bailey, and Henry E. Baumgarten were among his students who excelled in academia.

In 1942, the U.S. government launched a major program to alleviate the critical shortage of natural rubber so critically needed for tires for airplanes, trucks, and military vehicles. Marvel helped coordinate the project that involved other universities, including MIT, Chicago, Minnesota, Cornel, and Case, and industrial laboratories at AT&T, ESSO Research, DuPont, and Union Carbide. Within one year this effort brought forth formulations, additives, modifiers, and processes for synthetic rubber and thereby provided a successful solution, not broadly recognized, of a potentially catastrophic situation. Marvel received the President's Certificate of Merit for Civilians in World War II for his work on this project.

His government service, during and after WWII, also included chairmanship of the National Research Council's Panel on Synthesis of Antimalarial Drugs and membership on the Board for the Coordination of Malarial Studies, 1944-46; membership on the National Advisory Health Council, 1945-47; and membership on the National Science Foundation Advisory Panel for chemistry, 1952-54.

"Speed" Marvel was a founder of the High Polymer Forum that became the Division of Polymer Chemistry of the American Chemical Society, of which he was chairman in 1950-51.

Marvel's laboratory at the University of Illinois prepared, in large number, unusual butadiene copolymers with vinylsulfonic acid derivatives, anthracene and other polynuclear hydrocarbons, aconitic esters, substituted styrenes, and methyl acrylate, the latter for lithium aluminum hydride reduction to a diene/allyl alcohol copolymer.

Another major contribution to the synthetic rubber program stemmed from Marvel's extensive studies of reactions of thiols with olefins. He was the first to demonstrate the preparation of high molecular-weight polymers by adapting the reaction to bifunctional thiols and bifunctional olefins, with the goal of imparting rubbery character to the polymers. He made polymers of terpenes, pinene, myrcene, and alloocimene and of linear compounds containing 1,6-diene functionality that resulted in ring-containing polymers.

1. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 18, p601-603.
2. *J. Chem. Ed.* **1976**, *53*, 609-613.
3. *McGraw-Hill Modern Men of Science*; McGraw-Hill: 1966; vol. 1, p317-318.
4. *J. Macromol. Sci. - Chem.* **1984**, *A21*, 1567-1606.
5. *J. Macromol. Sci. - Chem.* **1984**, *A21*, 1665-1687.
6. *Macromolecules* **1984**, *17*, 1641-1643.
7. *Chem. Eng. News* **1988**, *66(17)*, 20-22.
8. *Polymer News* **1979**, *5*, 216-217.
9. Morris, P. J. T. *Polymer Pioneers*; Center for the History of Chemistry: 1986; p61-63.

William Albert Noyes (1857 – 1941)

William Albert Noyes was born on November 6, 1857, on a farm near Independence, Iowa, the youngest son of Spencer W. Noyes and Mary Noyes. In 1875 he entered Grinnell College, where he enrolled in classical studies, reading chemistry on the side, teaching full-time in country schools during the winter quarters, and graduating with AB and BS degrres in 1879. He taught and studied analytical chemistry at Grinnell until January, 1881, when he entered Johns Hopkins to work under Ira Remsen. Although he performed water analyses to pay his expenses, he still received his PhD degree in one and a half years (1882). His dissertation, on the oxidation of benzene with chromic acid, also earned him an AM degree from Grinnell. After various teaching posts, in 1903 he became the first Chief Chemist at the US National Bureau of Standards in Baltimore, Maryland, where he determined atomic weights. His value for the crucial H/O weight ratio (1.00787:16) still stands today as one of the most precise chemical determinations ever made. He and H. C. P. Weber received the 1908 Nichols Medal for their determination of the atomic weight of chlorine. He became Head of the Chemistry Department (1907-1926) at the University of Illinois, which he built into one of the most prestigious departments in the United States.

Primarily an organic chemist, Noyes worked on the structure of camphor (first to furnish definitive proof of its structure) and rearrangements in the camphor series, the electronic theories of valence, and the valence and nature of nitrogen in nitrogen trichloride. He developed methods for the determination of phosphorus, sulfur, and manganese in iron. Long-time Editor-in-Chief of the *Journal of the American Chemical Society* (1902-1917), he was also the founder and first Editor of *Chemical Abstracts* (1907-1910), *ACS Scientific Monographs* (1919-1941), and *Chemical Reviews* (1924-1926). In 1935, he received the Priestley Medal.

After World War I Noyes worked unsuccessfully to establish harmony between his French and German colleagues and to promote international understanding. He died on October 24, 1941.

1. *Science* **1941**, *94,* 477-479.
2. *Biog. Mem. Nat. Acad. Sci.* **1952**, *27*, 179-208.
3. *Hexagon* **Summer 1998**, 19.
4. *J. Am. Chem. Soc.* **1944**, *66,* 1045-1056.
5. *Dictionary of Scientific Biography*; Charles Scribner's Sons: 1970-1990; vol. 10, p157-158.
6. *National Cyclopedia of American Biography*; James T. White & Co.: 1921-1984; vol. 44, p258-259.
7. *National Cyclopedia of American Biography*; James T. White & Co.: 1921-1984; vol. B, p314.
8. *Dictionary of American Biography*; Malone, D., Ed.; Charles Scribner's Sons: 1936; vol. 3 (suppl), p565-566.
9. *American Chemists and Chemical Engineers*; Miles, W. D., Ed.; American Chemical Society: 1976; p372-373.
10. *Ind. Eng. Chem.* **1924**, *16*, 420.

Arthur William Palmer (1861 – 1904)

Arthur W. Palmer was born in London, England in 1861. He obtained a BS in chemistry at the University of Illinois in 1883 and an ScD in chemistry from Harvard in 1886. He then spent a year in Germany, studying first with Victor Meyer and then with August Hoffman. While in Berlin with Hoffman he began his work on arsines, which culminated three years later, after his return to the University of Illinois, in the establishment if the existence of that series which to date had been described as not existing. Dr. Palmer was called back to Illinois in 1889 and returned there in September of that year as an assistant professor of chemistry.

In 1895, a special appropriation of the Illinois State Legislature established the State Water Survey "for carrying on a systematic survey of the waters of the state." The work was started under Dr. Palmer's direction with the help of a full-time assistant. This work, as well as the growing work of the Department of Chemistry, was going forward quite well, when on the early morning of August 15, 1896, the Chemistry Laboratory (now Harker Hall) was struck by lightning. The entire upper floor was burned, as was a large portion of the second floor. Thus began a four year fight to convince the State Legislature to fund a new Chemical Laboratory. The importance of this funding can be best described by Dean Eugene Davenport during the Memorial Service for Prof. Palmer:

A decade ago the department enjoyed an enviable reputation. Its fame was not limited to the natural constituency of this University, but it was widely and favorably known among universities everywhere, and it did not seem too much to look forward to the time when it should occupy front rank among the leading departments of chemistry in the country.

Then came the burning of the chemical building. Because of scarcity of funds, and because a new and more commodious structure was to be asked for, the laboratories were never completely restored. The ruin was roofed over, and the work reinstalled, but in a temporary and exceedingly inadequate manner. The building needed was not provided, and for four years this department marked time and struggled for existence.

This condition of things was at the threshold of the greatest period of general growth ever experienced by the University. Students rapidly increased in numbers in all the colleges, and the old laboratories already overcrowded were flooded beyond their capacity with students seeking elementary instruction. Here for more than four years the resources of the department were taxed to the utmost to meet the increasing demands on the part of the University for elementary chemistry. General prosperity was a fact, but it brought about conditions doubly hard upon this department laboring to sustain its reputation among more fortunate neighbors in other institutions.

Then came the final struggle when the building was won; though the amount granted was insufficient, and those who knew Professor Palmer in those dark days when the chemical building for the third time hung in the balance – those only knew what the issue meant to him.

And from Professor L. P. Breckenridge at that same Memorial Service:

Here at Illinois has fortunately been completed a perpetual memorial to him who has gone. We are glad that he lived to see his cherished plans in brick and mortar finished. I shall always remember the beaming and delighted expression of his face when the money for the Chemical Laboratory [Noyes

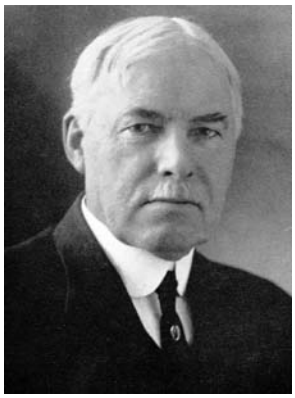
Laboratory] was really appropriated. "It hardly seems possible that it is true," he said. And then how he worked building his laboratory, watching every detail by day, and while the laborers slept he planned and thought by night.

. . . What we say here today will soon be forgotten, but many things that he did will endure for years to come. He taught the science of chemistry to many students. It seems to me that this was his greatest work. He contributed to the fund of knowledge in the realm of chemical science. He served the people of Illinois by the application of his science to the needs, comforts, the very life of her citizens. He built the Chemical Laboratory. These were his public services.

It was commonly accepted that Professor Palmer died of overwork. His lasting monuments are the Illinois State Water Survey and Noyes Laboratory.

1. *University of Illinois Bulletin: University of Illinois Circular of Information of the Department of Chemistry* **XIII** (*25*), **February 21, 1916**, 16-44.
2. *University of Illinois Memorial Convocation for Professor Arthur W. Palmer.* **February 7, 1904.**
3. Elliott, C. A. *Biographical Dictionary of American Science,* Greenwood Press: 1979; p198.

Samuel Wilson Parr (1857 – 1931)



Samuel W. Parr was born in Granville, Illinois, and graduated with a BS from the University of Illinois in 1884. He spent a year in graduate work at Cornell University, from which he received an MS degree in 1885. He held various academic posts until he joined the faculty at the University of Illinois in 1891 as a Professor of Applied Chemistry. He continued in that position until his retirement in 1926. In 1901 he established the curriculum of chemical engineering essentially as it exists today. After the death of A. W. Palmer in 1904, Prof. Parr was director of the laboratory instructional force until the appointment of W. A. Noyes in 1907.

Prof. Parr's chief interest was the chemistry of coal and coal products: he studied their properties and uses from every angle. He supplied industry with practical instruments for use primarily in coal analyses, the Parr Peroxide Calorimeter, the gas calorimeter, the automatic recording gas calorimeter, and the sulfur photometer. His discovery that bituminous coal, after drying below coking temperatures, decomposes with an exothermic reaction when heated to a higher temperature resulted in a uniform and rapid coking process superior to any hitherto known.

His extensive investigation of alloys was rewarded by the discovery of the nonferrous alloy "Illium," of high tensile strength and ductibility, excellent working qualities, and a resistance to corrosion almost equal to that of the noble metals. One of his other important research interests was his solution of the problem of the embrittlement of boiler steel, which resulted in vast savings in industries throughout the country.

Parr founded the Standard Calorimeter Company in 1899 in Champaign, Illinois. Parr had developed a simplified instrument for measuring the heating value of coal at a time when such devices were not generally available. Parr's 'calorie meter' (written and pronounced Calorimeter) and other fuel testing devices were contributing factors in the development of a market for the extensive resources of bituminous coal available in Illinois at a time when most believed that the only useful coal had to come from the eastern United States coal fields. Manufacturing operations of the Company were moved to East Moline, Illinois in 1911. Then, following World War I the company moved to a new facility in Moline, which housed both the calorimeter business and a foundry for producing a line of acid-resistant stainless steels developed by Prof. Parr, primarily for use in Parr calorimeters but marketed to other users as well. In 1933 the name of the company was changed to the Parr Instrument Company and it continues to operate today.

1. *University of Illinois Department of Chemistry Development During the Period 1927-1941* **1941**, 5-45
2. *Ind. Eng. Chem.* **1925**, *17*, 985.
3. *National Cyclopedia of American Biography*; James T. White & Co.: 1921-1984; vol. C, p153.
4. http://www.parrinst.com/

Charles Coale Price III (1913 – 2001)

Price received his PhD in 1936 from Harvard with L. F. Fieser. He went to the University of Illinois the same year, leaving to become head of the department of chemistry at the University of Notre Dame in 1946. His research was concerned principally with the mechanisms of various organic reactions, such as substitutions in aromatic compounds; addition, elimination, and replacement reactions; vinyl-type addition polymerization and copolymerization; aliphatic and aromatic polyethers; the hydrolysis and oxidation of chemical warfare agents; and the reaction of biopolymers with alkylating agents. He specialized in polymers, rubbers, and resins. In addition to many scholarly publications, he also held important patents on synthetic rubber, which were commercialized by Rohm and Haas.

Under the National Defense Research Council-funded Antimalarial Research Program in World War II, Price and his student, Royston Roberts, invented an optimum synthesis of a crucial intermediate on the path to chloroquine. In a development of the method, Nelson J. Leonard joined the effort of the students of Price and Harold Snyder to produce the intermediate on a grand scale. The pilot plant effort at Illinois was sufficient for chloroquine to be produced in time for its use in the Pacific Theater against the assaults of the malaria mosquitoes. During World War II, Price also directed projects for the Chemical Warfare Service and the Committee on Medical Research.

Price served as the President of the American Chemical Society in 1965 and won the ACS Award in Pure Chemistry in 1946 and the ACS Award for Creative Invention in 1974. He was also important in the establishment and growth of the Chemical Heritage Foundation. Over twenty years ago, when asked to help by Arnold Thackray, he readily agreed to help in the effort to establish a national Center for the History of Chemistry. It was Price who suggested the name Chemical Heritage Foundation. As founding chair of the Foundation, he helped gain recognition, integrate support from many other chemical organizations, and locate a permanent home in Philadelphia's historic district.

1. *Chem. Eng. News* **1946**, *24*, 881.
2. *Chem. Eng. News* **2001**, *79(11)*, 77.
3. *Chem. Eng. News* **2001**, *79(28)*, 6.
4. See *J. Am. Chem. Soc.* **1936**, *58*, 1834 and 1838 for confirmation of PhD advisor.
5. Personal communication, Nelson Leonard, **January29, 2001**.

Worth Huff Rodebush (1887 – 1959)

Worth Huff Rodebush was born on a farm near Selden, Kansas in 1887. As his biographers stated, "The child of a frontier, rural society which had little interest in pure science, he became part of the scholarly community which developed modern physical chemistry."

Rodebush received his Ph.D. in 1917 while working with Wendell Latimer at the University of California, Berkeley. With Latimer, he developed the concept and theory of the hydrogen bond. He joined the Chemistry Department at the University of Illinois as an Associate Professor in charge of the Division of Physical Chemistry in 1921. While at Illinois he pioneered work in the use of infrared absorption methods for studying molecular structures, especially those involving hydrogen. During World War II he helped develop rocket and double-base propellants. Other areas of study included the quantitative theory of the third law of thermodynamics, atomic structures, the vapor pressure of metals, the entropy of condensed gases, mechanisms of gaseous reactions, statistical mechanics, the absolute charge on the earth's surface, and the ionization of electrolytes.

Rodebush was elected to membership in the National Academy of Sciences in 1938.

1. *National Cyclopedia of American Biography;* James T. White & Co.: 1921-1984; vol. 50, p460-461.
2. *Biog. Mem. Nat. Acad. Sci.* **1962**, *36*, 277-288.
3. *Frontiers in Chemistry* **1943**, *3*, 137-161.

William Cumming Rose (1887 – 1985)

When William Rose was 19 he started as a graduate student in the Sheffield Scientific School at Yale. Four years later, in 1911, he finished his PhD with L. B. Mendel, finishing a series of studies on the origin of creatine and creatinine. Rose served in several academic posts before accepting a position at the University of Texas Galveston Medical School to organize a department of biochemistry. In 1922, he went to the University of Illinois as professor of physiological chemistry, a title which was changed to professor of biochemistry in 1936. From 1922 to 1955 he transformed his department into a center of excellence for the training of biochemists.

Rose discovered and structurally characterized the amino acid threonine and showed that is "essential", i.e., not manufactured by the body, and must be obtained from the diet; also showed that different amino acids are essential to different organisms; studied creatine and creatinine metabolism, endogenous purine metabolism, neophropathic effects of dicarboxylic acids and their derivatives, and nutrititive properties of amino acids; investigated the role of proteins in metabolism, the metabolic interrelationships between amino acids, and the determination of the amino acid requirements of human subjects; showed that histidine, which is an essential amino acid for all animals tested so far, is not essential for man. Over the course of his career he published 124 research, biographical, and review articles.

Rose was honored many times for his achievements, being elected to the National Academy of Sciences in 1936 and receiving the National Medal of Science in 1966.

1. *J. Nutrition* **1981**, *111*, 1313-1320.
2. *McGraw-Hill Modern Men of Science*; McGraw-Hill: 1966; vol. 2, p456-457.
3. *Fed. Proc. (Proc. Fed. Am. Soc. Exp. Biol.)* **1979**, *38*, 2684-2686.
4. *Annals NY Acad. Sci.* **1979**, *325*, 229-234.
5. *J. Chem. Ed.* **1969**, *46*, 759-763.

George Frederick Smith (1891 – 1976)

G. Frederick Smith, as he was more generally known, was born in Lucasville, Ohio, and raised in Columbus, Ohio. Smith attended the University of Michigan, and received his BS, MS and PhD (1922) degrees, the PhD obtained under H. H. Willard in analytical chemistry.

He joined the faculty of the University of Illinois to teach analytical chemistry in 1921. At Michigan he had learned about perchlorates – at Illinois he published an article on the analysis of steel, in which he pointed out the advantages of magnesium perchlorate, which he prepared for his own use, as a super drying agent. Chemists in steel laboratories wrote to him requesting some for trials, continuing their demands until Smith told them to buy it from a commercial manufacturer. When he found there was none, A. H. Thomas Co. persuaded and financed Smith to make magnesium perchlorate for them, selling it under the name "Dehydrite". Smith made it in his garage laboratory for years, finally erecting a small perchlorate plant in Columbus, Ohio – the G. F. Smith Chemical Co, established in 1928. This company, which is still in existence today, is the largest manufacturer of perchloric acid and perchlorate salts in the world.

Around 1930 George Walden, Jr. of Columbia University publicized the use of phenanthroline as an oxidation-reduction indicator. Smith started producing commercial quantities of phenanthroline and its derivatives, producing a range of indicators to meet every need. Smith also investigated the preparation of cerium compounds for use as titrants in oxidation reactions, aided by phenanthroline indicators, finally producing hexanitratocerate as a primary standard.

During the depression, one of Smith's students, Charles Getz, working his way through college, learned that milk would foam if CO_2 were forced into it and the pressure released. This led to the idea of producing whipped cream by the release of gas under pressure. Getz and Smith found that nitrous oxide was a satisfactory gas and developed a product called Instantwhip, the first spraycan product.

1. *American Chemists and Chemical Engineers;* Miles, W. D. and Gould, R. F., Eds.; Gould Books: 1994; p259-260.
2. *Talanta.* **1966**, *13*, 867-894.

Harold Ray Snyder (1910 – 1994)

Snyder was born in Mt. Carmel, Illinois and took his BS in Chemistry at the University of Illinois. After completing his PhD at Cornell in 1935 with J. R. Johnson, he spent a year at the Solvay Process Company. In 1937 he joined the teaching staff at the Chemistry Department at Illinois, becoming a full professor in 1945.

From 1957-1960 he was Associate Head of the Chemistry Department and from 1960 until his retirement in 1976 he took on added responsibilities as Associate Dean of the Graduate College and Secretary of the Research Board. During World War II, he carried on work for the National Defense Research Committee, the Committee on Medical Research, and the W. P. B. Rubber Research Program. He and his students worked along with Charles C. Price, Nelson Leonard, and their students to produce a crucial intermediate on the path to chloroquine. Their efforts allowed the production of chloroquine sufficient for its use in the Pacific Theater against the assaults of the malaria mosquitoes.

Snyder supervised 125 successful PhD candidates. He was a classical organic chemist and investigated the synthesis of amino acids, heteroaromatic systems, arylboronic acids, and natural products, He was interested in the reactions of amines and indoles. He invented a new reaction process with C-alkylation of quaternary ammonium salts. Snyder used polyphosphoric acid for inter- and intramolecular condensations, cyclizations, and functional conversions in organic chemistry. He investigated mechanisms of organic reactions, esp. polymerization, Diels Alder reactions, and Mannich reactions.

1. Personal communication, Nelson Leonard, **January 29, 2001**.

Marion E. Sparks (1872 – 1929)

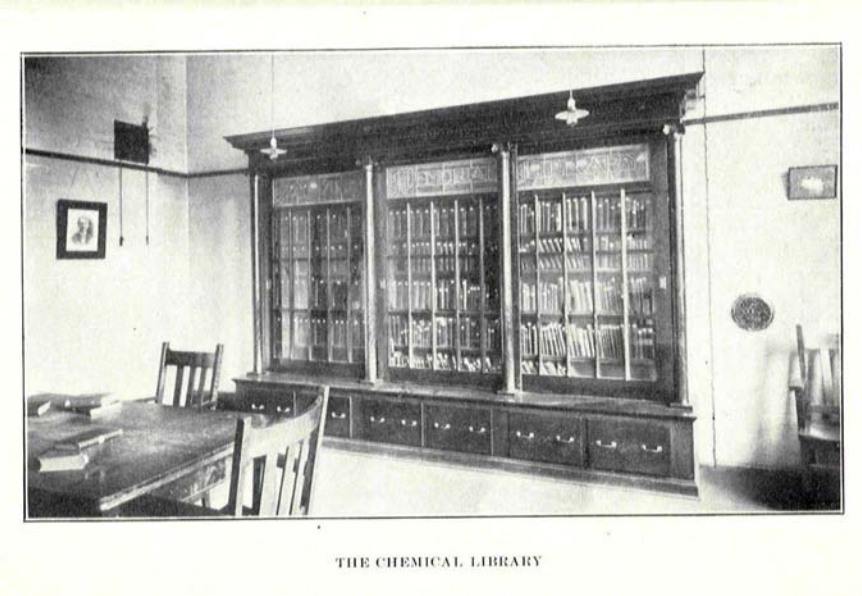
Instruction in chemical literature, with an emphasis on library instruction, was initiated at the University of Illinois at Urbana-Champaign. Beginning as informal seminars in 1892, the chemical literature course, "Chemistry 19," was introduced into the curriculum in 1893-94. It appeared in the university catalog 1893-94 as 'Chemistry 19. Seminary. Reports and discussions upon assigned topics from current chemical literature' and persisted as a prescribed course for juniors, seniors, and graduate students with a few minor changes, until 1910-11, when a separate section for juniors was arranged, leaving seniors, graduates and instructors in the other section.[1] Chemistry Librarian Marion Sparks began teaching the course in 1913-14. She self-published her textbook for the course in 1919, based on class notes from the previous 5 years of teaching the class. She thereby authored and published the first book to address chemical literature and library instruction and formalized the field of chemical information. A second edition, also self-published and self-distributed, was produced in 1921.[2]

Support for Miss Sparks' text as the first of its kind can be found in a 1951 article on chemical literature. "Literature about chemical literature was slow to develop. A pioneer effort was the syllabus prepared by Marion Sparks for her course in chemical literature (1914)."[4] It is possible, based on the date cited in this work, that Miss Sparks shared her syllabus with colleagues before initiating actual publication in 1919.

A very favorable review of the second edition of "Chemical Literature and its Use" appeared in 1921, "Students of chemistry everywhere will find the pamphlet very useful for the purpose of reference, since the publications mentioned are in general use where they are available. The absence of systematic instruction in the consultation of chemical literature is a fault of academic training which should be remedied…a little systematic training, such as is outlined in the pamphlet, together with some instruction in indexing, would eventually save him much time and minimise (sic) the possibility of such undesirable incidents."[5]

Marion Emeline Sparks (1872-1929) received her Bachelor's Degree from the University of Illinois (U of I) in 1895 and her library degree (also U of I) in 1899 as a member of the second graduating class of this new discipline. She found employment in organizing a number of pubic libraries throughout the Midwest, but re-settled in Urbana, Illinois and received a Master's Degree in Classics (U of I) in 1900. In 1904 she became a bibliographer at the U of I, creating the first library catalog of the chemistry collection, which began forming in 1892. Following bibliographic work, she served part time as the "library assistant" in the Chemistry Library beginning in October 1911 and served full time as Chemistry Librarian from 1913 until her death in 1929.

With her strong background in languages (at the U of I she took multiple years of Greek, Latin, French, German, Italian and Spanish) and her broad interest in the sciences (including being amateur astronomer and bird watcher) Miss Sparks was welcomed into the Chemistry Department. She assimilated quickly by providing excellent library service, including translating articles from any language, providing interlibrary loan (typewriting articles in the days before photocopiers), and conducting research. An example of the type of research she undertook is demonstrated in the article she published in *Science* with then Chemistry Department Chairman William A. Noyes ("A census of the periodical literature of chemistry published in the United States," which included an analysis of "articles per cent" and "pages per cent," an uncanny precursor to today's cost-per-character analyses of journals).[3] Her immediate and lifelong interest, however, was in teaching chemical literature. She understood and taught the value of chemical research: determining and locating previous research is as important as laboratory work, and the skills needed for library research are best taught by an expert – the librarian.



THE CHEMICAL LIBRARY

1. Sparks, Marion, "Chemical literature and its use," *Science*, N.S. Vol 47 no. 1216, p. 377-381, (April 19, 1918).
2. Sparks, Marion E., "Chemical literature and its use," Urbana, Illinois, 49 pages (1919). Sparks, Marion E., "Chemical literature and its use," Urbana, Illinois, 80 pages (1921).
3. Marion E. Sparks and W. A. Noyes, "A Census of the periodical literature of chemistry published in the United States," *Science*, N.S. **45(1155)**, p. 168-171, (February 16, 1917).
4. Smith, J.F, "Chemical literature," *Industrial and Engineering Chemistry*, **46(6)**, p. 1288-1291 (1951).
5. "Chemical Literature and Its Use" (Review), *Journal of the Society of Chemical Industry*, **40(4)**, p. 451a (1921).
6. Picture taken from the brochure *The Study of Chemistry at the University of Illinois Urbana, Illinois 1907*, **1907.**

Illinois State Water Survey

The Water Survey was founded in 1895 as a unit of the University of Illinois Department of Chemistry under the direction of Prof. Arthur W. Palmer. Its original mission was to survey the waters of Illinois to trace the spread of waterborne disease, particularly typhoid. In its first fifteen months of operation, the Water Survey responded to public requests for chemical analyses of 1,787 water samples from 156 towns in 68 Illinois counties. The Water Survey also addressed the health and safety of public water supplies, water softening methods, sewage and wastewater treatment, and the establishment of sanitary standards for drinking water. Working conditions within the Survey were improved somewhat in the summer of 1907 with expansion of the laboratory space. Survey offices remained on the first floor of the university's Chemistry Building (what is now Harker Hall), while the laboratories and other work rooms were moved into newly-acquired basement quarters in what is now Noyes Laboratory.

In 1917, the Water Survey was transferred to the state Department of Registration and Education. At that time, the Board of Natural Resources and Conservation, composed of eminent scientists and professionals selected by the Governor, was established to guide Survey activities. Scientific investigations were expanded, and the state's first inventory of municipal ground-water supplies was published. Activities also focused on methods to determine water levels in wells, yield testing, and establishment of an ongoing survey of the state's surface waters.

Directors and Chiefs of the Survey, 1895 – 1951

Arthur W. Palmer 1895 – 1904

Samuel W. Parr 1904 – 1905

Edward Bartow 1905 - 1920

Arthur M. Buswell 1920 - 1955

During World War II, Water Survey chemists cooperated with the University and the federal government in studies on the detection of chemical warfare agents in water and methods for their removal. Meteorological efforts expanded in the postwar years, including the use of radar to measure rainfall and track severe storms and the establishment of networks of densely spaced rain gages. The U.S. Weather Bureau transferred the state climatologist to the Water Survey, and computerization of the Survey's historical weather records was begun.

In 1951, the Survey moved from Noyes Laboratory, its home for forty-four years, to the Water Resources Building. Population growth in the late 1950s and 1960s created the need for expanded water resources, and the Water Survey attempted to identify and increase usable supplies. Studies addressed reservoir development and maintenance, new methods for evaluating wells and aquifers, and the effects of future development. A statewide network of observation wells was established, and investigations of ground-water resources in the Chicago and East St. Louis areas led to a comprehensive inventory of the state's principal ground-water formations.

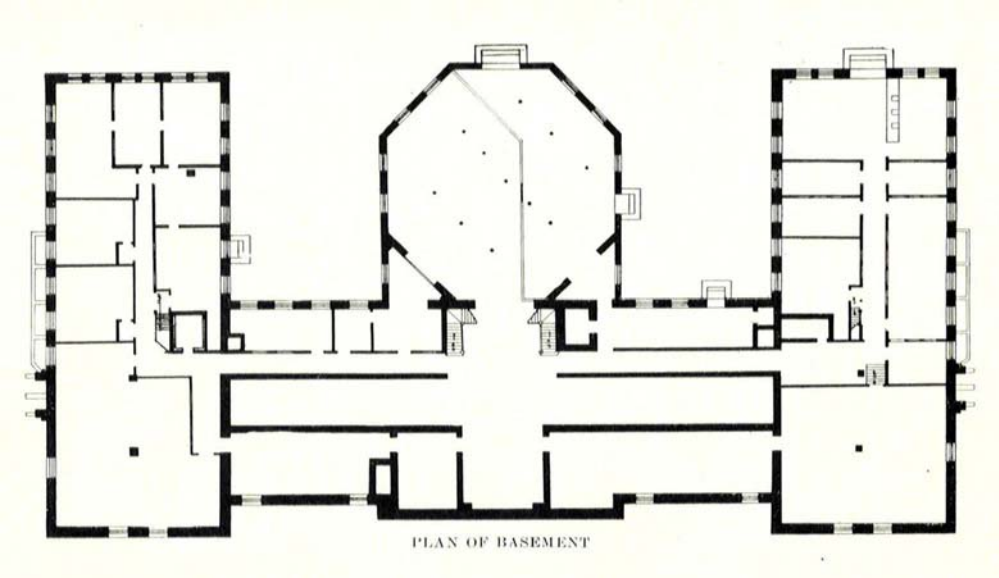
Since 1995, the Water Survey has been a division of the Department of Natural Resources. Support for scientific programs includes a state appropriation and income from grants and contracts with various Illinois state agencies, municipal groups, universities, private organizations and businesses, and various federal agencies. The Water Survey cooperates with all agencies concerned with the water and weather of Illinois.

1. Illinois State Water Survey Website http://www.sws.uiuc.edu/
2. Hays, Robert G. *State Science in Illinois The Scientific Surveys, 1850-1978;* Southern Illinois University Press: 1980.
3. *University of Illinois Bulletin: University of Illinois Circular of Information of the Department of Chemistry* **XIII** (*25*), **February 21, 1916**, 25-27.

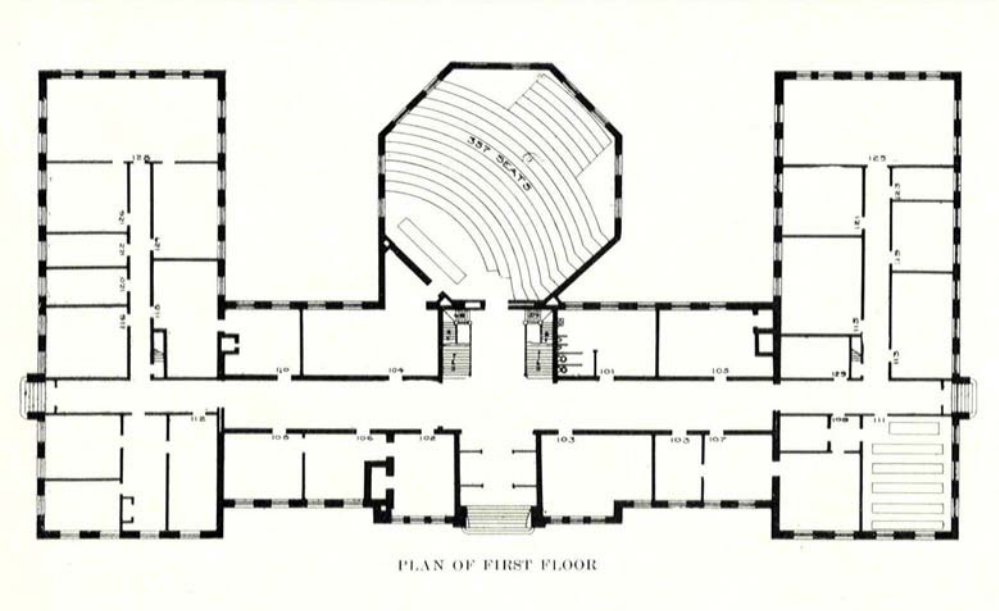
Appendix II: Noyes Laboratory Floor Plans

A. From *The Study of Chemistry at the University of Illinois Urbana, Illinois 1907*; Gazette Press: 1907.
B. From *University of Illinois Bulletin: University of Illinois Circular of Information of the Department of Chemistry* **XIII** (*25*), **February 21, 1916**, 33-37.
C. From Current Maps Posted in Noyes Laboratory

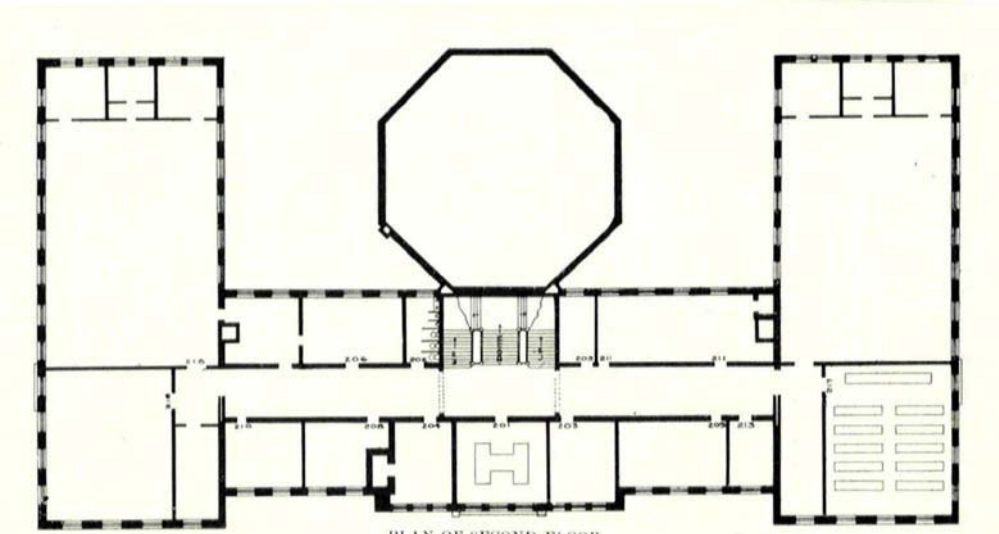
A. From *The Study of Chemistry at the University of Illinois Urbana, Illinois 1907*; Gazette Press: 1907.



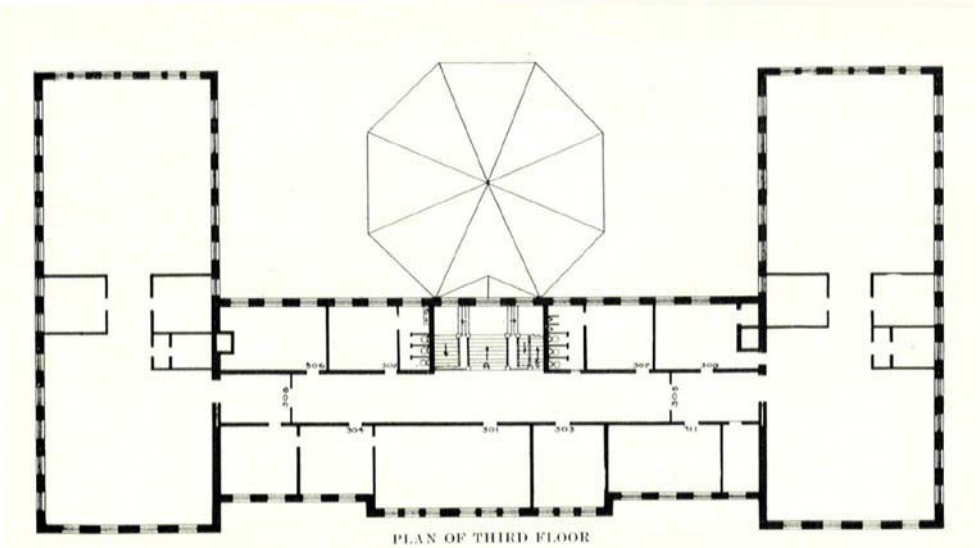
PLAN OF BASEMENT



PLAN OF FIRST FLOOR

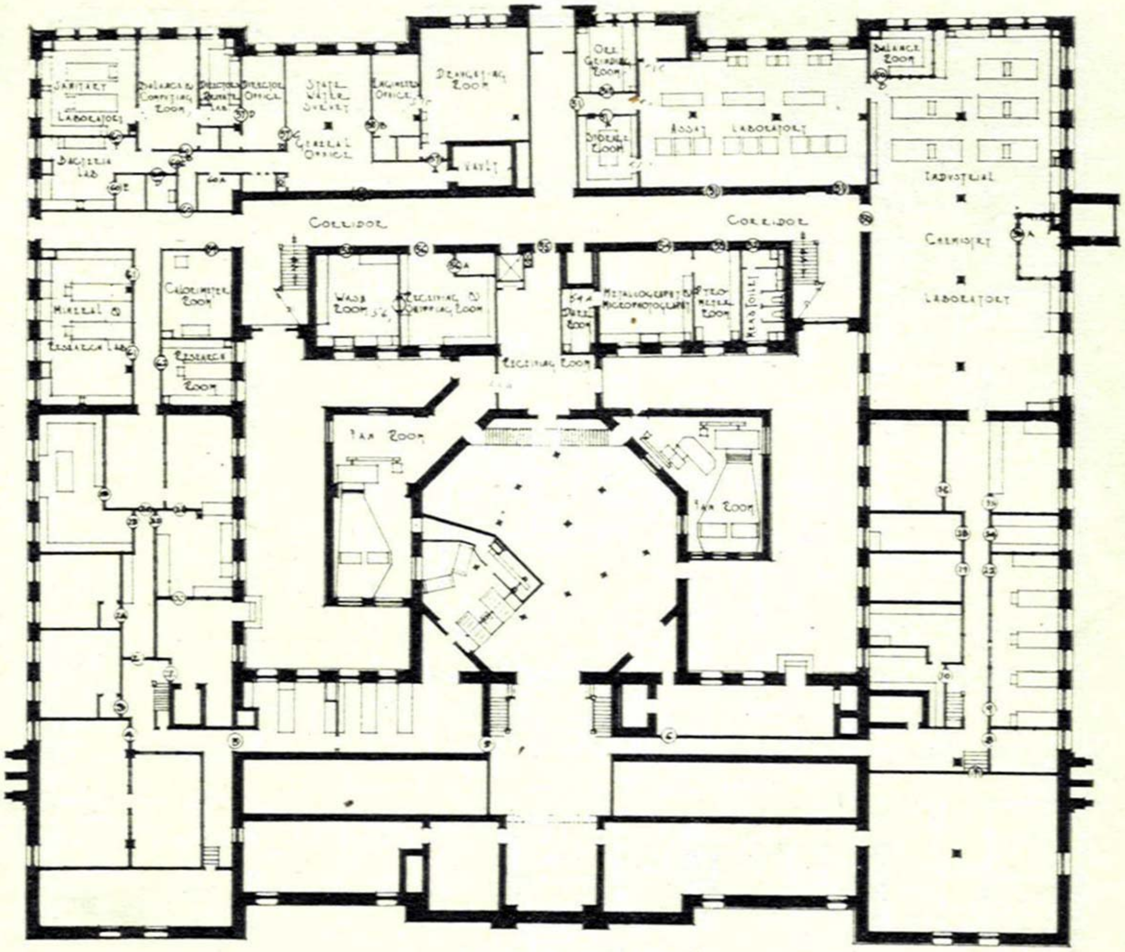


PLAN OF SECOND FLOOR



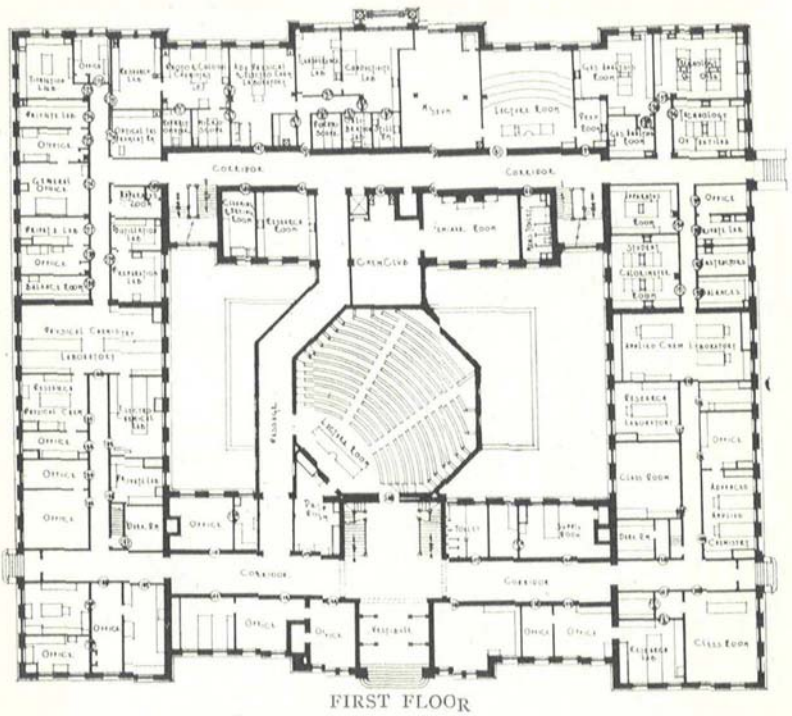
PLAN OF THIRD FLOOR

From *University of Illinois Bulletin: University of Illinois Circular of Information of the Department of Chemistry* **XIII** (*25*), **February 21, 1916**, 33-37.



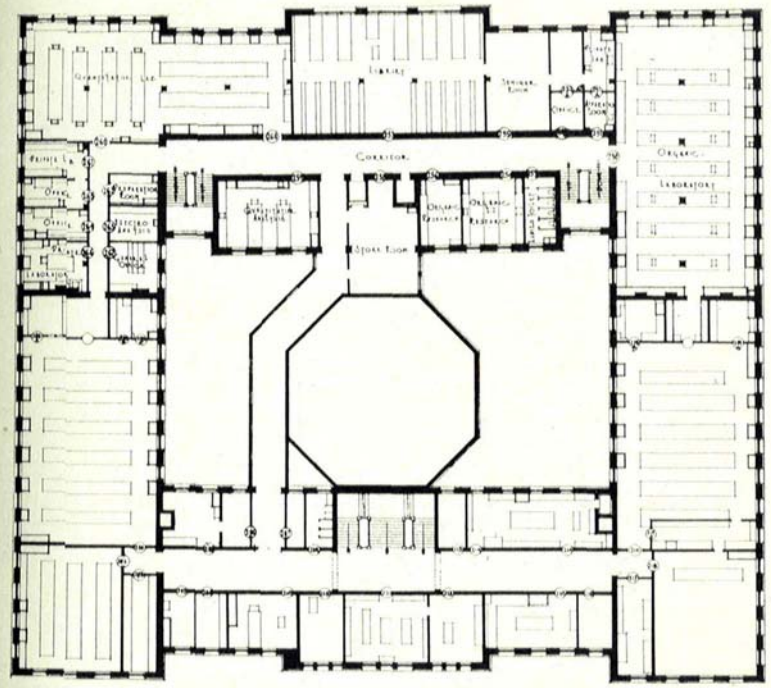
GROUND FLOOR

State Water Survey, Industrial Chemistry, Ventilation System



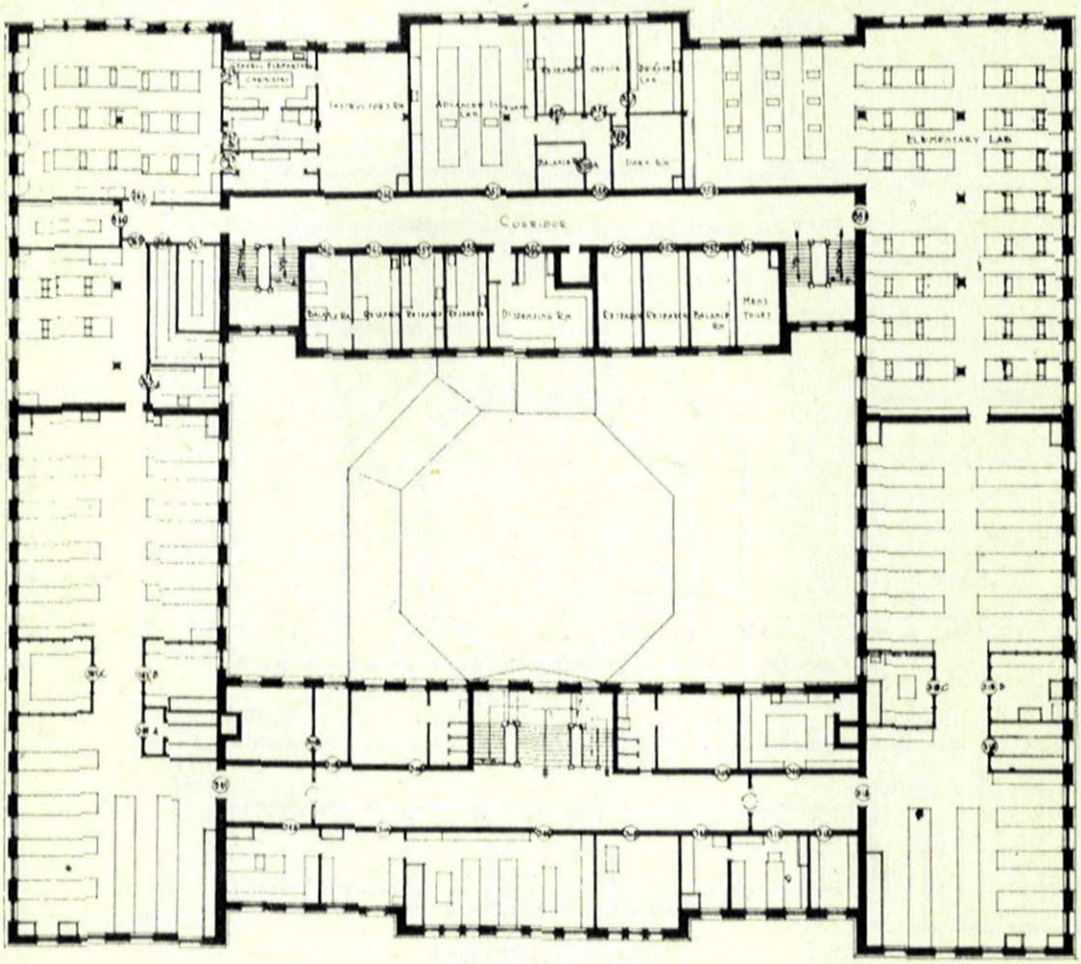
FIRST FLOOR

PHYSICAL AND INDUSTRIAL CHEMISTRY



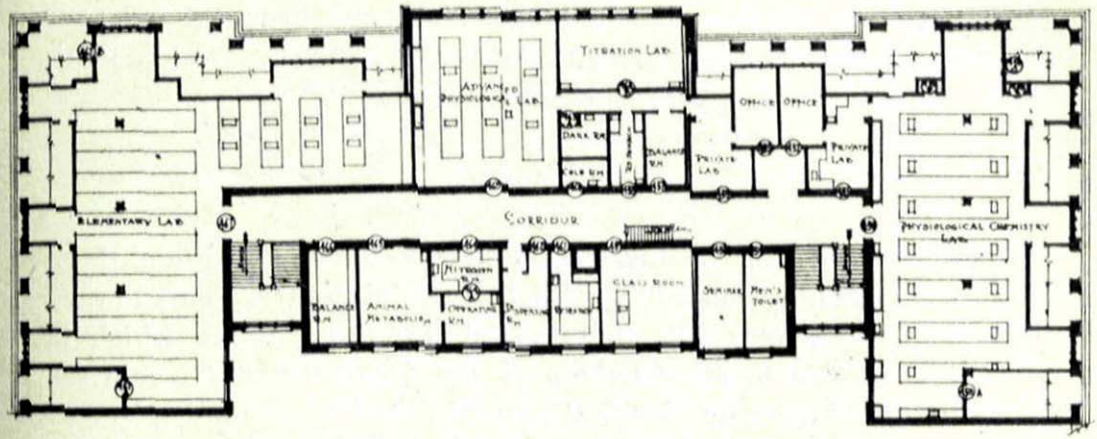
SECOND FLOOR

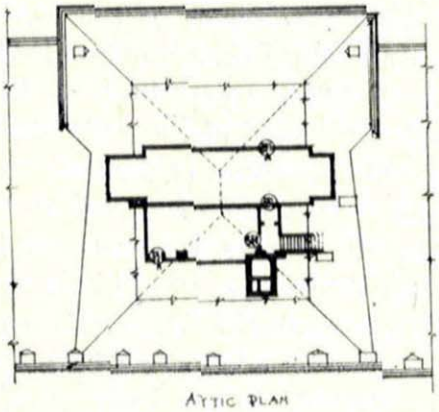
QUANTITATIVE ANALYSIS, ORGANIC CHEMISTRY



THIRD FLOOR

GENERAL CHEMISTRY, QUALITATIVE ANALYSIS, BACTERIOLOGY (TEMPORARY QUARTERS)





ATTIC PLAN

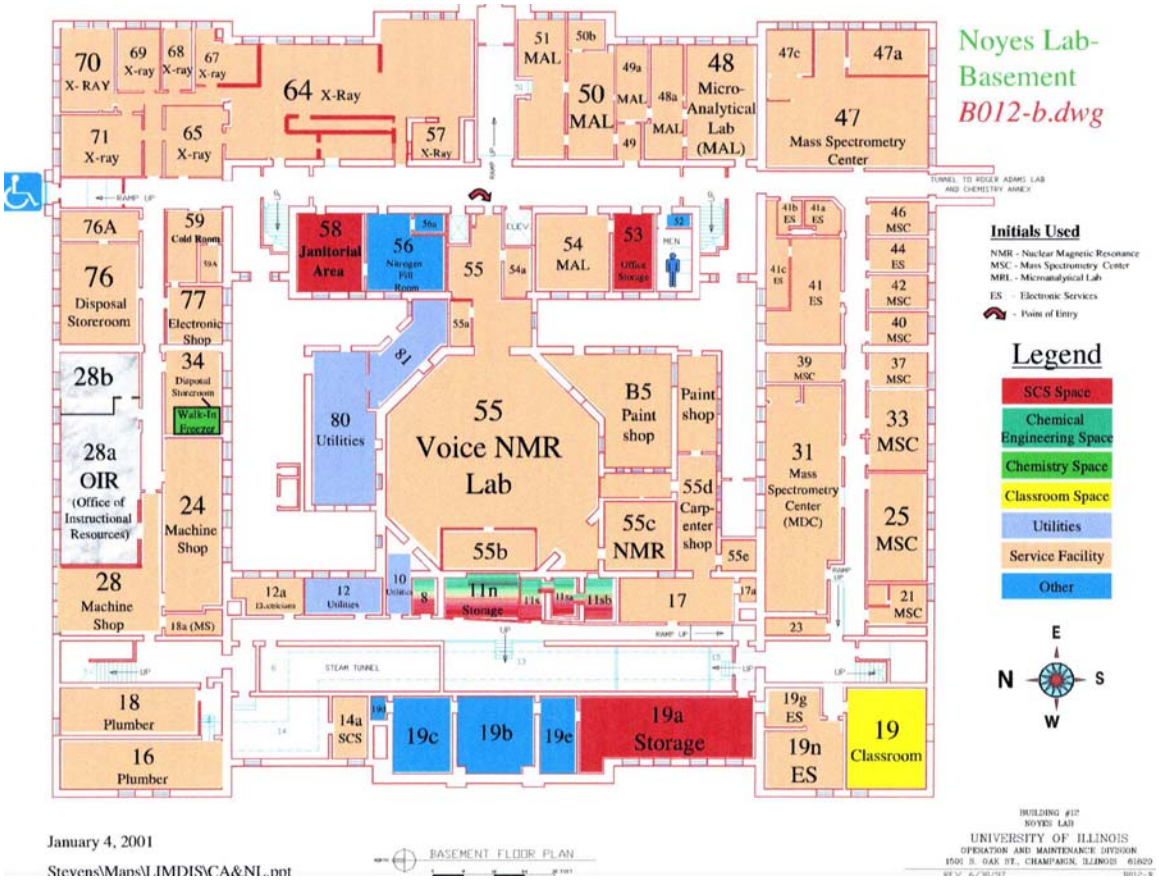
FOURTH FLOOR

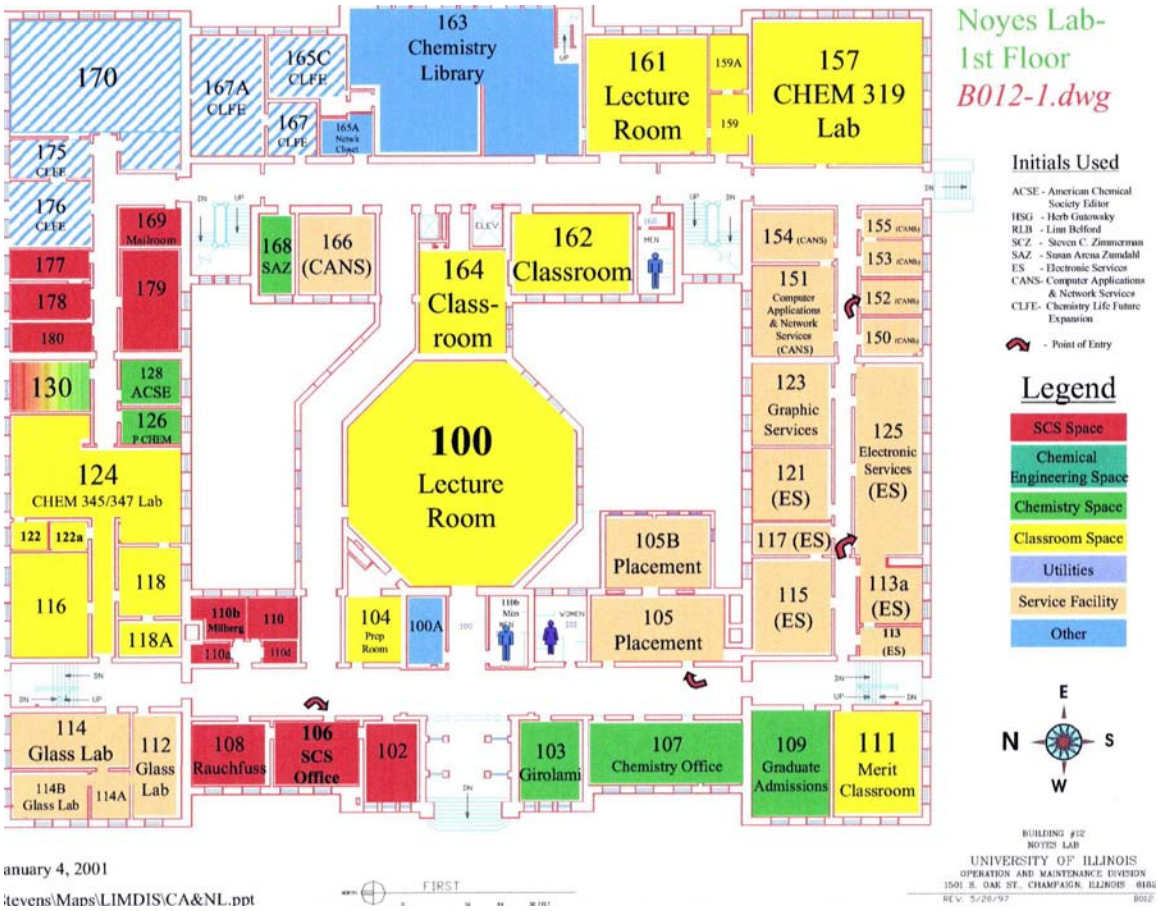
GENERAL AND PHYSIOLOGICAL CHEMISTRY

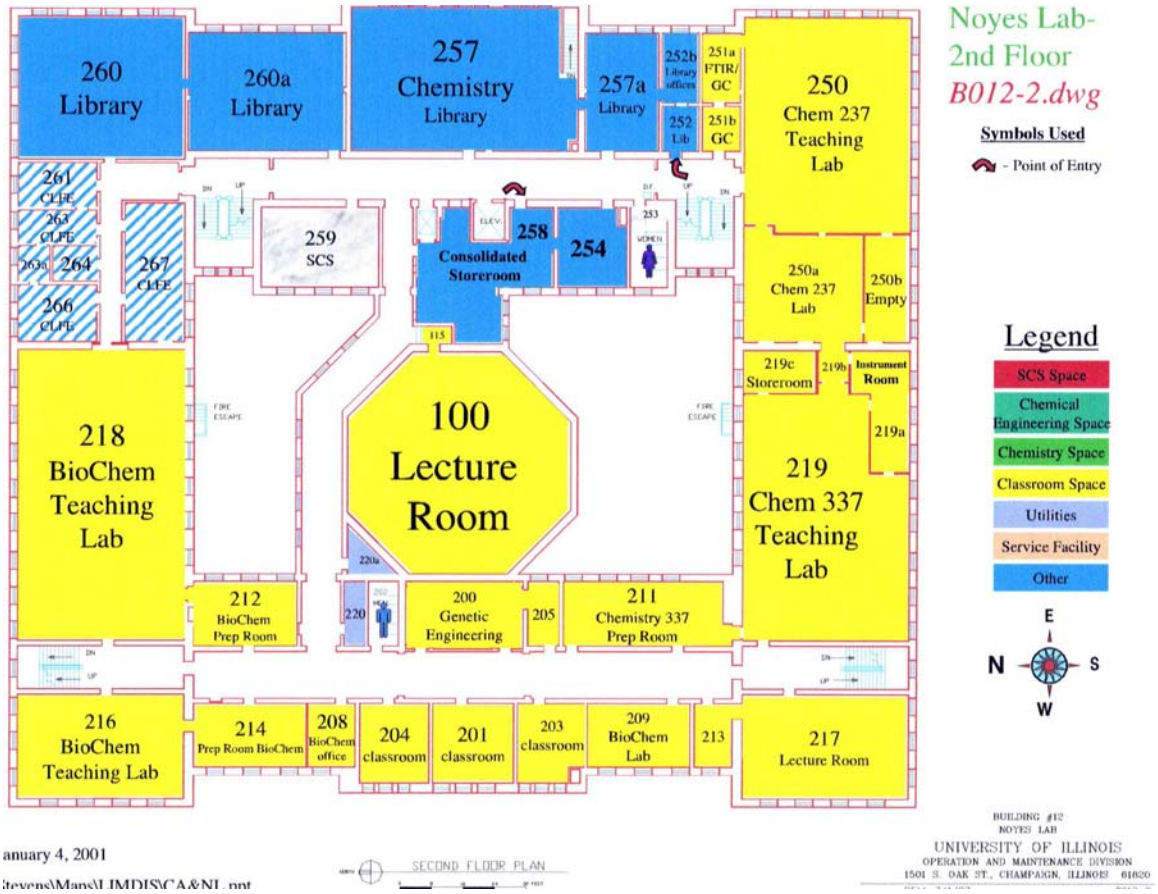
ATTIC

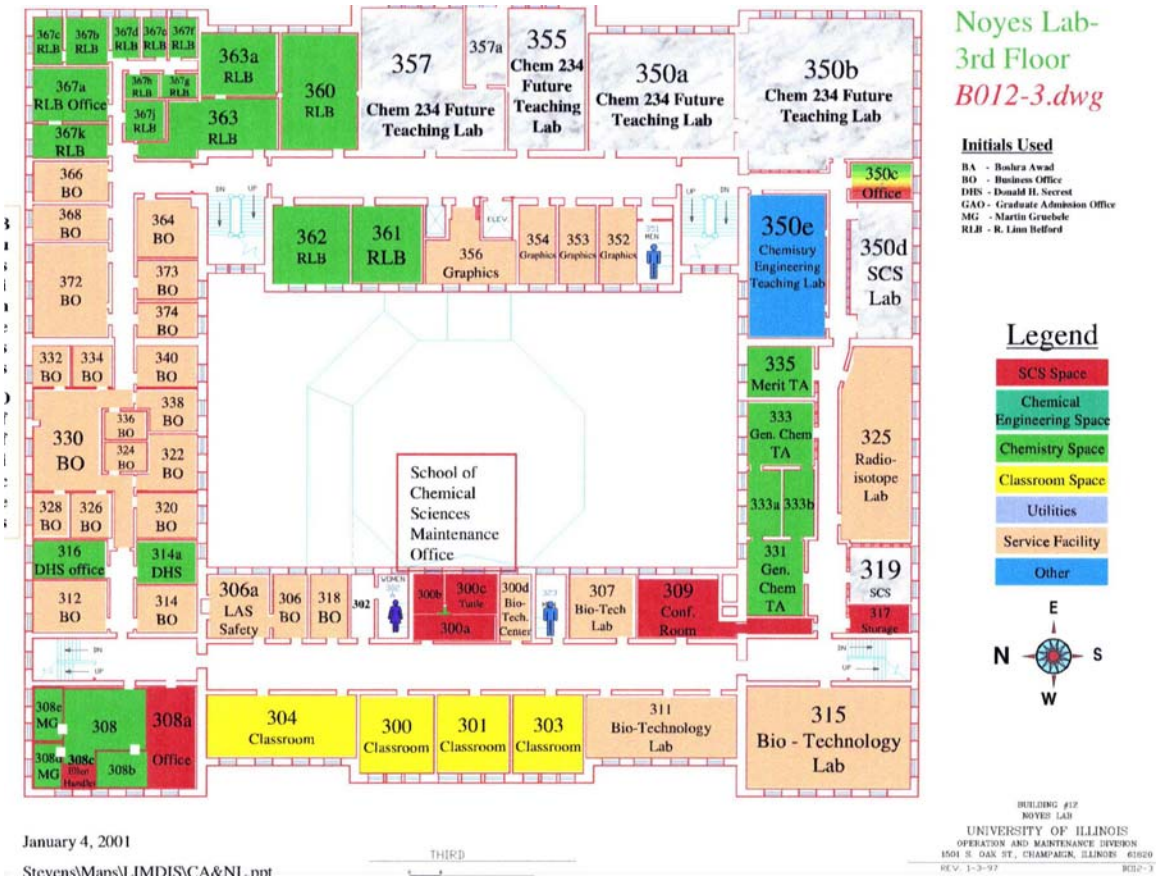
HYDROGEN SULFIDE, DISTILLED WATER

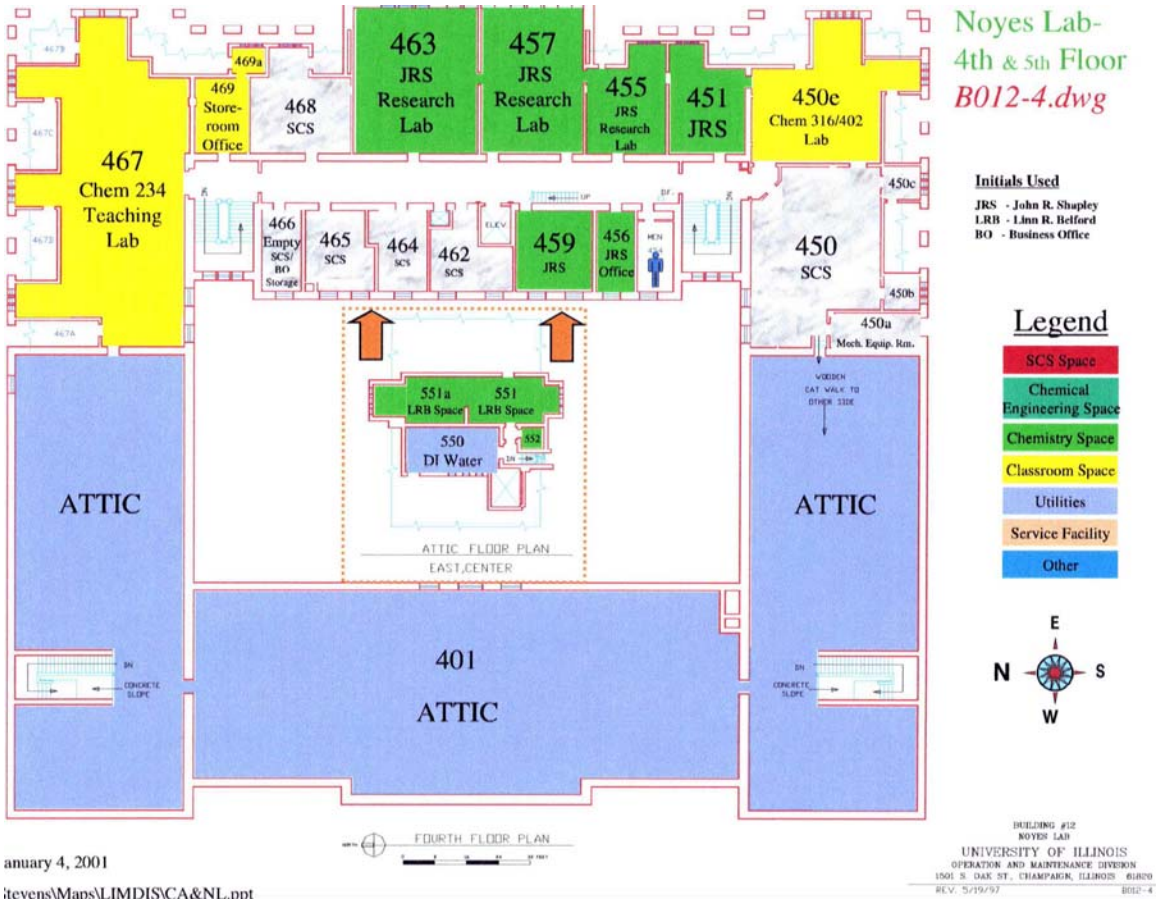
From Current Maps Posted in Noyes Laboratory




Noyes Lab-
1st Floor
B012-1.dwg
Initials Used
ACSE - American Chemical Society Editor
HSG - Herb Gutowsky
RLB - Linn Belford
SCZ - Steven C. Zimmerman
SAZ - Susan Arena Zumdahl
ES - Electronic Services
CANS- Computer Applications & Network Services
CLFE- Chemistry Life Future Expansion
- Point of Entry
Legend
SCS Space
Chemical Engineering Space
Chemistry Space
Classroom Space
Utilities
Service Facility
Other
163 Chemistry Library
161 Lecture Room
159A
159
157 CHEM 319 Lab
170
167A CLFE
165C CLFE
167 CLFE
165A Netwk Closet
175 CLFE
176 CLFE
177
178
180
169 Mailroom
179
168 SAZ
166 (CANS)
164 Class-room
162 Classroom
154 (CANS)
155 (CANS)
153 (CANS)
152 (CANS)
150 (CANS)
151 Computer Applications & Network Services (CANS)
130
128 ACSE
126 P CHEM
124 CHEM 345/347 Lab
100 Lecture Room
123 Graphic Services
121 (ES)
117 (ES)
115 (ES)
125 Electronic Services (ES)
113a (ES)
113 (ES)
105B Placement
105 Placement
122
122a
116
118
118A
110b Milberg
110
110a
110d
104 Prep Room
100A
114 Glass Lab
114B Glass Lab
114A
112 Glass Lab
108 Rauchfuss
106 SCS Office
102
103 Girolami
107 Chemistry Office
109 Graduate Admissions
111 Merit Classroom
E
N
S
W
FIRST
anuary 4, 2001
tevens\Maps\LIMDIS\CA&NL.ppt
BUILDING #12
NOYES LAB
UNIVERSITY OF ILLINOIS
OPERATION AND MAINTENANCE DIVISION
1501 S. OAK ST., CHAMPAIGN, ILLINOIS 6182
REV: 5/20/97
B012


Noyes Lab-
2nd Floor
B012-2.dwg
Symbols Used
- Point of Entry
260 Library
260a Library
257 Chemistry Library
257a Library
252b Library offices
251a FTIR/ GC
252 Lib
251b GC
250 Chem 237 Teaching Lab
261 CLFE
263 CLFE
263a
264
266 CLFE
267 CLFE
259 SCS
258 Consolidated Storeroom
254
253
250a Chem 237 Lab
250b Empty
115
219c Storeroom
219b
Instrument Room
219a
218 BioChem Teaching Lab
100 Lecture Room
219 Chem 337 Teaching Lab
220a
220
212 BioChem Prep Room
200 Genetic Engineering
205
211 Chemistry 337 Prep Room
216 BioChem Teaching Lab
214 Prep Room BioChem
208 BioChem office
204 classroom
201 classroom
203 classroom
209 BioChem Lab
213
217 Lecture Room
Legend
SCS Space
Chemical Engineering Space
Chemistry Space
Classroom Space
Utilities
Service Facility
Other
E
N
S
W
anuary 4, 2001
SECOND FLOOR PLAN
BUILDING #12
NOYES LAB
UNIVERSITY OF ILLINOIS
OPERATION AND MAINTENANCE DIVISION
1501 S. OAK ST., CHAMPAIGN, ILLINOIS 61820


Noyes Lab-
3rd Floor
B012-3.dwg
Initials Used
BA - Boulra Awad
BO - Business Office
DHS - Donald H. Secrest
GAO - Graduate Admission Office
MG - Martin Gruebele
RLB - R. Linn Belford
Legend
SCS Space
Chemical Engineering Space
Chemistry Space
Classroom Space
Utilities
Service Facility
Other
N
E
S
W
357
Chem 234 Future Teaching Lab
355
Chem 234 Future Teaching Lab
350a
Chem 234 Future Teaching Lab
350b
Chem 234 Future Teaching Lab
350e
Chemistry Engineering Teaching Lab
350d
SCS Lab
325
Radio-isotope Lab
319
SCS
317
Storage
335
Merit TA
333
Gen. Chem TA
331
Gen. Chem TA
309
Conf. Room
307
Bio-Tech Lab
315
Bio - Technology Lab
311
Bio-Technology Lab
304
Classroom
300
Classroom
301
Classroom
303
Classroom
School of Chemical Sciences Maintenance Office
January 4, 2001
UNIVERSITY OF ILLINOIS

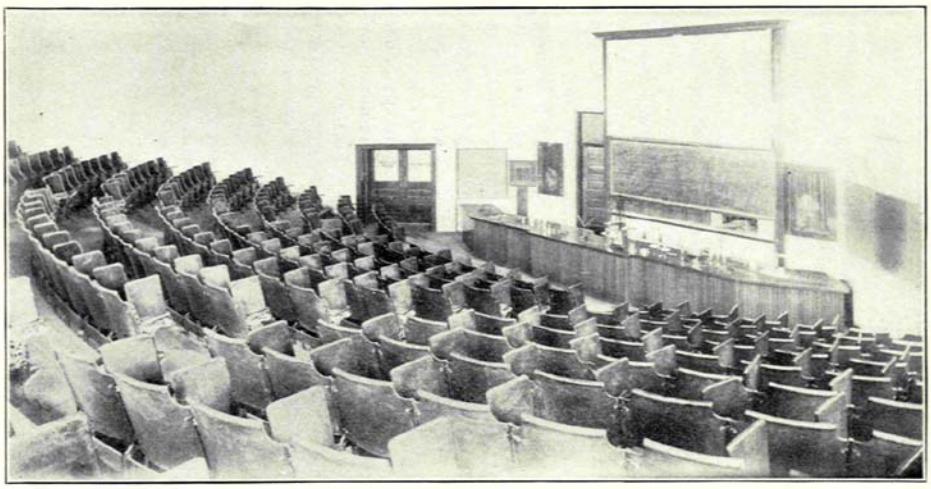


anuary 4, 2001

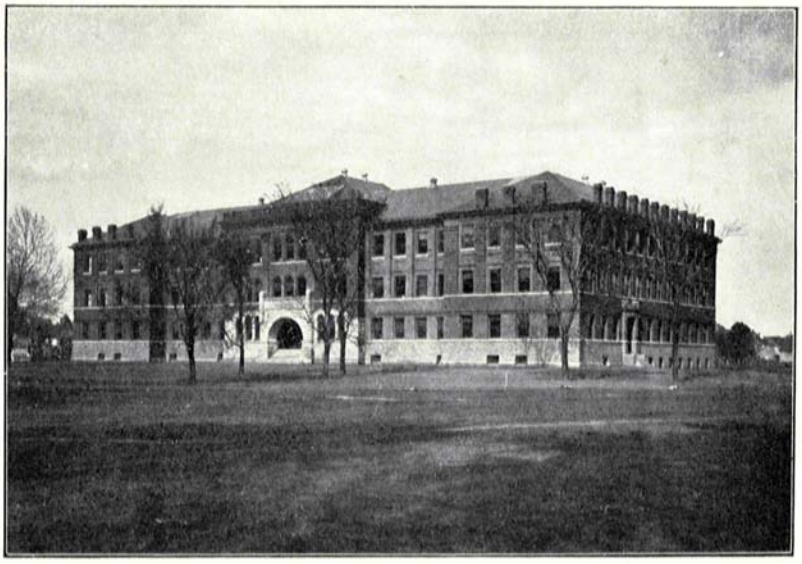
itevens\Maps\LIMDIS\CA&NL.ppt

Appendix III: Reproductions of Assorted Photographs

From *The Study of Chemistry at the University of Illinois Urbana, Illinois 1907*: Gazette Press: 1907.

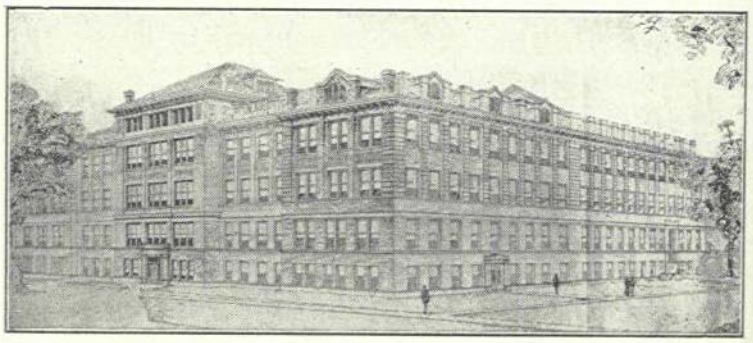


CHEMISTRY LECTURE ROOM

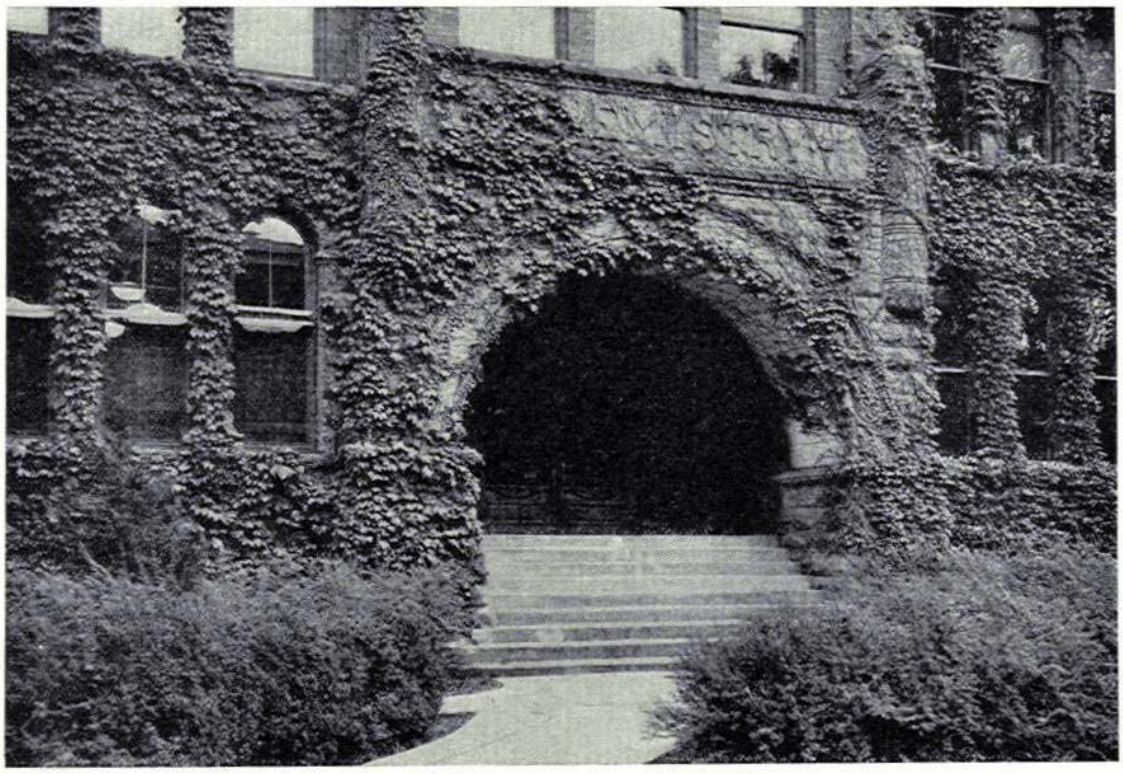


FRONT VIEW OF CHEMICAL LABORATORY

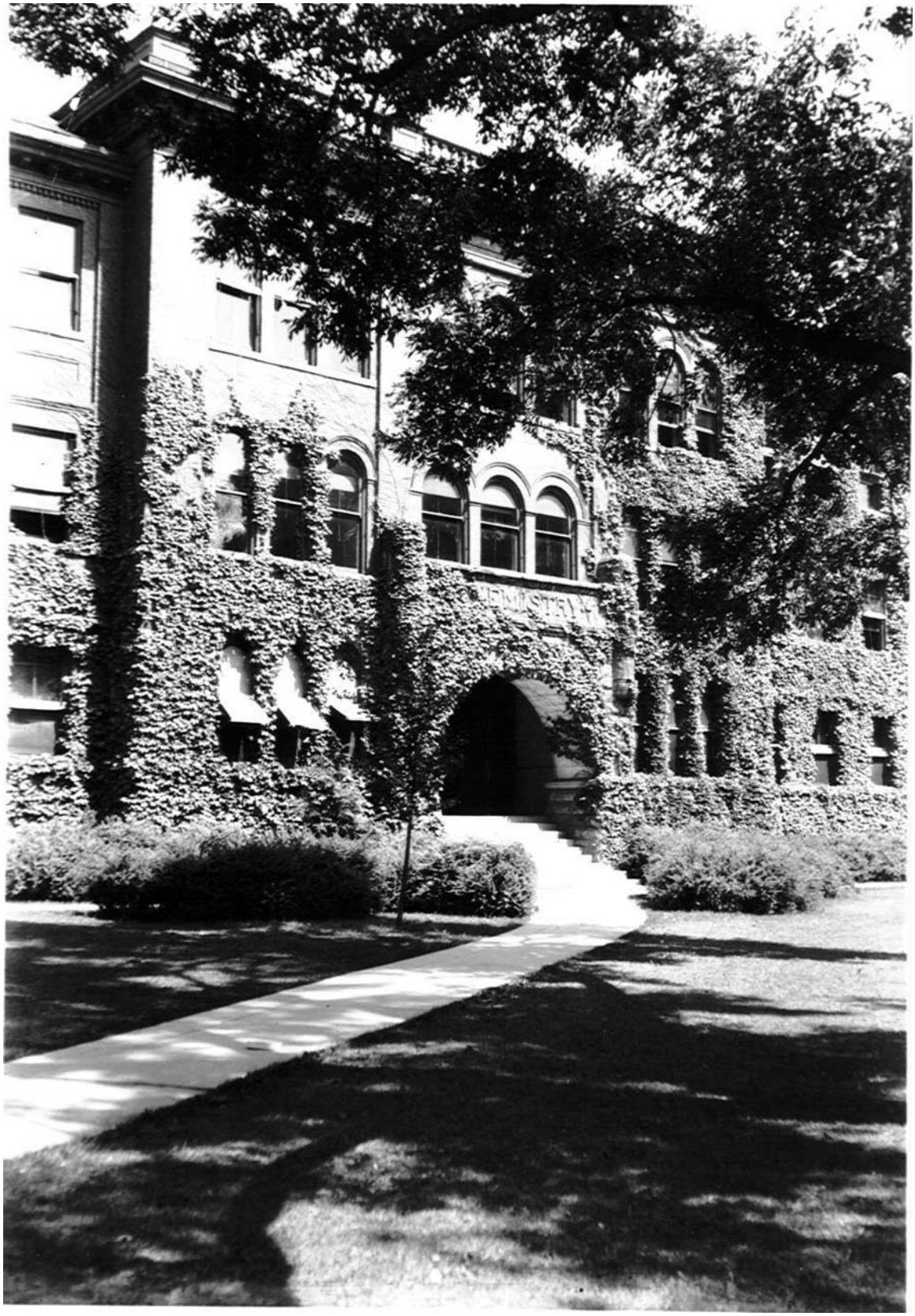
From *The Study of Chemistry at the University of Illinois Urbana, Illinois 1907*: Gazette Press: 1907.



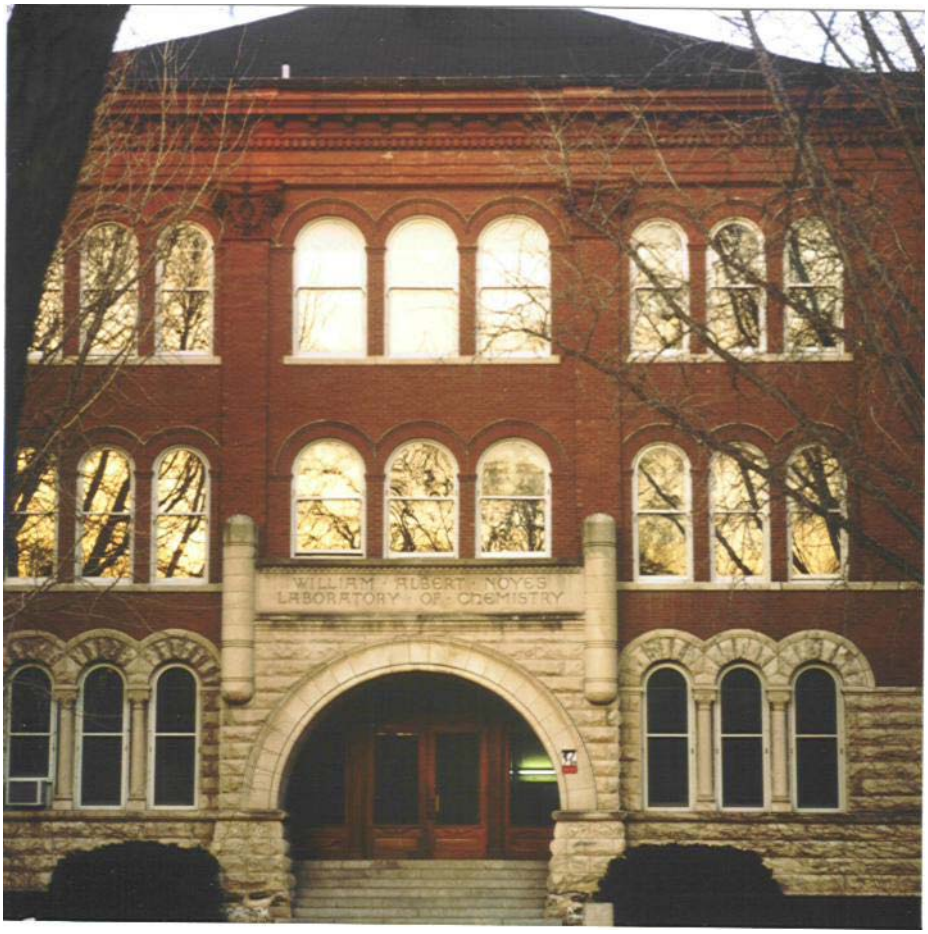
Sketch of the Chemical Laboratory of the University of Illinois as it is to be completed with the addition. Length, 231 feet; depth, 202 feet; 164,288 square feet of usable space.



ENTRANCE TO THE CHEMISTRY BUILDING




WILLIAM · ALBERT · NOYES
LABORATORY · OF · CHEMISTRY


WILLIAM ALBERT NOYES
LABORATORY OF CHEMISTRY

Appendix IV: University of Illinois Instructional Staff 1867 - 2001

Those cells highlighted in yellow are known to be deceased, but with unknown death dates.

University of Illinois Instructional Staff 1867 - 2001

Name	Years of Service	Department	Division	Dates	Degree	Year	Place
Adams, Roger	1916-1957	Chemistry	Organic	1889-1971	PhD	1912	Harvard
Alexander, Elliot Ritchie	1946-1950	Chemistry	Organic	1920-1950	PhD	1944	Columbia
Alexander, Lloyd George	1947-1950	ChemEng					
Alkire, Richard Collin	1969-	ChemEng		1941-	PhD	1968	Berkeley
Anderegg, Frederick Osband	1916-1918	Chemistry	Physical	1887-	PhD	1915	Harvard
Anders, Edward	1954-1955	Chemistry	Analytical	1926-	PhD	1954	Columbia
Applequist, Douglas Einer	1955-1986	Chemistry	Organic	1930-	PhD	1955	CalTech
Arduengo, Anthony J. III	1979-1981	Chemistry	Organic	1952-	PhD	1976	Georgia Tech
Audrieth, Ludwig Frederick	1928-1961	Chemistry	Inorganic	1901-1967	PhD	1926	Cornell
Austin, Miner Manly	1922-1926	Chemistry	Applied	1892-	PhD	1920	Illinois
Avery, James Paul	1979-1981	Chemistry	Analytical	1950-	PhD	1978	Illinois
Baer, Eric	1960-1962	ChemEng		1932-	PhD	1957	Johns Hopkins
Bailar, John Christian, Jr.	1928-1991	Chemistry	Inorganic	1904-1991	PhD	1928	Michigan
Baker, Gerald Clifford	1917-1920	Chemistry	Sanitary	1894-1950	PhD	1922	Iowa State
Baldwin, John Edwin	1962-1968	Chemistry	Organic	1937-	PhD	1963	CalTech
Baldwin, Thomas Oakley	1975-1981	Biochem		1947-	PhD	1971	Texas Austin
Balke, Clarence William	1906-1916	Chemistry	Inorganic	1880-1948	PhD	1905	Penn
Ball, Theodore Rolly	1916-1917	Chemistry	Inorganic	1883-	PhD	1916	Illinois
Bardeen, Christopher J.	1999-	Chemistry	Physical		PhD	1995	Berkeley
Barefield, Edward Kent	1970-1976	Chemistry	Inorganic	1943-	PhD	1969	Ohio State
Baron, Thomas	1948-1951	ChemEng		1921-1985	PhD	1948	Illinois
Bartow, Edward	1905-1920	Chemistry	Sanitary	1870-1958	PhD	1895	Göttingen
Bartow, Virginia	1925-1962	Chemistry	Inorganic	1896-1976	PhD	1923	Illinois
Bates, Robert Brown	1958-1963	Chemistry	Organic	1933-	PhD	1957	Wisconsin-Madison
Bates, Stuart Jeffery	1913-1914	Chemistry	Physical	1887-	PhD	1912	Illinois
Baumgarten, Ronald Joseph	1965-1966	Chemistry	Organic	1935-	PhD	1962	Johns Hopkins
Beak, Peter	1961-	Chemistry	Organic	1936-	PhD	1961	Iowa State
Beal, George Denton	1915-1926	Chemistry	Analytical	1887-1972	PhD	1911	Columbia
Beal, James Hartley	1914-1918	Chemistry	Pharmaceutical	1861-1945	AB	1888	Scio College
Beattie, James Kenneth	1966-1971	Chemistry	Inorganic	1939-	PhD	1966	Northwestern
Belford, Rue Linn	1955-	Chemistry	Physical	1931-	PhD	1955	Berkeley
Belmont, Andrew		Biochem		1956-	PhD	1983	Temple
Berkowitz, Joseph	1959-1960	Chemistry	Physical	1930-	PhD	1955	Harvard
Bertin, Eugene P.	1952-1953	Chemistry	Analytical	1921-	PhD	1952	Illinois
Billman, John Henry	1937-1939	Chemistry	Organic	1912-	PhD	1937	Princeton
Birdwhistell, Ralph Kenton	1962-1963	Chemistry	Inorganic	1924-	PhD	1953	Kansas
Birks, John William	1974-1977	Chemistry	Physical/Analytical	1946-	PhD	1974	Berkeley
Bloomfield, Victor Alfred	1964-1970	Chemistry	Biophysical	1938-	PhD	1962	Wisconsin-Madison
Boekelheide, Virgil Carl	1943-1946	Chemistry	Organic	1919-	PhD	1943	Minnesota
Bohn, Paul W.	1985-	Chemistry	Analytical	1955-	PhD	1981	Wisconsin-Madison

Braatz, Richard Dean		ChemEng		1966-	PhD	1993	CalTech
Bradley, Manson James	1921-1926	ChemEng		1887-	PhD	1921	Illinois
Brady, Leonard Everett	1961-1964	Chemistry	Organic	1928-	PhD	1958	Michigan State
Braley, Silas Alonzo	1917-1927	Chemistry	Analytical	1889-	PhD	1917	Illinois
Breiland, William George	1979	Chemistry	Chemical Physics	1948-	PhD	1975	Berkeley
Broderson, Henry John	1913-1917			1883-	PhD	1913	Cornell
Broka, Chris Allen	1985-1987	Chemistry	Organic	1956-	PhD	1984	UC San Diego
Brooks, Floyd Leslie Jr.	1961-1964	Chemistry	Physical		PhD	1961	Washington
Broquist, Harry Pearson	1958-1969	Biochem		1919-	PhD	1949	Wisconsin-Madison
Brosemer, Ronald Webster	1962-1963	Biochem		1934-	PhD	1960	Illinois
Brown, Theodore Lawrence	1956-	Chemistry	Inorganic	1928-	PhD	1956	Michigan State
Brownlee, James Lawton Jr.	1960-1970	Chemistry	Analytical	1932-	PhD	1960	Michigan
Bryan, Thomas Joseph	1903-1906	Chemistry	Nutrition (?)	1869-	PhD	1901	Freiburg
Buddenbaum, Warren Edward	1965-1967						
Burgess, Laurie Lorne	1909-1912	Chemistry	Analytical	1882-	PhD	1909	Harvard
Burmeister, John Luther	1963-1964	Chemistry	Inorganic	1938-	PhD	1964	Northwestern
Bushey, Gordon Lake	1948-1951	Chemistry	Inorganic	1922-	PhD	1948	Rice
Buswell, Arthur Moses	1920-1955	Chemistry	Sanitary	1888-1966	PhD	1917	Columbia
Cameron, Edmond Simon	1963-						
Campanelli, James T.		Biochem		1962-	PhD	1994	Stanford
Campbell, William Munro	1947-1950	ChemEng		1915-	PhD	1950	Illinois
Cann, Jessie Yereance	1914-1918	Chemistry	Physical	1883-	PhD	1911	Columbia
Carlin, Robert Burnell	1942-1943	Chemistry	Organic	1916-	PhD	1941	Minnesota
Carothers, Wallace Hume	1924-1926	Chemistry	Organic	1896-1937	PhD		Illinois
Carter, Herbert Edmund	1932-1981	Biochem		1910-	PhD	1934	Illinois
Carver, Emmett Kirkendall	1921-1924	Chemistry	Physical	1893-	PhD	1917	Harvard
Cavanaugh, Edward Francis	1960-1966	Chemistry	GenChem	1921-	MS	1953	Northwestern
Chandler, David	1970-1983	Chemistry	Chemical Physics	1944-	PhD	1969	Harvard
Chiang, Cheng-Ming		Biochem		1961-	PhD	1991	Rochester
Churchill, Mair E. A.		Biochem		1959-	PhD	1988	Johns Hopkins
Ciereszko, Leon Stanley, Sr.	1946-1948	Biochem		1917-	PhD	1942	Yale
Clark, George Lindenberg	1927-1960	Chemistry	Analytical	1892-1969	PhD	1918	Chicago
Clark, John Magruder Jr.	1958-	Biochem		1932-	PhD	1958	CalTech
Clark, Samuel C.	1905-1910						
Coates, Robert Mercer	1965-	Chemistry	Organic	1938-	PhD	1964	Berkeley
Comings, Edward Walter	1936-1951	ChemEng		1908-	ScD	1934	MIT
Conrad, Harry Edward	1960-1972	Biochem		1929-	PhD	1954	Purdue
Cook, Kelsey Donald	1978-1984	Chemistry	Analytical	1952-	PhD	1978	Wisconsin-Madison
Copley, Michael Joseph	1929-1939	Chemistry	Physical	1898-1988	PhD	1929	Illinois
Corey, Elias James	1951-1959	Chemisty	Organic	1928-	PhD	1950	MIT
Corson, Harry Peach	1910-1915	Chemistry	Sanitary	1887-1972	PhD	1915	Illinois
Cox, Gerald Judy	1925-1929	Chemistry	Physiological	1895-	PhD	1925	Illinois
Crofts, Anthony R.	1978-	Biochem		1940-	PhD	1965	Cambridge
Cronan,John Emerson, Jr.	1978-	Biochem		1942-	PhD	1968	UC Irvine

Curtin, David Yarrow	1951-1988	Chemistry	Organic	1920-	PhD	1945	Illinois
Curtiss, Richard Sydney	1904-1912	Chemistry	Organic	1864-	PhD	1892	Wurzburg
Deem, Arden Garrell	1938-1945	ChemEng		1908-	PhD	1934	Illinois
Dehn, William Maurice	1900-1907	Chemistry	Organic	1872-	PhD	1903	Illinois
Deming, Horace Groce	1916-1918	Chemistry	Physical	1885-	PhD	1911	Wisconsin-Madison
Denmark, Scott Eric	1981-	Chemistry	Organic	1953-	DSciTech	1980	ETH-Zurich
Denning, Robert Gordon	1966-	Chemistry	Inorganic	1938-	PhD	1965	Illinois
Derick, Clarence George	1907-1916	Chemistry	Organic	1883-	PhD	1910	Illinois
Dickerson, Richard Earl	1959-1963	Chemistry	Physical	1931-	PhD	1957	Minnesota
Dietrichson, Gerhard	1917-1925	Chemistry	Physical	1884-	PhD	1914	Wisconsin-Madison
Dlott, Dana D.	1979-	Chemistry	Physical	1952-	PhD	1979	Stanford
Drago, Russell Stephen	1955-1981	Chemistry	Inorganic	1928-1997	PhD	1954	Ohio State
Drickamer, Harry George	1946-	ChemEng		1918-	PhD	1946	Michigan
Driggs, Frank Howard	1924-1927	Chemistry	Inorganic	1895-	PhD	1924	Illinois
Du Vigneaud, Vincent	1929-1932	Chemistry	Physiological	1901-1978	PhD	1927	Rochester
Duffield, Robert Brokaw	1946-1956	Chemistry	Physical		PhD	1943	Berkeley
Durham, George Stone	1941-1943	Chemistry	Physical	1912-	PhD	1939	New York Univ.
Dus, Karl Maria	1968-1973	Biochem		1932-	PhD	1958	Vienna
Dykstra, Clifford Elliot	1977-1988	Chemistry	Theoretical	1952-	PhD	1976	Berkeley
Eastlack, Herbert Eugene	1916-1918	Chemistry	Inorganic	1890-	PhD	1916	Columbia
Ebrey, Thomas G.	1973-	Biochem		1941-	PhD	1968	Chicago
Eckert, Charles Alan	1965-1989	ChemEng		1938-	PhD	1964	Berkeley
Eddy, Charles Roland	1938-1941	Chemistry	Physical	1914-	PhD	1938	Illinois
Elder, Lucius William Jr.	1927-1930	Chemistry	Physical	1900-	PhD	1926	Harvard
Emerson, William Stevenson	1938-1941	Chemistry	Organic	1913-	PhD	1937	MIT
Engelder, Carl John	1917-1918	Chemistry	Analytical	1890-	PhD	1917	Cornell
Engle, Edgar Wallace	1916-1917	Chemistry	Physical	Deceased	PhD	1916	Illinois
Englis, Duane Taylor	1918-1959	Chemistry	Analytical	1891-1974	PhD	1916	Illinois
Evans, Charles A. Jr.	1975-1978	Chemistry	Analytical	1942-	PhD	1968	Cornell
Faulkner, Larry Ray	1973-1995(?)	Chemistry	Analytical	1944-	PhD	1969	Texas Austin
Finn, Robert Karl	1949-1955	ChemEng		1920-	PhD	1949	Minnesota
Fischer, Robert Blanchard	1946-1948	Chemistry	Analytical	1920-	PhD	1946	Illinois
Flygare, Willis Horney	1961-1977	Chemistry	Chemical Physics	1936-1981	PhD	1961	Berkeley
Ford, Warren T.	1968-1975	Chemistry	Organic	1942-	PhD	1967	UC Los Angeles
Foster, Charles David Owen	1968-1972	Biochem		1938-	PhD	1967	Wisconsin-Madison
Fox, Jane	1981	Chemistry	Atmospheric	1952-	PhD	1978	Harvard
Frank, Robert Loeffler	1940-1950	Chemistry	Organic	1914-	PhD	1940	Wisconsin-Madison
Frauenfelder, Hans Emil	1987-1997(?)	Chemistry	Chemical Physics	1922-	PhD	1947	ETH-Zurich
Fuson, Reynold C.	1927-1963	Chemistry	Organic	1895-1979	PhD	1924	Minnesota
Garver, John Coarmany	1955-1957	ChemEng		1925-	PhD	1955	Wisconsin-Madison
Geller, David Melville	1958-1959	Biochem		1930-	PhD	1957	Harvard
Gellman, Andrew John	1987-1991	Chemistry	Physical	1960-	PhD	1985	Berkeley
Gennis, Robert Bennett	1973-	Chemistry	Biophysical	1944-	PhD	1971	Columbia
Gerlt, John A.		Biochem		1947-	PhD	1974	Harvard

Gewirth, Andrew A.	1989-	Chemistry	Inorganic	1959-	PhD	1987	Stanford
Gilman, Henry	1918-1919	Chemistry	Organic	1893-1986	PhD	1918	Harvard
Gilmour, Hugh Stewart Allen	1953-1955	Chemistry	Physical	1926-	PhD	1953	Utah
Gin, David Y.	1997-	Chemistry	Organic	1967-	PhD	1994	CalTech
Girolami, Gregory Scott	1983-	Chemistry	Inorganic	1956-	PhD	1981	Berkeley
Glaser, Michael	1974-	Biochem		1945-	PhD	1971	UC San Diego
Glasoe, Paul Kirkwold	1938-1940	Chemistry	Inorganic	1913-	PhD	1938	Wisconsin-Madison
Goodisman, Jerry	1963-1969	Chemistry	Physical	1939-	PhD	1963	Harvard
Gore, Robert Cummins	1937-1941	Chemistry	Physical	1907-	AM	1930	Indiana
Gorski, Jack	1961-1973	Biochem		1931-	PhD	1958	Washington State
Govindjee, M	1965-	Biochem		1933-	PhD	1960	Illinois
Grant, David Morris	1957-1958	Chemistry	Physical	1931-	PhD	1957	Utah
Greenfield, Robert Edman	1921-1926	Chemistry	Sanitary	1894-1977	PhD	1921	Illinois
Griffith, Esther Meryl	1943-1944	Chemistry	Organic	1898-	PhD	1930	Illinois
Grindley, Harry Sands	1888-1892; 1894-1929	Chemistry		1864-1955	DSc	1894	Harvard
Gross, Siegfried Theodore	1938-1943	Chemistry	Physical	1911-	PhD	1937	Illinois
Gruebele, Martin	1995-	Chemistry	Physical	1964-	PhD	1988	Berkeley
Gumport, Richard I.	1971-	Biochem		1937-	PhD	1968	Chicago
Gunsalus, Irwin Clyde	1950-1966	Biochem		1912-	PhD	1940	Cornell
Gupta, Vinay K.		ChemEng		1968-	PhD	1995	CalTech
Guss, Cyrus Omar	1960-1961	Chemistry	Organic	1911-	PhD	1940	Minnesota
Gutowsky, Herbert Sanders	1948-2000	Chemistry	Physical	1919-2000	PhD	1949	Harvard
Hager, Lowell Paul	1960-	Biochem		1926-	PhD	1953	Illinois
Haight, Gilbert Pierce Jr.	1966-1987	Chemistry	Inorganic	1922-	PhD	1947	Princeton
Hall, Benjamin Downs	1958-1963	Chemistry	Physical	1932-	PhD	1959	Harvard
Hammack, William Scott		ChemEng		1961-	PhD	1988	Illinois
Hanratty, Thomas Joseph	1953-	ChemEng		1926-	PhD	1953	Princeton
Hartley, Arnold Manchester	1955-1978	Chemistry	Analytical	1926-	PhD	1955	Harvard
Hastings, John Woodland	1957-1966	Biochem		1927-	PhD	1951	Princeton
Hatfield, William Durrell	1918-1919	Chemistry	Sanitary	1892-1980	PhD	1918	Illinois
Hawk, Philip Bovier	1907-1912	Chemistry	Physiological	1874-1966	PhD	1903	Columbia
Hecker, Charles Henry	1913-1916	ChemEng		1886-	PhD	1913	Cincinnati
Henderson, LaVell Merl	1948-1957	Biochem		1917-	PhD	1947	Wisconsin-Madison
Hendrickson, David Norman	1970-1988	Chemistry	Inorganic	1943-	PhD	1969	Berkeley
Herber, Rolfe H.	1955-1959			1927-	PhD	1952	Oregon State
Heuse, Edward Otto	1914-1915	Chemistry	Physical	1879-	PhD	1914	Illinois
Higdon, Jonathan Joseph Lee		ChemEng		1954-	PhD	1978	Cambridge
Hiller, Lejaren Arthur Jr.	1955-1958	Chemistry	Organic	1924-	PhD	1947	Princeton
Holmes, Willis Boit	1907-1910	Chemistry	Analytical	1873-	PhD	1899	Johns Hopkins
Hopkins, B. Smith	1912-1941	Chemistry	Inorganic	1873-1952	PhD	1906	Johns Hopkins
Hopkins, May Whitsitt	1943-1946; 1953-1954	Biochem		1890-	PhD	1930	Columbia
Horwitz, Alan Frederick	1987-	Biochem		1944-	PhD	1969	Stanford
Hougen, Joel Oliver	1946-1948	ChemEng		1914-	PhD	1948	Minnesota
Howard, Frank Charles	1926-1936			1896-	MS	1924	MIT

Howe, Paul Edward	1910-1912	Biochem		1885-1974	PhD	1910	Illinois
Hudson, John Lester	1963-1974	ChemEng		1937-	PhD	1962	Northwestern
Hummel, John Philip	1956-1989	Chemistry	Physical	1931-	PhD	1956	Berkeley
Hurd, Charles De Witt	1921-1924	Chemistry	Organic	1897-1998+E	PhD	1921	Princeton
Inskip, Harold Kirkwood	1950-1952	Chemistry	Organic	1922-	PhD	1952	Yale
Isham, Helen	1907-1912	Chemistry	Inorganic	1881-	PhD	1906	Cornell
Jacobsen, Eric	1989-1991(?)	Chemistry	Organic	1960-	PhD	1986	Berkeley
Jaehning, Judith Ann	1981-1985	Biochem		1950-	PhD	1977	Washington Univ.
Jakobsson, Eric Gunnar	1972-	Biochem		1938-	PhD	1969	Dartmouth
Jesse, Richard Henry Jr.	1909-1912	Chemistry	Applied	1884-1955	PhD	1909	Harvard
Jewell, Minna Ernestine	1918-1919	Biochem		1892-1985	PhD	1918	Illinois
Johnson, Carl Emil Jr.	1950-1952	Chemistry	Physical	1921-	PhD	1950	UC Los Angeles
Johnson, John Raven	1924-1927	Chemistry	Organic	1900-1983	PhD	1922	Illinois
Johnson, Laurence Crane					PhD	1915	Michigan
Johnson, Ralph Alton	1948-1955	Chemistry	Analytical	1919-	PhD	1949	Minnesota
Johnstone, Henry Fraser	1935-1962	ChemEng		1902-1962	PhD	1926	State Univ of Iowa
Jonas, Ana Masiulis	1972-2001	Biochem		1943-	PhD	1970	Illinois
Jonas, Jiri	1966-2001	Chemistry	Physical	1932-	PhD	1960	Czech Acad Sci
Jones, Grinnell	1908-1912	Chemistry	Physical	1884-1947	PhD	1908	Harvard
Jones, Mark Martin	1953-1955	Chemistry	Inorganic	1928-	PhD	1952	Kansas
Jones, William Howry	1948-1949	Chemistry	Organic	1920-	PhD	1947	MIT
Juvet, Richard Spaulding Jr.	1955-1970	Chemistry	Analytical	1930-	PhD	1955	UC Los Angeles
Kahn, Scott	1987-1989	Chemistry	Organic	1959-	PhD	1986	UC Irvine
Kamm, Oliver	1917-1920	Chemistry	Organic	1888-1965	PhD	1915	Illinois
Kaput, James		Biochem		1952-	PhD	1980	Colorado State
Karns, George Melvin	1925-1928	Chemistry	Physical	1899-1993	PhD	1925	Ohio State
Karplus, Martin	1955-1960	Chemistry	Physical	1930-	PhD	1953	CalTech
Karr, Timothy L.		Biochem		1953-	PhD	1981	UC Santa Barbara
Katzenellenbogen, John Albert	1969-	Chemistry	Organic	1944-	PhD	1969	Harvard
Kaufmann, Kenneth J.	1976-1980	Chemistry	Physical	1947-	PhD	1973	MIT
Kay, Jack Garvin	1959-1966	Chemistry	Inorganic	1930-	PhD	1960	Kansas
Keizer, Clifford Richard	1944-1946	Chemistry	Physical	1918-1998	PhD	1943	Illinois
Kelleher, Neil Linderstrom	1999-	Chemistry	Analytical	1970-1991	PhD	1997	Cornell
Keyes, Donald Babcock	1926-1945	ChemEng		1891-	PhD	1917	Berkeley
King, Aden Jackson	1927-1928	Chemistry	Physical	1897-	PhD	1927	Syracuse
Kistler, Samuel Stephens	1931-1935	Chemistry	Physical	1900-	PhD	1929	Stanford
Klemperer, Walter George	1981-	Chemistry	Inorganic	1947-	PhD	1973	MIT
Knight, Jere Donald	1947-1948	Chemistry	Physical	1916-	PhD	1948	Minnesota
Kozinski, Allen A.		ChemEng		1941-	PhD	1971	Wisconsin-Madison
Kranz, David Michael		Biochem		1953-	PhD	1982	Illinois
Krase, Norman William	1926-1936	ChemEng		1895-	PhD	1926	Yale
Kremers, Harry C.	1917-1918; 1920-1929	Chemistry	Inorganic	1865-	PhD	1890	Gottingen
Kuppermann, Aron	1955-1963	Chemistry	Physical	1926-	PhD	1956	Notre Dame
Lacy, Burritt Samuel	1908-1909	Chemistry	Industrial	1882-	PhD	1906	Harvard

Laitinen, Herbert August	1940-1973	Chemistry	Analytical	1915-1991	PhD	1940	Minnesota
Langdon, William Mondeng	1943-1946	ChemEng		1914-1992	PhD	1941	Illinois
Larner, Jospeh	1953-1957	Biochem		1921-	PhD	1951	Washington Univ.
Larson, Richard Scott		ChemEng		1954-	PhD	1980	Princeton
Lauffenburger, Douglas Alan	1984-	ChemEng		1953-	PhD	1979	Minnesota
Lauterbur, Paul Christian	1985-	Chemistry	Physical	1929-	PhD	1962	Pittsburgh
Layng, Thomas Ernest	1916-1929	Chemistry	Applied	1886-	PhD	1915	Illinois
Leaf, Boris	1943-1944	Chemistry	Physical	1919-	PhD	1942	Illinois
Leckband, Deborah Elaine		ChemEng		1959-	PhD	1988	Cornell
Lennox, Edwin Samuel	1956-1960	Biochem		1920-	PhD	1948	Cornell
Leonard, Nelson Jordon	1947-1986	Chemistry	Organic	1916-	PhD	1942	Columbia
Lewis, Clay	1942-1943						
Lewis, Howard Bishop	1915-1922	Chemistry	Physiological	1887-1954	PhD	1913	Yale
Lincoln, Azariah Thomas	1901-1908	Chemistry	Physical	1868-1958	PhD	1899	Wisconsin-Madison
Lisy, James M.	1981-	Chemistry	Physical	1952-	PhD	1979	Harvard
Lombardi, John Rocco	1967-1972	Chemistry	Physical	1941-	PhD	1967	Harvard
Loomis, Albert Geyer	1919-1920	Chemistry	Physical	1893-1985	PhD	1919	Berkeley
Lowstuter, William Robert	1967-1973	Chemistry	Organic	1913-	PhD	1940	Pittsburgh
Lu, Yi	1995-	Chemistry	Inorganic	1963-	PhD	1992	UC Los Angeles
MacInnes, Duncan Arthur	1911-1917	Chemistry	Physical	1885-1965	PhD	1911	Illinois
MacRoss, Robert	1949-1950						
Madson, William Hegland	1931-1933	Chemistry	Inorganic	1904-	PhD	1931	Wisconsin-Madison
Makri, Nancy	1995-	Chemistry	Physical	1962-	PhD	1989	Berkeley
Malmstadt, Howard Vincent	1951-1978	Chemistry	Analytical	1922-	PhD	1950	Wisconsin-Madison
Mangel, Walter Farrar		Biochem		1939-	PhD	1970	Illinois
Mantulin, William W.		Biochem		1946-	PhD	1972	Northeastern
Marcus, Rudolph Arthur	1964-1978	Chemistry	Physical	1923-	PhD	1946	McGill
Martin, Dean Frederick	1959-1964	Chemistry	Inorganic	1933-	PhD	1958	Penn State
Martin, Donald Ray	1943-1951	Chemistry	Inorganic	1915-	PhD	1941	Western Reserve
Martin, James Cullen	1956-1985	Chemistry	Organic	1928-	PhD	1956	Harvard
Martinez, Todd J.	1997-	Chemistry	Physical	1968-	PhD	1994	UC Los Angeles
Marvel, Carl Shipp	1920-1961	Chemistry	Organic	1894-1988	PhD	1920	Illinois
Masel, Richard Isaac	1978-	ChemEng		1951-	PhD	1977	Berkeley
Masterton, William Lewis	1953-1955	Chemistry	Physical	1927-	PhD	1953	Illinois
May, Walter Grant	1983-1991	ChemEng		1918-	ScD	1948	MIT
McArthur, Charles George	1912-1915	Biochem		1883-			
McCarthy, Ellen S.	1910-1913						
McClure, William Owen	1968-1975	Biochem		1937-	PhD	1964	Washington
McDonald, J. Douglas	1971-	Chemistry	Physical	1944-	PhD	1971	Rice
McFarland, David Ford	1910-1920	Chemistry	Industrial	1878-1955	PhD	1909	Yale
McHugh, Anthony Joseph		ChemEng		1943-	PhD	1972	Delaware
McMurtrie, William	1882-1888	Chemistry	Agricultural	1851-1913	PhD	1875	Lafayette College
Mears, Brainerd	1908-1909	Chemistry	Physical	1881-	PhD	1908	Johns Hopkins
Mertz, Edwin Theodore	1937-1938	Biochem		1909-1999	PhD	1935	Illinois

Meyer, Robert Eugene	1954-1956						
Miller, Foil Allan	1944-1948	Chemistry	Physical	1916-	PhD	1942	Johns Hopkins
Miller, James Monroe	1964-1965	Chemistry	Analytical	1933-	PhD	1960	Purdue
Miller, Leonard Edward	1946-1951; 1952-1956	Chemistry	Organic/GenChem	1919-	PhD	1943	Michigan
Minthorn, Martin Lloyd Jr.	1954-1955	Biochem		1922-	PhD	1953	Illinois
Moeller, George Therald	1940-1967	Chemistry	Inorganic	1913-1997	PhD	1938	Wisconsin-Madison
Mohlman, Floyd William	1916-1917	Chemistry	Sanitary	1890-	PhD	1916	Illinois
Monfort, Wilson Forsyth	1917-1919	Chemistry	Sanitary	1863-	AM	1896	Marietta
Moore, Jeffrey Scott	1995-	Chemistry	Materials	1962-	PhD	1989	Illinois
Morrell, William Egbert	1942-1959	Chemistry	GenChem	1909-	PhD	1938	UC Los Angeles
Nash, Leonard Kollender	1945-1946	Chemistry	Physical	1918-	PhD	1944	Harvard
Nason, Edith Holloway	1921-1925	Chemistry	Nutrition (?)	1895-	PhD	1921	Yale
Natusch, David Francis Stewart	1971-1973(?)	Chemistry	Physical	1940-	PhD	1966	Oxford
Nelson, Carl Ferdinand	1912-1914	Chemistry	Physiological	1882-1950	PhD	1912	Wisconsin-Madison
Neuhaus, Francis Clemens	1959-1962	Biochem		1932-	PhD	1958	Duke
Neville, Harvey Alexander	1921-1927	Chemistry	Inorganic	1898-1983	PhD	1921	Princeton
Nicholson, Douglas Gillison	1935-1942	Chemistry	Inorganic	1908-1987	PhD	1934	Illinois
Nieman, Timothy	1975-1997	Chemistry	Analytical	1948-1997	PhD	1975	Michigan State
Noyes, William Albert	1907-1926	Chemistry	Physical	1857-1941	PhD	1882	Johns Hopkins
Nuzzo, Ralph George		Chemistry	Analytical/Inorganic/Physical	1954-	PhD	1981	MIT
Nystrom, Robert Forrest	1953-1980	Chemistry	Organic	1920-	PhD	1947	Chicago
Okey, Ruth Eliza	1918-1919	Chemistry	Nutrition	1893-1987	PhD	1918	Illinois
Oldfield, Eric	1975-	Chemistry	Physical	1948-	PhD	1972	Sheffield
Olin, Hubert Leonard	1914-1916	ChemEng		1880-1964	PhD	1914	Illinois
Ordal, George Winford	1973-	Biochem		1943-	PhD	1971	Stanford
Orlean, Peter A. B.		Biochem		1955-	PhD	1982	Cambridge
Pack, Daniel Wayne		ChemEng		1968-	PhD	1997	CalTech
Paisley, David (adjunct prof.)	1995						
Palmer, Arthur W.	1890-1904	Chemistry		1861-1904	ScD	1886	Harvard
Parr, Rosalie Mary	1918-1941	Chemistry	Inorganic	Deceased	PhD	1916	Illinois
Parr, Samuel Wilson	1891-1927	Chemistry	Applied	1857-1931	MS	1885	Cornell
Paul, Iain Campbell	1964-?	Chemistry	Organic	1938-	PhD	1962	Glasgow
Peirce, Donald Durand	1931-1932						
Pelletier, Shirley William	1950-1951	Chemistry	Organic	1924-	PhD	1950	Cornell
Perlmutter, Daniel David	1958-1964	ChemEng		1931-	Deng	1956	Yale
Peters, Max Stone	1951-1962	ChemEng		1920-	PhD	1951	Penn State
Petillo, Peter A.	1995-2001	Chemistry	Organic	1963-	PhD	1991	Wisconsin-Madison
Pfluger, Clarence Eugene	1959-1966	Chemistry	Analytical	1930-	PhD	1958	Texas
Phillips, George Neal		Biochem		1952-	PhD	1977	Rice
Phillips, Philip		?current					
Phipps, Thomas Erwin	1921-1964	Chemistry	Physical	1896-1990	PhD	1921	Berkeley
Piper, Theron Standish	1956-1965	Chemistry	Inorganic	1928-1965	PhD	1956	Harvard
Pirkle, William Howard	1964-	Chemistry	Organic	1934-	PhD	1963	Rochester
Price, Charles Coale III	1937-1946	Chemistry	Organic	1913-2001	PhD	1936	Harvard

Putnam, Willis Sumner	1920-1922	Chemistry	Applied	1868-	PhD	1915	Johns Hopkins
Quagliano, James Vincent	1944-1945	Chemistry	Inorganic	1915-	PhD	1946	Illinois
Quill, Lawrence Larkin	1926-1935	Chemistry	Inorganic	1901-1989	PhD	1928	Illinois
Quinn, John Albert	1958-1970	ChemEng		1932-	PhD	1959	Princeton
Rabjohn, Norman	1942-1944	Chemistry	Organic	1915-2000	PhD	1942	Illinois
Ranz, William Edwin	1951-1953	ChemEng		1922-	PhD	1950	Wisconsin-Madison
Rauchfuss, Thomas Bigley	1979-	Chemistry	Inorganic	1949-	PhD	1975	Washington State
Ray, Billy Roger	1948-1957	Chemistry	Physical	1912-	PhD	1945	Michigan
Reed, George Henry	1931-1939						
Reedy, John Henry	1918-1946	Chemistry	Inorganic	1878-1950	PhD	1915	Yale
Rideal, Eric Keightley	1919-1920						
Rindfusz, Ralph Emerson	1916-1919	Chemistry	Organic	1887-	PhD	1918	Illinois
Rinehart, Kenneth Lloyd Jr.	1954-	Chemistry	Organic	1929-	PhD	1954	Berkeley
Robinson, James Lawrence	1976-	Biochem		1942-	PhD	1968	UC Los Angeles
Rodebush, Worth Huff	1921-1955	Chemistry	Physical	1887-1959	PhD	1917	Berkeley
Roe, Arthur Steadman	1939-1941	Chemistry	Organic	1912-	PhD	1938	Northwestern
Rogers, Elizabeth Parker	1961-	Chemistry	General				
Rose, William Cummings	1922-1955	Biochem		1887-1985	PhD	1911	Yale
Rouse, Prince Earl	1941-1942	Chemistry	Physical	1917-	PhD	1941	Illinois
Royer, Catherine Ann		Biochem		1957-	PhD	1985	Illinois
Rubin, Robert Joshua	1955-1957	Chemistry	Physical	1926-	PhD	1951	Cornell
Rutter, William J.	1955-1965	Biochem		1928-	PhD	1952	Illinois
Sahinidis, Nikolaos Vasili		ChemEng		1963-	PhD	1990	Carnegie Mellon
Sammis, John Langley	1899-1905	Chemistry	Agricultural	1873-	PhD	1906	Wisconsin-Madison
Sani, Robert LeRoy	1964-1976	ChemEng		1935-	PhD	1963	Minnesota
Scheeline, Alexander	1981-	Chemistry	Analytical	1952-	PhD	1978	Wisconsin-Madison
Scheffy, William John	1956-1959						
Schirmer, Frank Bonnell, Jr.	1939-1942	Chemistry	Inorganic	1913-	PhD	1939	Cornell
Schmidt, Paul Gardner	1970-1977	Chemistry	Biophysical	1944-	PhD	1970	Stanford
Schmitt, Roman A.	1953-1954	Chemistry	Physical	1925-	PhD	1953	Chicago
Schmitz, Roger Anthony	1962-1979	ChemEng		1934-	PhD	1962	Minnesota
Schneider, Ralph Fred	1919-1921	Chemistry	Physical	1895-	PhD	1922	Illinois
Schowalter, William Raymond	1990-	ChemEng		1929-	PhD	1957	Illinois
Schroepfer, George John Jr.	1963-1983	Biochem		1932-	PhD	1961	Minnesota
Schuler, Mary Anne		Biochem		1953-	PhD	1981	Cornell
Schulten, Klaus J.	1995-	Chemistry	Physical	1947-	PhD	1974	Gottingen
Schuster, Gary Benjamin	1975-1993(?)	Chemistry	Organic	1946-	PhD	1971	Rochester
Schweizer, Kenneth Steven	1997-	Chemistry	Physical	1953-	PhD	1981	Illinois
Scott, Robert A.	1981-1987	Chemistry	Inorganic	1953-	PhD	1979	CalTech
Scovell, Melville Amasa	1875-1877	Chemistry	Agricultural	1855-1912	PhD	1908	Illinois
Searles, Scott, Jr.	1947-1949	Chemistry	Organic	1920-	PhD	1947	Minnesota
Sears, George Wallace	1914-1917	Chemistry	Inorganic	1878-	PhD	1914	Illinois
Sears, Gerald William	1943-1944	Chemistry	Physical	1917-1964	PhD	1942	Illinois
Secrest, Donald Hubert	1961-	Chemistry	Physical	1932-	PhD	1961	Wisconsin-Madison

Seebauer, Edmund Gerard		ChemEng		1961-	PhD	1986	Minnesota
Seifert, Ralph Lewis	1937-1938	Chemistry	Physical	1914-1987	PhD	1937	Illinois
Shaeiwitz, Joseph Allan	1978-1984	ChemEng		1952-	PhD	1978	Carnegie Mellon
Shapiro, David Jordan	1974-	Biochem		1946-	PhD	1972	Purdue
Shapley, John Roger	1972-	Chemistry	Inorganic	1946-	PhD	1972	Harvard
Shapley, Patricia A.	1987-	Chemistry	Inorganic	1953-	PhD	1981	MIT
Shavitt, Isiah (adjunct prof.)	1997-	Chemistry	Physical	1925-	PhD	1957	Cambridge
Shaw, Everett Jesse	1930-1931	Chemistry	Physical	1905-1991	PhD	1930	Illinois
Shriner, Ralph Lloyd	1927-1941	Chemistry	Organic	1899-1994	PhD	1925	Illinois
Siegfried, Robert	1958-1963	Chemistry	GenChem	1921-	PhD	1952	Wisconsin-Madison
Sim, George Andrew	1964-1966						
Skinner, Glenn	1918-1919	Chemistry	Organic	1890-	PhD	1917	Illinois
Slichter, Charles P.	1987-(?)	Chemistry	Physical	1924-	PhD	1949	Harvard
Sligar, Stephen Gary	1982-	Biochem		1948-	PhD	1975	Illinois
Smith, George Frederick	1921-1955	Chemistry	Analytical	1891-1976	PhD	1922	Michigan
Smith, George McPhail	1905-1919	Chemistry	Analytical	1878-	PhD	1903	Freiburg
Smith, J. Harold	1941-1943	Chemistry	Physical	1914-	PhD	1941	Utah
Smith, Roberts Angus	1957-1958	Biochem		1928-	PhD	1957	Illinois
Smith, Stanley Glen	1960-	Chemistry	Organic	1931-	PhD	1959	UC Los Angeles
Snyder, Harold Ray	1937-1975	Chemistry	Organic	1910-1994	PhD	1935	Cornell
Souther, Benjamin Leslie	1921-1924	Chemistry	Organic	1894-	PhD	1921	Harvard
Sowerby, David Bryan	1958-1961						
Sparks, Marion Emeline	1911-1929	Librarian		1872-1929	S (Classic	1900	Illinois
Stadtherr, Mark Allen	1976-	ChemEng		1950-	PhD	1976	Wisconsin-Madison
State, Harold Mayne	1941-1942	Chemistry	Analytical	1910-	PhD	1936	Princeton
Stearn, Allen Edwin	1919-1920	Chemistry	Physical	1894-	PhD	1919	Illinois
Steinrauf, Larry K.	1959-1964	Biochem		1931-	PhD	1957	Washington
Stillwell, Charles William	1930-1933	Chemistry	Physical	1901-	PhD	1926	Cornell
Storm, Daniel	1973-1978	Biochem		1944-	PhD	1971	Berkeley
Strachan, Earl Kenneth	1912-1913	Chemistry	Physical	1886-	PhD	1912	Illinois
Straub, Frederick Guy	1924-1957	ChemEng		1896-	MS	1923	Penn State
Stuart, Ambrose Pascal Sevilon	1868-1874	Chemistry		1820-1899	AM	1847	Brown
Stucky, Galen Dean	1964-1979	Chemistry	Inorganic	1936-	PhD	1962	Iowa State
Stupp, Samuel L.	1993-1995	Chemistry	Polymer Science	1951-	PhD	1977	Northwestern
Subramaniam, Shankar		Biochem		1953-	PhD	1982	Indian Inst Tech Kanpur
Suslick, Kenneth Sanders	1978-	Chemistry	Inorganic	1952-	PhD	1978	Stanford
Swann, Sherlock, Jr.	1927-1969	ChemEng		1900-	PhD	1926	Johns Hopkins
Sweedler, Jonathan Vansyckle	1991-	Chemistry	Analytical	1961-	PhD	1989	Arizona
Switzer, Robert Lee	1968-	Biochem		1940-	PhD	1966	Berkeley
Taebel, Wilbert August	1938-1941	Chemistry	Inorganic	1907-1989	PhD	1938	Illinois
Tamres, Milton	1948-1953	Chemistry	Inorganic	1922-	PhD	1949	Northwestern
Tarvin, Donald	1933-1934	Chemistry	Sanitary	1905-1999+E	PhD	1933	Illinois
Taylor, Edward Curtis	1951-1954	Chemistry	Organic	1923-	PhD	1949	Cornell
Teipel, John William	1970-1972	Biochem		1943-	PhD	1968	Duke

Thorp, Lambert	1912-1915						
Thrun, Walter Eugene	1917-1918	Chemistry	Physiological	1892-	PhD	1917	Missouri
Todd, Charles Wyvil	1964-1966	Biochem		1918-	PhD	1943	Rochester
Todd, Lee John	1964-1968	Chemistry	Inorganic	1936-	PhD	1963	Indiana
Tolman, Richard Chace	1916-1918	Chemistry	Physical	1881-1948	PhD	1910	MIT
Uhlenbeck, Olke Cornelis	1971-1986	Biochem		1942-	PhD	1969	Harvard
Van der donk, Wilfred	1999-	Chemistry	Organic	1966-	PhD	1994	Rice
Van Holde, Kensal Edward	1957-1967	Chemistry	Physical	1928-	PhD	1952	Wisconsin-Madison
Van Rossen, Hoogendijk Gerard	1915-1917				AM		Gottingen
Van Swol, Frank Bartelt		ChemEng		1954-	PhD	1972	Delaware
Vestling, Carl Swenson	1938-1963	Biochem		1913-	PhD	1938	Johns Hopkins
Villars, Donald Statler	1927-1929	Chemistry	Physical	1900-1988	PhD	1924	Ohio State
Vincent, Colin Angus	1965-1966						
Wall, Frederick Theodore	1937-1964	Chemistry	Physical	1912-	PhD	1937	Minnesota
Walton, James H. Jr.	1903-1907	Chemistry	Sanitary	1878-1947	PhD	1903	Heidelberg
Wand, A. Joshua		Biochem		1957-	PhD	1984	Penn
Wang, Andrew H.-J.	1988-2001	Chemistry	Biophysical	1945-	PhD	1974	Illinois
Ward, Roland	1931-1932	Chemistry	Inorganic	1902-	PhD	1931	Western Reserve
Washburn, Edward Wight	1908-1916	Chemistry	Physical	1881-1934	PhD	1908	MIT
Wawzonek, Stanley	1941-1943	Chemistry	Organic	1914-	PhD	1939	Minnesota
Weber, Gregorio	1962-1986	Biochem		1916-1997	PhD	1947	Cambridge
Weber, Henry A.	1874-1882	Chemistry		1845-1912	PhD	1879	Ohio State
Weber, Henry Charles Paul	1912-1917	Chemistry	Organic/GenChem	1878-	PhD	1903	Wurzburg
Westlake, Alan Henry	1965-1966						
Westwater, James William	1948-	ChemEng		1919-	PhD	1948	Delaware
Wetmur, James Gerard	1967-1974	Chemistry	Biophysical	1941-	PhD	1967	CalTech
Whitmarsh, Clifford John	1981-	Biochem		1946-	PhD	1975	Harvard
Whitney, Robert McLaughlin	1942-1944	Chemistry	Physical	1911-1985	PhD	1944	Illinois
Widom, Jonathan	1985-1991	Chemistry	Physical	1955-	PhD	1982	Stanford Med Center
Wieckowski, Andrzej	1985-	Chemistry	Analytical	1945-	PhD	1972	Warsaw
Wise, Jo Ann		Biochem		1953-	PhD	1981	Yale
Wittrup, Karl Dane		ChemEng		1963-	PhD	1988	CalTech
Wold, Finn	1957-1966	Biochem		1928-	PhD	1956	Berkeley
Wolynes, Peter Guy	1980-1999	Chemistry	Theoretical	1953-	PhD	1976	Harvard
Wood, John Martin	1966-1974	Biochem		1928-	PhD	1964	Leeds
Woody, Robert Wayne	1964-1970	Chemistry	Physical	1935-	PhD	1962	Berkeley
Wraight, Colin Allen	1975-	Biochem		1945-	PhD	1971	Bristol
Yankwich, Peter Ewald	1948-1988	Chemistry	Physical	1923-	PhD	1945	Berkeley
Yardley, James Thomas, III	1967-1977	Chemistry	Physical	1942-	PhD	1967	Berkeley
Yntema, Leonard Francis	1923-1930	Chemistry	Inorganic	1892-1976	PhD	1921	Illinois
Zimmerman, Steven Charles	1985-	Chemistry	Organic	1957-	PhD	1983	Columbia
Zukoski, Charles Frederick		ChemEng		1955-	PhD	1985	Princeton
Zumdahl, Steven S.	1987-	Chemistry	General	1942-	PhD	1968	Illinois