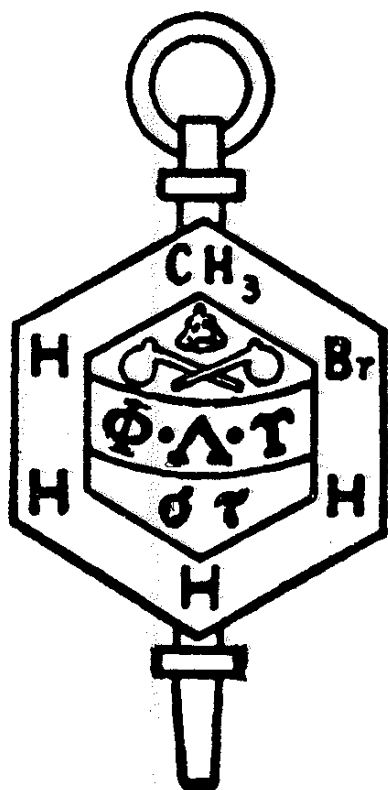


P H I L A M B D A U P S I L O N

N A T I O N A L H O N O R A R Y C H E M I C A L S O C I E T Y



OFFICER'S MANUAL

Property of

CHAPTER

FOREWORD

Very often when a person is elected to office in an organization such as Phi Lambda Upsilon, he or she is at a temporary loss as to just what is expected of him. As sincere and as conscientious as he may be, he simply doesn't know exactly what to do or how to do it.

This Officer's Manual has been designed in an effort to off-set that initial lost feeling and to serve as a guide even after understanding of the job starts to develop. Study of these pages should provide answers to the vast majority of the questions that may arise in the new chapter officer's mind.

The new officer, immediately upon election to office, should receive a copy of this Manual from his outgoing counterpart. He should read the manual through casually at his first opportunity and then continue to refer to it whenever it is needed. The Manual contains not only general instructions and exhibits of currently useful material, but also complete copies of the Society's Ritual, its National Constitution, and its By-Laws.

You are the trusted custodian of this Manual for your term of office. Note that its loose-leaf format makes updating and correction a simple matter. In all probability, you will receive replacement pages for the Manual while it is in your keeping. Remember that the Manual is the property of your chapter of Phi Lambda Upsilon, and that it is your responsibility to keep it current by replacing outdated pages when current replacement pages are supplied to you by the National Secretary.

Use the Manual well; keep it current, and turn it over to your successor in a currently useful form. Congratulations and good luck; you have been chosen to be an officer in an old and honorable society. Serve it well.

The Executive Committee

Joseph L. Greene, Jr., Alpha Iota '47
David W. Brooks, Gamma '62
Sheldon H. Cohen, Alpha Rho '58
George R. Brubaker, Omicron '69
Jack D. Graybeal, Tau '50
Tonalee Carlson Key, Beta Beta '75
Thomas E. Daubert, Mu '61

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BRIEF HISTORY OF PHI LAMBDA UPSILON

Phi Lambda Upsilon was founded as an honorary chemical society in March, 1899 at the University of Illinois. The society stands as a monument to the enthusiasm and zeal of Horace C. Porter, Paul F. A. Rudnick, and Fred C. Koch, at that time seniors majoring in chemistry. The Founders were assisted in their undertaking by Professors Arthur W. Palmer, Harry S. Grindley and Samuel W. Parr, who continued for many years to manifest an active interest in the Society and to work for the maintenance of its high standards.

The aims and purposes of the Society were from its inception "the promotion of high scholarship and original investigation in all branches of pure and applied chemistry." Through these objectives the founders envisaged a society which would serve the field of chemistry in the same manner that Phi Beta Kappa does in the humanities, Sigma Xi in scientific research, and Tau Beta Pi in engineering. Throughout its history Phi Lambda Upsilon has shown a consistent devotion to its objectives as an honor society.

Phi Lambda Upsilon was the first honor society dedicated to a single scientific discipline. Only nine of the many honor societies in existence today are older. In the late 19th century many Americans were still going to Europe for graduate study, and chemistry had not until then been considered important enough to warrant a major place in the college curriculum. Chemical Abstracts, today so indispensable, did not appear until 1907, eight years after the founding of Phi Lambda Upsilon. In the remarkable development of American Chemistry Phi Lambda Upsilon has played an important role.

A survey of our history reveals three distinct periods. The first seven years represent the founding, growth and entrenchment of Alpha Chapter at the University of Illinois. The second period began in 1906, when Beta Chapter was established at the University of Wisconsin, to be followed by five other chapters chartered prior to June 29, 1911, the date of the Convention at Indianapolis, when the national society was organized. The third period, from 1911 on, has witnessed a gradual rise in the standards for membership. This period has also been characterized by a program of activity within the chapters consistent with the honorary character of the Society. During its span of over three-quarters of a century Phi Lambda Upsilon has grown into an organization comprising over 50 chapters and more than 45,000 members.

To the three founders belongs the credit for the name and badge of the Society. At first the badge was a pin in the shape of the present hexagon except that the white and black portions on the inner panel were reversed. In keeping with the generally accepted custom of using a key to designate an honor society, the present key was adopted as official at the Seattle Convention in 1915.

The Society consists of members and Honorary Members. Membership in the Society includes exceptional students of pure and applied chemistry, who are selected from the junior, senior and graduate classes in these fields, and well-qualified persons such as faculty, staff, and post doctorals engaged in chemical work who are affiliated with institutions of learning in some capacity other than that of a registered student. Until 1969 only men were admitted to the Society. At this time a Constitutional amendment removed restrictions of sex for membership in Phi Lambda Upsilon.

In addition, the 1974 Congress passed a by-law change allowing members to be elected-at-large upon recommendation of at least two members of the Society and approval by a national members elected-at-large committee. This action extends opportunities for membership to persons in any academic institution without an active chapter and to non-academic institutions. The qualifications for membership as stated in the by-laws, however, are identical for all prospective members. Phi Lambda Upsilon continues to recognize only one classification of membership.

Honorary Members are scientists of national or international reputation in the field of chemistry, chosen by vote of the Administrative Council. This is the highest honor which our Society can confer upon a chemist, and the distinction has been awarded to only 210 persons to date. The roll of Honorary Members lists the names of prominent American chemists, including most of America's Nobel laureates in chemistry. In honoring these scientists we do honor to the ideals of Phi Lambda Upsilon.

Chapter activities differ somewhat on the various college campuses where our Society is represented. In a few places the election of members constitutes the main function, but in most chapters projects of a scientific nature, such as public lectures, visits to industrial plants, and chemical exhibitions are sponsored. In most chapters one or more awards are made to local students who have distinguished themselves in scholarship. Our chapters are recognized by their respective college administrations as definitely fulfilling the functions of an honor society.

Administration of the Society is effected through six national officers, together with the most recently retired Past National President. The Triennial Congress, in which each chapter is represented by a delegate, functions as a deliberating and legislative body to determine the policies of the Society. Interim action is by vote of the Administrative Council in which each chapter is represented through its councillor and president. Items of business which directly affect the chapters are decided by ballot within the individual chapters. At the present time the National Society reaches its alumni through THE REGISTER and by luncheons at meetings of the American Chemical Society.

The history of Phi Lambda Upsilon reveals, in retrospect, a period of healthy growth and expansion, and in prospect, an ever continuing and increasing usefulness as the Society proceeds through the ninth decade of its existence.

THE CHAPTERS OF PHI LAMBDA Upsilon

During the course of its more than eighty year history, chapters of the Society have been established at each of the institutions listed below. Three of these chapters no longer exist, and not all of those listed are currently active. A prime function of each chapter is to recognize and to honor excellence in students of chemistry by electing them to membership in the Society. In addition, most chapters carry out projects of a professional nature and present local scholarship awards to distinguished students and faculty. As stated before, our chapters are acknowledged on all campuses to be properly fulfilling the functions of an honor society.

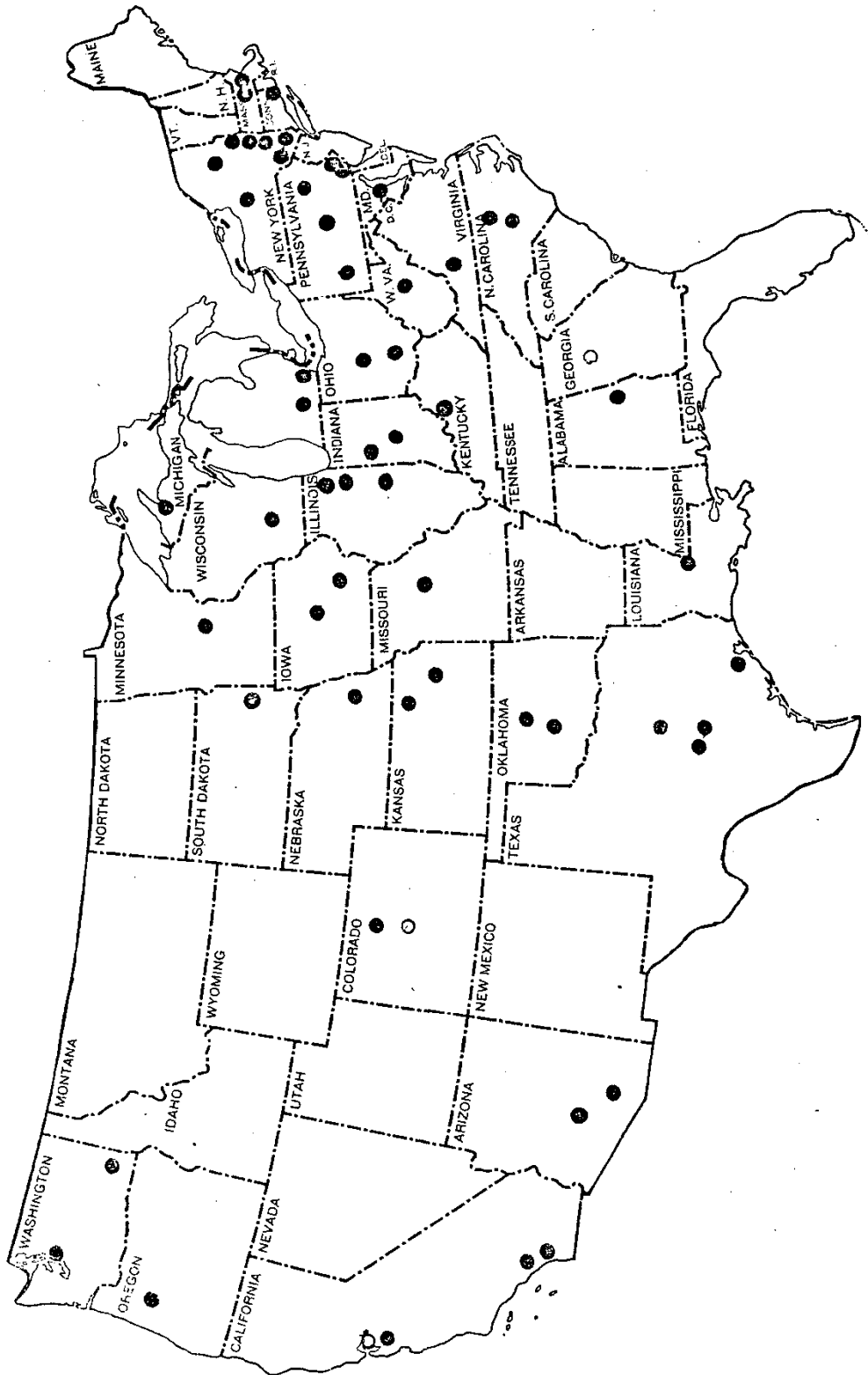
Roll of Chapters

<u>Chapter</u>	<u>Institution</u>	<u>Charter Date</u>
Alpha	University of Illinois	1899
Beta	University of Wisconsin	1906
Gamma	Columbia University	1909
Delta	University of Michigan	1909
Epsilon	University of Washington	1910
Zeta	University of Minnesota	1910
Eta	Ohio State University	1911
Theta	Iowa State University	1912
Iota	Stanford University	1912
Kappa*	University of Denver	1912
Mim Kaph Mim*	University of California, Berkeley	1913
Mu	The Pennsylvania State University	1914
Nu	Purdue University	1917
Xi	University of Pittsburgh	1917
Omicron	Illinois Institute of Technology	1920
Pi	University of Texas	1920
Rho	University of Nebraska	1922
Sigma	Rutgers University	1922
Tau	West Virginia University	1924
Upsilon	University of Iowa	1925
Phi	University of Arizona	1926
Chi	Washington State University	1926
Psi	University of Southern California	1926
Omega	University of Indiana	1926
Alpha Alpha	Rice University	1926
Alpha Beta	Oregon State University	1927
Alpha Gamma	Northwestern University	1927
Alpha Delta	Oklahoma State University	1929
Alpha Epsilon	Kansas State University	1931
Alpha Zeta	Polytechnic Institute of New York	1932
Alpha Eta	Johns Hopkins University	1932
Alpha Theta	Virginia Polytechnic Institute	1933

Roll of Chapters (Continued)

<u>Chapter</u>	<u>Institution</u>	<u>Charter Date</u>
Alpha Iota	Auburn University	1933
Alpha Kappa	U.C.L.A.	1935
Alpha Lambda	New York University	1935
Alpha Mu	Louisiana State University	1936
Alpha Nu	Rensselaer Polytechnic Inst.	1938
Alpha Xi	University of Cincinnati	1939
Alpha Omicron	Michigan Technological Univ.	1942
Alpha Pi	Duke University	1944
Alpha Rho	University of Kansas	1948
Alpha Sigma	University of Colorado	1950
Alpha Tau	Syracuse University	1951
Alpha Upsilon	University of Pennsylvania	1951
Alpha Phi	University of Connecticut	1951
Alpha Chi*	Georgia Institute of Tech.	1951
Alpha Psi	Wayne State University	1952
Alpha Omega	University of Oklahoma	1952
Beta Alpha	Mass. Inst. of Technology	1955
Beta Beta	Texas A & M University	1957
Beta Gamma	Fordham University	1959
Beta Delta	University of Louisville	1962
Beta Epsilon	Drexel University	1966
Beta Zeta	Worcester Polytechnic Inst.	1969
Beta Eta	South Dakota State University	1970
Beta Theta	Arizona State University	1971
Beta Iota	University of Missouri	1972
Beta Kappa	University of Scranton	1975
Beta Lambda	North Carolina State Univ.	1976

* Charter Removed



GEOGRAPHICAL DISTRIBUTION OF CHAPTERS

PHI LAMBDA Upsilon
National Officers
1981 - 1984

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Historian

1 Recording Secretary

2 Corresponding Secretary

3 During the period 1917 to 1941 the offices of Secretary and Treasurer were combined.
4 These men held the temporary office of "Registrar."

4 These men held the temporary office of "Registrar."

HONORARY MEMBERSHIP

Honorary Members are nominated by chapters and by members of the National Committee on Honorary Membership, the latter group being responsible for screening those proposed for elevation in a given year. The procedure for nomination and election is fully outlined in Article III, Section 3, of the National Constitution and Article VI, Section 7, of the National By-Laws. Each chapter is limited to one nomination a year, although any nominee is held under consideration for three successive years. The name of a proposed candidate, with a biographical sketch setting forth his career and contributions (7 copies) should be sent to the National President before February 1 of each year for consideration that year. We suggest that you set up a committee within your chapter charged with the responsibility of evaluating prominent chemists and chemical engineers and developing for the chapter their nomination.

A list of all Honorary Members elected to date is given on the following pages for your reference. Note the caliber of the individuals chosen. Many of the names from the earliest years are still quite familiar to serious students of chemistry today.

HONORARY MEMBERS OF PHI LAMBDA UPSILON

(Alphabetical by year of election with nominating group given)

<u>1899</u>	*Grindley, Harry Sands	Alpha
	*Palmer, Arthur W.	Alpha
	*Parr, Samuel Wilson	Alpha
<u>1902</u>	*Hopkins, Cyril G.	Alpha
	*Lincoln, Azariah Rhomas	Alpha
	*Smith, Louis Henry	Alpha
<u>1904</u>		
	*Bryan, Thomas Joseph	Alpha
	*Walton, James Henri	Alpha
<u>1906</u>		
	*Babcock, Stephen M.	Beta
	*Barton, Edward	Alpha
	*Kalenberg, Louis	Beta
	*Smith, George McPhail	Alpha
<u>1907</u>		
	*Hart, Edwin Bret	Beta
	*Kremers, Edward	Beta
<u>1908</u>		
	*Bradley, Harold C.	Beta
	*Hawk, Philip Bovier	Gamma
	*Holmes, Willis Boit	Alpha
	*Noyes, William Albert	Alpha
<u>1909</u>		
	*Andrews, Launcelot W.	Alpha
	*Balke, Clarence W.	Alpha
	*Bogert, Marston Taylor	Gamma
	*Burgess, Charles F.	Beta
	*Chandler, Charles F.	Gamma
	*Chittenden, Russell H.	Alpha
	*Mathews, Albert Prescott	Alpha
	*Moore, John Livingston R.	Gamma
	*Sherman, Henry Claop	Gamma
	*Stieglitz, Julius Oscar	Delta
<u>1910</u>		
	*Benson, Harry K.	Epsilon
	*Bigelow, Edward	Delta
	*Byers, Horace Greeley	Epsilon
	*Elliott, A. H.	Gamma
	*Golschmidt, Samuel A.	Gamma
	*Stone, G. C.	Gamma
	*Whitaker, Milton C.	Gamma
	*Wiley, Harvey Washington	Gamma

HONORARY MEMBERS OF PHI LAMBDA UPSILON

(Continued)

<u>1911</u>	*Alberg, Carl Lucas	Gamma
	*Campbell, Edward D.	Delta
	*Curtiss, Richard S.	Alpha
	*Derby, Ira H.	Zeta
	*Gies, William John	Gamma
	*Stevens, Alviso Burdett	Delta
	*Vulte, Herman T.	Gamma
	*Washburn, Edward Wight	Alpha
	*White, Alfred Holmes	Delta
<u>1912</u>	*Bancroft, Wilder Dwight	Delta
	*Doughty, Howard Waters	Gamma
	*Frankforter, George B.	Zeta
	*Little, Arthur Devon	Gamma
	*Nichols, William Henry	Gamma
	*Noyes, Arthur Amos	Gamma
	*Talbot, Henry P.	Gamma
<u>1913</u>	*McKenna, Charles Francis	Gamma
	*McPherson, William	Eta
	*Stillman, James Maxwell	Iota
	*Swain, Robert Eckles	Iota
<u>1914</u>	*Baekeland, Leo Hendrik	Gamma
	*Harding, E. P.	Zeta
	*Manns, Albert George	Beta
	*Williams, R. H.	Gamma
	*Winton, Andrew Lincoln	Gamma
<u>1915</u>	*Beal, James Hartley	Alpha
	*Day, Arthur Louis	Alpha
	*Langmuir, Irving	Gamma
	*Nef, J. Ulric	Alpha
	*Schlotterbeck, Julius O.	Gamma
	*Viol, Charles Herman	Gamma
<u>1916</u>	*Herty, Charles Henry	Alpha
	*Levene, Phoebus Aaron	Gamma
	*Parsons, Charles Lathrop	Gamma
	*Richards, Theodore W.	Gamma
<u>1917</u>	*Lehner, Victor	Beta
	*Loevenhart, Arthur Solomon	Beta
	*Tolman, Richard Chas	Alpha
<u>1918</u>		
<u>1919</u>	*Pond, George Gilbert	Mu
	*Phillips, Francis Clifford	Xi

HONORARY MEMBERS OF PHI LAMBDA Upsilon

(Continued)

<u>1920</u>	*Mathews, Joseph Howard	Beta
<u>1921</u>	*Remsen, Ira	Eta
<u>1922</u>	*Bray, William Crowell	Mim Kaph Mim
<u>1923</u>	*Dorr, John Van Nostrand	Gamma
	*Svedberg, Theodor	Beta
<u>1924</u>	*Browne, Charles Albert	Gamma
	*Gomberg, Moses	Delta
	*Smith, Edgar Fahs	Mu
<u>1925</u>	*Norris, James Flack	Omicron
<u>1926</u>	Van Slyke, Donald Dexter	Delta
<u>1927</u>	*Frankland, Edward Curtis	Iota
	*Hopkins, B. Smith	Delta
	*Moore, Richard Bishop	Nu
<u>1934</u>	*Reese, Charles Lee	Alpha Eta
<u>1935</u>	*Taylor, Hugh S.	Sigma
	*Urey, Harold Clayton	Gamma
<u>1937</u>	*Fajans, Kasimir	Delta
	*Lamb, Arthur Becket	Alpha Zeta
<u>1938</u>	*Coates, Charles E.	Alpha Mu
	*Whitmore, Frank Clifford	Mu
<u>1939</u>	*Gortner, Ross Aiken	Zeta
	*Hill, Arthur Edward	Alpha Lambda
<u>1941</u>	*Evans, William Lloyd	Eta
	Pauling, Linus Carl	Alpha Kappa
<u>1942</u>	*McBain, James William	Psi
<u>1943</u>	*Adams, Roger	Alpha
	*Holmes, Harry Nicholls	Eta
<u>1944</u>	Marvel, Carl Shipp	Alpha
<u>1946</u>	*Silvermann, Alexander	Xi
<u>1947</u>	*Koch, Fred Conrad	Committee

HONORARY MEMBERS OF PHI LAMBDA Upsilon

(Continued)

<u>1948</u>	*Chandlee, Grover C. Seaborg, Glen T.	Mu Alpha Kappa
<u>1950</u>	*Anderson, Earnest Ingold, Christopher K.	Phi Eta
<u>1951</u>	*Fenske, Merrell R. *Fink, Colin G. Kolthoff, Izaak M. Williams, Roger John	Mu Gamma Zeta Pi
<u>1952</u>	*Bolton, Elmer K. *Crane, E. J. Curme, George O. Jr. Hilderbrand, Joel H.	Committee Committee Committee Committee
<u>1953</u>	*Daniels, Farrington *Schlesinger, Herman I. Thomas, Charles A. Volwiler, Ernest H.	Committee Committee Committee Committee
<u>1954</u>	Eyring, Henry *Fisher, Harry L. Hammett, Louis P. Rose, William C.	Committee Committee Committee Committee
<u>1955</u>	Coleman, George H. *Furman, N. Howell *Kraus, Charles A. *Lind, Samuel C. Willard, Hobart W.	Committee Committee Committee Committee Committee
<u>1956</u>	duVigneaud, Vincent *Kharasch, Morris J. Lewis, Warren K. Stanley, Wendell Meredith	Committee Committee Committee Committee
<u>1957</u>	*Brode, Wallace R. *Elvenheim, Conrad Arnold *Feiser, Louis F. Giauque, William F. Noyes, William Albert, Jr.	Committee Committee Committee Committee Committee
<u>1958</u>	Pitzer, Kenneth Sanborn Rassweiler, Clifford F. Rossini, Frederick D.	Committee Committee Committee

HONORARY MEMBERS OF PHI LAMBDA Upsilon

(Continued)

<u>1959</u>	Bailar, John C., Jr.	Committee
	Kistiakowsky, George	Committee
	Libby, Willard F.	Committee
<u>1960</u>	Bartlett, Paul D.	Committee
	Calvin, Melvin	Committee
	Flory, Paul J.	Committee
<u>1961</u>	Brown, Herbert C.	Nu
	Warner, John C.	Omega
<u>1962</u>	Mark, Herman Francis	Alpha Zeta
<u>1963</u>	Djerassi, Carl	Alpha Epsilon
	*Fuson, Reynold C.	Committee
	Johnson, William S.	Iota
	Wilson, E. B.	Committee
<u>1964</u>	*Blicke, Frederick Franklin	Delta
	Mellon, Melvin Guy	Nu
	Price, Charles G.	Committee
<u>1965</u>	Emmett, Paul H.	Alpha Eta
<u>1966</u>	*Audreith, Ludwig Frederick	Committee
	Baker, William Oliver	Committee
	Folkers, Karl August	Committee
	Gilman, Henry	Committee
	Spedding, Frank Harold	Theta
	Wichers, E.	Committee
<u>1967</u>	Connors, Ralph A.	Committee
	Neurath, Hans	Committee
<u>1968</u>	*Cope, Arthur C.	Committee
	*Elderfield, Robert C.	Delta
	Overberger, Charles	Committee
	*Smith, G. Frederick	Alpha
	*Sparks, William J.	Committee
<u>1969</u>	Cairns, Theodore L.	Committee
	Katz, Donald L.	Delta
	Mulliken, Robert S.	Committee
	Riegel, Byron	Committee

HONORARY MEMBERS OF PHI LAMBDA Upsilon

(Continued)

<u>1970</u>	Pearson, Ralph G. Roberts, John D. Taube, Henry Wall, Frederick T.	Alpha Gamma Committee Committee Committee
<u>1971</u>	Bloch, Konrad E. *Reid, E. Emmett	Committee Committee
<u>1972</u>	Ballhausen, Carl J. Elving, Phillip J. Leonard, Nelson J.	Committee Committee Committee
<u>1973</u>	Crawford, Bryce L., Jr. Hass, Henry B.	Committee Committee
<u>1974</u>	Drickamer, Harry G.	Committee
<u>1975</u>	Burwell, Robert L., Jr. Handler, Philip Lipscomb, William Nunn, Jr.	Committee Committee Committee
<u>1976</u>	Cristol, Stanley J. Rogers, Lockhart B. *Woodward, Robert Burns	Alpha Sigma Committee Committee
<u>1977</u>	Basolo, Fred Fuoss, Raymond M. Gunsalus, Irwin Glyde Gutowsky, Herbert S.	Alpha Gamma Committee Alpha Alpha
<u>1978</u>	Harrison, Anna J. Pimentel, George C.	Committee Committee
<u>1980</u>	Klotz, Irving M. Parry, Robert W. *Young, William Gould	Alpha Gamma Committee Committee
<u>1981</u>	Bartlett, Neil Martell, Arthur E.	Committee Beta Beta

THE PHI LAMBDA UPSILON FRESenius AWARD

Phi Lambda Upsilon, in keeping with its stated objectives, established an award for outstanding chemists early in their professional careers, since regular membership ordinarily goes to those at the beginning of a career and Honorary Memberships near the close. Thus, the Phi Lambda Upsilon National Fresenius Award was begun in 1965.

Although the idea of a National Award for a chemist early in his professional career had been discussed for a number of years, the first definite action came from the National Activities Committee of the Eighteenth National Convention of Phi Lambda Upsilon held in Tucson in June 1959. Their proposal was studied by an ad-hoc committee during the succeeding triennium and recommendations of this committee were presented to the National Activities Committee of the 1962 National Convention. The 1962 Convention adopted the program as recommended by the Activities Committee and it was subsequently approved by vote of the Chapters.

Essentially the program, as adopted, contained the following features: (1) The Award was to be known as the Phi Lambda Upsilon Fresenius Award, and was to consist of a plaque of suitable design and an honorarium; (2) The Award recipient was to be under 35 years of age and have made notable contributions in chemical research, education and/or administration of the Award was to be the responsibility of a five member committee who would select the recipient from nomination by the chapters; (4) not more than one Award was to be made each year,

The recommendations of the convention and the favorable vote of the Chapters led to an active program. Recipients to date with their locations at time of receipt of the Award are given on the following page.

PHI LAMBDA UPSILON FRESenius AWARD RECIPIENTS

1965	Dr. Martin Karplus	Columbia University
1966	Dr. Ronald C. D. Breslow	Columbia University
1967	Dr. Mostafa A. ElSayed	U. C. L. A.
1968	Dr. John D. Baldeschwieler	Stanford University
1969	Dr. Roald Hoffmann	Cornell University
1970	Dr. Harry B. Gray	California Inst. of Tech.
1971	Dr. Willis H. Flygare*	University of Illinois
1972	Dr. Charles R. Cantor	Columbia University
1973	Dr. Nicholas J. Turro	Columbia University
1974	Dr. Richard N. Zare	Columbia University
1975	Dr. Robert W. Vaughan*	California Inst. of Tech.
1976	Dr. Joseph B. Lambert	Northwestern University
1977	Dr. William P. Reinhardt	University of Colorado
1978	Dr. Patrick S. Mariano	Texas A & M University
1979	Dr. Tobin J. Marks	Northwestern University
1980	Dr. John R. Shapley	University of Illinois
1981	Dr. Richard P. Van Duyne	Northwestern University

* Deceased

This Award of Phi Lambda Upsilon continues and extends the tradition of the Society in recognizing and honoring excellence in chemistry. A mere glance at the list of recipients shows that each name thereon is honored by every other name and in return honors each of those names. The Award has taken its place along with Honorary Membership in Phi Lambda Upsilon as a distinction of highest merit in American chemistry.

Fresenius Award Nominations

Nominations for the Society's Fresenius Award must be submitted to the National Secretary not later than December 1. The nominating letter is to be signed by the President and Secretary of the Chapter and should include a brief paragraph stating why the individual placed in nomination by the Chapter is regarded as particularly worthy of consideration for the Fresenius Award.

It is also requested that a biographical sketch be furnished giving the following information:

- I. Full name
- II. Place and date of birth
- III. Educational career (undergraduate and graduate)
- IV. Professional activities (since graduation)
- V. Publications
- VI. Honors and/or distinctions and/or noteworthy achievements.

Three letters of recommendation from former teachers and/or present or past professional associates shall also be submitted.

Article X of the Constitution of the Society should be reviewed and is to serve as a guide in making the nomination.

THE REGISTER

THE REGISTER, the Society's official publication, serves several important functions. It not only records, for historical interest, the activities of the national organization and those of the individual chapters but also enables Phi Lambda Upsilon to communicate with its members who are not actively engaged in chapter activities. THE REGISTER brings to the entire membership reports of all national and most chapter activities such as conventions, awards, meetings, and initiations.

In recent years both national officers and several national conventions have felt that the magazine should present articles of a more general nature in any area of science relating to chemistry. Thus except for the post-convention issues about half of the space in the magazine has been used for these purposes. The National Editor welcomes articles of general interest to our membership and invites any member to submit such material for possible publication.

The first issue of THE REGISTER appeared in 1911 as a directory of members. It was published essentially as a directory and as a report of chapter and national activities at unscheduled intervals through 1926. It is of interest to note that the last Directory Issue was Vol. X, No. 1 (June 1925); it listed 3134 regular members and 77 Honorary Members. At the 1926 Philadelphia convention it was decided to publish the magazine quarterly. This practice continued from 1927 until 1955. Since that time a Spring and a Fall issue have been published each year. Issues have averaged thirty-two pages and are circulated to ca 4000 subscribers. All members receive THE REGISTER free of charge for two years following their initiation.

From 1926 to 1974 life subscriptions to THE REGISTER were available at the cost of \$10.00. In 1974 the cost was raised to \$20.00. Alumni members are urged to maintain active participation in the life of the Society through life subscriptions.

Material for inclusion in the Fall Register should reach the National Editor by August 1; and by March 1 for the Spring Issue.

INFORMATION FLYER

The accordian folded information flyer reproduced below about 43% actual size is available from the National Office. This flyer should be used freely in publicizing the Society to prospective members and others.

PUBLICATIONS

As the Society's official publication, The Register performs several important functions. Not only does it record for historical interest the activities of the national organization and individual chapters, but it also serves to coordinate our widespread chapters' efforts to achieve the purposes for which the Society was founded and for which it exists. The Register brings to the entire membership, reports of chapter and national activities, The Triennial Congress, initiations, meetings, and awards. In addition, the magazine presents articles of a general nature in any area of science relating to chemistry.

Alumni and alumnae are urged to maintain active participation in the affairs of the Society through life subscription to The Register. This action is purely voluntary upon the part of the individual as there are no alumni dues.

NATIONAL ADMINISTRATION

Administration of the Society is effected through six National Officers, together with the two most recently retired National Presidents. The Triennial Congress, at which each chapter is represented by a delegate, functions as a deliberating and legislative body to determine the policies of the Society. Interim action is by vote of the Administrative Council in which each chapter is represented through its president and councilor. Items of business which directly effect the chapters are decided by ballot within the individual chapters.

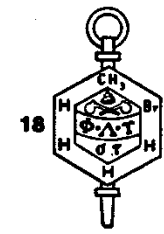
THE PHI LAMBDA Upsilon FRIESENIIUS AWARD

In keeping with its objectives, Phi Lambda Upsilon, in 1965, established the National Friesenius Award to recognize outstanding chemists whose early achievements have an exceptionally high quality and who show great promise for distinguished careers in chemistry. The recipient of each year's award is selected from a slate of nominees by a select committee of distinguished chemists appointed by the National President for this purpose. The Award, consisting of a unique metal plaque and an honorarium, is given to a person under 35 years of age who has made notable contributions to chemical research, education, and/or administration. A mere glance at the list of recipients given below tells how well the Selection Committee has succeeded in recognizing excellence and potential for future excellence in chemistry. Remember that each recipient of this Award was nominated for it prior to having reached his thirty-fifth birthday.

FRIESENIIUS AWARD RECIPIENTS

1965	Martin Karpus	Columbia University
1966	Ronald Braslow	Columbia University
1967	Moshe El Sayed	U.C.L.A.
1968	John Baldeessweiler	Stanford University
1969	Ronald Hoffmann	Cornell University
1970	Harry Gray	California Inst. of Technology
1971	Willie Flyvare	University of Illinois
1972	Charles Cantor	Columbia University
1973	Nicholas Turro	Columbia University
1974	Richard Zare	Columbia University
1975	Robert Vaughn	California Inst. of Technology
1976	Joseph B. Lambert	Northwestern University
1977	William P. Reinhardt	University of Colorado
1978	Patrick S. Mariano	Texas A & M University

Phi Lambda Upsilon



NATIONAL HONORARY
CHEMICAL SOCIETY

"(For the promotion of high scholarship and original investigation in all branches of pure and applied chemistry.)"

OBJECTIVES

The aims and purposes of the Society are summarized in its Constitution: the promotion of high scholarship and original investigation in all branches of pure and applied chemistry. The founders envisioned a society dedicated to these objectives which would serve the field of chemistry in much the same manner as Phi Beta Kappa does the humanities; Sigma Xi, scientific research; and Tau Beta Pi, engineering. Throughout its history, Phi Lambda Upsilon has been consistently devoted to its Objectives as an Honor Society.

HISTORY

Phi Lambda Upsilon was founded as an honorary chemical society in March 1899, at the University of Illinois. This was the first Honor Society dedicated to a single scientific discipline.

A survey of our history reveals three distinct periods. Founding, growth and entrenchment of Alpha Chapter at the University of Illinois.

A survey of our history reveals three distinct periods. Founding, growth and entrenchment of Alpha Chapter at the University of Illinois comprise the first period. The second period began in 1906 when Beta Chapter was established at the University of Wisconsin. Five more chapters were chartered prior to 29 June 1911, the date of the convention at Indianapolis at which the national society was organized and the second period reached its culmination. From 1911 to date, the Society has effected a gradual rise in the standards for membership. This period has also been characterized by the development of programs of activity within the chapters consistent with the honorary character of the Society. In the span of eighty years, Phi Lambda Upsilon has grown into an organization comprising fifty-five chapters and more than 45,000 members.

THE CHAPTERS OF PHI LAMBDA Upsilon

During the course of its eighty year history, chapters of the Society have been established at each of the institutions listed below. Three of these chapters no longer exist and not all of those listed are currently active. A prime function of the chapters is to recognize and to honor excellence in students of chemistry by electing them to membership in the Society. In addition, most chapters carry out projects of a professional nature and present local scholarship awards to distinguished students and faculty. Our chapters are acknowledged on all campuses to be properly fulfilling the functions of an Honor Society.

Alpha	Illinois	1899	Alpha Eta	John Hopkins	1932
Beta	Wisconsin	1906	Alpha Theta	V.P.I. & S.U.	1933
Gamma	Columbia	1909	Alpha Iota	Auburn	1933
Delta	Michigan	1909	Alpha Kappa	U.C.L.A.	1935
Epsilon	U. of Wash.	1910	Alpha Lambda	N.Y.U.	1935
Zeta	Minnesota	1910	Alpha Mu	Louisiana St.	1936
Eta	Ohio State	1911	Alpha Nu	Rensselaer	1936
Theta	Iowa State	1912	Alpha Xi	Cincinnati	1939
Iota	Stanford	1912	Alpha Omicron	Mich. Tech.	1942
Kappa	Denver	1912	Alpha Pi	Duke	1944
Mim Kapl Mm	California	1913	Alpha Rho	U. of Kansas	1946
Nu	Penn State	1914	Alpha Sigma	Colorado	1950
Xi	Pittsburgh	1917	Alpha Tau	Syracuse	1951
Omicron	I.T.T.	1920	Alpha Upsilon	Pennsylvania	1951
Pi	Texas	1920	Alpha Phi	Connecticut	1951
Rho	Nebraska	1922	Alpha Chi	Georgia Tech	1951
Sigma	Rutgers	1922	Alpha Psi	Wayne State	1952
Tau	W. Virginia	1924	Alpha Omega	Oklahoma	1952
Upsilon	U. of Iowa	1924	Beta Alpha	U. of N.C.	1955
Phi	U. of N.C.	1924	Beta Beta	U. of N.C.	1957
Chi	Utah State	1927	Beta Gamma	U. of N.C.	1957
Psi	Shu. Cal.	1927	Beta Delta	U. of N.C.	1957
Omega	Indiana	1927	Beta Epsilon	U. of N.C.	1957
Alpha A	Alpha A	1927	Beta Zeta	U. of N.C.	1957
Alpha Beta	Alpha Beta	1927	Beta Eta	U. of N.C.	1957
Alpha Gamma	Alpha Gamma	1927	Beta Theta	U. of N.C.	1957
Alpha Delta	Alpha Delta	1927	Beta Iota	U. of N.C.	1957
Alpha Epsilon	Alpha Epsilon	1927	Beta Kappa	U. of N.C.	1957
Alpha Zeta	Alpha Zeta	1927	Beta Lambda	U. of N.C.	1957

MEMBERSHIP

Members are elected by the Chapters or At-Large on the basis of their academic achievement and promise. Membership includes exceptional students of pure and applied chemistry selected from the junior, senior, or graduate classes, and also from well-qualified members of faculties, staffs as well as from selected post-doctoral students engaged in chemical endeavors in affiliation with qualified institutions of higher learning. Non-academic persons may be elected by chapters or At-Large upon careful review of their qualifications by a national committee of the Society appointed for that purpose.

HONORARY MEMBERSHIP

Honorary Membership is the highest honor the Society may bestow upon an individual.

Honorary Members are scientists of national or international reputation in a field of chemistry, and are chosen by a vote of the National Administrative Council of the Society. Regular membership in the Society in no way precludes later election to Honorary Membership. This honor has been bestowed upon only two hundred individuals in the eighty year history of the Society. The roll of Honorary Members includes the names of prominent American and foreign chemists, including virtually all American Nobel Laureates in Chemistry.

Information on qualifications for membership in the Society is available from each local chapter, or may be obtained by writing to:

Dr. Joseph L. Greene, Jr.
National Secretary
Phi Lambda Upsilon
321 Saunders Laboratories
Auburn University
Auburn, AL 36830

RITUALS

The rituals of the Society have continuously evolved over the years and currently exist in two forms either of which may be used for induction of new members into the Society. Each of the forms includes material on the history of the Society including the significance of its emblems and colors, a presentation of its purposes, objectives and goals, a pledge of membership, and a charge regarding the responsibilities of membership. Complete copies of both forms make up the 4th and 5th section of this manual.

- (1) Shade form - formal long ritual
- (2) Standard form - formal ritual

Both the Shade and Standard form contain additional information on the guiding spirits of the Society - Fresenius, von Liebig, and vant Hoff.

Each prospective member of the Society will be asked by the chapter president to take the following pledge:

"You have been found worthy, both as to scholarship and as to character. If you are in accord with these ideals and are willing to accept the responsibilities which membership entails, do you solemnly promise and affirm that you will promote the interests of the Society, that you will cultivate as the prime qualifications of a chemist attitudes of thoroughness, accuracy and reliability in all of your work, that you will respect the opinions of others, recognize that their points of view may differ from your own, that you will not knowingly take credit for a discovery or observation which rightfully belongs to another and that you will strive at all times to maintain the high standard of integrity, scholarship, and honor which this Society upholds? If you do, signify by saying, 'I will.'"

Each new member shall be inducted using one of these two rituals. Complete texts of each form are included in this manual.

THE ARCHIVES

The office of National Historian was proposed at the West Point Convention in 1947 and was established by formal action of the chapters in 1948. The first historian, A. H. Holtzinger, was elected in 1951 following the State College Convention. The primary responsibility of the National Historian is to collect, classify and preserve materials pertinent to the history of the Society. A secondary function of the historian is to serve as a nonadministrative officer to provide continuity of philosophy and policy to the Executive Committee. In designing the office of National Historian it was believed that by not limiting his tenure of office and by keeping him free from administrative duties it would be possible for the historian to supply background material to enable the administrative officers to act consistently in handling Society business.

In 1973 an agreement was reached with the University of Illinois Library to establish a permanent repository for the archives at the site of the establishment of the Society. All current material has been transferred to Illinois, and an inventory is available. Any chapter wishing to draw material on loan from the National Archives for special events may request the items from the National Historian.

The Archives contain a classified assortment of materials from the files of past national officers together with some materials from individual chapters. The collection is more complete for recent years because there has been an officer specifically designated to maintain the Archives. Among materials now in the Archives are back issues of THE REGISTER, copies of petitions for new chapters, photocopies of charters, photographs of honorary members, copies of citations at the inductions of honorary members, tape recordings of recent conventions, both formal and informal convention pictures, and miscellaneous correspondence and proceedings of historical value of Phi Lambda Upsilon.

Chapter officers are urged to send to the National Historian anything which in their judgment should become a part of the Archives rather than being kept in local chapter files. Any material which is not needed or appropriated for the Archives is returned to the chapter.

DUTIES OF CHAPTER OFFICERS

The duties of chapter officers are enumerated in general in Article VIII, Section 4 of the By-Laws of the Society. The listing in this section further amplifies these duties and should be followed for efficient chapter operation and adequate communication with the National Office. Obviously other duties may be added by the chapter.

PRESIDENT

- (1) Perform normal duties of president's office such as calling and presiding over meetings, appointment of committees, and general supervision of all chapter activities.
- (2) Vote as a member of the National Administrative Council on Official Proceedings for honorary membership, and new chapter establishment.
- (3) Make certain that the chapter operation is carried out within the National Constitution and By-Laws and the Local By-Laws.

VICE-PRESIDENT

- (1) Perform the duties of the President in his absence.
- (2) Oversees and directs all initiations seeing that one of the two accepted rituals is observed.
- (3) Chair the chapter eligibility for membership committee.
- (4) Together with the councillor and eligibility committee identify qualified individuals at neighboring educational and non-academic institutions for consideration for membership.

SECRETARY

- (1) Issue meeting notices and keep minutes of all meetings.
- (2) Keep an accurate and complete file of all members initiated by the chapter.
- (3) File and preserve chapter copies of The Register.
- (4) Send initiation orders to the National Secretary following the Instructions for Communications with the National Office.
- (5) Bring before the chapter all official communications from the National Office.

DUTIES OF CHAPTER OFFICERS

(Continued)

(6) Prepare and send to the National Secretary for publication in The Register a narrative report of chapter activities at the end of each academic year together with a more formal outline report on forms provided.

(7) Send to the National Secretary the names and addresses of chapter officers IMMEDIATELY AFTER EACH ELECTION.

(8) Keep the National Secretary informed of changes in chapter by-laws.

(9) Submit a resident chapter roll to the National Secretary each year.

(10) Maintain the permanent records of the chapter. (See Special Instructions to Chapter Secretary to follow on pages 27-31.)

TREASURER

Collect, disburse, and record all funds of the chapter.

ALUMNI SECRETARY

(1) Keep an accurate record of inactive chapter members.

(2) Urge attendance of inactive (alumni) members at special — chapter functions.

(3) Keep alumni members interested in the chapter and the Society.

COUNCILLOR

(1) Advise the chapter in policy matters pertaining to the welfare of the chapter.

(2) Vote as a member of the National Administrative Council on Official Proceedings for Honorary Membership, and new chapter establishment.

(3) Make certain that the chapter operation is carried out within the National Constitution and By-Laws and the Local By-Laws.

(4) Communicate serious chapter problems involving level of chapter activity to the National Secretary and President.

DUTIES OF CHAPTER OFFICERS

(Continued)

COUNCILLOR (Continued)

(5) While there is no constitutional requirement stating that the chapter councillor must have been a student member of the Society, years of experience have demonstrated that the most successful councillors usually have that background. There are certainly important exceptions to the forgoing statement.

(6) While the Society is primarily a student organization, and perhaps because it is, in fact, a student organization, the function of the councillor is of fundamental importance. He or she is, or should be, the glue that holds the chapter together. By definition a councillor is one who provides guidance and advice; but in an organization such as ours, perhaps his most important function lies in providing continuity from one year to the next. In those chapters where membership is largely, if not totally, undergraduate in nature, it is not unusual for 90 per cent or better of the membership to graduate at the end of any given year. Those few members left to start the next academic year are usually those with the least amount of experience. The chapter councillor must meet with these few very early in the new year instructing them and advising them as to the proper functioning of their chapter, and in the parts each of them must play in keeping the organization a useful, viable entity. A councillor can by his own efforts and exhortations go a long way in keeping any chapter a useful and active chapter. A councillor who serves no purpose other than allowing his name to be used for the record can, without knowing and without intent, destroy a chapter.

(7) Above all a councillor should recognize his function and responsibility to the local chapter. He should be willing and able to carry out these responsibilities before agreeing to accept the office of chapter councillor. When he feels that he can no longer fulfill this function and responsibility he should resign the office.

SPECIAL INSTRUCTIONS TO CHAPTER SECRETARIES
INCLUDING
SPECIFIC INSTRUCTIONS FOR COMMUNICATIONS WITH NATIONAL OFFICE

These instructions are to be observed in connection with all transactions with the Office of the National Secretary. They supersede all previous instructions and should be carefully followed for the greatest efficiency and convenience in your duties involving the National Secretary.

A. Initiation Orders

The National Secretary will provide chapter secretaries with a supply of the forms needed to prepare initiation orders. Upon processing initiation orders during the academic year, the National Secretary will replenish the chapter's supply of order forms. An initiation order should be sent to the National Secretary six weeks in advance of the projected initiation date so that shipment of certificates will be on hand at the time of initiation. The initiation order should include the following:

- (1) Society official order form (2 copies)
- (2) Membership certificate order forms (4 copies)
- (3) Key order forms (5 copies)
- (4) Membership cards (1 for each initiate)
- (5) REGISTER cards (1 for each initiate)
- (6) Remittance in full (check or money order)

Orders other than initiation orders, such as for a key, a replacement certificate, or a REGISTER resubscription should include:

- (1) Society official order forms (2 copies)
- (2) Appropriate order form, key or certificate form
- (3) Remittance in full

Information concerning the preparation of cards, forms, etc. is outlined below:

1. Membership cards

The white membership cards consist of two parts, one to be signed by the Chapter Secretary and retained by the chapter and the other to be sent to the National Secretary's office. It is necessary and important that these cards be accurately and completely filled out because they constitute the permanent record of our membership. Names must be given in full and printed or typed for full legibility. Cards must be signed by the initiate. Please use the style card which is shown in the exhibit following. Check your supplies of this double card and request any additional copies needed for this academic year as soon as possible.

SPECIAL INSTRUCTIONS TO CHAPTER SECRETARIES
INCLUDING
SPECIFIC INSTRUCTIONS FOR COMMUNICATIONS WITH NATIONAL OFFICE
(Continued)

A. Initiation Orders (Continued)

2. REGISTER cards

Each newly initiated member is entitled to receive THE REGISTER for two years after his initiation as part of benefits derived from the initiation fee. THE REGISTER is the official magazine of the Society and is published semiannually. Subscriptions may be renewed by remitting the proper amounts as shown in the current price list (see below). Chapter secretaries are asked to check each card to be sure the information is correct and legible. Whenever possible, an address should be used on this card at which THE REGISTER will be receivable for the next two years.

Please use the style REGISTER card attached in the exhibit following these instructions. Request any additional cards needed.

3. Membership certificate order forms

Certificate order forms have five copies. Copy No. 1-4 are to be returned to the National Secretary. Copy No. 5 is for the chapter's records. It is very important that each new member's full name and date of initiation be accurately and legibly given on the certificate order forms. Please observe the sequence first-middle-last in giving names. List names alphabetically according to last name. There is no charge for certificates for new members. There is, however, a charge for replacement certificates as indicated on the official order form.

4. Key order forms

Key order blanks are to be filled out in sextuplicate. The first five copies are sent to the National Secretary, and the sixth is kept as a record in the chapter file. Key orders will be honored only for persons who have been duly elected and whose membership fees have been paid. Chapters or individuals cannot deal directly with the Society's jeweler in purchasing keys. Engraving of keys is an option at additional cost; keys will be shipped without engraving unless engraving is requested for some or all keys on the order. Indicate by serial number whether a key or a keypin is to be engraved, and give initials and full last name of the member. Engraving will include the name, plus the Greek letter for the chapter, the name of the university, and the year of initiation.

SPECIAL INSTRUCTIONS TO CHAPTER SECRETARIES
INCLUDING
SPECIFIC INSTRUCTIONS FOR COMMUNICATIONS WITH NATIONAL OFFICE
(Continued)

A. Initiation Orders (Continued)

5. Society official order forms

Two copies of this form (1 white and 1 in color) must accompany all orders involving a remittance. An exhibit copy is attached.

6. CURRENT PRICE LIST

National Initiation Fee	\$20.00
Membership Certificate (New Member)	NO CHARGE
Membership Certificate (Replacement)	1.85
Key, Balfour Golden Finish	19.45
Keypin, Balfour Golden Finish	22.40
Lapel Button (recognition)	3.95
Tie Tac	3.95
Engraving (per Key or Keypin)	2.00
Small Order Charge (Key Orders for Under \$20.00).	2.00
Invitations to Membership (box of 50)	10.00
Invitations to Membership (box of 100)	19.00
Photographs of Fresenius, Liebig or vant Hoff	
11" X 14", unframed, each	6.50
11" X 14", framed, each	12.00
Subscription renewals to <u>The REGISTER</u>	
One Year	2.00
Five Years	8.00
LIFE Subscription	20.00

Please note that once a member is initiated, no further Membership or Annual Dues are remitted to the National Secretary. Note also that the purchase of jewelry of any kind is entirely at the option of the individual.

7. Remittance

Be sure remittances are made for the correct total amount due. Remittances may be made by bank draft, personal check, or by Post Office or Express money order, although checks are preferred. They should be made payable to Phi Lambda Upsilon Honorary Chemical Society. In computing remittance, state and city sales taxes must be included. All remittances are to be sent to the National Secretary.

SPECIAL INSTRUCTIONS TO CHAPTER SECRETARIES
INCLUDING
SPECIFIC INSTRUCTIONS FOR COMMUNICATIONS WITH NATIONAL OFFICE
(Continued)

A. Initiation Orders (Continued)

8. Time Allowance on orders

It is important that initiation supplies be ordered in advance of the date of initiation. Initiates are entitled to receive their keys and certificates at the time of initiation. At least six weeks should be allowed for filling and receiving certificate and key orders.

B. Reports

1. Formal reports

The By-Laws, Article VIII, Section 4, requires chapter secretaries to submit the following reports to the National Secretary: (1) a resident member roll, including students and faculty, each June; (2) a report of chapter activities for the current year, each June; and (3) a listing of the names and addresses of chapter officers, each time they are changed.

2. Informal report of chapter activities

In the Fall issue of THE REGISTER, narrative reports of the activities of the chapters are printed. These reports cover the activities during the academic year concluded the previous Spring. Therefore, the chapter secretary is asked to submit to the Office of the National Secretary such a report in the Spring at the close of the academic year when activities have been completed and while chapter officers who conducted the program are still on campus for consultation. These reports are accumulated in the Office of the National Secretary and forwarded to the National Editor to meet an early Fall deadline.

C. Official Stationery

Official stationery with Society letterhead may be ordered directly from the L. G. Balfour Company. Order forms and price lists will be provided by the Office of the National Secretary upon request.

D. Correspondence

The National Secretary's office regularly communicates with the Chapter on matters of importance to the welfare and progress of the Society and its individual chapters. This is done through the

SPECIAL INSTRUCTIONS TO CHAPTER SECRETARIES
INCLUDING
SPECIFIC INSTRUCTIONS FOR COMMUNICATIONS WITH NATIONAL OFFICE
(Continued)

D. Correspondence (Continued)

medium of mailed newsletters and official proceedings. These are to be given prompt and careful attention by the chapter officers and, in addition, are to be brought before the chapter in a regular business meeting. Official proceedings should be filed with the official chapter correspondence for future reference. The National Secretary's office is ready at all times to render service to the chapters and should be called upon whenever assistance is needed.

SOCIETY OFFICIAL ORDER FORM

(Reproduced below 70% Actual Size)

PHI LAMBDA Upsilon



SOCIETY OFFICIAL ORDER BLANK
1980 - 1981

TO: Dr. Joseph L. Greene, Jr.
National Secretary
Phi Lambda Upsilon
321 Saunders Laboratory
Auburn University, AL 36849

Submit in Duplicate (1 color, 1 white)

Chapter (or Indv.) _____

Date: _____

Please enter our(my) order for the following:

No.	Item	Total
_____	Initiation Fees, at \$17.00 (\$20.00 after 30 June 1981) - - - - -	\$ _____
_____	PLU Key, Balfour No. 504 at \$16.20 - - - - -	_____
_____	PLU Keypin, Balfour No. 505 at \$18.65- - - - -	_____
_____	PLU Lapel Button, Balfour No. 600 at \$3.95 - - - - -	_____
_____	PLU Tie-Tac, Balfour at \$3.95- - - - -	_____
_____	Engraving on Key or Keypin, Balfour at \$2.00 - - - - -	_____
_____	Membership Certificate, Replacement, Balfour at \$1.85 - - - - -	_____
_____	Invitation to Membership at \$5.00/25- - - - -	_____
_____	Invitations to Membership at \$19.00/100 - - - - -	_____
_____	* <u>REGISTER</u> Subscription, 1 year at \$2.00 - - - - -	_____
_____	<u>REGISTER</u> Subscription, 5 years at \$8.00 - - - - -	_____
_____	<u>REGISTER</u> Subscription, For LIFE at \$20.00 - - - - -	_____
_____	Handling fee of \$2.00 on all jewelry orders less than \$20.00- - - - -	_____
_____	**State and City Sales Tax on all jewelry, engraving and replacement Membership Certificates - - - - -	_____
_____	*** <u>TOTAL</u> REMITTED WITH THIS ORDER- - - - -	_____


Name and Address of Chapter (or person) submitting this order:

* REGISTER charges are for renewals only; new initiates receive The REGISTER for two years free of charge.

** This is the total State and City Sales Tax at point of origin of the order. If in doubt, consult your local tax tables.

***REMITTANCE IN FULL MUST ACCOMPANY ALL ORDERS. All orders are to be sent to the Office of the National Secretary. Please do not send cash. Make all checks or Money Orders payable to PHI LAMBDA Upsilon.

BALFOUR MEMBERSHIP CERTIFICATE ORDER FORM
(Reproduced below 70% actual size)

PROD. CODE 7134	TAX/ZIP	TERMS NET 10	SLAN. NO. 142	COMM. 6	DATE SHIPPED	No. 4517832
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 30%;"> DIV. 18 TOO </div> <div style="width: 30%; text-align: center;">  Balfour </div> <div style="width: 30%; text-align: center;"> MEMBERSHIP CERTIFICATE ORDER </div> <div style="width: 10%; border: 1px solid black; padding: 2px;"> SHIPPING DATE </div> </div>						
DATE ENTER OUR ORDER FOR		REGULATION CERTIFICATES: ENGROSSING INSTRUCTIONS BELOW				
SHIP TO						
SPECIAL INSTRUCTIONS			NAME OF FRATERNITY OR ORGANIZATION			

MEMBER'S NAME (INDIVIDUAL ADDRESSES WHERE NECESSARY)	CHAPTER AND/OR SCHOOL	DATE	FOR FACTORY USE, DO NOT WRITE BELOW
<small>Please typewrite: Be sure carbon copies are clear and corrections made on all copies.</small>			
			<div style="text-align: right; margin-bottom: 10px;">PC4010</div> <div> <div style="border-bottom: 1px solid black; width: 100%; margin-bottom: 2px;">NET SALE</div> <div style="border-bottom: 1px solid black; width: 100%; margin-bottom: 2px;">TAX</div> <div style="border-bottom: 1px solid black; width: 100%; margin-bottom: 2px;">DEPOSIT</div> <div style="border-bottom: 1px solid black; width: 100%; margin-bottom: 2px;">TOTAL</div> <div style="border-bottom: 1px solid black; width: 100%; margin-bottom: 2px;">SHIPPING CHARGES</div> <div style="border-bottom: 1px solid black; width: 100%;">BALANCE DUE</div> </div>

SIGNED BY

COPY NO. 1

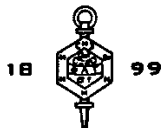
NOTE: DO NOT REMOVE CARBONS.
SEND COPIES 1-2-3-4 TO L. G. BALFOUR CO., ATTLEBORO, MASS. 02703

(Reproduced below 70% actual size)

-33-
Manual
1 July 1981

INVITATION TO MEMBERSHIP
(Reproduced below 89% Actual Size)

PHI LAMBDA Upsilon
NATIONAL HONORARY CHEMICAL SOCIETY



*In recognition of your scholastic and
personal achievements in the field of chemistry,
_____ Chapter
has nominated you for membership in the
National Honorary Chemical Society.*

Outside

The Initiation

Date: _____

Time: _____

Place: _____

Acknowledgement

Please notify _____

at _____

by _____

*your intention to accept or to decline
this invitation to membership in the Society.*

PHI LAMBDA Upsilon MEMBERSHIP CARD — FOR NATIONAL SECRETARY'S OFFICE

Name (in full) _____
 Permanent address _____
 Chapter _____ Institution _____
 Present position _____ Special field _____
 College _____ Major _____ Degree _____ Date _____
 Signature Initiate _____ Signature National Secretary _____
 Date of initiation _____

PHI LAMBDA Upsilon MEMBERSHIP CARD — FOR CHAPTER FILE

Name (in full) _____
 Permanent address _____
 Chapter _____ Institution _____
 Present position _____ Special field _____
 College _____ Major _____ Degree _____ Date _____
 Signature Initiate _____ Signature Chapter Secretary _____
 Date of initiation _____

REGISTER OF PHI LAMBDA Upsilon

(Type or print in allotted spaces)

(1-20) []

(Last name, first name, middle initial)

Chapter..... [] [] (61-62)

Date of Initiation..... [] [] (63-64)

(21-40) []

(Street address; best for mailing next two years)

(41-60) []

(City)

(State)

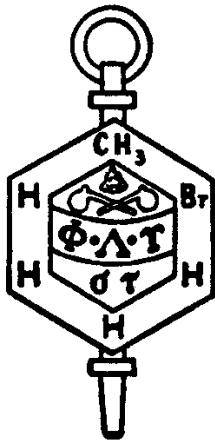
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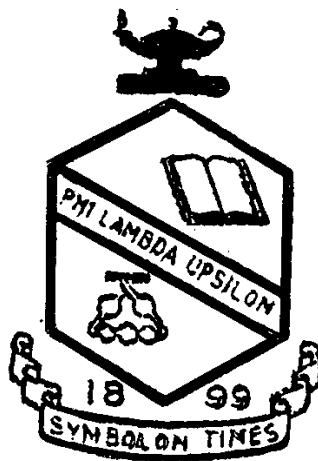
BEGIN

EXPIRE



THE KEY

PHI LAMBDA Upsilon INSIGNIA



THE CREST



THE SEAL

QUALIFICATIONS FOR MEMBERSHIP

Before proceeding with the election of members into any chapter, the chapter eligibility committee should thoroughly familiarize themselves with the following parts of the National Constitution and By-Laws.

Constitution - Article III, Section 2
Article III, Section 4

By-Laws - Article VI, all Sections

Special note of the basis of election given in Section 3, the types of membership given in Section 4, and the votes on membership given in Section 5 should be made. If any misunderstandings as to the meaning of these regulations exist, they should be referred to the Chairman of the National Constitution and By-Laws Committee, the National Secretary, for interpretation.

The basic qualifications for membership are as follows:

1. Candidate must be of Junior, Senior, Graduate Student or of professional rank and, if a student, be registered in a regular session of the University or College where he or she is in attendance.
2. Candidate must have major in or be majoring in Chemistry, Chemical Engineering, or in some closely allied field.
3. Candidate, if a student, must have a minimum 3.0 grade point average on a 4.0 scale.
4. The Department of Chemistry of the Student Candidate's College or University must be fully accredited by the American Chemical Society.

The above requirements are those of the National Society and apply to all candidates whether to be initiated by an active chapter or at-large.

Individual chapters of the Society are permitted to strengthen these requirements but may not weaken them in any manner.

SUGGESTED CHAPTER ACTIVITIES

Chapter activities can be divided into three basic areas a) activities meant to provide funds for chapter operations, b) activities centered in chemistry and in chemically related departments, and c) activities related to the university and community as a whole.

A. Fund raising operations have been listed in many previous reports of the Chapter Activities Committee at the triennial convention. Only the commonest means employed by chapters to raise funds will be repeated here.

- (1) Sale of:
 - a. laboratory aprons
 - b. safety glasses
 - c. slide rules
 - d. molecular models
 - e. McBee keysort cards
 - f. laboratory safety manuals prepared by the local chapter, and
 - g. C.R.C. handbooks
- (2) Solicitation of financial support from the chemistry department and graduate and undergraduate student associations.
- (3) Operations of vending machines and coffee concessions.
- (4) Preparation and sale of answer keys for past exams in undergraduate courses after first ascertaining departmental approval.

B. Activities centered in chemistry and chemically related departments were deemed important. These activities can promote scholarship, perform services to the departments or students, or promote rapport between students and faculty. Some activities that have been successful for various chapters are listed below.

- (1) Prearrival information for incoming graduate students to familiarize them with facilities available in the department, university, and local community.
- (2) Orientation of incoming graduate students including an in-depth study of the research interests of faculty members, degree requirements and criteria for the selection of research directors, and whatever else the chapter deems suitable.
- (3) Undergraduate or graduate awards for excellence in scholarship or research (e.g. trophies, textbooks, subscriptions to scientific journals,)
- (4) Donations to libraries or department reading rooms.
- (5) Tours of local industrial facilities.
- (6) Preparation of safety demonstrations, lectures, and newsletters regarding the use of hazardous chemicals and procedures.
- (7) A lecture series by noted speakers to promote more interest in the chemical field. Such a program could be funded with the aid of the local industry or co-sponsored with other local scientific societies.

- (8) Meetings-in-Miniature consisting of a series of talks by graduate students such as those nearing the fulfillment of the requirements of a Ph.D. degree. These could be sponsored jointly among neighboring PLU chapters to stimulate a broader base of interest or with institutions not having PLU chapters in order to stimulate interest in the organization.
- (9) Establishment of a tutorial referral service in line with the departmental policies of the individual institutions.

NOTE: We believe that activities 1 and 2 could help chapters acquire student interest and publicize the name of PLU among the students.

- C. We feel that it will be in the best interest of the society that the chapters become involved in community projects as well as department functions. Familiarization of the public with chemical facts pertinent with their needs should be an important part of PLU activities. When these projects are undertaken, due consideration should be given to
- a) publicizing these events by all available means,
 - b) communicate effectively to the audience, and
 - c) assuring the accuracy of the scientific content as far as possible.

We believe tht it would be advisable for the chapters to keep up with chemical or chemical related problems. It is in this area that PLU has the advantages of both expertise and reputation. Some suggested activities would be as follows:

- (1) Recycling of reusable material (e.g. glass, paper, solvents, metals, etc.)
- (2) Discussions, workshops or community forums on current or controversial issues.
- (3) Dissemination of common and useful chemical knowledge to the public.
- (4) Preparation of non-technical studies of current research in chemistry or related fields to be made available to the general public.
- (5) High School visitation by chapter members to promote interest in college, and chemistry or related fields or departmental visitation by high school students.
- (6) Opinions on chemical or chemically related issues may be expressed by local chapters.

It is our experience that personal contact rather than written communication is an effective stimulus toward getting members to participate in chapter activities

(Reprinted from Chapter Activities Committee Report, 23rd National Convention)

PHI LAMBDA Upsilon

HONORARY CHEMICAL SOCIETY

NATIONAL CONSTITUTION

1 JULY 1990

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Constitution 1
(1 July 1990)

The
NATIONAL CONSTITUTION
of
PHI LAMBDA UPSILON
Honorary Chemical Society

Article I. Name and Objective

Section 1. The name of this organization shall be PHI LAMBDA UPSILON, Honorary Chemical Society*.

Section 2. The object of this Society shall be the promotion of high scholarship and original investigation in all branches of pure and applied chemistry.

Article II. Chapters

Section 1.

(a) A chapter of this Society may be established in an institution of learning in the United States of America which offers a major in chemistry and is on the approved list of schools meeting the American Chemical Society's minimum standards for undergraduate professional education in chemistry, or offers a major in chemical engineering which is approved by the American Institute of Chemical Engineers and offers a major in chemistry requiring at least thirty (30) semester credit hours in chemistry courses for graduation. A chapter of this Society may be established in an institution of learning in Canada after determination by the National Officers that the institution meets the minimum standards of the American Chemical Society and/or the American Institute of Chemical Engineers as indicated in the previous sentence.

(b) For establishment of a new chapter, a local honorary society, approved by college administration authorities shall have been in existence for at least one (1) year before consideration may be accorded this group by the National Expansion Committee. Furthermore, the local honorary group shall comprise members of the faculty and students, whose scholastic records meet the requirements of the Society, in sufficient number to maintain an active chapter as judged by the National Expansion Committee.

Section 2. Approval of a petition for the establishment of a new chapter shall require the affirmative vote of at least three-fourths of the votes cast by the Administrative Council and the chapters combined, providing that at least a simple majority of possible ballots have been received. Each chapter and each member of the Administrative Council shall be entitled to cast a vote.

*Incorporated under the laws of the State of Illinois, March 12, 1913.
Letters registered in the United States Patent Office, August 4, 1931.

Constitution 2
(1 July 1990)

Section 3. The procedure for the establishment of chapters shall be set forth in the By-Laws of this Constitution (cf. National By-Laws, Article V.).

Section 4.

(a) A chapter shall be declared inactive by the National Secretary if, in two (2) consecutive academic years, the chapter initiates no new members. The academic year is defined as the period from July 1st through June 30th.

(i) The National Secretary shall notify the chapter, the Chapter Councillor, and the National Executive Committee of inactive status. Also at this time, the National Secretary shall notify the chapter and the principal administrator of the department that all of the chapter's records, including an inventory of these records, must be sent to the National Historian, within one (1) year, if the chapter remains inactive. Transportation costs will be borne by the Society. These records will be returned to the chapter upon its reactivation, the chapter bearing transportation costs.

(ii) If the chapter is without officers, a group of at least two (2) members of the Society on campus may request of the National Secretary authorization to elect and to initiate new members, and to provide for the election of officers. The National Secretary shall have the power to grant such authorization.

(iii) Given approval by the National Executive Committee the National Secretary shall remove the chapter from inactive status upon receipt of a letter of intent from a faculty member. Furthermore, evidence from the Chapter Officers of a firm desire and preparation to initiate new members must be submitted.

(b) If a chapter remains in inactive status for three (3) consecutive years from the time it is declared inactive, the National Secretary shall suspend the Charter of the chapter.

(c) If any chapter of the Society, of whatever status, shall act in violation of the Society's Constitution the Administrative Council shall have the power to take such action as it may seem fit, including Charter suspension or withdrawal.

(d) Given approval by the National Executive Committee the National Secretary shall annul a Charter suspension upon receipt of evidence from the chapter officers of a firm desire and preparation to initiate new members, and/or evidence that any Constitution violations have ceased. Furthermore, a letter of intent from a faculty member should be submitted.

(e) For re-establishment of a chapter after Charter withdrawal, the formal procedures specified in this Constitution, Article II, Sections 1, 2 and 3, for the establishment of a new chapter shall be required.

Constitution 3
(1 July 1990)

Section 5. The chapters shall be named with Greek letters in alphabetical order according to the time of their installation, provided that chapters beyond the twenty-fourth (24th) be designated by double letters, Alpha (alphabet); beyond the forty-eighth (48th), Beta (alphabet), etc., as is customary in Greek-letter organizations.

Section 6. Composite Chapters:

(a) Any chapter of the Society may be authorized by the National Secretary to form a composite chapter with affiliated groups of members located at undergraduate, degree-granting institutions in its vicinity and to elect members from such institutions, provided that the candidates proposed for membership possess the qualifications set forth in this Constitution, Article 3 (cf. National By-Laws, Article VI.). The National Expansion Committee shall grant prior approval of institutions at which such affiliate groups of members may be established in accord with this Constitution, Article 2, Section 1(a). For the purpose of this Section, the individual group of such a composite chapter which was originally chartered as a chapter by the Society shall be referred to as the "central chapter".

(b) Any such composite chapter shall have the power to solve its own problems of organization, selection of chairmen at affiliated campuses, and the holding of joint meetings.

(c) Election to membership and other official actions involving the affiliate groups of such composite chapters shall be held only at the location of the central chapter; provided-

(i) That each affiliate group may name its own committee on eligibility and nominate for membership individuals who meet the requirements of this Constitution, Article III (cf. National By-Laws, Article VI.);

(ii) That each affiliate group be represented, at elections and other business meetings of the central chapter, by one (1) or more representatives who shall present the names of worthy candidates for membership nominated by the affiliate group, together with scholarship ratings and other information which may be required. The voting representation of any affiliate group in the central chapter is such as may be mutually agreed upon by the various groups concerned.

(d) All business of such composite chapters with the National Office, relating to initiations or any other activity, shall be transacted by the central chapter only.

(e) The initiation of new members, elected from the several associated branches shall be held at the location of the central chapter or at any of the branch locations which may be selected as mutually agreeable to all concerned.

Constitution 4
(1 July 1990)

Article III. Membership

Section 1. The Society shall consist of members and Honorary Members.

Section 2.

(a) The membership of the Society shall consist of:

(i) Graduate students;

(ii) Undergraduate students of junior and senior rank who are duly elected (cf. National By-Laws, Article VI.).

(iii) Individuals who are affiliated with institutions of learning where chapters are located, in some capacity other than that of registered student;

(iv) Individuals of recognized ability in their respective branches of chemistry, but who are not classified in any of the former categories. These elections should include only individuals who are making noteworthy contributions to chemistry and whose character, reputation, and influence would be a distinct asset to the Society.

(b) Student members must be registered in the regular session of the university; majoring in chemistry or chemical engineering or some other applied chemical field; or be active in research or administration in chemistry, chemical engineering, or some other applied chemical field; and participate in and support the activities of the chapter.

(c) Nominees for membership shall have declared their intention of following chemistry or chemical engineering or any other field of applied chemistry, as a profession.

Section 3. Honorary Members shall be individuals of national reputation and of high attainments.

Section 4. Eligibility for membership shall not be limited by race, color, creed, national origin, or sex.

Section 5. A member of any chapter who may change residence shall have the right to affiliate with any other chapter if information from the member's own chapter or the National Secretary certifies the member to be in good standing. Any such member shall have the privilege of becoming a Charter Member of a new chapter, if invited to do so by the petitioning group (cf. National By-Laws, Article VI, Section 12(d)).

Section 6. Any member desiring to resign membership in the Society shall do so in writing to the National Executive Committee, through the local chapter secretary, at the same time surrendering the Membership Certificate and key.

Constitution 5
(1 July 1990)

The National Executive Committee shall have the power to act upon such resignation.

Section 7. If any member of the Society, of whatever classification, shall use membership in an unethical way, the National Executive Committee shall have the power to take such action as it may see fit.

A unanimous vote of the National Executive Committee shall be required for action in such cases.

Section 8. All members of the Society shall be initiated according to an official ritual of the Society (cf. National By-Laws, Article VI, Section 10.).

Article IV. Insignia

Section 1. The emblem of the Society shall be a key, the general form of which is hexagonal. On this key, typical of the character and purpose of the organization, is a chemical formula, that of ortho-bromotoluene, the letters thereof being on the outer band of the emblem. Across the center is a horizontal band on which are the letters, Phi, Lambda and Upsilon. Above this band are crossed retorts and a Liebig bulb; and below it, the letters, sigma and tau, which are the initial letters of the motto of the Society.

Section 2. The colors of the Society shall be the pink and blue shades of litmus.

Section 3. The Official Seal and Emblem of the Society shall embody features of design as shown in the following illustration:

Official Seal

Society Emblem
(The Key)

Section 4. All jewelry of the Society shall be standardized and approved by official chapter proceedings and shall be purchaseable only through the Office of the National Secretary.

Section 5. A chapter shall have the right to use the designs of the insignia on chapter stationery or official programs of the chapter. Those wishing to use the insignia for any other purpose must request prior permission from the National Secretary.

Constitution 6
(1 July 1990)

Article V. Chapter Administration

Section 1. The elective chapter officers of the Society shall be President, Vice President, Secretary, Treasurer, Councillor, and Alumni Secretary. The office of Alumni Secretary is optional, but in the absence of an Alumni Secretary, the local chapter shall designate another member to perform these duties.

Section 2. Chapter officers, whenever possible, shall be elected in the Month of April or May to serve for one (1) year, with the exception of Councillor, whose term of office shall be two (2) years and the Alumni Secretary whose term of office shall be fixed by the chapter.

(a) A majority vote of the active chapter membership shall be sufficient to elect any officer, and a three-fourths majority shall be necessary to remove an officer at any time.

(b) The newly elected officers shall not assume their respective offices until they have been duly installed. Such installation shall occur before the close of the academic year during which such officers were elected, whereupon they shall immediately take office. They shall be installed according to an official ceremony adopted by the Society, or according to any other appropriate ceremony adopted by the chapters.

(c) Should any chapter office fall vacant, a successor shall be elected to hold office until the next regular election of chapter officers.

Section 3. The duties of each officer shall be those normally pertaining to that office and are enumerated in the By-Laws to this Constitution (cf. National By-Laws, Article 7, Section 4.).

Section 4. Guidelines for chapter meetings, Records, and Dues must be followed as described in the By-Laws to this Constitution (cf. National By-Laws, Article VII.).

Section 5. Chapter Jurisdiction. The chapters shall have sole jurisdiction in official proceedings involving the following:

- (a) Amendment of the National Constitution and By-Laws;
- (b) Enactment of new legislation affecting the chapters;
- (c) Changes in the initiation fee and other sources of income;
- (d) Utilization of the Society's reserve funds;
- (e) Changes in emblems and insignia;
- (f) Election of the National Officers; and

Constitution 7
(1 July 1990)

(g) Any other matters relating to the welfare of the individual chapters.

Article VI. National Society Administration

Section 1. The National Executive Committee for the administration of the Society's affairs during the triennium shall consist of the National Officers (cf. Article VII of this Constitution), and the most recently retired National President (cf. National By-Laws, Article 2, Section 2.).

Section 2.

(a) The Administrative Council shall be the general governing body of the Society between Congress sessions and shall consist of the National Officers, the two (2) most recently retired Past Presidents, and the Councillor and President of each active chapter with the National President as Chairman.

(b) The Administrative Council shall have sole jurisdiction in official proceedings involving the election of Honorary Members and other matters of policy relating to the Society at large providing that such action does not conflict with the jurisdiction of the chapters as defined in this Constitution, Article V, Section 5.

Section 3. The National Congress shall perform the function of:

- (a) Determining the national policy of the Society;
- (b) Interpreting the provisions of the National Constitution and By-Laws, proposing amendments to the National Constitution for subsequent chapter approval, and amending the By-Laws;
- (c) Determining the triennial budget of the Society; and
- (d) Acting as a final court of appeal.

Article VII. The National Officers

Section 1. The National Officers of the Society shall be the National President, National Vice-President, National Secretary, National Treasurer, National Historian and National Editor.

Section 2. The duties of the National Officers shall be such as usually pertain to their respective offices and those enumerated in the By-Laws to this Constitution (cf. National By-Laws, Article VII.).

Section 3. The National Officers shall be elected triennially by secret ballot of the individual members of the chapters.

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(1 July 1990)

(a) Nominations of National Officers shall be made by secret ballot of the official chapter delegates at the triennial National Congress of the Society. Provision shall be made to allow additional post-Congress nominations by the chapters.

(b) In advance of the National Congress the chapters shall be invited to propose qualified candidates and shall be furnished a list of candidates who have been duly proposed.

Section 4. Any member in good standing who has shown an active interest in the affairs of the Society and who possesses the necessary qualifications shall be eligible for election to a National Office.

Section 5. The National Offices shall be distributed, as far as possible, in different geographical locations.

Section 6. The newly elected officers shall assume their respective duties on the first (1st) day of July immediately following the election.

Section 7. The National Officers shall serve for a period of three (3) years, or until their successors are duly elected.

(a) If for any reason the office of National President shall become vacant, the National Vice-President shall immediately succeed to this office and fill the unexpired term. Should any of the other National Offices fall vacant, the Executive Committee shall appoint a successor to serve for the remainder of the triennium.

(b) Any National Officer may be removed from office by a three-fourths majority of the Administrative Council.

Section 8. Tenure of office by each of the National Officers shall be limited to two (2) terms of three (3) years each, except as provided for in sub-Section (b) of this Section.

(a) Former tenure of any office shall not be construed as disqualifying such officer from election to another National Office, provided the officer has the necessary qualifications.

(b) Under exceptional circumstances, economic or otherwise, the terms of National Secretary, National Treasurer, National Historian, and National Editor may be extended beyond the limit fixed in this Section, if such extension appears to serve the best interests of the Society; provided, however, that such tenure shall in no case exceed four (4) terms.

Section 9. For purposes of conforming to the Corporation Laws of the state under which the Society is incorporated, the National Officers and the two most recently retired National Presidents shall be designated as the "Board of Directors" of the Society.

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(1 July 1990)

Section 10. The National Officers, together with the two (2) most recently retired National Presidents shall act as a court of appeal between Congress sessions.

Section 11. No chapter letter, official proceeding or announcement other than routine notices of national deadlines shall be sent to the Councillors or chapters from any of the National Officers, unless previously submitted to, and approved by, the National President. At the National President's discretion, such proposed communications may be submitted to the Executive Committee for consideration and approval.

Article VIII. The National Congress

Section 1. A regular Congress of the Society shall be held every three (3) years, at least three (3) months in advance of July first (1st), the termination date for the term of office of the National Officers, and preferably the preceding summer, or at a time immediately preceding or following a chemical meeting of national importance.

The National Executive Committee, under extreme circumstances and in the interest of economy, may call the Congress not earlier than two (2) years nor later than four (4) years after the preceding Congress session.

Section 2. The Congress shall consist of the following members: one (1) official delegate from each chapter, each of whom shall have an equal right of suffrage; each of the present National Officers; and the two (2) most recent past National Presidents who are available. (cf. National By-Laws, Article III, Section 1.).

Section 3. Each delegate, in order to have a seat in Congress, shall present credentials signed by the secretary of the delegate's chapter.

Section 4. Delegates from two-thirds of the active chapters shall constitute a quorum at the Congress.

Section 5. Procedure in Congress shall conform in general to "Robert's Rules of Order" (cf. National By-Laws, Article III, Section 5.).

Section 6. The National Congress shall perform the functions listed in Article VI, Section 3 of this Constitution.

Article IX. The REGISTER

Section 1. The official publication of the Society shall be known as "The REGISTER of Phi Lambda Upsilon".

(a) It shall be published twice a year, one (1) issue being designated as a chapter number, such issue being devoted primarily to reports of chapter

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activities.

(b) It shall contain articles of scientific importance, items concerning the academic or scientific achievements of members, installation of new chapters, etc., etc.

Section 2. The REGISTER shall be distributed by the National Editor as follows:

(a) New initiates shall receive The REGISTER as part of the initiation fee, for a term following their initiation to be decided by the Administrative Council or the National Congress.

(b) Honorary Members shall receive The REGISTER, gratis, for life.

(c) Subscriptions to The REGISTER may be renewed upon payment of rates as prescribed by the By-Laws to this Constitution (cf. National By-Laws, Article IV, Section 4.).

Article X. National Awards

Section 1. The Society shall sponsor an award to be presented to a chemist, chemical engineer, or biochemist who is under the age of thirty-five (35) at the time of nomination and who has made outstanding contributions to chemistry through research education or administration in the fields of pure and applied chemistry. The award shall be known as the Phi Lambda Upsilon Fresenius Award.

(a) The Award shall consist of a plaque of suitable design (cf. National By-Laws, Article II, Section 2(c)).

(b) The Award shall be administered by the National Awards Committee (cf. National By-Laws, Article II, Section 10.).

(c) Only active chapters and members of the Executive Committee may submit nominations, and each chapter may submit one (1) nomination per year. This nomination will be considered for one (1) award only and a new nomination must be submitted if the respective chapter or member of the Executive Committee wishes to have the National Awards Committee reconsider an individual in subsequent years.

(d) The Award shall be presented by the National President or a representative delegated by the National President at a meeting mutually agreeable to the recipient and to the Society.

Section 2. In gratitude for services rendered the Society, distinction in the form of a suitable key may be accorded members of Phi Lambda Upsilon who have assumed national responsibilities in the Society. This Award shall be known as the National Distinguished Service Award.

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(a) This distinction may be awarded to all National Officers upon completion of six (6) years of service.

(b) The financing of these awards shall be from the funds of the National Society.

(c) An appropriate key shall be selected and the awards administered by the most recent living Past National President of the Society to individuals designated by the Executive Committee.

Article XI. National By-Laws

Section 1. The National Society may adopt rules and by-laws to outline the methods by which the Society shall transact business.

Section 2. A By-Law may be adopted by a three-fourths majority vote in Congress or by chapter vote. A three-fourths majority of chapters reporting their vote in the two (2) month period starting the day the proposed By-Law was mailed to the chapters must favor the By-Law for adoption.

Article XII. Amendments to the Constitution

Section 1. Amendments to the National Constitution may be proposed by the triennial Congress, or by the chapters, or by the Administrative Council, or by the Committee on Constitution and By-Laws, for approval by the chapters. Any such proposal, in order to warrant consideration by the chapters, shall come as a seconded motion, supported by one (1) or more chapters. If submitted by the Administrative Council, such proposal shall be supported by one (1) or more members of the Council. If submitted by the Committee on Constitution and By-Laws, such proposal shall have been approved by a majority of the members of the Committee.

Section 2.

(a) Such proposal of amendments to the National Constitution shall be transmitted to the National Committee on Constitution and By-Laws through the Office of the National Secretary. Following action by the Committee and upon order of the National President, these proposed amendments shall be published in at least one (1) issue of The REGISTER, containing also a statement of any favorable and non-favorable action by the National Committee on Constitution and By-Laws as well as any comments received from the membership concerning approval or disapproval of said amendments. Following publication of the proposed amendment, the National Secretary shall prepare official proceedings for each proposed amendment and send these without delay to the chapters for their adoption or rejection.

(b) The chapters in obtaining a vote from their members on the proposed amendment shall circulate to their entire resident membership a written

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ballot along with such information as may be necessary for a fair consideration of the amendment. The chapter shall proceed to vote upon the amendment within a thirty (30) day period by any method deemed advisable, and the chapter secretary shall poll the votes of the members of the chapter as to number favorable, number unfavorable, and number not voting. The result of the chapter vote shall be certified to by the chapter President and Councillor and forwarded to the National Secretary for compilation.

Section 3. At least two-thirds of the votes cast must approve the amendment for the vote of the chapter to be favorable. A three-fourths majority of the active chapters reporting their vote on the amendment to the National Secretary within the two (2) month period starting the day the proposed amendment is mailed to the chapters, must favor the amendment for its adoption.

Section 4. The National Secretary shall duly transmit to the chapters and National Officers the result of the vote on such amendments.

END
of the
NATIONAL CONSTITUTION
of
PHI LAMBDA Upsilon
Honorary Chemical Society

PHI LAMBDA Upsilon

HONORARY CHEMICAL SOCIETY

NATIONAL BY-LAWS

1 July 1990

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By-Laws 1
(1 July 1990)

NATIONAL BY-LAWS
of
PHI LAMBDA Upsilon
Honorary Chemical Society

Article I. Administrative Council Regulations

Section 1. Any member of the Administrative Council may at any time submit to the National President a proposal which involves the Society at large. (See National Constitution, Article XIII, Section 1.).

Section 2. If Council action on such a proposal is deemed advisable, the National President shall instruct the National Secretary to transmit the same to the members of the Council for their vote.

Section 3. An affirmative majority vote shall suffice for the adoption of such a measure unless the National Constitution or By-Laws specifically provide otherwise.

Section 4. The votes of Administrative Council members shall not be counted if received later than one month from date of the original communication from the National Secretary provided that enough votes have been received to take action on the issue in question.

Section 5. Upon completion of the vote on a proceeding, the National Secretary shall transmit the ballots to the National President for checking. The result of the vote shall be officially announced by the National President, or, upon the National President's direction, by the National Secretary.

Article II. National Committees

Section 1. All Committees except the Executive Committee shall be appointed by the National President, and shall serve for the triennium for which the National President is elected. The National President shall be, ex-officio, a member of all such committees.

Section 2. The Executive Committee shall be constituted as provided in Article VI, Section 1, of the National Constitution.

(a) This Committee shall have charge of the general administration of the Society's affairs during the triennium.

(b) It shall serve as the Budget Committee for the National Congress prior to the Congress for funding of necessary expenditures regarding the National Congress.

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(c) The National Executive Committee shall be empowered to utilize the Phi Lambda Upsilon Fresenius Award Fund to support the administration of the Award, preferably at the site of the nominating chapter, including the fostering of an optional Fresenius Lecture at another chapter of the Society.

Section 3. The Expansion Committee shall consist of several alumni with the National Vice-President as Chairman. The Committee shall investigate all petitions for new chapters and recommend action by the Administrative Council and chapters. (Cf. National By-Laws, Article 5, Section 3.)

Section 4. The National Constitution and By-Laws Committee shall consist of not less than five members, with the National Secretary as Chairman.

(a) This Committee shall make a critical study of the national code with the view of eliminating obsolete regulations and conforming it more closely to existing conditions.

(b) This Committee shall submit proposals of revisions to the chapters for approval.

Section 5. The Finance Committee shall consist of the National Treasurer, National President, and either a past National President or a past National Treasurer and shall serve throughout a triennium.

(a) The function of this Committee shall be to study the investment of surplus funds of the Society in safe, interest-bearing securities. It shall supervise the financial structure of the Society.

(b) It shall submit recommendations of investment to the National President, and if deemed desirable by the Executive Committee, the National Treasurer shall be instructed to purchase the securities recommended.

Section 6. The Public Relations Committee shall consist of any convenient number of members. This Committee shall assist with the officers of the chapters and The REGISTER Committee in publicizing news of interest concerning the chapters and their members.

Section 7. The REGISTER Committee shall consist of the National Editor, as Chairman, and any convenient number of members including, however, representatives from at least two of the active chapters.

(a) The REGISTER Committee shall recommend action on all matters pertaining to The REGISTER.

(b) It shall set up a definite editorial and administrative policy in conformity with the aims and purposes of the Society.

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Section 8. The Chapter Relations Committee shall consist of any convenient number of alumni members holding positions which enable them to travel.

The duties of this committee shall be to visit local chapters whenever possible to discuss with the local officers and Councillor any subject pertinent to the welfare of the chapter, to report periodically to the Executive Committee on the status of chapters visited, to offer lectures before chapters which are otherwise unable to obtain speakers, and to generally aid and encourage small chapters and chapters in danger of dormancy.

Section 9. The National Awards Committee shall consist of five (5) members who shall hold office for a term not exceeding three (3) years. This Committee shall administer the Phi Lambda Upsilon Fresenius Award as described in Article X of the National Constitution.

Section 10. The Committee on Honorary Membership shall consist of the National President, one to three honorary members appointed by the National President, and the three most recently retired Past National Presidents. If one of the most recently retired Past National Presidents is unable to serve however, the next most recently retired Past National President shall serve as a substitute.

(a) Honorary members shall be nominated by local chapters or honorary members.

(b) Each nominator shall be limited to two nominations in any one year.

(c) The nominator shall submit a letter of nomination and a biographical sketch of their nominee including publications authored, positions held, honors received, and services rendered.

(d) Honorary nominees shall be evaluated by the Committee on Honorary Membership appointed by the National President in accordance with Article II, Section 10. When a nominee is not approved by a two-thirds majority of the Committee on Honorary Membership, a statement to this effect shall be presented by the National President to the Executive Council. The National President will notify the nominating chapter, and no general chapter vote will occur.

(e) If the nominee is approved by the Committee on Honorary Membership, the National Secretary shall inform the nominator by December 1.

(f) Fifty (50) copies of the nomination shall be forwarded to the National Secretary by December 15.

(g) The National Secretary shall distribute the information on the nominees to the chapters by January 15.

(h) The chapters shall return their votes on each nominee to the National Secretary by March 1.

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(i) The award shall be presented by the nominating chapter in cooperation with the National Officers.

Section 11. The National Members Elected-at-Large Committee shall consist of a convenient number of members, at least one who will be a past national officer. This committee shall be responsible for implementing the election of members as defined under Article VI, Section 4(h) of these National By-Laws. One member of this committee shall represent all Members Elected-at-Large at the National Congress.

Section 12. The National President may from time to time appoint other committees as needed.

Section 13. Any expenses incurred by these committees in the discharge of their duties shall be paid by the National Treasurer upon order of the National President.

Article III. The National Congress

Section 1. Selection of Chapter Delegates.

(a) The delegate to the National Congress should preferably have been a member of the chapter represented for at least one year, and should preferably be a chapter officer. Furthermore, the delegate must give assurance of being in residence and active in chapter affairs for at least one year following the Congress. These requirements may be disregarded only if it appears that any member fully qualifying would be unable to attend.

(b) The chapter shall elect an alternate who shall serve if the delegate is unable to attend. The alternate should meet qualifications of the delegate (See Section 1(a), supra).

(c) In case neither delegate nor alternate is able to attend, the chapter may appoint as its official representative the delegate from some other chapter, or one of the National Officers. The chapter may give such proxy full or limited power.

(d) The names of both delegate and alternate shall be sent to the National Secretary as soon as possible after their election, together with duplicate copies of their Credentials Certificates.

(e) The responsibility for the attendance of a delegate at the Congress shall rest solely with the chapter, providing due and sufficient notice of the arrangements shall have been given by the National Secretary.

Section 2. The expenses of the National Congress shall be paid from the general funds of the Society.

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(a) Allowance for travel expenses shall be made to one delegate from each chapter, to each National Officer and to the two most recently retired Past National Presidents.

(b) Such travel expense allowance shall be determined by the Congress after due consideration of the financial condition of the Society and the cost of travel from chapter locations to the Congress site.

Section 3. The National Executive Committee shall decide the time and place of the National Congress, giving careful consideration to advantages of the proposed locations and the total estimated cost (cf. National Constitution, Article VIII, Section 1.).

Section 4. As soon as the National President has received the names of the delegates, the National President shall appoint the various committees that, in addition to the standing committees, are to serve at the Congress.

In the case of standing committees on which the Councillor has served as the chapter representative during the triennium, the delegates from such chapters shall be appointed to serve in place of the Councillors on the corresponding Congress Committee.

Section 5. The order of business of the National Congress shall be:

- (a) Report of the Committee on Credentials
- (b) Reading of the Minutes of the last Congress and of Council Proceedings
- (c) Reports of the National Officers
- (d) Chapter Reports by delegates
- (e) Reports of Committees, including nomination of National Officers
- (f) New business
- (g) Adjournment

Article IV. Finances

Section 1. The Budget: a budget as drawn up by the Budget Committee shall be submitted to the National Congress for approval. A two-thirds vote of the Congress shall be necessary for the adoption of a budget.

Section 2. Fiscal Year: For purposes of the financial transactions, the fiscal year of the Society shall extend from July 1st of any given year through June 30th of the following year.

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Section 3. National Treasurer's Accounts:

(a) As soon as possible after the close of each fiscal year, the National Treasurer shall prepare a complete and detailed report of the Society's financial transactions for the year just closed.

(b) Such report, together with such original records as may be deemed necessary, shall be sent to the National President for checking and a copy retained in the permanent files of the Society.

(c) A condensed summary of such annual report shall be presented to the Executive Committee at its first meeting after the close of the fiscal year or by mail if such meeting does not occur within three months of this time. This report shall be published in the Fall Issue of The REGISTER.

(d) A complete audit of the National Treasurer's books shall be made by a certified public accountant at the close of each triennium and a report thereof shall be submitted by such public accountant to the National President. A condensed statement of the financial condition of the Society for the triennium just closed, as shown by such audit, shall be published in The REGISTER.

Section 4. Income: The schedule of fees and charges required of members and chapters, to be paid into the National Treasury, shall unless or until amended by regular proceedings be as follows:

Fees

- (a) National Initiation Fee (Member).....\$27.00
- (b) Membership Certificate (New Member).....No Charge
- (c) REGISTER Subscription per year.....\$ 3.00
- (d) REGISTER Subscription per five years.....\$12.00
- (e) REGISTER Subscription for Life.....\$30.00

Section 5. Investments: Investments of surplus funds of the Society shall be made only upon recommendation of the Finance Committee. Such investments shall be made in securities which yield the most advantageous income consistent with safety and liquidity. They shall conform in general to the requirements of acceptable reserves for savings banks in the State of New York or states having comparable banking laws.

Section 6. Transfer of Funds: No transfer of funds from one account to another shall be made by the National Treasurer except with approval of the National President. Withdrawals from savings accounts shall in all cases require two signatures, normally those of the National President and the National Treasurer. However, the National Secretary may sign if either of the above officers is unable to sign or is unavailable to sign. Withdrawals from the

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commercial account for current expenses or for transfers to savings accounts shall require the signature of the National Treasurer only, provided, however, that such withdrawals shall have been authorized by the National President.

Section 7. Special Expenditures: No indebtedness shall be incurred for any purpose not provided for in the budget unless approved by the National President.

Section 8. Renewal of Contracts: Contracts with firms supplying jewelry and certificates and printing The REGISTER, or rendering any other form of continuous service, shall be examined at the beginning of each triennium. Existing contracts may be continued or revised as may be deemed advantageous by the Executive Committee.

Section 9. The Fresenius Award Fund: The income from the Fresenius Award Fund is to be used only for the Fresenius Award. Any monies not spent for the Award and related lectures shall be added to the principal of the fund.

Article V. New Chapters

Section 1. Prior to submission of the tentative draft of the petition for a charter, the Expansion Committee shall have given its tentative approval of the petitioning group, basing its decision upon information requested by the Chairman of the Expansion Committee.

Following the tentative approval of the Expansion Committee the petitioning group may be authorized by the Chairman of the Expansion Committee to prepare and submit a petition. The final draft of the petition shall be sent to the Chairman of the Expansion Committee for approval prior to publication.

The petition for a charter shall contain the following items:

(a) Formal Letter of Petition signed by each member of the petitioning group.

(b) Historical sketch of the institution with particular emphasis upon those departments offering basic courses in chemistry.

(c) List of national honor societies which have chapters at the institution at the time of petitioning.

(d) List of faculty members teaching courses in pure and applied chemistry, including their degrees and the years in which said degrees were granted, the institutions granting the degrees, plus the current academic title of the faculty member.

(e) Names of the petitioners who qualify as members of Phi Lambda Upsilon as specified in the National By-Laws.

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(f) Documentation of activities performed to promote excellence in chemistry by the organization petitioning for chapter status.

(g) An on-site visitation report submitted by an officer of a nearby chapter, a national officer or any other Phi Lambda Upsilon member who is not a member of the institution petitioning for membership, who will be designated by the National President.

(h) Installation of an average of 10 people over a 2-year period as Members-at-large prior to request for chapter status will constitute proof that there will be a sufficient number of members to maintain an active chapter.

Section 2. The procedure for approval of the petition shall be as follows:

(a) The requisite number of petitions shall be submitted, charges prepaid, to the National Secretary.

(b) Upon authorization by the Chairman of the Expansion Committee, the National Secretary shall send copies of the petition simultaneously to each member of the Administrative Council and to the chapters. In case the petition fails to receive the required votes as set by the National Constitution, Article II, Section 2, it shall be referred to the Expansion Committee. If after revision by the petitioning group the petition is found by the Expansion Committee to be satisfactory, the Committee may recommend its resubmission to the Administrative Council and chapters.

(c) If and when the vote of the Administrative Council and the chapters shall have been found favorable, the petitioners shall be officially notified by the National President and instructed to set a date for the installation. They may, with approval of the National President, select the installing officer.

(d) Before the installation of a new chapter, the proposed constitution and by-laws of the chapter shall be submitted to and approved by the National Secretary if found to be in harmony with the National Constitution and By-Laws of the Society. If such not be the case, the constitution and by-laws shall be returned to the chapter for revision before a charter is issued.

Section 3. Installation of New Chapters:

(a) The President of the petitioning group shall call the meeting to order, state its purpose, and introduce the installing officer.

(b) The installing officer shall give formal notice of approval of the petition and shall read authorization from the National President to install the chapter.

(c) The installing officer shall transmit the Charter to the President of the petitioning group.

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(d) Initiation of the members of the new chapter into the Society shall take place according to the Official Ritual Standard Form with appropriate Society members assuming roles of the officers listed in the ritual.

(e) Members of the new chapter shall sign the Society Pledge and be presented with certificates and keys (cf. National By-Laws, Article V, Section 5).

(f) The installing officer shall address the chapter, setting forth the ideals and purposes of the Society.

(g) Officers of the new chapter shall then be elected.

(h) A report concerning the installation shall be sent to the National Secretary and to the National Editor.

(i) Except as otherwise provided, and subject to the approval of the National President, the expenses of the installing officer shall be paid by the Society.

(j) A copy of the chapter by-laws shall be sent to the National Secretary for the permanent files.

Section 4. The Charter shall read as follows:

"BE IT KNOWN that a Charter for the establishment of a chapter of Phi Lambda Upsilon is hereby granted to the persons whose names appear below as Charter Members of

(insert chapter name)

conveying to them and their duly elected associates and successors all rights and privileges conferred by the Constitution of the Society.

(Names of Charter Members
in Alphabetical Order)

IN WITNESS WHEREOF, the signatures of the National President and National Secretary of the Society and the Official Seal of the Society are hereunto affixed this (spell out) day of (spell out month) in the year of our Lord one thousand nine hundred and (spell out number).

(Official
Seal
Affixed)

National President

National Secretary

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Section 5. The Society Pledge shall read as follows:

"We, the members of _____ (insert name of petitioning group) of _____ (insert name of school), in consideration of the approval given our petition for a chapter of Phi Lambda Upsilon and the privileges thus extended to us of associating ourselves with the Society, do hereby promise and affirm that we shall at all times in the future strive to uphold the high ideals of achievement, the standards of attainment in scholarship and research in chemistry, and the traditions of high ethical conduct and irreproachable character and reputation which the Society expects of its chapters and individual members.

"Furthermore, that as a chapter we shall cheerfully conform to the usages of the Society, and give full cooperation to the National Organization and its duly elected officers, in the furtherance of these objectives."

Article VI. Election and Initiation of Members

Section 1. Each chapter shall have a Committee on Eligibility whose duty it shall be to ascertain, prior to an election, the scholarship rating, i.e. grade point average, and other desirable information concerning prospective candidates. The Chapter Councillor shall be, ex-officio, a member of this committee.

Section 2. Chapters may hold as many elections and initiations each year as may be deemed expedient by the chapter officers and the Committee on Eligibility.

Section 3. The basis of the election shall be primarily scholarship, which shall be determined by averaging all scholastic grades on a credit-hour basis.

For purposes of this Article, a credit-hour shall be defined as credit received for work done in any course requiring one hour of lecture or recitation work per week during a semester of fifteen (15) weeks, or three (3) hours of laboratory work per week during a semester of fifteen (15) weeks. Quarter hours of work shall be pro-rated accordingly.

A student to be eligible for membership should have an average of at least 3.00 on a 4.00 point system based on all courses, both chemistry and non-chemistry. In schools where grades are given on a pass-fail basis, membership should be offered to outstanding students who have been recommended by their professors. Details of exactly how this should be accomplished are left to the discretion of the Chapter Committee on Eligibility.

(a) Courses involving deficiencies which later were removed by either repetition or examination shall be counted each time taken. Grades earned in courses not credited toward graduation shall not be counted in computing the rating.

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(b) Credits earned in summer sessions or night school may be counted toward the scholarship rating only if they represent work of college level, equivalent to that which is required in the regular university curriculum toward the bachelor's or advanced degrees.

(c) The scholarship rating shall be computed by multiplying the number of credit-hours in each course by the point value corresponding to the grade earned in that course, summing up the total points so computed, and dividing the sum by the total number of credit hours. The final quotient shall represent the scholarship rating upon which election shall be based.

(d) When grades are stated in terms of "Satisfactory" or "Unsatisfactory", or "Passed" and "Failed", the Committee on Eligibility shall have the power to set up its own method of arriving at the scholarship rating and administering it as the circumstances may require. Additional information should be secured as provided for in Section 3(c), supra.

Section 4. Types of Membership:

(a) Undergraduate Students: To be eligible for election to membership upper-division students shall have obtained a general scholarship rating, in all work of college level thus far completed, not less than a 3.00 grade point average provided that:

(i) Candidates in any particular academic level so qualified fall within the upper twenty (20) per cent of all students in that academic level who satisfy the requirements of the National Constitution, Article III, Section 2.

(ii) The candidate shall have completed at least sixty-four (64) semester hours of college work including twenty (20) semester hours or thirty (30) quarter hours in chemistry courses to be eligible under this Section.

The chapter shall have the right to set any limit above this minimum attainment as a basis for eligibility.

(b) Undergraduate Transfer Students: Undergraduate upper division students transferring to the chapter location from another institution shall have been in residence at least one year at the chapter location at the time they are considered for election unless they transfer at the beginning of their senior year, in which case they may be considered for election after one (1) semester or two (2) quarters of residence. In such cases the scholarship rating shall be computed on the basis of only those courses of college level, which shall include chemistry courses taken at the institution where the chapter is located, and the minimum scholarship rating shall be 3.00 grade points; provided, however, that the candidate shall have completed at least twenty (20) semester hours or thirty (30) quarter hours in chemistry courses to be eligible under this Section.

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The chapter may set any limit above this minimum as a basis for eligibility. In case the undergraduate transfer came from an institution where there is a chapter of Phi Lambda Upsilon, inquiry should be made of that chapter as to the reason for the student's failure of election to membership at that institution.

(c) Graduate Students: In order to be eligible for election graduate students shall have been in graduate residence at the current institution at least one (1) semester or two (2) quarters and shall have completed approximately one-half of the number of semester-hours or quarter-hours of graduate work normally required for the Master's Degree or shall have been admitted to doctoral candidacy with a scholastic rating of at least 3.00 on a 4.00 scale. Graduate students may be subject to a secondary vote as outlined in these By-Laws, Article VI, Section 5(b). The foregoing shall constitute the basis for computation, irrespective of the graduate degree sought by the candidate.

A student in the process of completing the above requirements may be elected to membership in the second semester or third quarter providing the chapter Committee on Eligibility shall have reasonable assurance from the candidate's instructors and research director that the scholastic standing of the student is above the minimum requirements of the Society. Only such graduate students as are majoring in chemistry, chemical engineering or related fields of pure and applied chemistry and who meet the requirements of the Section shall be eligible. The chapter shall have the right to set any limit above this minimum as a basis for determining eligibility. The scholarship record may be supplemented by information from the candidate's director of research as to the quality of the candidate's performance, if such research is already in progress. (See these By-Laws, Article VI, Section 3(d)).

(d) Faculty and Staff: This category includes persons specified in the National Constitution, Article III, Section 2 a(iii) who are members of the faculties of chemistry, chemical engineering, biochemistry, and other applied chemical fields.

(i) In order to be eligible for membership, such faculty member shall have been in full time employ of the current institution for at least one (1) year, and in responsible charge of some of the undergraduate or graduate courses, or important research work of the institution.

(ii) Eligibility of faculty members shall be based mainly upon their present achievements as denoted by their degrees, rank, publications, high standards of scholarship maintained in their classes or research work, honors and memberships in other societies, and potential future interests in our Society.

(e) Post-Doctoral Fellows: Post-doctoral fellows may be elected if

(i) They have been in residence at least one (1) semester or two (2) quarters at the institution where they are proposed for election.

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(ii) They meet the requirements, employment responsibilities and length of employment expected of faculty members for membership eligibility as specified in the National Constitution, Article III, Section 2a(iii).

(f) Summer School Students: Summer school students may be elected to membership if

(i) They have completed at least two full regular sessions at the institution where they are proposed for election.

(ii) They fulfill the requirements of the pertinent Sections of this Article which pertain to them.

(g) Students of Neighboring Schools: Eligible students from a neighboring institution may be elected to membership in a chapter of the Society under the following conditions:

(i) The institution must meet the requirements of the National Constitution, Article II, Section 1(a).

(ii) The candidate must meet the same eligibility requirements as the other chapter members (see these By-Laws, Article VI, Section 4).

(iii) The chapter located most closely geographically must be accorded preference in the privilege of initiating eligible students.

(h) Membership at-large:

(i) Undergraduate Membership-at-large: Seniors affiliated with American Chemical Society approved chemistry, biochemistry, or chemical engineering departments without active Phi Lambda Upsilon chapters may be nominated for Membership-at-large by their department chair, by two Phi Lambda Upsilon members, or by the Eligibility Committee of a nearby chapter. Requirements for membership shall be:

- (1) A minimum of 30 semester hours or the equivalent of Chemistry, chemical engineering, and/or biochemistry;
- (2) Rank in the top 20% of seniors in their department or at their institution; and
- (3) A minimum grade point average of 3.5/4.0.

(ii) Graduate Membership-at-large: Graduate students affiliated with American Chemical Society approved chemistry, biochemistry or chemical engineering departments without active Phi Lambda Upsilon chapters may be nominated for Membership-at-large by their department chair, by two Phi Lambda Upsilon members, or by the Eligibility Committee of a nearby chapter. Requirements for membership shall be:

- (a) Completion of one year of graduate study.
- (b) Completion of 30 graduate or undergraduate semester hours, or the equivalent of, chemistry, biochemistry, or chemical engineering.
- (c) A minimum graduate grade point average of 3.5/4.0.

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Section 5. Two votes may be taken on each candidate for membership: a required primary vote based on scholarship, and an optional secondary vote based upon those qualities of character, other than scholarship, which make for success in professional pursuits.

(a) The primary vote shall be taken as follows: The Committee on Eligibility shall first present the scholarship ratings of all prospective candidates in two groups, (1) undergraduate and (2) graduate, in descending order, the candidates being designated by number only. The chapter shall then decide the lower limit of scholarship ratings which shall be necessary for election. This decision shall be compatible with Article VI, Section 3 of the By-Laws. When only a primary vote is taken, all candidates whose ratings lie above or equal to the limit so fixed are automatically elected. The scholarship vote may be either by acclamation or by secret ballot. A ninety percent favorable majority of the votes cast, provided that a quorum is present, shall be necessary for setting the lower limit.

(b) The optional secondary vote may be taken after the names of those candidates who were elected by the primary vote are announced and the qualifications of the respective candidates as prospective chemists thoroughly discussed. The secondary vote shall be taken by secret ballot. Each chapter using the secondary vote must include in its written by-laws those criteria that applied for that vote. Although such criteria necessarily will be subjective, they are to deal with estimates of how likely a prospective member is to further the Society's goals, namely, the promotion of high scholarship and original investigation in all branches of pure and applied chemistry. A three-fourths majority of the votes cast must be affirmative for election, provided that a quorum has been established.

Section 6. Alumni and Alumnae of an institution who graduated before a chapter of Phi Lambda Upsilon was established or alumnae who graduated before the adoption of the amendment which places no restriction on sex, and who would have been eligible for membership under the provisions of the National Constitution, Article II, Section 1 and Article III, Section 2, had the chapter existed prior to their graduation, shall be eligible for election to membership, provided at the time of their election they are actively interested in and engaged in chemical work.

(a) The election of any members nominated under this classification shall occur according to the procedure prescribed in these By-Laws, Article VI, Sections 3, 4 and 5. Such members shall pay the fees and be initiated according to the Ritual as required of members elected while in residence.

(b) To limit the provisions of this Section, no candidate shall be eligible for election to membership if more than three years have elapsed since the candidate's graduation, except as provided in the National Constitution, Article III, Section 2(a).

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Section 7. Honorary Members: Honorary Membership is the highest honor that the Society may bestow upon an individual.

- (a) Honorary members shall be nominated by local chapters.
- (b) Each chapter shall be limited to two nominations in any one year. Each person proposed by a chapter need not be associated with the institution in which the chapter is located.
- (c) The nominating chapter shall submit a letter of nomination and a biographic sketch of their nominee including publications authored, positions held, honors received, and services rendered.
- (d) Fifty (50) copies of the nomination shall be forwarded to the National Secretary by October 15 of the year of submission.
- (e) The National Secretary shall distribute the information on the nominees to the chapters by December 15.
- (f) The chapters shall return their votes on each nominee to the National Secretary by February 15.
- (g) The award shall be presented by the nominating chapter in cooperation with the National Officers.

Section 8. Any candidate who has been duly elected, but has refused membership, is not barred from subsequent reconsideration and re-election.

Section 9. The chapter secretary or National President in the case of Honorary Members shall notify all candidates in writing with respect to their election as soon thereafter as possible.

Section 10. All new members shall be initiated according to an Official Ritual, except under unusual circumstances where other informal but dignified ceremonies may be used.

- (a) Charter Members of a new chapter shall be initiated during the installation ceremonies of that chapter. Such persons as signed the successful petition for establishment of the chapter and desire currently to be Charter Members, and for whom the necessary initiation fees and charges have been transmitted by the petitioning group, shall be regarded as Charter Members of the chapter. If for any reason it is impossible for a Charter Member to attend the installation, special arrangements for initiation *in absentia* may be made through the Office of the National Secretary. In such case the initiate shall be required to sign and return a copy of the Society Pledge (see these By-Laws, Article V, Section 6), thus signifying the initiate's acceptance of formal membership in the Society. The signed Pledge shall be forwarded by the National Secretary to the chapter for inclusion in the chapter records.

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(b) Honorary Members shall be initiated with due regard for their status.

Section 11. Each candidate initiated, whatever the candidate's status, shall receive a membership certificate, signed by the National President and Chapter President (or in the case of Honorary and Charter Members, by the National President and National Secretary) and impressed with the Official Seal of the Society.

(a) The Society's magazine, The REGISTER, shall be sent to each initiate as provided for in the National Constitution, Article IX, Sections 2(a) and 2(b).

(b) Each individual chapter shall have the power to determine whether the purchase of a key shall be required of, or be optional with, the initiate.

Section 12. Initiates shall be certified by the National Secretary only upon receipt of all blank forms properly filled out and remittance in full for all fees and charges.

(a) The National By-Laws, Article IV, Sections 4(a) and 4(b) shall prescribe the schedule of fees to be paid for initiation.

(b) There shall be no initiation fee for Honorary Members.

(c) The National Society shall pay for keys and certificates, mounted in suitable frames, presented to Honorary Members.

(d) No additional initiation fee shall be charged any member of the Society who, subsequent to the member's first initiation, is invited to become a Charter Member of a new chapter.

(e) Chapters shall initiate no candidate without prior certification from the National Secretary.

Section 13. Any candidate who has met the requirements for membership and has been duly elected, but is financially unable at the time to pay the fees for initiation, shall be eligible for initiation at any future date; provided, however, that after the election, the candidate shall have maintained a creditable record in scholarship or research in chemistry. Initiation in such cases shall require special chapter decision, based upon careful investigation of each case.

Section 14. Should any member-elect, having paid the fees for initiation, decide not to be initiated, the member-elect shall be entitled to a refund of the national initiation fee less the cost of the certificate, and, if a key is ordered, the amount allowed by the jeweler upon its return.

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Article VII. Duties, Nomination, and Election of National Officers

Section 1. The specific duties of the National Officers are:

(a) The National President shall direct the general policies and affairs of the society; the National President shall also do the following:

(i) The National President shall appoint the Committees required by the National Constitution and such others as may be deemed necessary.

(ii) The National President shall be Chairman of the Congress.

(iii) The National President shall, during the interim between Congresses, render decisions as to interpretation of the National Constitution and suggest procedure in special cases.

(iv) The National President shall appoint officers for the installation of new chapters.

(v) The National President shall perform any other duties specifically imposed by the National Constitution and By-Laws.

(b) The National Vice-President shall do the following:

(i) The National Vice-President shall in the absence of the National President perform the duties of that office.

(ii) The National Vice-President shall be Chairman of the Committee on Expansion.

(c) The National Secretary shall keep the records of the Society and of the Administrative Council. The National Secretary shall also do the following:

(i) The National Secretary shall inform the chapters, by way of official chapter letters (as many during the college year as may be deemed necessary) concerning matters affecting their welfare and the conduct of chapter business with the National Secretary's Office. (See the National Constitution, Article VII, Section 11.)

(ii) The National Secretary shall issue charters for new chapters and make arrangements for installations at the direction of the National President.

(iii) The National Secretary shall certify candidates for initiation as prescribed in Article VI, Section 4 of these By-Laws.

(iv) The National Secretary shall maintain an accurate card file on the entire membership of the Society.

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(v) The National Secretary shall collect and preserve information of interest to the Society.

(vi) The National Secretary shall cooperate with the National Editor in publishing The REGISTER.

(vii) The National Secretary shall upon authorization of the National President submit official proceedings to the Administrative Council and chapters, and keep records of the ballots thereon.

(viii) The National Secretary shall make such preliminary arrangements for the Triennial Congress and other meetings of the Society as the National President may direct.

(ix) The National Secretary shall each year publish in The REGISTER a full and complete tabulation of the number of initiations by chapter.

(x) The National Secretary shall execute all orders for keys and certificates received from the chapters or from individual members.

(xi) The National Secretary shall perform such other duties for the advancement of the Society as the National President or the Administrative Council or the National Constitution and By-Laws may direct.

(d) The National Treasurer shall be the custodian of all funds of the Society and shall pay all bills upon written authorization from the National President. In addition the National Treasurer shall do the following:

(i) The National Treasurer shall be bonded for an amount sufficient to guarantee the funds of the Society as required by the National By-Laws, Article IV.

(ii) The National Treasurer shall make proper arrangements for financing the Triennial Congresses.

(iii) The National Treasurer shall perform such other duties for the advancement of the Society as the National President or the Administrative Council may direct.

(e) The National Editor shall publish and distribute The REGISTER. In addition the National Editor shall do the following:

(i) The National Editor shall be Chairman of The REGISTER Committee and formulate policies for the publication of The REGISTER.

(ii) The National Editor shall maintain an accurate mailing list of subscribers.

(iii) The National Editor shall publish a Directory of the Society upon order of the National Congress.

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(iv) The National Editor shall, in the interest of economy and efficiency, secure bids at frequent intervals on the printing of The REGISTER.

(v) The National Editor shall have power to maintain such exchanges with other honorary chemical organizations as may best serve the interests of the Society.

(vi) The National Editor shall prepare and submit articles concerning the progress and activities of the Society in other suitable periodicals. Such articles shall be submitted to, and approved by, the National President prior to publication.

(f) The National Historian shall collect such items and compile such information as may be necessary to give an accurate picture of the Society's history. In addition the National Historian shall do the following:

(i) The National Historian shall present articles of historical interest for publication in The REGISTER.

(ii) The National Historian shall preserve such property of the Society in a suitable place for safekeeping.

(g) The National Secretary, the National Treasurer, and the National Editor shall receive such remuneration for their services and allowance for secretarial expenses as may be determined by the National Congress or by the Administrative Council.

Section 2. The most recent Past President who is available shall be Chairman of the Nominations Committee of the National Congress and must be appointed by the National President at least three (3) months in advance of the Congress. As soon as the list of official chapter delegates to the Congress is available, the remainder of the Nominations Committee shall be appointed by the National President.

Section 3. It shall be the duty of the Chairman of the Nominations Committee to solicit suggestions as to candidates for the national offices from the chapter, who by chapter action may submit the names of qualified candidates for consideration by the Committee. The proposals must be received at least one month in advance of the National Congress, and shall include biographical sketches and statements assuring availability of the candidates proposed.

Section 4. The Chairman of the Nominations Committee shall submit a list of all duly proposed candidates to the official chapter delegates to the National Congress at least ten (10) days in advance of the Congress.

For the National Offices only one candidate for each need be listed; this shall not prevent the listing of all nominees who have been proposed for these offices.

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Section 5. The Congress delegates, meeting as a Committee of the Whole, shall informally consider the list of the proposed candidates at least one day preceding adjournment of the Congress. Additional candidates may be proposed to the Nominations Committee for its consideration by an official chapter delegate, providing such proposals are accompanied by biographical sketches of the proposed candidates, statements of their willingness to serve if elected, and any other pertinent information necessary for proper consideration by the Nominations Committee.

Section 6. The Chairman of the Nominations Committee shall submit to the Congress, during the last session prior to adjournment, the list of proposed nominees prepared as outlined in the preceding two Sections (4 and 5) of these By-Laws. Additional nominees may be proposed by any official chapter delegate, providing complete information concerning the qualifications of the candidates and statements of their willingness to serve, if elected, are provided. If approved by a three-fourths majority vote of the Congress delegates, any candidate thus proposed will be added to the list of proposed candidates submitted by the Nominations Committee. The official Congress delegates shall then, in cases where more than two (2) nominees are proposed for any office, proceed to select the Congress nominees by secret ballot. Voting shall continue, eliminating the nominees receiving the lowest number of votes on the preceding ballot, providing the lowest number of votes is less than twenty-five (25) per cent of the total votes cast, until the total number of votes for the two (2) nominees receiving the most votes represents at least a two-thirds majority of the total votes cast for that office.

Section 7. Additional nominations for any office may be made subsequent to the Congress by petitions from the chapters containing not less than a total of one hundred (100) bona fide signatures of the student membership, of which not more than one-third may be from any one (1) chapter. These petitions shall be certified by the Councillors of the chapters involved and sent to the National Secretary not later than the November first (1st) following the National Congress.

Section 8. Not earlier than November first (1st) nor later than December thirty-first (31st) following the National Congress, the National Secretary shall submit to the chapters ballots bearing the names of the Congress and chapter nominees for each of the national offices with space for indicating choices. These blank ballots shall be sent with election registration forms and instructions for conducting the election by secret ballot.

Section 9. The ballots cast by the individual members of the chapters shall be returned in sealed envelopes, along with the election registration lists bearing the signatures of the chapter voters, to the National Secretary. The National Secretary shall turn them over to a committee of tellers, appointed by the National President, who shall tabulate the votes and report the results of the election to the National President.

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Section 10. In case any of the nominees for a particular national office lacks a majority of the votes cast by the chapter membership for that office, the Administrative Council shall be empowered to resolve election to that office by a special poll of its membership.

Article VIII. Chapter Meetings, Dues, Records, and Duties of Chapter Officers

Section 1. Meetings

(a) Each chapter shall hold meetings as deemed necessary by its own officers and membership.

(b) Such meetings shall be conducted according to Robert's Rules of Order.

(c) Each chapter shall have the power of determining the number of members, or the proportion of its membership, that shall constitute a quorum for transaction of business and election of members.

(d) All members shall be notified at least three (3) days in advance of meetings called for election of new members, or chapter officers, or for taking official action on important local business or voting on official proceedings from the National Office.

Section 2. Dues. Each chapter shall have the power to assess its own members for local purposes as it may see fit.

Section 3. Chapter Records. Each chapter shall maintain a file of membership cards, official communications from the National Officers, and other items of importance or historical value. Minutes of meetings and financial records shall be kept in books suitable to their respective purposes. Adequate facilities shall be provided to preserve such records against loss.

Section 4. Chapter Officers. The following is a list of chapter officers and their suggested duties. Due to the background and needs of each individual chapter, these duties may be distributed slightly differently in each chapter.

(a) The President shall perform all duties usually pertaining to this office. The President shall be a member of the National Administrative Council.

(b) The Vice-President shall in the absence of the President perform the duties of the President and shall also do the following:

(i) The Vice-President shall be Chairman of the Eligibility Committee.

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(ii) The Vice-President shall work closely with the Chapter Councillor and the Eligibility Committee in identifying qualified individuals at neighboring educational and non-academic institutions for consideration for membership.

(iii) The Vice-President shall be responsible for the initiation ceremony and be charged with seeing that the initiation is carried out in a formal and dignified manner.

(c) The Secretary shall perform the duties usually pertaining to this office, including, but not limited by, the following:

(i) The Secretary shall issue all notices of meetings and be responsible for all records of the Secretary's office.

(ii) The Secretary shall keep an accurate and complete file of all members initiated by the chapter.

(iii) The Secretary shall file and preserve the chapter copies of The REGISTER.

(iv) The Secretary shall send initiation orders to the National Secretary.

(v) The Secretary shall bring before the chapter all official communications from the National Office.

(vi) The Secretary shall send to the National Secretary each year a list of names and addresses of the members of all classes constituting the resident chapter roll.

(vii) The Secretary shall at the close of the academic year send to the National Secretary for the permanent files of the Society, and on forms to be provided, a report of the activities of the chapter during the year just closed.

(viii) The Secretary shall prepare and send to the National Editor for publication in The REGISTER reports of chapter activities and items of interest concerning the alumni.

(ix) The Secretary shall keep the National Secretary informed of changes in the chapter by-laws.

(x) The Secretary shall send to the National Secretary names and addresses of the chapter officers as soon as they have been elected.

(d) The Treasurer shall collect, care for, and keep accurate records of all funds of the chapter, and make disbursements upon order of the chapter President.

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(e) The Alumni Secretary shall keep an accurate record of members no longer connected with the university and, in addition, shall do the following:

(i) The Alumni Secretary shall send invitations to alumni members residing in the vicinity to attend special chapter functions.

(ii) The Alumni Secretary shall do all possible to keep the alumni members interested in the activities of the chapter and of the Society in general.

(iii) The Alumni Secretary shall see to the publicizing of chapter activities in university and local publications.

(iv) The Alumni Secretary shall assist the secretary with the care of any backlog of material, particularly certificates, which need to be distributed.

(v) The Alumni Secretary shall, at the request of a chapter member, write a letter of introduction to any chapter with which the member may wish to affiliate.

(f) The Chapter Councillor shall advise the chapter in matters of policy pertaining to the welfare of the chapter and, in addition, shall do the following:

(i) The Chapter Councillor shall be, ex-officio, an active member of the chapter.

(ii) The Chapter Councillor shall be a chapter representative on the National Administrative Council and, as such, shall have a vote on all official Council Proceedings.

Article IX. Alumni and Chapter Contact

Section 1. The Society shall foster contact between the members by scheduling luncheons to be held in connection with meetings of the American Chemical Society, or other scientific societies.

(a) The National Secretary shall, with cooperation of the other National Officers, make arrangements for such occasions.

(b) Programs shall be arranged to stimulate interest in, and loyalty to the Society.

Section 2. Visitation of Chapters.

(a) The National President, or some national officer designated by the National President, shall endeavor to visit as many chapters as possible during each triennium.

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(b) The National Secretary shall inform the National President of any chapter which fails to initiate members during any academic year as soon as possible, preferably before the beginning of the next academic year. The National President will then inquire of the chapter the reason for this inactivity, and, if necessary, will designate a present or past national officer or other qualified person to visit the chapter at the earliest convenience to make further inquiry into their situation. The visiting officer shall make a study of local conditions and endeavor to assist the chapter in restoring itself to full activity.

(c) Reports of such visits shall be sent to the National President.

Section 3. Publicity. In order to keep the membership of the Society informed concerning the progress of the organization, and to accomplish its aims more effectively, the Society shall foster and maintain a program of dignified and controlled publicity. For this purpose the following and any other appropriate activities shall be fostered:

(a) News items of interest shall be published as far as possible in chemical and fraternity publications and in the daily press.

(b) For the purpose of carrying out such a program, the National President shall appoint a Committee on Public Relations (See these By-Laws, Article II, Section 6.).

(c) Each individual chapter shall have the right to determine the nature of its local publicity as it may see fit. It shall be the duty of the alumni secretary or other officer to which such duty is assigned to cooperate with the Chairman of The REGISTER Committee, supplying the latter with news items of significant events which may be worthy of national publicity.

Article X. Suspension and Amendment of the National By-Laws

Section 1. Any By-Law, other than one involving income or suspension of the National By-Laws, may be temporarily suspended by consent of two-thirds of a National Congress.

Section 2. Amendments to the National By-Laws may be proposed by the Triennial Congress, or by the Committee on Constitution and By-Laws, or by any member of the Administrative Council, or by any chapter. Any such proposal shall come as a seconded motion. If proposed by a member of the Administrative Council it shall be supported by one or more Chapter Councillors; if proposed by a chapter, it shall have the support of one or more other chapters. Of the active chapters reporting their vote on the amendment to the National Secretary in a two (2) month period starting the day the proposed amendment is mailed to the chapters, a three-fourths majority must favor the amendment for its adoption.

Section 3. An amendment of the National By-Laws may be adopted by a three-fourths affirmative vote of a National Congress.

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END
of
THE NATIONAL BY-LAWS
of
PHI LAMBDA UPSILON
Honorary Chemical Society

THE RITUAL OF INITIATION

General Instructions

Initiation into the Society is an honor; every effort should be made to convey the importance of the event by proper administration of the ritual. In either the Standard Form or the Shades Form the initiation is partially ritualistic, but the greater significance is included in the Charge given by the Chapter Councillor. It is the duty of the Chapter Vice-President to see to it that all initiations are so planned that the ideas set forth there are reinforced by evidence of competency in each initiating officer, and that either the Standard or Shades Form is adhered to.

Perhaps the one single factor which will serve to make an initiation effective to the initiates is a presentation by the officers and other initiators which is made with feeling and expression. A verbatim memorization is not necessary, but it should be apparent to an observer that the participating initiator is not reading his part at sight. To accomplish the desirable smoothness it will be necessary for the Chapter Vice-President (or initiation chairman) to see that each initiator has studied the part he is to play from this Manual several days in advance of the actual ceremony. Only in this way will each participant be properly prepared to give an effective performance.

(1 July 1981)

PHI LAMBDA UPSILON

INITIATION RITUAL

Standard Form

Outline

President: Introduction
Vice-president: Biography of Fresenius
Secretary: Biography of von Liebig
Treasurer: Biography of van't Hoff
Councillor: History of Society (and Chapter)
President: Administration of pledge
(signing of chapter roll; presentation of certificates)
Alumni Secretary (or Vice-president): Colors and insignia
Councillor: Charge to initiates
President: Review of functions of Society

Room arrangement and decor

Room should be furnished with two tables, one long enough to seat three or four on one side and another to seat two on one side. Room seating capacity must be large enough to handle chapter members as well as the initiates. First rows of seats should be reserved for initiates.

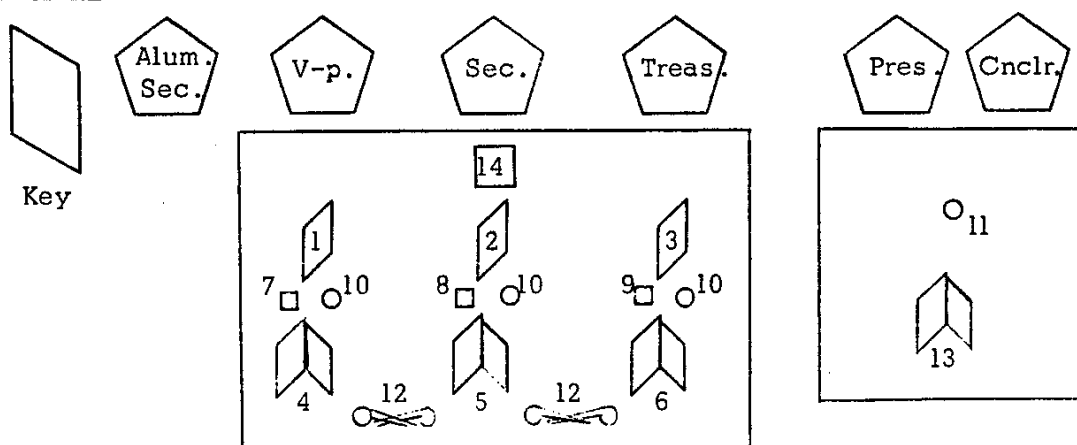
Items on tables:

- (1) Picture of Fresenius
- (2) Picture of von Liebig
- (3) Picture of van't Hoff
- (4) Volume of Zeitschrift fur analytische Chemie
- (5) Volume of Liebig's Annalen der Chemie
- (6) Volume of Zeitschrift fur physikalische Chemie
- (7) Card bearing large letter Φ
- (8) Card bearing large letter Λ
- (9) Card bearing large letter Γ
- (10) Pink candles in holders
- (11) Blue candle in holder
- (12) Pairs of crossed retorts
- (13) Chapter roll book
- (14) Membership certificates

The tasteful use of red and blue cloths on the tables is recommended. One of the retorts in each pair is filled with pink litmus solution, the other with blue litmus solution. Journal volumes should be displayed open. Cards bearing Greek letters should initially be lying face down on table.

In addition, an enlarged replicate drawing of the Society key should be placed where it is readily visible to the initiates, preferably near the position of the Alumni Secretary (or Vice-president). Initially the drawing should be concealed with a draped cloth.

Placement diagram



Procedure

Initiates will have received prior notice to assemble in a room or area adjacent to the initiation room. A chapter member, designated as Marshall, will supervise assembly and conducting of initiates into the initiation room. The Marshall is provided a list of initiates, by which he will align initiates in the order indicated on the list.

When everything is in order in the initiation room and the scheduled time has arrived, the Secretary goes to the assembled initiates and checks the list with the Marshall for unexpected absences. The Secretary retains the corrected list so that membership certificates for absentees can be set aside. The Marshall then leads the initiates into the initiation room and directs their placement in the front row(s) of seats. The Secretary follows the initiates and is seated in his place. The Marshall seats the initiates and says, "Mr. President, I present to you for initiation these persons who have met all requirements for Society membership and have been duly elected to membership in the Honorary Society of Phi Lambda Upsilon." The Marshall is seated with chapter members, and the Chapter President begins the ceremony.

I greet you on behalf of _____ Chapter of Phi Lambda Upsilon. Its members are pleased that you have accepted our invitation to join us in association with others who have earned the recognition of membership in the national honorary chemical society. We understand that your presence here indicates that you have a congenial acquaintance with members of the chapter and that you have a fundamental interest in things chemical which characterizes the members of our Chapter and the Society at large.

We are about to consider the more serious and significant implications of membership - the history, the traditions and the objectives of the Society, so that you may be aware of what will be expected of you as a fellow-worker in our ranks.

Most organizations have among their traditions their guiding spirits, persons whose character and ideals have become inseparably interwoven with its beginnings and its subsequent development. In our Society there are three such guiding spirits - great chemists of the past century who profoundly influenced, and in large measure determined, the future development of chemistry as well as the closely related sciences.

They are: Carl Remigius Fresenius, father of analytical chemistry; Justus von Liebig, father of organic and agricultural chemistry; and Jacobus Henricus van't Hoff, father of theoretical and physical chemistry. Their names are immortalized in the letters which constitute the name of our Society. We want you to know and appreciate the character and achievements of these men and to be inspired to do your part in advancing the science they loved so well. Our Chapter Vice-president, Chapter Secretary and Chapter Treasurer will read brief sketches of their careers and accomplishments.

(Optional: hand lighted blue candle to Vice-president)

Vice-president: Phi stands for Fresenius -
. . . . one of the world's leading journals in the field of analytical chemistry.

Secretary: Lambda stands for von Liebig -
. . . . the secrets of his success and are eminently worthy of our emulation.

Treasurer: Jacobus Henricus van't Hoff, father
. . . . the supreme importance of the principles which he brought to light and enunciated.

Our Councillor will now instruct you in the history of our Society and the _____ Chapter.

Councillor: Phi Lambda Upsilon was founded
. . . . The _____ Chapter was installed on this campus in the year _____. (A brief history of the chapter may be given here).

You have heard of the ideals and objectives of the Society. Wishing to preserve these ideals in our professions, we invite to become members those students who by high scholarship and strong personal character have shown themselves worthy and competent to carry on the work of the Society in promoting these objectives.

You have been found worthy, both as to scholarship and as to character. Listen carefully now to the following pledge to which all members of the Society through these many years have given their affirmation.

"I do solemnly promise and affirm that I will promote the interests of the Society, that I will cultivate as the prime qualifications of a chemist attitudes of thoroughness, accuracy and reliability in all of my work, that I will respect the opinions of others recognizing that their points of view may differ from my own, that I will not knowingly take credit for a discovery or observation which rightfully belongs to another, and that I will strive at all times to maintain the high standards of integrity, scholarship and honor which this Society upholds."

If you are in accord with these ideals and are willing to accept the responsibilities which membership entails, please rise individually in order beginning with Mr. (Ms.) _____, give your name and state, "I affirm this pledge," and then be seated.

In evidence of your admission into our Society, you will now inscribe your name upon the chapter roll, whereupon I shall be pleased to present you with a certificate of membership entitling you to all the rights and privileges of the Society. Will you please step forward in order, sign the roll, and return to your seats.

Position yourself so that you can receive the certificate of membership (and key) from the Chapter Secretary and personally present it to the initiate, welcoming the initiate into the Society.

Our Chapter Alumni Secretary (or Vice-president) will now explain the color and insignia of the Society.

Alumni Secretary: The colors of the Society
. . . . which means, "A mark of honor."

Our Chapter Councillor will now give the charge to the new members.

Councillor: The Society wants members of quality,
. . . . and to make your contribution to the science which you have chosen to be your life work.

(Note: Councillor may give an informal talk to initiates, so that these lines may not be used as cues.)

Before concluding these ceremonies it becomes my pleasant duty to bring to your attention the larger functions of the Society in which you are to have a part in the years to come. Phi Lambda Upsilon not only stimulates and recognizes superior attainment in scholarship and research in all branches of pure and applied chemistry, but also provides contact between persons of like interests in institutions of higher learning where there are strong forces for each of us to go our own way. The Society fosters a spirit of good sportsmanship and friendly competition among individuals in all branches of chemistry. It affords an opportunity to develop qualities of leadership; to acquire an ability to speak effectively in public; to gain a knowledge of parliamentary procedure. Finally, it insures to members entering a new chapter location a cordial reception by the foremost chemistry students and faculty on the campus.

It should be particularly significant to you to be one of a great group of _____ living chemists of America, all of whom were critically selected on the basis of their superior scholarship record. On our roll of National Honorary Members, over 100 in number, will be found the names of some of America's greatest chemists. Some were Nobel prize winners; others received awards and medals for their

fundamental discoveries . Many of our Honorary Members continue as leaders in the forefront of chemistry in America today. It should be a source of inspiration to you to be associated, in spirit, with such a distinguished company, and we hope you will here resolve to follow their worthy example by superior attainment in your own individual careers .

Finally, and above all, we charge you to strive at all times to reflect credit upon the Society of Phi Lambda Upsilon which has seen fit to honor you with membership. By so doing you will justify the confidence which we have reposed in you.

Rap three times with gavel.

Will all present please rise .

I now declare you to be members of the Honor Society of Phi Lambda Upsilon and welcome you as fellow members . Others here wish to share in this welcome . Please remain as our Chapter members conclude this initiation by extending their personal greetings .

Informal directions for the formation of a receiving line should be given here as appropriate to the room setting.

President: I greet you on behalf

. . . . Our Chapter Vice-president, Chapter Secretary and Chapter Treasurer will read brief sketches of their careers and accomplishments.

(Optional: Receive lighted blue candle from President. Light pink candle adjacent to the Fresenius photograph. Place card bearing the letter "Phi" upright adjacent to the photograph.)

PHI stands for Fresenius - Carl Remigius Fresenius ,
Professor of Chemistry, Physics and Technology at the Agricultural
Institute at Wiesbaden, Germany, from 1845 until his death in
1897. At the age of 23, a year before he received the doctor's
degree at the University of Giessen, he published the first edition
of his famous "Introduction to Qualitative Analysis," which proved
to be so meritorious that it was translated into several foreign
languages .

Fresenius was a critical analyst, widely known for the
meticulous care and precision with which he carried out his
analytical procedures. Many of his methods, such as the
quantitative determination of lithium, manganese, and nickel,
of phosphoric, nitric, boric, and titanous acids were the analytical
methods of choice for decades. In developing these methods he
was obligated to synthesize many of his own reagents. To improve
the accuracy of precipitation methods, he made numerous solubility
studies on the salts involved. He developed detailed methods for
the analysis of waters and of plant materials.

In 1869 he established an agricultural chemistry research laboratory, in 1877 a food research laboratory, and in 1884 a bacteriological research laboratory.

Fresenius was also interested in the industrial application of chemistry. He was the discoverer of the lime-soda process of water-softening. The destructive distillation of wood and the processes for the recovery and utilization of the products were originated and developed by Fresenius.

In 1862 he founded the Zeitschrift für analytische Chemie which remains one of the world's leading journals in the field of analytical chemistry.

(Optional: hand lighted blue candle to Secretary)

President: I greet you on behalf
. . . . Our Chapter Vice-president, Chapter Secretary and Chapter
Treasurer will read brief sketches of their careers and accomplishments.

Vice-president: PHI stands for Fresenius
. . . . which remains one of the world's leading journals in the field
of analytical chemistry.

(Optional: Receive lighted blue candle from Vice-president. Light the pink candle adjacent to the von Liebig photograph. Place card bearing the letter "Lambda" upright adjacent to the photograph.)

Lambda stands for von Liebig - Justus von Liebig -
a doctor of philosophy at the age of 19, and at 21 professor of
chemistry at the University of Giessen, Germany. After
29 productive years of service at Giessen, he became professor
of chemistry of Munich where he remained for 22 years.

Brilliant scientist and inspiring teacher, von Liebig was
an investigator whose interests covered a wide range of subjects,
including organic, agricultural, physiological, and food chemistry.
The Royal Society's catalogue of scientific papers list 318 articles
in his own name, in addition to numerous papers written in
collaboration with other investigators. His work on the fulminates
led to the discovery of the isomerism of cyanic and fulminic acids.
He was the first to establish the constitution of uric acid and
other purine derivatives. His methods of organic analysis represent
some of his most important contributions to the science of chemistry.

In the field of agricultural chemistry, von Liebig greatly contributed to our knowledge of animal and plant nutrition. He was the first to advance the law of conservation of energy as applied to the animal body. He made extensive studies of such body fluids as blood, bile, and urine and established the constitution of creatin, creatinin, and sarcosin.

von Liebig was first to enunciate the mineral theory of plant nutrition, which displaced the inconsistent and antiquated "humus" theory. His "Law of the Minimum" became the basis of a rational system of fertilizer practice, still in use today. By treating bones with sulfuric acid, he obtained soluble calcium dihydrogen phosphate. This process laid the foundation for the manufacture of superphosphate fertilizers from rock phosphate and the development of an industry of considerable magnitude.

von Liebig's journal, the Annalen der Chemie is the great monument to his achievements. His profound knowledge of facts, his ability to solve difficult problems, his unbounded enthusiasm, and above all his skillful mastery of laboratory technique were the secrets of his success and are eminently worthy of our emulation.

(Optional: Hand lighted blue candle to Treasurer.)

(When Chapter President calls initiates forward to sign the chapter roll, exchange positions with the Chapter Councillor. After each initiate signs the roll, hand his membership certificate to Chapter President for presentation. Retain your seat beside Chapter President.)

President: I greet you on behalf
. Our Chapter Vice-president, Chapter Secretary and Chapter Treasurer will read brief sketches of their careers and accomplishments.

Vice-president: PHI stands for Fresenius
. which remains one of the world's leading journals in the field of analytical chemistry.

Secretary: Lambda stands for von Liebig
. the secrets of his success and are eminently worthy of our emulation.

(Optional: Receive lighted blue candle from Secretary. Light the pink candle adjacent to the van't Hoff photograph. Place card bearing the letter "Upsilon" upright adjacent to the photograph.)

Jacobus Henricus van't Hoff, father of Theoretical and Physical Chemistry, was a native of the Netherlands. He was professor of chemistry at the University of Amsterdam from 1877 to 1896 and at the University of Berlin from 1896 until his death in 1911. Brilliant mathematician and profound thinker, his greatest ambition was to demonstrate the application of mathematics to chemical problems.

Three products of his intellectual genius undergird to this day our theoretical understanding of the basic behavior of matter. The first was his theory of stereochemistry, in which he set forth the concept of an asymmetric carbon atom. He was thus able to explain the rotation of the plane of polarized light by optically active substances as being due to a spatial arrangement of different atoms or groups at the four corners of a tetrahedron, with carbon at the center.

His second contribution was his theory of chemical equilibrium as expressed mathematically by his well-known isochore. By quantitative studies of chemical reactions, he worked out the general theory of reaction velocity and showed that the relation between free energy and heat change in a reaction had the same form as the relation between electrical energy and heat change which had been deducted by Helmholtz. These studies led to his "Principle of Mobile Equilibrium."

The third contribution was his law of solutions in which he showed that the equation connecting osmotic pressure, concentration, and temperature was closely analogous to the equation of state for a perfect gas. Many important deductions have resulted from these generalizations.

In addition, van't Hoff studied heterogeneous equilibria in salt solutions, thus providing evidence of the origin and nature of the famous Stassfurt potash deposits. He was the first to demonstrate, by equilibrium studies, the paragenesis of minerals in nature.

van't Hoff was one of the founders of the Zeitschrift fur physikalische Chemie. In 1901 he received the first Nobel prize ever to be awarded to a chemist. As one writer has aptly said, "The work of van't Hoff is distinguished not so much by the great volume of his publications as by the extraordinary force and originality of his conceptions and the supreme importance of the principles which he brought to light and enunciated."

(Optional: Return lighted blue candle to President.)

President: I greet you on behalf
. . . . Our Chapter Vice-president, Chapter Secretary and Chapter Treasurer will read brief sketches of their careers and accomplishments.

Vice-president: PHI stands for Fresenius
. . . . which remains one of the world's leading journals in the field of analytical chemistry.

Secretary: Lambda stands for von Liebig
. . . . the secrets of his success and are eminently worthy of our emulation.

Treasurer: Jacobus Henricus van't Hoff, father of Theoretical
. . . . importance of the principles which he brought to light and enunciated.

President: Our Councillor will now instruct you in the history of our Society and the _____ Chapter.

Phi Lambda Upsilon was founded as an honorary chemical society at the University of Illinois in March, 1899, by several members of the senior class majoring in chemistry. Those most active in the movement were Horace C. Porter, Paul F. A. Rudnick, and Fred C. Koch. The purpose for which the Society was founded, as stated in the Constitution, was "the promotion of high scholarship and original investigation in all branches of pure and applied chemistry."

Membership in the Society includes students of the junior and senior classes who are majoring in chemistry, chemical engineering, and related chemical fields; also qualified students registered in the graduate school and persons affiliated with institutions of learning in some capacity other than that of

a registered student. Honorary membership is limited to professionals of national and international reputation in the field of chemistry. Thus the Society, in its steady growth and expansion, has not lost sight of the hope of its founders, namely, to make membership widely available to all who may be worthy of it.

One of the aims of the founders was to achieve the installation of chapters of the Society in other institutions beyond the University of Illinois. In 1906 the second chapter was founded at the University of Wisconsin, in 1909 the third at Columbia University, and the fourth in the same year at the University of Michigan. Since then the growth has continued until there are at present chapters in _____ institutions of learning throughout the United States. The _____ Chapter was installed on this campus in the year _____.

(At this point a brief history of the chapter and its activities may be added.)

President: You have heard of the ideals and objectives

. . . . sign the roll, and return to your seats.

(Exchange seats with the Chapter Secretary for the remainder of the ritual.)

Our Alumni Secretary will now explain the color and insignia of the Society.

Alumni Secretary: The colors of the Society

. . . . which means, "A mark of honor."

President: The Councillor will now give the charge to the new members.

(The following is an indication of the content and style of an appropriate charge. It may be used as the basis of an informal talk to the initiates. It need not be read verbatim.)

The Society wants members of quality, of unusual achievement, of unimpeachable character. The purpose of our Society is to foster "high scholarship and original investigation in all branches of pure and applied chemistry." A good chemist should cultivate not only a retentive mind, capable of mastering a great body of facts and principles, but also, and of greater importance, a creative mind, capable of using known facts in the discovery of new facts. The mind should be a workshop, rather than a storehouse.

In the field of scholarship a good chemist will be characterized by thorough and consistent performance at all times. But while we expect you to strive toward a precise understanding of principle, toward clear thinking and sound, logical reasoning, you are also expected to examine and evaluate critically those facts and principles which are generally regarded as having been definitely established. Do you accept everything you read at face value? Are you critical of what you observe in the laboratory? Do you try to devise means of overcoming difficulties and of developing new ways of doing things?

It is such intelligent curiosity which leads to new avenues of approach to unsolved problems, and it is hoped that by your association with us you will be stimulated to capitalize fully on your strong capabilities and give reality to your promise for accomplishing great things.

Industry is a virtue which the Society recognizes and recommends. The Society expects you to work and work hard, using the time and facilities at your disposal in improving yourself professionally. You should be eager and willing to do much more than the bare minimum of work expected of you, and thus to make the very most of your opportunities.

We expect you to cultivate the habit of neatness and attention to detail in experimental work, all professional matters, your written reports, your correspondence. Such habits assure others of your clarity of thought and inspire their confidence in your work.

A good chemist should have the quality of trustworthiness - of intellectual honesty. A good chemist should conform to the highest of ethical standards in order to maintain the respect and enjoy the cooperation of fellow-workers.

Phi Lambda Upsilon also expects its members to strive to master those simple elements of human relationships which determine the quality of our living with each other. Do you possess that sense of poise and propriety that will enable you to do or say the proper thing under unforeseen circumstances? Can you be tactful in dealing with others in matters which may involve difficulty? Do you have respect for the opinions of others? Can you engage in worthwhile conversation on subjects of general interest not necessarily chemical? Do you maintain a dignified quality of speech? Are you prompt and reliable in meeting your appointments and obligations? Can you cooperate effectively with your fellow-workers? Have you mastered the art of making yourself well liked among your associates?

"Good character," Emerson wrote, "is human nature in its best form." The traits of character here suggested are essential to success in any profession. They are the ideals which our Society strives to uphold and which we shall expect you to emulate.

As for the Society, you will be expected to show an interest in its progress, both nationally and in the local chapter; to attend its meetings and to assist in its activities. Later, when you have completed your academic work, and you enter upon the larger duties of your chosen careers, we shall expect you to continue that superior quality of performance which has thus far characterized your academic work, and to make your contribution to the science which you have chosen to be your life work.

President: I greet you on behalf
. . . . Our Chapter Vice-president, Chapter Secretary and Chapter
Treasurer will read brief sketches of their careers and accomplishments.

Vice-president: PHI stands for Fresenius
. . . . which remains one of the world's leading journals in the field
of analytical chemistry.

Secretary: Lambda stands for von Liebig
. . . . the secrets of his success and are eminently worthy of our
emulation.

Treasurer: Jacobus Henricus van't Hoff, father of theoretical
. . . . importance of the principles which he brought to light and
enunciated.

President: Our Councillor will now instruct

Councillor: Phi Lambda Upsilon was founded as an honorary
. . . . Chapter was installed on this campus in the year ____.
(Chapter history may be added here.)

President: You have heard of the ideals and objectives
. . . . Our Alumni Secretary (or Vice-president) will now explain the
colors and insignia of the Society.

(Remove the cloth draping the enlarged replicate drawing of the Society emblem.)

The colors of the Society are the pink and blue shades of
litmus. The emblem of the Society is the structural formula of
ortho-bromotoluene. The difficulty which early chemists experienced
in preparing this compound exemplifies the difficulty in meeting the
high standards of scholarship and achievement required for
election to our Society.

Across the emblem appear the letters: PHI, LAMBDA and UPSILON, representing the initial letters of the names of the three guiding spirits of the Society, Carl Fresenius, Justus von Liebig, and Jacobus van't Hoff. Above this band are crossed retorts and a Liebig bulb, indicative of the apparatus which was used by the early chemist. Below it are the letters, SIGMA TAU. They are the initial letters of our motto "Symbolon Times," (pronounced sim'-bō-lān te-mās'), which means, "A mark of honor."

P H I L A M B D A U P S I L O N

INITIATION RITUAL

Shades Form

The necessity for preparation is particularly important if the Shades Form of the ritual is to be administered. The free-verse sections assigned to the Patron Saints must be presented with phrasing and expression if they are to be meaningful.

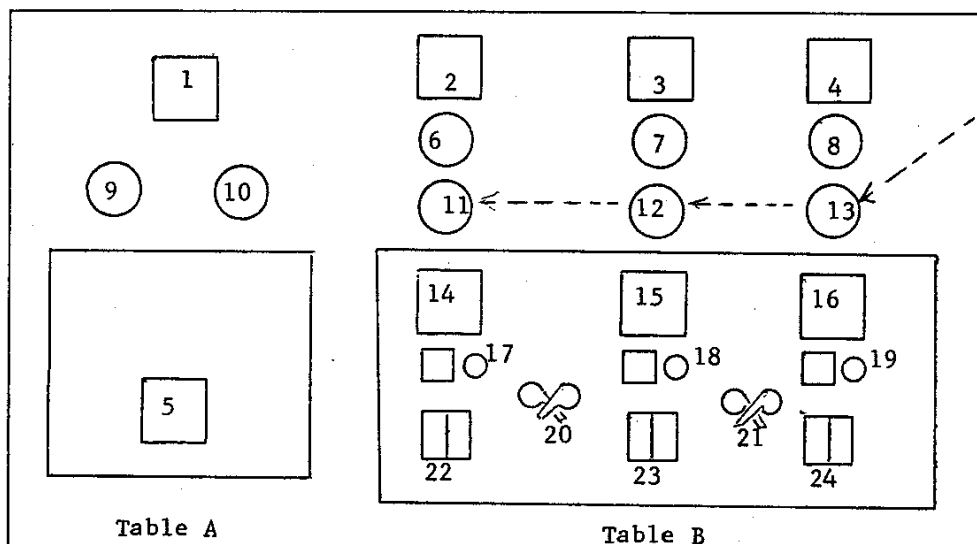
A particular highlight of the Shades Form is the questioning of the candidates by the Shades (p. 6). The questioning should be partly serious and partly tricky or frivolous, but always in good taste. The initiates can be addressed either by their given names, or by their assigned numbers and questioned about factual contents of the biographical sketches of the Patron Saints, about obscure chemical facts (e.g. the length of the nitrogen-nitrogen bond in phenylhydrazine), about the history and activities of their department, etc., etc. These ideas are merely suggestive, the actual questioning being limited only by the imagination of the Shades.

ARRANGEMENT OF INITIATION ROOM FOR SHADES RITUAL

Seats at the front of the room are reserved for the initiates. Table A is covered with a red cloth. Table B is covered with a blue cloth. The positions of the tables may be interchanged, depending upon the layout of the room used.

For each pair of crossed retorts (20 & 21), one should be filled with pink litmus solution and the other with blue. The cards (17, 18, & 19) initially are lying face down on the table.

Item 1 is a large drawing or actual replica of the Society key hanging on the wall behind the tables and so arranged that it may be illuminated at the proper time. Items 2, 3, & 4, pictures of Fresenius, von Liebig and van't Hoff are also hanging on the wall behind the table.



- | | | |
|-----------------------|-------------------------|--------------------------------|
| 1. Key | 9. Secretary | 17, 18, & 19 Pink |
| 2. Fresenius Picture | 10. Treasurer | Candles in blue |
| 3. von Liebig Picture | 11. Shade of Fresenius | holders with cards |
| 4. van't Hoff Picture | 12. Shade of von Liebig | bearing letters |
| 5. Chapter Roll Book | 13. Shade of van't Hoff | 17. \emptyset , 18. \wedge |
| 6. Councillor | 14. Lectern | 19. γ |
| 7. President | 15. Lectern | 20, 21 Crossed Retorts |
| 8. Vice-President | 16. Lectern | |

Open Copies of Journals:

22. Z. Anal. Chem.
23. Liebig's Annalen der Chemie
24. Z. Phys. Chem.

SHADE FORM

The room is in complete darkness except for a single blue candle held by the President. The three candles on the table are unlit. The members of the Society are seated, in complete silence, to the rear of the positions that will be occupied by the initiates.

The initiates assemble in an adjacent room and are given numbers in alphabetical order as assigned by the secreatry. They are then blindfolded (or not, at the option of the Chapter) and conducted to the initiation room.

The Conducting Marshal knocks three times and is answered by one knock from within by the Chief Marshal. The door is then opened and the Chief Marshal asks for the password. It is given by the Conducting Marshal as "Symbolon Times," (pronounced sim'bo-lon te-mace').

The initiates are then conducted into the room in numerical order and evenly distributed in two or more rows, facing table "A". They remain blindfolded until directed by the Chief Marshal to remove their masks.

CHIEF MARSHAL: Neophytes, the ghosts of departed members of our chosen fields often return from their abode above, where complete knowledge and truth reigneth, to this world of darkness and ignorance to observe how we conduct ourselves in our search to find for us, the living, the light they know. Even now the shades of those illustrious fathers of our profession, Carl Fresenius, Justus von Liebig, and Jacobus van't Hoff are here assembled to examine the worthiness of you who seek entrance into our Society. Humble yourselves before them, and listen attentively to what they have to say.

You may remove your blindfolds.

PRESIDENT: I greet you in the name ofChapter. We are here to consider the more serious and significant implications of membership - the history, the traditions and the objectives of the Society, so that you may be aware of what will be expected of you as a fellow-worker in our ranks.

Every organization has among its traditions its guiding spirits - its patron saints - persons whose character and idealism have become inseparably interwoven with its beginnings and its subsequent development. In our Society there are three such guiding spirits - great chemists who, during the past century, profoundly influenced, and in large measure determined, the future development of chemistry as well as the closely related sciences. They are: Carl Remigius Fresenius, father of analytical chemistry; Justus von Leibig, father of organic and agricultural chemistry; and Jacobus Henricus van't Hoff, father of theoretical and physical chemistry. Their names are immortalized in the letters which constitute the name of our Society. As we learn

and appreciate the character and achievements of these men, may we be inspired to do our part in advancing the science they loved so well.

(The President hands the lighted blue candle to the Chapter Councillor. With this candle the Councillor lights the pink candle next to Fresenius' lectern, and places the card bearing the letter "ø" upright at the base of the lectern.)

COUNCILLOR: PHI stands for Fresenius - Carl Remigius Fresenius, Professor of Chemistry, Physics and Technology at the Agricultural Institute at Wiesbaden, Germany, from 1845 until his death in 1897. At the age of 23, a year before he received the doctor's degree at the University of Giessen, he published the first edition of his famous "Introduction to Qualitative Analysis," which proved to be so meritorious that it was translated into several foreign languages.

Fresenius was a critical analyst, widely known for the meticulous care and precision with which he carried out his analytical procedures. Many of his methods, such as the quantitative determination of lithium, manganese, and nickel; and of phosphoric, nitric, boric, and titanic acids are still in use today. In developing these methods he was obligated to synthesize many of his own reagents. To improve the accuracy of precipitation methods, he made numerous solubility studies on the salts involved. He developed detailed methods for the analysis of waters and of plant materials.

In 1869 he established an agricultural chemistry research laboratory, in 1877 a food research laboratory, and in 1884 a bacteriological research laboratory.

Fresenius was also interested in the industrial application of chemistry. He was the discoverer of the lime-soda process of water-softening. The destructive distillation of wood and the processes for the recovery and utilization of the products were originated and developed by Fresenius.

In 1862 he founded the Zeitschrift für analytische Chemie (point to journal) which has maintained the distinction of being one of the world's leading journals in the field of analytical chemistry.

(The Councillor hands lighted blue candle back to President, who then lights pink candle next to von Liebig's lectern and places the card bearing the letter "Λ" at base of lectern.)

PRESIDENT: Lambda stands for von Liebig - Justus von Liebig - a doctor of philosophy at the age of 19, and at 21 professor of chemistry at the University of Giessen, Germany. After 29 productive years of service at Giessen, he became professor of chemistry of Munich where he labored for 22 years.

Brilliant scientist and inspiring teacher, Liebig was an investigator whose interests covered a wide range of subjects, including organic, agricultural, physiological, and food chemistry. The Royal Society's catalogue of scientific papers lists 318 articles in his own name, in addition to numerous papers in collaboration with other investigators. His work on the fulminates led to the discovery of the isomerism of cyanic and fulminic acids. He was the first to establish the constitution of uric acid and other purine derivatives. His methods of organic analysis represent some of his most important contributions to the science of chemistry.

In the field of agricultural chemistry, Liebig greatly contributed to our knowledge of animal and plant nutrition. He was the first to advance the law of conservation of energy as applied to the animal body. He made extensive studies of such body fluids as blood, bile, and urine and established the constitution of creatin, creatinin, and sarcosin.

Liebig was first to enunciate the mineral theory of plant nutrition, which displaced the inconsistent and antiquated "humus" theory. His "Law of the Minimum" became the basis of a rational system of fertilizer practice, still in use today. By treating bones with sulfuric acid, he obtained the soluble primary calcium phosphate, a process which laid the foundation for the manufacture of superphosphate fertilizers from rock phosphate and the development of an industry of considerable magnitude.

Liebig's journal, the Annalen der Chemie (point to journal) is the great monument to his achievements. His profound knowledge of facts, his ability to solve difficult problems, his unbounded enthusiasm, and above all his skillful mastery of laboratory technique were the secrets of his success and are eminently worthy of our emulation. (The president hands the lighted blue candle to the Vice-President, who lights the pink candle next to van't Hoff's lectern and places the card bearing the letter "Y" upright at the base of the lectern.)

VICE-PRESIDENT: Jacobus Henricus van't Hoff, father of Theoretical and Physical Chemistry, was a native of the Netherlands. He was professor of chemistry at the University of Amsterdam from 1877 to 1896 and at the University of Berlin from 1896 until his death in 1911. Brilliant mathematician and profound thinker, his greatest ambition was to demonstrate the application of mathematics to chemical problems.

Three monumental pieces of research have come down to us as products of his genius. The first was his theory of stereochemistry, in which he set forth the concept of an asymmetric carbon atom. He was thus able to explain the rotation of the plane of polarized light by optically active substances as being due to a spatial arrangement of different atoms or groups at the four corners of a tetrahedron, with carbon at the center. His second contribution was his theory of chemical equilibrium as expressed mathematically by his well-known isochore. By quantitative studies of chemical reactions, he worked out the general theory of reaction velocity and showed that the relation between free energy and heat change in a reaction had the same form as the relation between electrical energy and heat change which had been deduced by Helmholtz. These

studies led to his "Principle of Mobile Equilibrium." The third contribution was his law of solutions in which he showed that the equation connecting osmotic pressure, concentration, and temperature was closely analogous to the equation of state of a perfect gas. Many important deductions have resulted from these generalizations.

In addition, van't Hoff studied heterogeneous equilibria in salt solutions, thus providing evidence of the origin and nature of the famous Stassfurt potash deposits. He was the first to demonstrate, by equilibrium studies, the paragenesis of minerals in nature.

Van't Hoff was one of the founders of the Zeitschrift fur physikalische Chemie(point to journal). In 1901 he received the first Nobel prize ever to be awarded to a chemist. As one writer has aptly said, "The work of van't Hoff is distinguished not so much by the great volume of his publications as by the extraordinary force and originality of his conceptions and the supreme importance of the principles which he brought to light and enunciated."

CHIEF MARSHAL: Assembled fathers, we bring here before you, as talented aspirants to the profession you served so well, these humble neophytes, asking that you in your all-knowing wisdom probe their minds, their spirits, and their hearts to find what motivates them to follow in your footsteps, to find if there is within them that spark of genius, that strength of spirit, that grain of wisdom and truth, that integrity and patience needed to make them future worthy members of your profession and thus men and women we can welcome as brothers and sisters in our Society. Will you give us your answer, von Liebig?

VON LIEBIG: Ye come as pilgrims from a tempestuous world
Where passion, selfishness, and doubt obscure
With grimy clouds the glistening light of Truth;
And enter here the realm of perfect day
Where spirits of the departed great commune,
Resolving Nature's mysteries, and free from
Earthen hindrances, press on with Diety Himself
Beyond the veil
To the sacred shrine of Nature's inmost soul.
Ye come that by an ordeal we may prove
Whether in this pure light ye stand possessed
Of such intentions, attributes and hearts
As are required of those whose mission sends
Them forth as flaming, shade-dispelling lamps
Of truth in earthy darkness. A flame fitfull
Or dull with smoke were far better unlit.
A steady light of genuine fire from Heaven,
Though small the vessel, shines expandingly,
On its own radiance thriving, self-renewed perpetually,
Enlarging round about
The circle of its brightening influence, till,
The intensity increasing, it begets
In other lives a kindred flame,
And men move ever nearer to the estate of God,

VON LIEBIG: (Continued)

And think in step with Him His Holy thoughts
Through all the wide creation.

I, von Liebig, ask:

Whether in heated lust of bodily life
Ye prostitute our science, denying God,
To justify with specious argument
The indulgence of your baser appetites?
Or do ye seek in wonder, reverence, and awe
To fathom God through Nature, worshipping
In his unending works, the Eternal Chemist?

MARSHAL: Neophytes, repeat after me, "We come in worship."
(The candidates respond.)

FRESENIUS: I, Fresenius, ask:
Do ye approach as such that chose a path
To wealth, or fame, or power -
The emoluments of the world?
And do ye toil with eye to single gain,
Regarding not as fair for her own sake
Our noble science, and heedless oft of those
Who strive beside you in common cause?
Or do ye come as brothers, pledged to share and help,
Encourage and inspire; each putting first
The advance of science, with emulation fired
To exceed each other's best and past, and bring
Within your chosen circle, as ye may,
Those still to come, of proven will and worth?

MARSHAL: Neophytes, repeat after me, "We come as brothers pledged."
(The candidates respond.)

VON LIEBIG: And come ye bound to follow Truth where'er
She leads, and though means be scant and spirit weak within,
To defend her and to labor for her day,
That in her healing warmth there spring from earth,
Enriched by years of added happiness,
A race to which disease and pain are strange,
Which even Death itself cannot dismay?

MARSHAL: Neophytes, repeat after me, "Truth is our guide and goal."
(The candidates respond.)

VON LIEBIG: In spirit worthy found, these yet may be
In mind infirm. Approach, van't Hoff, and learn.

VAN'T HOFF: Whose reason or whose fancy lets him see
The darting light ray, how it turns the sheen
And shimmer of its golden sides among
The carbon atoms, till, emerging free,
It meets, transfigured, the observer's eye?
What know ye of the teeming molecules'
Like ants at toil within the brain that bear,
And store, and shape your thoughts, your inmost selves?
What laws control these thoughts?
How free are they to change
In time or space, from flitting fantasy
To fluid speech, or facet bounded act?
Or how may frozen thoughts, in books englaced,
The kindling eye make fluid, to distill therefrom
The spiritual essence of a writer's mind,
And energize a soul, an age, a race?
What constitutes the boundaries of your thoughts,
To separate their phases, each from other?
Or what components mixed, of Heaven or earth,
Determine men, in fixed or mobile state?
How hath the Architect Divine disposed
Within the nucleus of uranium
The helium atoms and the beta-rays,
In golden-jointed union, true and square;
Yet so, that lightning-swift the structure reared
May change to other and yet other forms,
Until, in beam and column shapely still,
Debris of each preceding, self-removed,
There stands symmetrical to the astonished eye,
The diamond atom's cousin element, lead?

MARSHAL: Assembled fathers, may a humble mortal beg to remind you
that we here on earth dwell in darkness far removed from the Light of
Knowledge wherewith you keep company. Might we suggest you test to find
how much of the faint glimmer of learning, which is beginning to pervade
this world, has touched these neophytes.

(INITIATES QUESTIONED BY VON LIEBIG, VAN'T HOFF, AND FRESENIUS)

FRESENIUS: I, Fresenius, vote against admitting these.
No voice was raised in answer, no not one.
Dull plodders these, with comprehension stunted.
No flame of speculation, no spark of thought,
No rose glowing dream of higher things beyond.
Earthworms and bats, that lead a murky life
'Midst breaking beakers, flasks, and struckback burners.
No glint of observation, or of toil
Attended by a gain, no mating here
Of mind and hand to vivify a fact.
O, Spirit of the Eternal Quest of Truth,
Return to Earth, and send us men alive.

VON LIEBIG: Nay, brother, these are living men, though mute.
 Their understanding shines forth feebly here,
 As in a sunlit sky the moon is pale.
 But in earth's darkness, whence to immortal light
 They come today, aspiring humbly, each
 Self-luminous, enlightens round about
 The darksome ignorance of the selfish crowd.
 These come with reverent hearts,
 Each pledged to each
 In sworn devotion to their glorious tasks,
 And fired with high resolve to make the truth
 Shine ever brighter to the perfect day.
 Revealed here, in whose benevolent light
 Mankind at last shall enter God's estate.
 I, von Liebig, deem them worthy. Let them in.

VAN'T HOFF: (Agitatedly) Gentlemen, gentlemen...Please...Marshal,
remove the candidates. (Candidates are retired. They are then returned
and seated after the robes of all participants have been removed, the
Shades have retired, and Chapter officers have taken positions as
prescribed in the Ritual.)

PRESIDENT: The secretary will now instruct you in the history of our
Society and.....Chapter.

SECRETARY: Phi Lambda Upsilon was founded as an honorary chemical
Society at the University of Illinois in March, 1899, by several members
of the senior class majoring in chemistry. The three men most active
in the movement were Horace C. Porter, Paul F. A. Rudnick, and Fred C.
Koch. The purpose for which the Society was founded, as stated in the
Constitution, was "the promotion of high scholarship and original
investigation in all branches of pure and applied chemistry."

Membership in the Society includes men and women of the junior and
senior classes who are majoring in chemistry, chemical engineering, and
related chemical fields; also qualified men and women registered in the
graduate school, also men and women affiliated with institutions of
learning in some capacity other than that of a registered student.
Honorary membership is limited to individuals of national and inter-
national reputation in the field of chemistry. Thus the Society, in its
steady growth and expansion, has not lost sight of the aims of its
founders, namely, to make membership possible to all who may be worthy of
it.

One of the aims of the founders was to achieve the installation of chapters of the Society in other institutions. In 1906 the second chapter was founded at the University of Wisconsin, in 1909 the third at Columbia University, and the fourth in the same year at the University of Michigan. Since then the growth has been continuous so that there are at present chapters ininstitutions of learning throughout the United StatesChapter was installed on this campus in the year..... (At this point a brief history of the chapter and its activities may be given.)

PRESIDENT: You have heard of the ideals and objectives of the Society. In conformity with these ideals, we invite to become members those students who by high scholarship and strong personality have shown themselves worthy and competent to carry on the work of the Society in the furtherance of these objectives.

You have been found worthy, both as to scholarship and as to character. If you are in accord with these ideals and are willing to accept the responsibilities which membership entails, you will raise your right hand and repeat after me:

"I (pronounce your name in full) do solemnly promise and affirm ---
that I will in every way within my power ---
promote the interests of the Society ---
that I will cultivate ---
as the prime qualifications of a chemist ---
attitudes of thoroughness, accuracy and reliability in all of
my work ---
that I will respect the opinions of others ---
recognizing that their points of view may differ from my own ---
that I will not knowingly take credit for a discovery or
observation which rightfully belongs to another ---
and that I will strive at all times ---
to maintain the high standards of integrity---scholarship---
and honor --- which this Society upholds."

In evidence of your admission into our Society, you will now inscribe your name upon the chapter roll, whereupon I shall be pleased to present you with a certificate of membership entitled you to all the rights and privileges of the Society. As the Secretary calls your name, will you please step forward and sign the roll.

(Secretary reads the names, and as each initiate in his turn signs the roll, the Secretary hands to the President the certificate of membership (and key if ordered). The President in turn presents it(them) to the Initiate, at the same time clasping his or her hands and welcoming him into the Society. The initiates are directed to return to their respective places and remain standing until all have signed.)

PRESIDENT: You may be seated. Our Chapter Treasurer will now explain the insignia of the Society. (A flood light should here be turned on an enlarged replica of the key.)

TREASURER: The emblem of our Society has the shape of a benzene ring. Examined more closely it is seen to include a chemical formula, that of orthobromotoluene. To us it signifies that, just as the direct bromination of toluene to give the ortho-compound is difficult to accomplish, even so election to membership in Phi Lambda Upsilon is a recognition which comes only as a result of unusual effort and meritorious achievement. The letters of this formula are on the outer band of the emblem. Prominently across the emblem appear the letters: PHI, LAMBDA and UPSILON, representing the initial letters of the names of the three patron saints, Carl Fresenius, Justus Von Liebig, and Jacobus Van't Hoff. Above this band are crossed retorts and a Liebig bulb, symbolic of the apparatus which the chemist uses in his work. Below it are the letters, SIGMA TAU. They are the initial letters of our motto "Symbolon Times," (pronounced sim'bo-lon te-mace'), which means: "A mark of honor." The colors of the Society are the pink and blue shades of litmus.

PRESIDENT: The Councillor will now give the charge to the new members.

COUNCILLOR: (The subject matter here presented is intended to be used as the basis of an informal talk to the initiates).

The Society wants men and women of quality, of unusual achievement, of unimpeachable character. The purpose of our Society is to foster "high scholarship and original investigation in all branches of pure and applied chemistry." A good chemist should cultivate not only a retentive mind, capable of mastering a great body of facts and principles, but also, and of greater importance, a creative mind, capable of using known facts in the discovery of new facts. His mind should be a workshop, rather than a storehouse.

In the field of scholarship a good chemist will be characterized by thorough and consistent performance at all times. But while we expect you to strive toward a precise understanding of principle, toward clear thinking, and sound, logical reasoning, you are also expected to examine and evaluate critically those facts and principles which are generally regarded as having been definitely established. Do you accept everything you read at face value? Are you critical of what you observe in the laboratory? Do you try to devise means of overcoming difficulties and of developing new ways of doing things? It is such intelligent curiosity which leads to new avenues of approach to unsolved problems, and it is hoped that by your association with us you will be encouraged to cultivate, stimulate and fan into flame that latent spark of genius, capable of accomplishing great things.

Industry is a virtue which the Society recognizes and recommends. The Society expects you to work and work hard, using the time and facilities at your disposal in improving yourself professionally. You should be eager and willing to do much more than the bare minimum of work expected of you, and thus to make the very most of your opportunities.

We expect you to cultivate the habit of neatness in your experimental work, in written assignments, in correspondence, in person and dress. Slovenliness in person or in work suggests slovenliness in thinking. It repels rather than attracts; it creates an unfavorable impression; it destroys opportunity for position and advancement.

A good chemist should have the quality of trustworthiness -- of intellectual honesty. He must conform to the highest of ethical standards if he would maintain the respect and enjoy the cooperation of his fellow-workers.

Phi Lambda Upsilon also expects its members to possess those desirable qualities of personality which are the mark of a true lady and gentlemen. Do you possess that sense of poise and propriety that will enable you to do or say the proper thing under unforeseen circumstances? Can you be tactful in dealing with others in matters which may involve difficulty? Do you have respect for the opinions of others? Can you engage in worthwhile conversation on subjects of general interest not necessarily chemical? Do you maintain a dignified quality of speech? Can you cooperate effectively with your fellow workers? Have you mastered the art of making yourself well liked among your fellows? Are you prompt and reliable in meeting your appointments and obligations?

"Good character, " say Emerson, "is human nature in its best form." The traits of character here suggested are essential to success in any profession. They are the ideals which our Society strives to uphold and which we shall expect you to emulate.

As for the Society, you will be expected to show an interest in its progress, both nationally and in the local chapter; to attend its meetings and to assist in its activities. Later, when you have completed your college course and you enter upon the larger duties of your chosen career, we shall expect you to continue that superior quality of performance which has thus far characterized your college course, and to make your contribution to the science which you have chosen to be your life work.

PRESIDENT: Before concluding these ceremonies it becomes my pleasant duty to bring to your attention the larger functions of the Society in which you are to have a part in the years to come. Phi Lambda Upsilon not only stimulates and recognizes superior attainment in scholarship and

research in all branches of pure and applied chemistry, but also provides contact between individuals of like interests in institutions of higher learning where the tendency is for each person to go his own way. It fosters a spirit of good sportsmanship and friendly competition between students in all branches of chemistry. It affords an opportunity to develop qualities of leadership; to acquire an ability to speak effectively in public; to gain a knowledge of parliamentary procedure. It insures to members entering a new chapter location a cordial reception by the foremost chemistry students on the campus. Finally, membership in Phi Lambda Upsilon is considered a recommendation that may aid materially in the securing of fellowships and positions after graduation.

It should be particularly significant to you to be one of the great group of about 40,000 living chemists of America, all of whom were critically selected on the basis of their superior scholarship record. On our roll of National Honorary Members, over 200 in number, will be found the names of some of America's greatest chemists. Some of them were Nobel prize winners; others received awards and medals for their fundamental discoveries. Many of our Honorary Members are leaders in the forefront of chemistry in America today. It should be a source of inspiration to you to be associated, in spirit, with such a distinguished company and we hope you will here resolve to follow their worthy example by superior attainment in your own future careers as chemists.

Finally, and above all, we charge you to be faithful, -- and just, -- and true; for only then will you be entitled to the reward of success in your chosen field; to strive at all times to reflect credit upon the Society of Phi Lambda Upsilon which has seen fit to honor you with membership this day, and thus to justify the confidence which we have reposed in you.

(The President raps three times with the gavel and all present arise.)

I now declare you to be members of the Honor Society of Phi Lambda Upsilon, and welcome you as our brothers and sisters forever. The members of the chapter may now come forward and extend to you their personal greetings.

(This concludes the initiation.)