

## 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.

# 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.

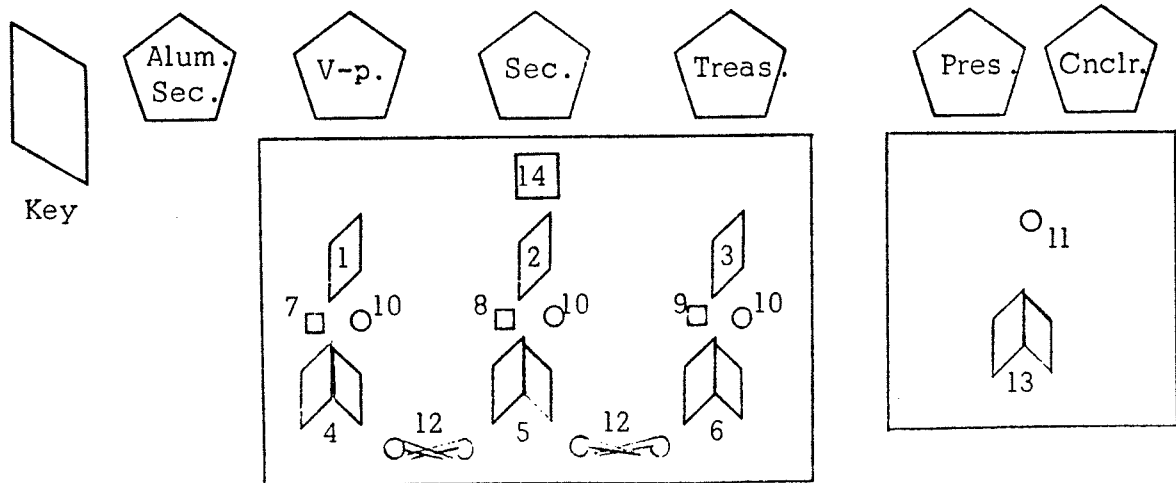
#### Items on tables:

- (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  $\Psi$
- (8) Card bearing large letter  $\Lambda$
- (9) Card bearing large letter  $\Gamma$
- (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 titanitic 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 fur 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 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 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  
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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.

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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."