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# THE MASK

OF KAPPA PSI  
PHARMACEUTICAL  
FRATERNITY



A PHARMACY CORPS FOR THE U.S.A.

TAU CHAPTER NUMBER  
UNIVERSITY OF SOUTHERN CALIFORNIA

*January, 1930*

**PUBLICATIONS**  
OF THE  
**Kappa Psi Pharmaceutical Fraternity**

*Issued under the direction and by the authority of*

**THE GRAND COUNCIL**

***THE MASK***

(EXOTERIC)

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# THE MASK

of Kappa Psi Pharmaceutical Fraternity

Established in 1904

Official Organ of Kappa Psi Pharmaceutical Fraternity  
of the U. S. of America

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# THE MASK

of the Kappa Psi Pharmaceutical Fraternity

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JANUARY, 1930

WHOLE NUMBER 109

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## THE SPIRIT OF KAPPA PSI

By Frank D. Titus, Jr., T., Regent

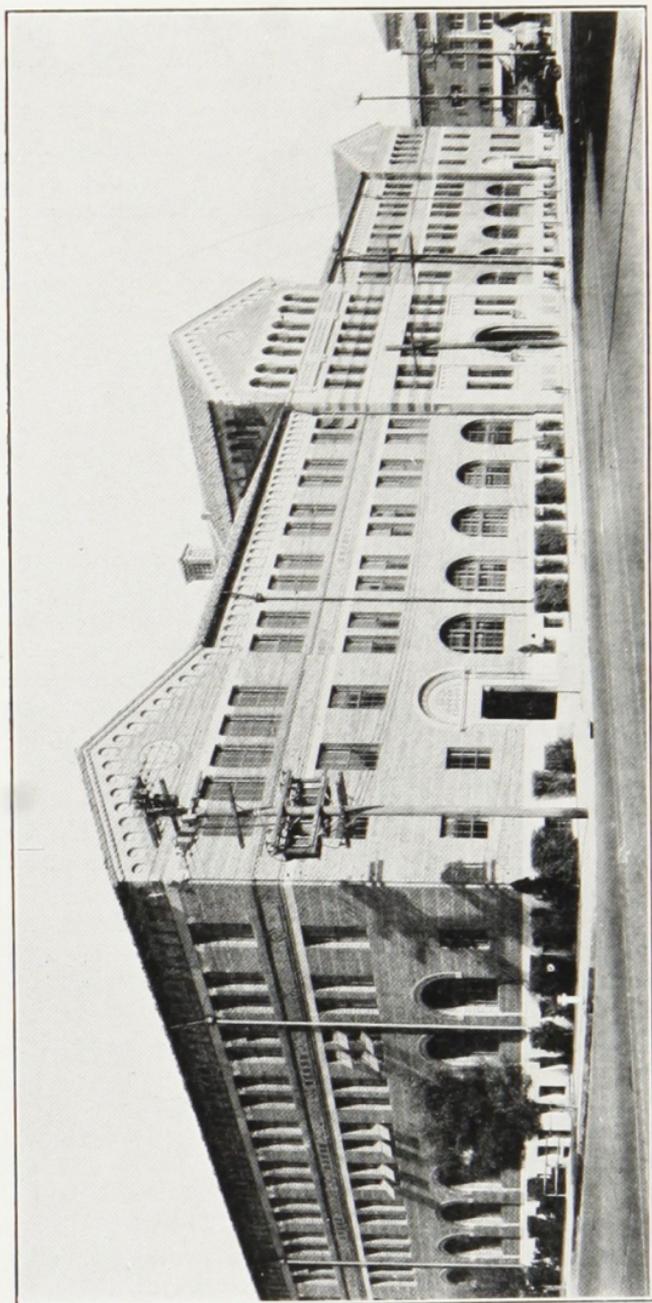
Our great Fraternity, reaching to the four corners of the national, shows its magnitude and power in its spirit. For us men in Tau, that has become a great word in our daily life. Kappa Psi is first, last, and always. We know that the full measure of spirit, fight, and interest we show will benefit the Fraternity and ourselves.

In the near future, elections will confront us. Good and tried men will have their names placed upon the ballot for election to offices of honor. Some will be disappointed, but here is where the spirit they have within them shows its worth. Will they lose interest because they were not selected? No! They will give all they have as if they held a place of honor. Kappa Psi's prosperity must continue, and personal feeling must not enter, but an unselfish devotion to the attainment of our ideals shall carry on.

You have in your trust the accomplishments of the brothers gone before you. Let them return to the chapter with a feeling that they did not work in vain. Be ever on the alert to better the Fraternity and yourselves. That is the spirit as seen by true Kappa Psi men. Some day the present brothers will become alumni and their work left in the trust of the brothers to be. They, too, desire to have their accomplishments carried on. It is easy to slip, yet it is just as easy to attain the highest of ideals, that of Kappa Psi.

Harmony among yourselves helps greatly. With it, you have men working under ideal conditions. Perhaps it is a hard thing to attain, but if personal feelings were ignored, harmony would exist. Remember, pulling together will win in the game of life, where pulling unharmoniously gives the game to the other fellow.

The thoughts of non-Kappa Psi persons in relation to your chapter matters greatly. Great benefit is to be derived by having other persons feel friendly toward you. In college it helps in attaining the leads in activities, which we greatly desire. In other walks of life it gives you and your Fraternity a boost toward the ultimate goal. Men worth knowing are not all in Kappa Psi, but all Kappa Psi men are worth knowing. One can help the other, and friendly feeling toward non-Kappa Psi



THE COLLEGE OF PHARMACY, UNIVERSITY OF SOUTHERN CALIFORNIA

persons can very easily start by you and your brothers being a "gentleman and a true Kappa Psi at all times." Remember, for what you put into a thing, so will you benefit thereby. So let neither animosity, judgment, condemnation, counsel, nor being erroneously influenced, overcome your common sense and spirit.

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## THE COLLEGE OF PHARMACY, UNIVERSITY OF SOUTHERN CALIFORNIA

The College of Pharmacy was organized in 1905 by Dr. Laird J. Stabler, assisted by Mr. L. M. Brunswig, Professor Walter Taylor, Professor A. B. Ulrey and Mr. C. W. Hill. The college classes were held in the old Medical Building on Vista Street for two years, then the college was moved to the University of Southern California's campus, which afforded modern facilities for laboratory instruction in the different departments of the college and also made possible the election of subjects of study in liberal arts and commerce.

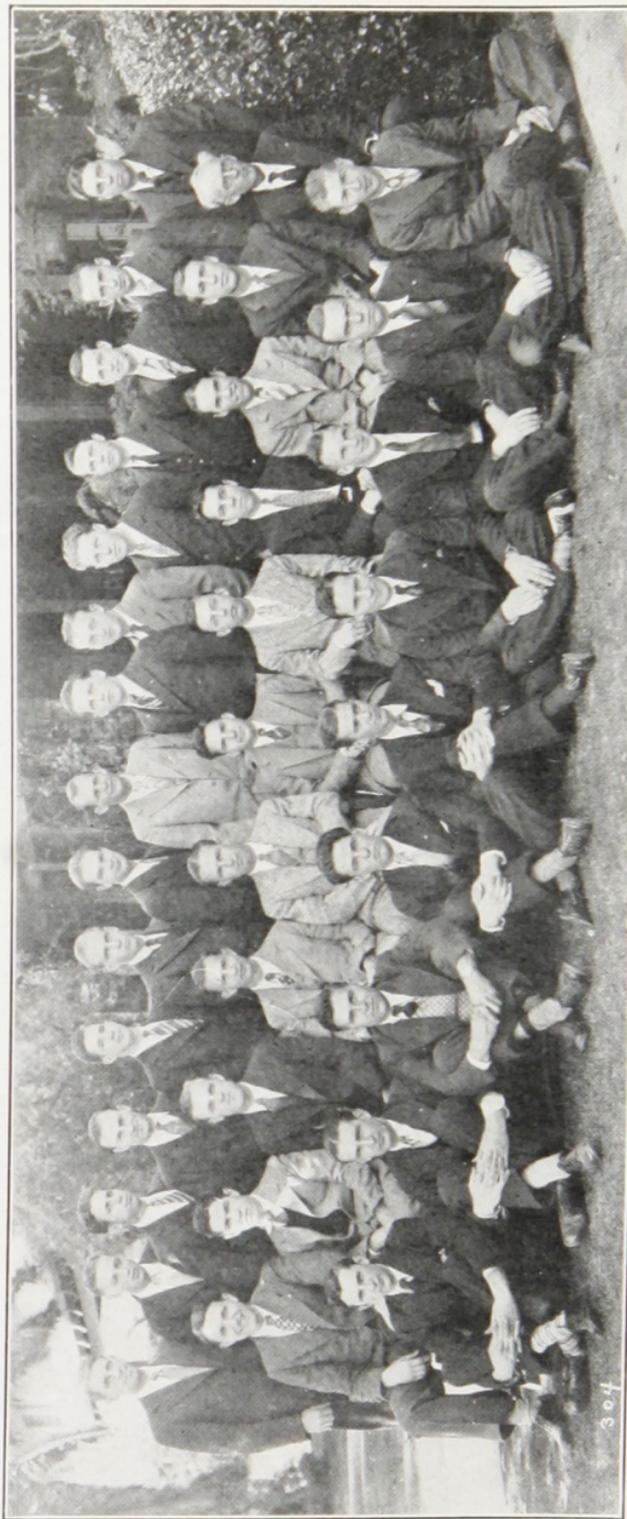
As the college increased in attendance, the needs of the department grew and to meet this need the university constructed a special laboratory on the campus, known as "the Shack." This was a frame building with modern facilities and equipment. From an architectural point of view the building was unique in that it had the appearance of a barn. In spite of external appearances the equipment afforded unusual opportunities for some of the best lines of research which the department has undertaken.

When Dr. Von KleinSmid succeeded Dr. Bovard as president in 1922 one of his first moves was to make the College of Pharmacy an integral part of the university and to undertake the construction and equipment of a thoroughly modern building for the college. In 1923 the present building was erected, the necessary funds being donated by pharmaceutical and chemical interest assisted by friends of the institution who had been former students. The present home of the institution is one of the best equipped of the colleges of pharmacy in the United States.

The faculty consists of well trained specialists, who have a pedagogical foundation for the presentation of their subjects.

The college is a member of the American Association of Colleges of Pharmacy and its graduates have been recognized by boards of pharmacy in all states.

It has been the aim of our college to increase the scholastic requirements from year to year. The standards of entrance and the length of the course is steadily increasing and in 1932 the entrance requirements will be the same as in the other departments of the university, and the four-year course with the B.S. degree will be the minimum course offered.



TAU CHAPTER OF KAPPA PSI

Top row from left to right: Latham, Patterson, Reynolds, Briano, Fisher, Epley, Campbell, Vickery, Gibbler, Boies, Kloninger, Arrington, Grover, Kelly, Knoll.  
 Center row: Brenner, Normanly, Larsen, Moser, Geiler, Titus, Phillips, Montgomery, Whidden, Haigh, Prof. Richardson.  
 Bottom row: Ball, Pattison, Leppé, Lessi, Thornton, Neff, Pritchard, Thaxton, Barnum.

The college has fostered the spirit of research, which has resulted in many valuable contributions to the field and the percentage of students returning for the B.S. and M.S. degree is increasing each year.

The modern trend of pharmaceutical education is towards standards that will place pharmacy on an equality with other professions. This condition has to a large extent been brought about by a thorough survey of the whole field made possible by a subvention granted by the Commonwealth Fund through its Committee on Administrative Units and by the co-operation of the American Association of Colleges of Pharmacy (formerly known as the American Conference of Pharmaceutical Faculties), the National Association of Retail Druggists, and the National Association of Boards of Pharmacy. The work was begun in 1923 directed by Dr. W. W. Charters of the University of Pittsburgh. This survey emphasized the fact that pharmacy was a profession and not a trade.

Many of the graduates are occupying important positions as managers of chain store pharmacies; others are operating stores of their own; some are employed in pharmaceutical and chemical research laboratories. Quite a number have entered universities as professors in colleges of pharmacy, others are teaching in junior colleges and high schools.

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## HISTORY OF TAU CHAPTER

The Tau chapter organized at the University of Southern California received its charter on the Ides of March, 1922. The installation of the first officers was held at the Gates Hotel, Los Angeles. There were eight charter members. A house was found near the campus for the present but was given up at the end of the year. Due to the fact that only a two-year course in pharmacy was given at the university at the time, there was a very dormant period in fraternity life till 1924, when the course was changed to three years. In this year Tau chapter was rather inactive and being the smaller fraternity on the pharmacy campus did not function very well. Having no house, the meetings were held in the class rooms of the college.

In the fall of 1926, the Tau chapter consisted of six actives and fourteen pledges. A new house was established on Halldale Street. The chapter was strongly fixed politically in the College of Pharmacy, having Brother Mikesell as student body president. The house also stood second on the entire campus for scholarship. There were this year two men on varsity baseball, one on the swimming team, and five men in the great Trojan Band. The initiation of Professor Richardson of the College of Pharmacy, as an honorary member, came in the first part of the year and since then he has acted as faculty adviser for Kappa Psi. In this year the policy of Kappa Psi dances was begun for Tau, and

one of the outstanding events was a dance given by Brother Pelletier at his home.

In the spring of 1927, five more pledges were initiated and Louis Leppe was elected regent of the house. At the beginning of the school year, the chapter moved to a two-story house to care for the growth of the chapter. Again we achieved political success with Brother Epley as student body president of pharmacy. Twelve more pledges were added to the roster and initiated. The house also showed prosperity and added a Chesterfield set and an orthophonic victrola to its belongings. The initiation of Mr. Brunswig of the Brunswig Drug Company, and Mr. Roberts of the California State Board, as honorary members, was an outstanding event that year. Several social functions were held during the year and one of the best was the dance honoring the Beta-Gamma chapter of the University of California at Berkeley. This was following the big Trojan vs. Golden Bears football game.

The fall of 1928 showed the largest house Tau has ever had. Twenty-three actives and eleven pledges were in the roll. The house this year being located in a fine two-story home just a few minutes from the College of Pharmacy. Karl Brenner was regent this year. A number of fine socials were held at the first of the year. A dance given by the pledges started the semester with a bang. Later a return dance was given in honor of the pledges. This was around Thanksgiving time and the hop was in the form of a barn dance. Another dance was given at the Breakwater Club at the beach.

When school opened in September, 1929, everything was rosy for the coming year. All the major offices in the College of Pharmacy were held by Kappa Psi men. The usual custom of giving a dance honoring the pledges was carried out and the following week the fellows went north to see the U.S.C.-Stanford football wrangle. While there they were entertained by the Beta-Gamma chapter. The following week Beta-Gamma packed her suitcase and returned our visit to view their Golden Bears play the Trojans.

During November an initiation was held at which time Mr. Thackberry and Dr. Hall entered the Agora as honorary members. The next Friday all our honorary members were given parchments at a banquet at the Mary Louise Tea Rooms. All the members wore the red carnation and decorations were carried out in true Kappa Psi fashion.

This just about covers Kappa Psi doings, but by the time this goes to press, we'll have accomplished a lot more, but we must have some material for the next number of the Tau MASK.

### LUCIEN N. BRUNSWIG, Tau

Lucien N. Brunswig was born in France. He obtained his B.S. and Ph.D. degrees at the College of Etain, there in France. He came to New Orleans to establish a drug trade and from there went to Los Angeles. Brother Brunswig was one of the most important characters in building up the Southwest in the drug line. He was co-founder of the College of Pharmacy at the University of Southern California, and is now president of a chain of wholesale drug houses bearing his name. These cover the entire southwest of California and Arizona. He is also director of the "College des Etats Unis" (College of the United States) in Paris.



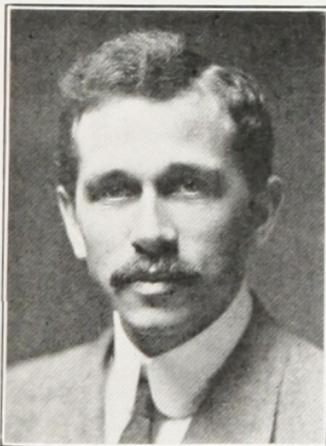
L. N. BRUNSWIG

### WHAT OF THE FUTURE?

By L. H. THACKABERRY, Tau

*Southern California Division of P. D. and Co.*

Our President, Mr. Hoover, has called for more spirituality in business, and this is a sign of the times we are living in. Every man should be connected with some religious organization. He should have some spiritual contact with his fellow men, and should have a standard or guide to right living and not just drift along with the tide. The men you respect in business, who make a real success, not a temporary one, are nearly always men of high ideals. I am glad to note the stress with which right living is being emphasized. It is the only key to success. Any fool can swim with the tide, but it takes a real swimmer to swim against it.



L. H. THACKABERRY, Tau

In these days of strenuous living, what is the future of the ethical side of pharmacy? Who will carry on this business? Several other questions along the same line we might do well to ask ourselves. In my estimation there never was a time when good, reliable, well educated men were more in demand than right now. What has this got to do with Kappa Psi Fraternity? Very much indeed, and I feel the future of

pharmacy is in very safe hands, if the members of the Fraternity will study their obligation, what it really means, and then try and carry into their daily walk of life the great truths taught therein. They cannot but be better qualified to fill their position in life, if they follow this teaching. The ethical pharmacist must have a college education, he must have his practical training, and his character must be above reproach. He must make his choice between the prescription pharmacy and the merchandising drug store. They are being divorced very rapidly. When he makes his choice he must then pursue the education which will most benefit his future success. It is necessary to get all you can out of your education. Have the ambition to be the best and nothing less than the best in whatever walk of life you choose. Help the other fellow and so help yourself. When you are right stand up for it, even if the majority are against you. Work today as if it was the last day you ever would work. Leave no task unfinished if it is possible to finish it. Play the same way. Never apologize for taking up a man's time. If what you are after is worth while, all well and good. If not why waste his time and your own? Members of the Fraternity, give all the support you can to the officers of your local chapter. Help them in their official capacity. The more work you put into your Fraternity the more you will get out of it; no investment, no dividends. Our local chapter is a capable one, and I am sure we are all very proud of what the members of Kappa Psi house accomplished on the local campus. Remember we cannot live on the past; we must make ready for the future. Be careful in selecting your new members, quality not quantity should be our watchword.

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## THE DEMOCRACY OF CHEMISTRY

By MARGARET AIRSTON, *Ph.C., M.S.*,  
*Professor of Chemistry*

Chemistry is one of the greatest "levelers of the ranks" in this age. There is no group of people which is not affected by this science and it can be studied and used by everyone in their daily occupation as well as by the chemist and pharmacist in the laboratory. From the theories of Darwin, who showed the common ancestry of man up through the centuries of scientific investigations and accomplishments, we find these latter being used to bring that which already exists within the reach of society as a whole. The motion picture and the radio are only two instances of the pleasure and benefits which science has brought to the masses of mankind. The manufacture of paper from cellulose and the introduction of printing machines has made the production of literature possible at such a price that everyone can obtain it. Not very many centuries ago sugar, as such, was unknown, but now as quoted

from E. E. Slosson's *Creative Chemistry*, "Pure sugar is the first and greatest contribution of chemistry to the world's dietary."

Democracy tends to equal distribution of wealth and it would seem that many of our industries are an important factor in the working out of this principle, although based on scientific fact or discovery with no thought of wealth as a result. For example the dye industry which has developed to such a great extent within recent years, owes its origin to the work of William Perkins, who, as a boy, attempted the synthesis of quinine in a small experimental laboratory. He discovered that the seemingly worse than useless sticky mass contained a beautiful purple color. Dyes can now be made so cheaply that they are available to rich and poor alike.

Democracy gives to individuals the right to think for themselves. The mind of the individual is assisted by a scientific training to judge rightly through critical examination of evidence and cautious consideration of facts. Powers of observation are developed and often from the recognition of a seemingly trivial fact important additions to knowledge have been made. Charles Goodyear found that an accidental mixture of rubber with other substances gave a tough, stable, plastic, solid. Chemists had worked on this problem for years, and if Goodyear had not been trained to observe he would have passed it by and pneumatic tires might still have been a dream.

Men who are famous are those who have evolved, discovered, and stated systems of thought. The principles of chemistry which we use today are the results of generations of thought applied to the experimental study of that subject. Through its channels the imagination is forced to stimulate effort, an appreciation of life through a knowledge of scientific laws is gained, and many in their present work have revealed the future through chemical experiments glimpsing into a few of the eternal mysteries which man is ever trying to solve.

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## THE MANUFACTURE OF SYNTHETIC GASOLINE

By PROFESSOR FRANK RICHARDSON, Ph.G., B.S., *Tau*

The manufacture of synthetic gasoline or "cracking oils" is comparatively new and is much more an engineering problem than a chemical one. In this paper we will dwell more upon the chemical, rather than the engineering phase of the problem.

In order to better understand the subject we must take into consideration the composition of petroleum. Petroleums are mixtures of compounds of hydrocarbons, with impurities of sulphur and nitrogen in bewildering amounts. You will find present the paraffins, olefins, and the acetylenes, all in the same sample of oil.

The process of cracking petroleum products is the decomposition of

hydrocarbons by exposing them to a temperature above their normal boiling point, producing thereby hydrocarbons of a lower and higher boiling point. All cracking processes are divided into four general groups: (1) those in which the hydrocarbon mixture in liquid form is subjected to highly heated surfaces; (2) those in which the vaporized hydrocarbon mixture is subjected to a high temperature; (3) those which the vaporized hydrocarbons are subjected to high temperature in the presence of a catalyst; (4) those which the hydrocarbons are distilled under pressure.

The products obtained are: fixed gas, gasoline, kerosene, and aromatic hydrocarbons (benzene and toluene). Gasoline is the product mostly desired. Speaking generally it may be said that high temperatures are necessary for cracking hydrocarbons and that the higher the temperature the greater is the value of fixed gas formed. Pressure is used to bring about the cracking at lower temperatures in order to avoid the large loss through fixed gas being formed.

The first scientific investigations of the decomposition of the hydrocarbons in oil was made by Farraday in 1825. The Daltons had made note of the decomposition of methane in 1801. Stillman in 1855 observed the breaking down of petroleum oil when subjected to high temperatures and pressure.

The cracking process originated in 1861. The discovery was an accident on the part of a worker in a laboratory. The man's duty was to observe the still every hour. At his failure to return until the end of four hours, he observed the heavy residue in the still producing a light distillate. No practical application was made of this discovery until 1865 when Younge and Benton took out patents. Younge's process was conducted in liquid phase in a still designed to effect condensation on the upper portion with the consequent dropping back of the condensed particles into the boiling liquid, thereby causing dissociation.

Benton's process followed that of Younge and was also conducted in liquid phase. It was the first attempt to utilize tubes for cracking purposes. Benton used a temperature of 357° to 538° C. This was under pressure of 500 pounds per square inch. In 1889 De War and Redwood developed a process for distilling oil under pressure to increase the yield of kerosene. Gasoline was produced, but on account of no demand the manufacture left in what is now called gasoline fraction, and the finished kerosene had a specific flash test to prevent adulterations with gasoline.

The De War-Redwood process resembles the Burton process closely, the principle difference in the emphasis Burton places on condensation under pressure.

The principal chemical problems in the manufacture of synthetic gasoline is the formation of carbon. This is caused by local overheating of the hydrocarbon under treatment. It is thought the molecule remains too long in contact with the heated walls of the vessel and thus rapidly absorbs heat, which it is not able to pass on to surrounding molecules

fast enough to maintain a uniform temperature. The result is a complete decomposition of the overheated molecule into uncondensable gas and carbon, the gas readily passing out of the apparatus and the carbon adhering to the walls of the cracking chamber. The carbon then clogs the apparatus or causes it to burn out.

If it were possible to regulate the time of contact between the molecule and the hot metal, and if in addition the temperature of the apparatus is raised progressively so that the oil enters cold or slightly pre-heated and gradually becomes heated to the highest desired temperature, there will be a point during the flow of the oil through the apparatus where the temperature and time of contact are right for the partial dissociation of the molecules and the formation of a minimum amount of carbon and a maximum amount of saleable product. It must be remembered at all times, in dealing with a cracking problem, that oil is not a uniform substance. It has neither a uniform boiling point or a definite chemical combination, but is a complex combination of substances having different boiling points and reacting differently under the same conditions. In general it may be stated that the higher the boiling point of a given oil, the lower the temperature at which it will decompose. It is therefore necessary in treating any oil to provide variable conditions which will suit the different constituents composing the oil.

A number of processes call for the injection of water in definite proportions with the oil. The action, however, is not what the inventor has claimed, namely the decomposition of the water into its elements resulting in the hydrogenation of the unsaturated hydrocarbons and the oxidation of the carbon into carbon dioxide and carbon monoxide. It is rather the action of heat balance in preventing local overheating that is really accomplished. Pressure is a very necessary factor in the production of the greatest amount of gasoline from a given oil. It reduces the amount of unsaturated hydrocarbons formed, and in the liquid phase process it raises the vaporizing point of the oil above the temperature necessary to crack it. The advantage of condensation under high pressure over condensation at atmospheric pressure is open to question.

Bacon and Hanov in their work "The American Petroleum Industry," set forth a series of experiments and claim there is no advantage in condensation under pressure over condensation at atmospheric pressure. Dr. Burton, the inventor of the well known Burton process used by the Standard Oil Company, claims that condensation under pressure decreases the percentage of unsaturated hydrocarbon products. It is the unsaturated hydrocarbons which give all cracked gasoline peculiar odor.

The effect of catalysts as a means of accelerating the cracking of oil is a much discussed subject. There is no doubt that platinum or finely divided nickel may exert some influence, but its recovery is so different and catalysts so seldom used that most processes make no use of them. There is one place where a catalyst will be of value and that is in the hydrogenation to prevent the formation of unsaturated products and to convert the carbon into a fixed gas.

As we stated in the opening paragraph, the cracking processes are divided into four groups and of these the liquid and vapor phase are the most important. The cracking in the liquid phase was the first method used and is now foremost today. The advantages of cracking oil in the liquid phase are many. The oil is heated progressively and at an even rate so each molecule has an opportunity to react at a temperature best suited to it. The tendency to overheating is much less in the liquid phase than in the vapor process. Consequently less fixed gas and carbon are formed. Carbon does not adhere so readily to the walls of the cracking chamber, but is more apt to float off in the oil to be drawn off with the heavy residue. The formation of an insulating shell is thus retarded. The control of the pumps feeding the oil into the apparatus need not be so carefully watched. The large volume of oil handled in the liquid phase is advantageous, as it prevents the wide variation of temperatures when tubes or pipes are used as a cracking chamber. In the liquid process practically all of the advantages of the vapor process are present with few of its difficulties. In such an apparatus the feed may be continuous, the carbon removed continuously, water can be present without causing bumping, all grades of oil may be used with success, any desired pressure may be applied, stirring mechanism may be used without carbon formation thereon. The stirring mechanism can only obtain the temperature of the oil and carbon will not adhere to metal only when the metal is at a higher temperature than the oil under treatment. In the liquid process it is possible to treat heavy non-volatile oils which decompose in some cases at a temperature below their boiling point. Catalysts such as aluminum chloride may be readily used in the liquid phase. Crude oil which contains a refinable percentage of gasoline may be cracked without previous treatment thus saving the cost of distillation and securing a blend of cracked gasoline with the natural product.

The advantages of the vapor phase are: small amount of oil exposed to the heat in advent of breakage resulting in fire; the possibility of varying pressure and temperature independently of each other, enabling a vapor process plant to successfully crack kerosene; the ready adaptability of such a catalyst as platinum. For the production of the aromatic hydrocarbons such as benzene, toluene, and tylen, the vapor process is the only commercial possibility.

The disadvantage of a great many of the vapor phase processes is the high temperature. The high pressure used causes the tubes to blow out. Another difficulty, and probably the greatest, is the inability to successfully use any form of stirring or scraping mechanism. The radiant heat raises the temperature of the stirrer and causes carbon to adhere, thus blocking the apparatus. The high temperature used causes an overheating of the molecules which come in contact with the tubes resulting in total decomposition, formation of fixed gases, and carbon. If no means are provided for removing carbon it soon coats the walls of the tubes and acts as an insulator which requires more heat and the final burning out of the apparatus.

Looking at the problem from a commercial standpoint the only oils remaining to be handled by the cracking process are the heavy crude oils containing little or no gasoline, and the fuel oils. The cracking of these oils offers the greatest profit, but has, to be sure, a great many difficulties in the way of carbon formations and the liberation of fixed gases.

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## SEMI-CENTENNIAL TO BE CELEBRATED BY THE UNIVERSITY OF SOUTHERN CALIFORNIA IN 1930

Founded a half century ago, in 1880, the University of Southern California is preparing to commemorate its fiftieth birthday by a fitting and significant Semi-Centennial Celebration in June, 1930. Graphically stressing the university's highest aims and achievements—scholastic endeavor, academic advancement, worthy research, and moral idealism—the anniversary celebration will occupy a week. The program is under the direction of Dean Rockwell D. Hunt, appointed general chairman by President R. B. von KleinSmid.

Educators of note, Trojan alumni, scientists, and citizens of this and other countries will gather in Los Angeles to pay homage to those whose work contributed to the development of the university, and to witness the re-enactment, in pageant and song, of events in the history of the institution.

### FIFTY YEARS AGO

It was in August, 1880, that the incorporation of the western educational institution was achieved. Then a trio of donors presented 308 lots in West Los Angeles to a pioneer board of directors to finance the proposed school. By the articles of incorporation, the state of California granted the name, "The University of Southern California," to the new institution, and the policy of coeducation was established.

Classes began in October, 1880, under a guidance of Dr. Marion McKinley Bovard, the first president of Southern California. Later his brother, Dr. George Finley Bovard, a graduate of the class of 1884, served as president for eighteen years (and is now president emeritus). For the past eight years Dr. R. B. von KleinSmid has been president, while Colonel Warren B. Bovard, son of Dr. George F. Bovard, is vice-president and comptroller, and Dr. Frank C. Touton is vice-president and educational director.

### TWENTIETH CENTURY GROWTH

When the University of Southern California opened its doors, fifty-five students gathered in the first frame building under the supervision of ten instructors. Los Angeles was at that time a frontier town of the Southwest with a population of 11,183, and with forty-three teachers in its school system. City and university have grown apace, for recent

figures show that, with one exception, the population of Los Angeles has doubled every ten years, while the enrollment of students at Southern California has tripled every decade except the third. Los Angeles has changed from a village to a metropolitan center, and the University of Southern California has evolved from a small college of liberal arts to a many-sided university, recognized by the Association of American Universities, measuring up to rigorous scholastic requirements. Phi Beta Kappa, Phi Kappa Phi, and the Order of the Coif are among the ninety-nine honorary and professional societies with chapters at Southern California.

Twenty schools and colleges are manned by more than 400 faculty members, and serve a yearly enrollment of more than 15,000 students.

#### A METROPOLITAN UNIVERSITY

The campus of Southern California, known as University Park, adjoins Exposition Park, which contains the Los Angeles Museum (history, art, and science), and the California State Exposition Building (with exhibits of the state's resources and industries). In the Museum are collections of the Historical Society of Southern California, the Academy of Science, the Cooper Ornithological Society, the Fine Arts League of Los Angeles, and numerous private collections, all conveniently available to students.

The University of Southern California elects to stay close to the center of Los Angeles, immersed in the problems of the metropolis of the Pacific-Southwest, rubbing elbows with its citizens, sharing the energy of its life, and educating its youth not only in study-hall and classroom but also with the co-operation of urban industries, the harbor, the hospitals, the courts, and the city's commercial and cultural forces.

Research, carried on in campus laboratories and libraries, as well as in actual commercial, industrial, legal, and educational establishments of the section, constitutes one of the institution's most important services. Activities of faculty and students, practical as well as academic, reach out into the community through such departments as the Speakers Bureau, the Employment and Appointment Bureaus, the Bureau of Field Work, the Division of Radio Education, Correspondence Study Department, the Legal Aid Clinic, the Department of Co-ordination, the Dental Clinic, community classes, the Annual Institutes of International Relations (December) and of Public Administration (April, and departmental publications such as the *Personalist* of the Department of Philosophy, the *Southern California Law Review*, and the *Journal of Sociology and Social Research*.

#### SPECIALIZED SERVICE

By means of its professional schools (Law, Commerce, Medicine, Architecture, Dentistry, Engineering, Music, Public Administration, and Pharmacy), as well as the scientific, artistic, and cultural phases of edu-

cation emphasized in the College of Letters, Arts, and Sciences, the Trojan university aims to aid the Southwest in developing its resources and capacities to the utmost, so that it may render worthy and conspicuous service in national and world affairs. The student body of the Graduate School represents more than 100 schools and colleges, including not only Americans from every section of this country, but also students from the Orient, Mexico, Canada, and European, and Asiatic countries. The student body of University College, the evening division, located in the heart of Los Angeles business district, provides continuation college work to nearly 6,000 adults annually.

The University of Southern California is non-sectarian, and is attended by members of many and varied religious faiths. Yet Southern California recognizes that Christian influences in education help to stabilize the social order. A recent survey showed that forty-one denominations and religions are represented in the Trojan student body, among which the most numerous are the Baptist, Catholic, Christian, Christian Science, Congregational, Episcopal, Methodist, and Presbyterian denominations.

#### LINKING THE PAST WITH THE FUTURE

Eleven veteran educators who have been affiliated with the University of Southern California for twenty-five years or more comprise an honorary faculty committee of the Semi-Centennial Celebration. The quarter-century sages who, from 1884 to 1905, became instructors at Southern California, have continued their interest and service. In addition to this "silver-committee," founders, former faculty members, former students, and those who have sponsored and supported the institution will be prominent in the program of the golden anniversary in June, 1930. Many who have received honorary degrees from Southern California, those who have endowed the university with funds, scholarships, libraries, museum materials, buildings, and equipment, and other benefactors and beneficiaries of the institution will mingle during the anniversary week as participants and spectators.

#### SOME FEATURES OF THE SEMI-CENTENNIAL PROGRAM

Educational exhibits, scientific studies, faculty publications, and departmental demonstrations will be among the academic features of the program.

With addresses by national notables prominent in an appropriate field, four new buildings will be dedicated with fitting ceremonies.

An historical pageant, staged by students of the School of Speech, will reveal by spectacular parade the evolution of the University of Southern California from the eighties to the 1930 era.

A collegiate chorus of 500 voices, accompanied by a student orchestra of 100 pieces, and assisted by national artists, will render the oratorio *Elijah*, and a festival of music by campus musical organizations, including the Trojan Band and the Glee Clubs, will be held.

The Alumni Association will be in charge of the Golden Jubilee Banquet, as well as numerous class reunions; and it is planned that the cornerstone of a magnificent new Library Building, to be erected by alumni contributions, will be laid during the Semi-Centennial Week.

A University Ode, expressing through poetry and music the traditions and ideals of Southern California, will be chanted by a student chorus.

Emblematic of courage, skill, and wisdom, a gigantic Trojan statue, "The Spirit of Troy," will be unveiled by the Alumni Association, during the Semi-Centennial Celebration. The statue will thereafter serve as a shrine where Trojan students, alumni, and friends will assemble for celebrations, athletic rallies, reunions, and social and academic gatherings.

#### PLANS FOR THE SECOND FIFTY YEARS

A definite program of expansion involving the investment of \$40,000,000 has been planned, providing for more ample endowments and additional structures to house more adequately the Colleges of Commerce and Music, the Schools of Religion and Education, a separate building to contain the School of Speech, and a University Theater, a Marine Laboratory, and other divisions.

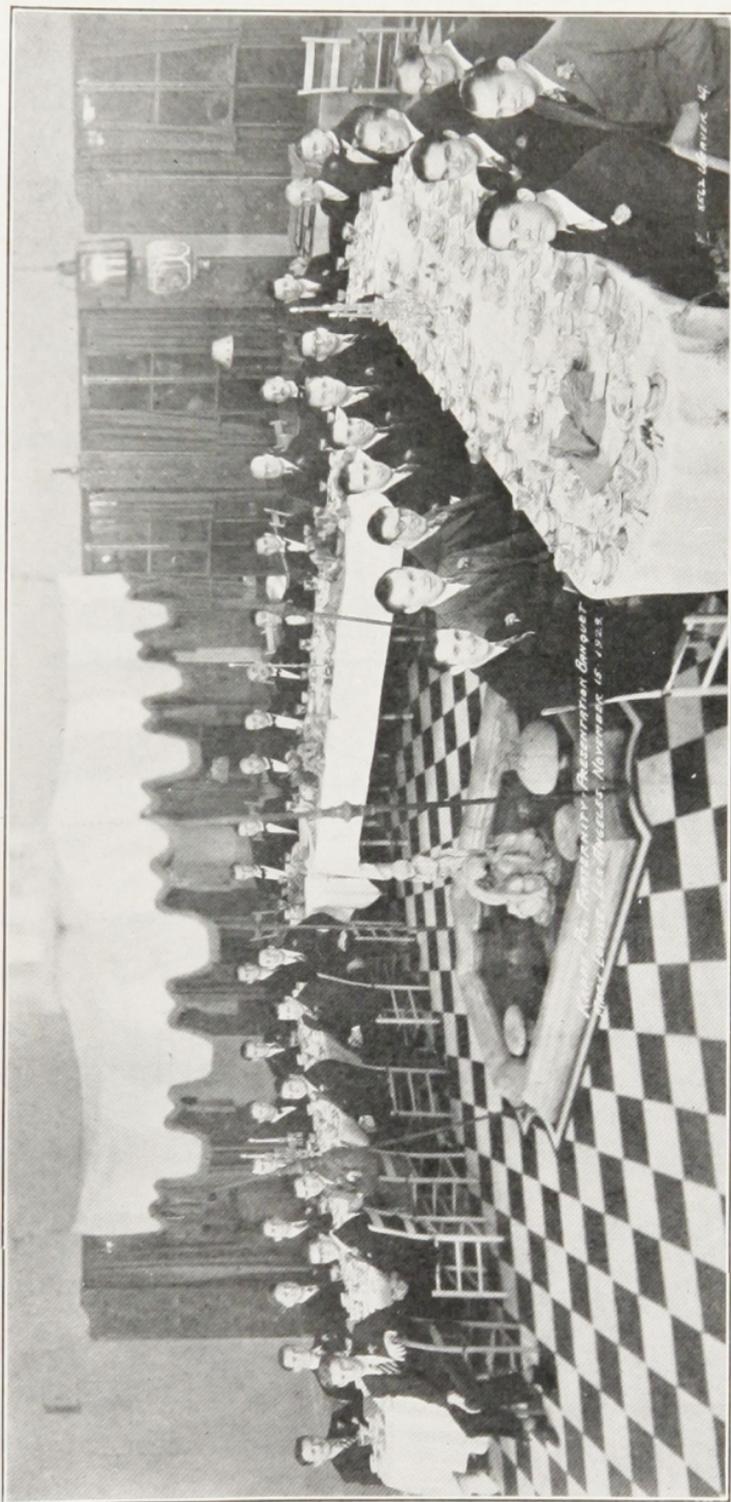
Dr. R. B. von KleinSmid, president of Southern California since 1921, voices the pledge of the trustees, the administration, and the faculty of the university as follows: "The University of Southern California will hold fast to its conviction that education is a living process, as adjustable as life itself, using the materials provided by the past to make the products of the future. It will continue to devote itself to what it conceives to be the urgent problems of higher education in this present age—the adapting of university facilities to the needs expressed in modern society."

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#### PRESENTATION BANQUET

On the evening of November 15, the combined chapters, Tau and the Los Angeles, held a banquet at the Mary Louise Tea Room. This was for the purpose of presenting parchments to our honorary members. We are proud to call these men, who have made a name for themselves in pharmacy, brothers of Kappa Psi. Those presented with certificates were: Lucien N. Brunswig, president of the Brunswig Drug Company (this institution is one of the largest of its kind on the Pacific Coast), and Fred Roberts, a member of the California State Board and drug inspector for Southern California, is one of our honorary members. Dr. Hall and Mr. Thackaberry were also presented with certificates. Dr. Hall is a member of the research laboratory of Parke, Davis and Company, and formerly a faculty member at the University of Texas. Mr. L. H. Thackaberry is the manager for the Southern California Division of Parke, Davis.

Very interesting after-dinner speeches were made by these new brothers, and we are certainly proud to have such men of character with us.



KAPPA PSI PRESENTATION BANQUET AT THE MARY LOUISE, LOS ANGELES

## "WHO'S WHO" IN THE TAU HUT

## FRANK D. TITUS

President of Kappa Psi, 1929-30, Alhambra High School, Rho Chi, Pharmacon, treasurer of Sophomore class, vice-president of Pharmacy Student Body, candidate Ph.C.

## LEE C. PHILLIPS

Alhambra High School, vice-president of Kappa Psi, Pharmacon, candidate Ph.C.

## MYRLE LARSEN

Treasurer of Pharmacy Student Body, vice-president of Senior class, Kappa Psi house manager, Pharmacon, candidate for B.S.

## ALVIS B. MONTGOMERY

Batesville High School, Arkansas, Kappa Psi historian, president of Senior class, Western Wholesale Scholarship, '29, Erosophic Society, Arkansas College, Pharmacon, National Honor Society of High Schools, assistant in prescription and materia medica, candidate for B.S.

## HUBERT NORMANLY

President of Junior class, treasurer of all-university Junior class, chaplain of Kappa Psi, Junior Prom committee, candidate for Ph.C.

## CHARLES MERTON MOSER

President of Pharmacon, secretary of Kappa Psi, Pharmacy Botanical Gardens, editor of *Senior Paper*, '29, candidate for B.S.

## KARL BRENNER

Stillwater High School, Minnesota, assistant librarian of band, assistant manager of band, manager of the Trojan band, vice-president of Skull and Mortar, president of College of Pharmacy Student Body, president of Kappa Psi, '27-'28, member of Trojan Knights, National Honor Society, candidate for B.S.

## ROBERT J. WHIDDEN

Los Angeles High School, pledge master, '29, representative Professional Interfraternity Council, pledge to Pharmacon, basketball team, '29.

## EKIN HAIGH

Pharmacon, treasurer of Skull and Mortar, president of Sophomore class, chairman of Library Fund, '28, Jefferson City High School, candidate for Ph.C.

LYMAN LATHAM

Lemore Union High School, house manager in '27-'28, Pharmacon candidate for Ph.C.

DARREL PATTERSON

Brunswig Scholarship, '29, Coachella High School, Riverside Junior College, candidate for B.S.

REFORD A. ARRINGTON

Treasurer of Kappa Psi, '28-'29, Rho Chi, Pharmacon, transfer from U.C.L.A., candidate for B.S.

J. KENNETH KLONINGER

Lemore Union High School, Pharmacon, candidate Ph.C.

RAYMOND L. GEILER

Treasurer of Kappa Psi, athletic manager, treasurer of Junior class, Pharmacon, Glendale Union High School, Arizona, basketball team, '27-'28-'29, frosh baseball.

RICHARD REYNOLDS

Franklin High School, basketball team, handball team, Sophomore class treasurer, Pharmacon pledge.

MILTON J. CAMPBELL

Sheridan High School, Wyoming, Kappa Psi basketball team, '28-'29, Pharmacon pledge.

PAUL BRIANO, JR.

Vice-president of Sophomore class, Pasadena High School, National High School Honor Society.

VAUGHN FISHER

South Pasadena High School, pledge Pharmacon.

#### PLEDGES

PLEDGE CHARLES K. VICKERY

Transfer from Phoenix Junior College, treasurer Pharmacon, Phoenix Union High School, Pharmacon, pledge captain, candidate for B.S.

PLEDGE RAYMOND K. BARNUM

Transfer Riverside Junior College, Riverside High School.

PLEDGE LESLIE H. BALL

Downey Union High School.

PLEDGE LESTER LEPPE

Los Angeles High School

PLEDGE WARREN D. PATTISON, JR.

Kern County High School.

PLEDGE CHARLES D. LESSI

San Luis Obispo High School.

PLEDGE CHARLES GIEBLER

Pomona High School and Pomona Junior College, U.S.C. Stage Crew.

PLEDGE RALPH E. THAXTON

Panonia High School, Colorado.

PLEDGE CECIL PRITCHARD

Poly High School, Band U.S.C., treasurer Freshman class.

PLEDGE WILLIAM H. THORNTON

Latter Day Saints High School, Salt Lake City, Utah, University of Utah.

PLEDGE HARRY NEFF

Montebella High School.

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## SODIUM IN ALKALINE WATERS

By L. M. MOXON, B.S., *Tau*

The origin of all water is the sea. From the sea and lakes, and, to a lesser extent, from land surfaces, the sun causes a vapor to rise. This process we term evaporation. This vapor forms clouds and when condensation takes place rain is produced. This is the only natural source of fresh water.

Rain water is never absolutely pure. That is, a combination of two volumes of hydrogen with one volume of oxygen, without a trace of any other substance. The atmosphere through which it falls has four parts of carbon dioxide to every 10,000 parts of air. Some of this carbon dioxide is taken up by the water. We shall see later on that this gas is the chief agent in producing incrustation, as it enables the water to dissolve certain salts of calcium and magnesium.

All this rain that falls must have a destination so an approximation has been made as to its disposal. About one-third runs off the surface, into rivers or lakes, one-third sinks into the earth, and the final third is re-evaporated. We need not be concerned with this final portion as the first two furnish us with our supply of water, both for domestic consumption and industrial use.

Let us turn our attention to the first third, that which runs off into

rivers or lakes. This water may be put to use after it has traversed a few yards or it may go many miles before being tapped. If the latter is true, an examination of the route traveled is of importance as it furnishes a clue to the probable impurities now present in the water.

These impurities have been dissolved from the rocks and earth over which the stream has passed. The nature of these various salts and compounds is of great importance—especially in industries. Some waters must be treated before being used industrially and we are all familiar with the necessity of treating our drinking water to insure safety.

The second portion of the rainwater remains to be considered. It gradually sinks down into the soil, absorbing the soluble salts present, thus making it a dilute solution of one or more salts. Here, however, the water stays more or less definite in composition as it usually has only a limited area to work then. The character of the surrounding country may tend to alter the composition of the water. There may be a natural slope so that seepage water from earth of varying composition water filters in. The only safe plan to follow in using water is to study its source, then analyze chemically, and, finally, give it a bacteriological examination. A knowledge of the source will help in an intelligent interpretation of the test results.

There are three uses to which water is put, in which the question of the content of sodium salts is of more or less importance. The first of these, potability, is of general interest. The other two possess, possibly, only a technical interest. These others are the use of water in boilers and for irrigation. Thresh, in his work on the *Examination of Waters and Water Supplies*, gives several facts relating to the determination of potability in water.

Dr. Thresh gives data that is particularly applicable to waters in England. A yellowish color generally indicates the presence of organic matter while a red-brown is characteristic for peat. A yellowish-red tint may be inferred to mean a trace of iron. Turbidity is often a valuable guide. If it occurs soon after a rain it shows serious danger of pollution. If a water is clear and bright, then turns turbid, it should be regarded with suspicion because if particulate matter can gain access to the source of the water, then obviously the specific organisms causing disease may also be admitted.

Odor and taste should be negligible in potable water. Even when warmed no odor should be obvious. River waters often have an earthy smell but in such cases the water is almost invariably polluted with sewage or manurial matter. The amount of material in water that causes an unmistakable taste varies greatly with different people. This is especially true in the case of ordinary salt or sodium chloride. As Dr. Thresh says, "When sea water has been infiltrating with a public water supply, some persons have detected it and complained when the amount of salt did not exceed twenty grains per gallon; others have not noticed it until it has reached fifty or more grains per gallon."

There are many micro-organisms that cause water to have an odor.

Whipple classifies these odors as "aromatic," "grassy," and "fishy." The aromatic odor is caused by different varieties of Diatomaceae and Protozoa, the grassy odor by Cyanophyceae, and the fishy odor by Chlorophyceae and Protozoa. The same authority does not think that the odor producing organisms are injurious to persons in good health, but adds: "There is some reason to believe that people accustomed to drinking water free from organisms may be subjected to temporary intestinal disorders when they begin to drink water rich in microscopic organisms, just as people are affected by changing from a hard to a soft water and vice versa. It is possible that with young children and invalids such disorders may be more common than has been supposed."

It is pointed out by Dr. Thresh that "in considering the suitability of a water for a public supply it is not desirable to ignore the requirements of important industries, especially if these will be dependent upon such supply for the water used in their manufacturing processes." He then goes on to show how different constituents in the water affect various industries. A summary of those which have any bearing on the use of water in boilers is given.

If a hard water containing magnesium and calcium chlorides is used in a boiler at a high temperature, the plates will be corroded. This is due to decomposition, with the resultant formation of hydrochloric acid. If calcium sulphate is present, it will be deposited in a hard crystalline condition upon superheating. This forms an incrustation which is very difficult to remove and causes a great waste of heat. Calcium and magnesium in the form of carbonates are deposited rapidly after the water enters the boiler but they rarely form a scale. As soon as the carbon dioxide holding them in solution is boiled off, the precipitation takes place. The presence of sodium bicarbonate in reasonable quantities is not particularly objectionable, provided the water is suitable in other respects.

La Coux in his *Industrial Uses of Water* gives a treatment which will prevent formation of scale, due to deposits of calcium carbonate. The basic idea is to remove the calcium carbonate from solution. It is held in solution by carbon dioxide in the water. Hence it is in the form of the bicarbonate. The reaction is obtained by treating the water with sodium carbonate. Then precipitated calcium carbonate and sesquicarbonate of sodium are obtained. The latter is decomposed in its turn and gives the bicarbonate. Then when the water is boiled, the bicarbonate in solution gives off a part of its carbonic acid and becomes the neutral carbonate of sodium. The cyclic reaction is kept going by the two molecules of neutral carbonate which remain in solution. It is best to use just enough sodium carbonate to precipitate the salts in order to avoid corrosion of the boiler plates.

Booth in his work "Water Softening and Treatment" says that in general good practice, carbonate of soda is employed in combination with caustic lime. The soda is rendered caustic by the lime, which is converted into insoluble carbonate, and the caustic soda produced then acts on any

carbonate present, and becoming itself carbonate, is ready to act on lime sulphate and converts itself into sulphate of soda.

Dr. R. A. Smith has suggested that organic substances be used to coat the particles of lime as they escape from solution. Such organic substances have been found in potatoes, gelatin, and in buttermilk. When the carbonic acid leaves the water, the particles of carbonate of lime which are then allowed to fall, cannot approach so closely to each other as in pure water, and instead of uniting into a compact body, they remain in a separate condition and form with the water a mass of mud. This mud is blown off from the boiler at given intervals, according to the circumstance of the case.

The only safeguard to use in determining whether or not a water may be used industrially is to have a chemical analysis made, coupled with a study of the source of the water if possible. Inasmuch as this paper is supposed to deal with sodium and its compounds, a summary of the different ways of determining the sodium content of waters should be given.

The assumption is that any or all of the following may be present in the water sample: iron, aluminum, calcium, magnesium, and sodium. The iron and aluminum may be precipitated in the form of hydrates, using ammonium hydroxide. Then the calcium is removed as an oxalate and the magnesium as a phosphate. The excess phosphate being precipitated as the barium salt by the addition of barium chloride. With the addition of some sulphuric acid, the barium salt is brought down as the sulphate and the filtrate evaporated to recover sodium sulphate. The calculation for the amount of sodium present is made from the sodium sulphate.

Another method acidifies the sample with hydrochloric acid, and add barium chloride to remove the sulphates. It is then vaporated to dryness, barium hydroxide added and filtered. Then ammonium carbonate and oxalate are added with the excess ammonia driven off. Redissolve the residue in HCl, add excess of ammonium carbonate and take to dryness. The residue represents NaCl. The calculation may be made on that basis. The process of determining sodium is long and difficult.

Perhaps the most direct way in which a compound of sodium in water affects us, is in irrigation. California is known as the Golden state which is symbolized by her citrus crop. It has long been known that saline waters exerted a deleterious effect upon crops in general and particularly citrus trees. Dr. Hilgard, in 1900, said "It would hardly seem necessary to emphasize especially the danger incurred in irrigation with water containing unusual amounts of soluble salts; since ordinary common sense clearly indicates the impropriety of increasing the saline content of soils already charged with them by the evaporation year after year, of large amounts of saline water. The very slight taste possessed by glauber salts and salsoda does not adequately indicate their presence, even when in injurious amounts; so frequently a chemical test of the water is the only definite guide.

A number of experiments were made by the Agricultural Station at

Berkeley relating to the effects of alkali on citrus trees. The experiments seemed to show that there is a gradual accumulation of salts due to evaporation of saline waters. Sooner or later an injurious amount will result from the gradual collecting of salts from slightly saline water. It is said that forty grains of total salts per gallon of water should be the maximum when used in irrigation. That corresponds to 684 parts per million.

An important fact to bear in mind is that the use of sodium salts on soil reduces its porosity. This is liable to leave injurious amounts around the roots, where absorption would result in harm. Hence, the soil must be kept porous and a covering placed on top to reduce evaporation and allow the salts to sink deeper away from the roots. An application of gypsum seems to enable corps to tolerate a greater concentration of the toxic sodium salts.

The effect of sodium nitrate, when used as a fertilizer, is of interest. On an experimental plot, sodium nitrate was applied over a period of twelve years. For the first few years the trees prospered but the last three or four years mottled leaf appeared on every tree and no marketable fruit taken from them. The assumption seems to be that sodium carbonate has been formed. This salt is the well known "black alkali." There has been no conclusive proof that the following has been the case but it is supposed that there has been a selective absorption of the nitrate ion by the crop and the sodium united with the carbonate ion of the soil.

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## TAU CHAPTER ALUMNI

By DAVID FORSYTH, *Historian*

History is said to repeat itself. This being the case it is safe to surmise that chapters other than ours have had hard luck at the start. It is more to our liking to repeat the later successes.

The first officers were hard workers. George Fiero, regent; H. Van Reum, vice-regent; Joe Normanly, secretary; N. Parsons, treasurer. Lots of energy was required to get things running smoothly. These brothers had it.

The struggle through the first year was accomplished through the earnest endeavor of Brother George Fiero. Other members assisted him at times but it was due to his tireless effort that the fellows were held together.

Thus passed the dark ages. After many difficulties the sailing was smoother, and the alumni chapter forged ahead.

In 1926 the alumni chapter decided to have a beach-house in the summer. This was no sooner said than done. Lonnie Vincent went right to work and that summer the beach-house at Manhattan was opened.

A beach-house certainly adds to the summer pleasure. The house was

from fifteen to forty-five minutes from the city, depending upon the conveyance. College type Fords as a rule run more to capacity than speed. All chapters should have a beach-house. Dances are hotter than hot in the summer. A cool breeze certainly makes a difference. Besides the little girl can be taken out to listen to the wild waves between dances. This is a lot more romantic than sitting on the stairs or porch.

Bringing the history down to more modern times the progress is more rapid. Our dances, smokers, and banquets have been very successful.

One of the things we have been most lax in is sending copy to the various drug magazines. This doesn't seem so important to us fellows living in town. It matters more to those scattered about the state. Louis Green while in Honolulu used to write every three or four months to find the reason why and wherefore. It is about to be remedied. "*Tempus fugit*," but after all there will be a lot more in the future. In fact it seems to come when other things lag. Have you ever waited for that check from home?

There are many advantages in having an alumni chapter, both to the alumni and active members. It gives the alumni a place to meet the other fellows. They can talk, play cards, or listen to the radios. They are also assured of congenial company at the dances, which helps a lot. Advantages to the active chapter in the way of financial help. Advice and instruction in studies if requested. Co-operation in finding eligible pledges, and many others.

Progress has been made in many directions. The membership has more than tripled in the last couple of years. Brother Lueddemann boasts that there is money in the treasury and no outstanding debts. The meetings and dances are getting bigger and better. The fellows are enjoying themselves; much more is not necessary. We aren't satisfied, though, for to be satisfied is to slip.

The present officers, Lonnie Vincent, regent; H. Van Rekum, vice-regent; Bill Lueddemann, secretary-treasurer; Dave Forsyth, historian; are trying to keep things humming. Lonnie Vincent hums around so much to see the different fellows that his tires are never cool. In between times he holds down a couple of jobs, just to fill in the spare time. Bill Lueddemann acts as his shadow. Quite a tall shadow, though never cast down except when it is time to collect more money. Henry Van Rekum hasn't much to do. He just runs all the committees besides doing their work. He is used to it by now though as he manages to hold down some kind of office every election. My job is the only soft one of the bunch. I never run out of gasoline. I just put a stamp on my copy and let Uncle do the rest.

Join us if you move to Los Angeles, or pay us a visit if you are passing through. Your welcome is always waiting, make the most of it.

## GEORGE FIERO, Tau



GEORGE W. FIERO, Tau

One of our outstanding members in the Los Angeles graduate chapter is Brother George Fiero. He is now teaching materia medica at the University of Buffalo, New York. Brother Fiero's recent publication is *Review of Pharmacy*. Many pharmacists have him to thank for passing the state board. He was the originator of the Pharmacon Society at the University of Southern California. He was the first regent of the graduate chapter in Los Angeles, and has been largely responsible for the reorganization of the chapter at the University of Buffalo. We are all very proud to have such a member in Tau chapter.

## THE EFFECT OF PRESERVATIVES UPON THE DEVELOPMENT OF RANCIDITY IN OINTMENTS\*

GEORGE W. FIERO,† Tau and Gamma-Iota

The most common method of preserving fats for use in ointment bases is that employed by the U.S.P., namely, benzoin. Benzoin is a balsamic resin consisting of approximately 75 per cent resinous matter consisting mainly of esters of benzoic acid and an undertermined alcohol, approximately 15 per cent of free benzoic and cinnamic acids, and 10 per cent of the esters of these acids with cinnamyl, phenylpropyl, etc. There are also small quantities of vanillin, benzaldehyde, styrol, and styracin.

Benzoin is employed in the preparation of *Adeps Benzoinatus* of the U.S.P. and *Sevum Benzoinatum* of the N.F. The preservative property of benzoin has been attributed to the resinous substances, the volatile principles, and to benzoic and cinnamic acids. Husa<sup>1</sup> has shown that neither benzoic or cinnamic acids, in quantities as high as 4 per cent, will prevent the development of rancidity in lard.

Benzoin, itself, is not a very satisfactory preservative since ointments

\* Part of a thesis presented to the University of Southern California, College of Pharmacy, in partial fulfillment of the degree of master of science.

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<sup>1</sup> Husa and Husa, *J. Amer. Ph. Assn.*, XV, 1071 (1926).

prepared with benzoinated lard as a base become rancid, although rancidity does not develop as rapidly as with untreated lard. A familiar example of such a U.S.P. ointment is *Unguentum Sulphuris*, which is often found on the shelves of the drug store in a rancid condition.

DeBelsunci<sup>2</sup> found that the following had preservative action on soap: sodium thiosulphate, 1 per cent, sodium bicarbonate, 1 per cent, a mixture of the two, and certain perfumes and resins. Boulez,<sup>3</sup> however, found that as much as 0.5 per cent resin would not prevent the development of rancidity in soap. Smith and Wood<sup>4</sup> found that many substances would retard the rate of oxidation of fats, and reported such substances as thymol, betanaphthylamine, acetaldehyde aniline condensate (antioxidant, United States Rubber Company), agerite (antioxidant, Goodrich Rubber Company), stannous chloride, and sodium silicate as being successful in retarding the absorption of oxygen.

Holm and Greenback<sup>5</sup> point out that castor oil does not develop rancidity as readily as other oils having a similar high iodine number because of the hydroxyl radicals in its composition and they report substances containing an "OH" group such as dihydroxystearic acid, glycerin, resorcinol, phenol, benzyl alcohol, etc., as being negative catalysts in the oxidation of fats. Other substances which have been reported as preservatives for fats are sulphides of antimony, arsenic, zinc, and lead,<sup>6</sup> pyrogallol acid,<sup>7</sup> hydroquinon,<sup>8</sup> salicylic acid, and betanaphthol.<sup>9</sup>

It has been shown that the action of most preservatives is to retard the oxidation for a period of time, after which oxidation continues at a normal rate. This would indicate that the preservative does not act as a catalyst but is itself acted upon hence retarding the oxidation of the fat.

*Tests for Rancidity.* Logically, the term, *rancid* is descriptive of odor and taste, and rancidity as such is properly detected and estimated by means of sense perceptions; however, in laboratory work, a reliable chemical test is needed to make finer distinctions as to the intensity of rancidity. There are a number of tests for rancidity such as the fact that rancid fats will cause a red or bluish violet color to appear in a solution of fuchsin, sodium sulphite, and hydrochloric acid. Another test is to treat the fat with solution of hemoglobin and alcoholic solution of resin of guaiac which develops a blue color. The peroxide nature of rancid fats is indicated by the fact that they will free iodine from solution of potassium iodide which may be detected by its blue color reaction with starch solution.

The most satisfactory test, however, is that used by the federal gov-

<sup>2</sup> DeBelsunci, *Bull. mat. grasc. inst. col. Marseille*, 1925, 191.

<sup>3</sup> Boulez, *Perfumerie Moderne*, XX, 43 (1927).

<sup>4</sup> Smith and Wood, *Ind. Eng. Chem.*, XVIII, 691 (1926).

<sup>5</sup> Holm and Greenback *Ibid.*, XVI, 518 (1920).

<sup>6</sup> Scharff and Nobel Co., Brit. Pat. 254, 302 (1925).

<sup>7</sup> Mourea and Dufraisse, *Compt. rend. soc. biol.*, LXXXVI, 321 (1926).

<sup>8</sup> Mourea and Dufraisse, Brit. Pat. 181, 365 (1922).

<sup>9</sup> Bergell, *Z. deut. Ol-Fette-Ind.*, VL, 233 (1925).

ernment, known as the Kreis test. This consists of shaking 5 cc. of the molten fat with 5 cc. of concentrated hydrochloric acid and adding 5 cc. of a 0.1 per cent ethereal solution of phloroglucinol. Rancidity is indicated by the development of a red color. It was found that an aqueous solution of phloroglucinol was satisfactory and less volatile. A modification of this test is valuable in case the fat is a very dark color or has a dark colored impurity. This modification consists of heating the molten fat with an equal quantity of concentrated hydrochloric acid and passing the fumes through filter paper moistened with phloroglucinol solution. The intensity of rancidity is indicated by the development of a pink color on the paper.

*Experimental Procedure.* Four hundred samples of a very good grade lard, free from rancidity as detected by the Kreis test, taste, or odor, were treated with a definite percentage of various preservatives and allowed to remain exposed to the action of light and the atmosphere in thin, open glass test tubes. "Control" samples of untreated lard accompanied each set of the lard with preservatives. The "control" samples were tested from time to time and the entire lot was tested twice, the Kreis test being used.

Lard was used in this experiment because it is the most common ointment base which is susceptible to rancidity and has been used in the preparation of ointments for a number of years.

It was found that samples exposed in a warm, light room in the summer months developed rancidity much more rapidly than those in a cool, dark room. The control samples, however, indicated, in either case, the actual comparison and hence the value of the preservative. The following chart indicates a brief résumé of the results of the experiments. The percentage indicates the smallest percent which would prevent rancidity or the largest percent which would not prevent the development, a large number of strengths of each preservative having been used. The first Kreis test was made after four weeks in a warm, light room or ten weeks in a cool, dark room; the second was made after eight weeks in a warm, light room or twenty-five weeks in a cool, dark room. The minus symbol "-" indicates that rancidity did not develop and the plus symbol "+" indicates that rancidity did develop.

#### EFFECT OF PRESERVATIVES UPON RANCIDITY IN LARD

<i>Preservative</i>	<i>Per cent</i>	<i>Kreis Tests</i>	
Menthol .....	1.00	+	+
Acetylsalicylic Acid .....	1.00	+	+
Guaiacol Carbonate .....	2.00	+	+
Oil of Eucalyptus .....	2.00	+	+
Salicylic Acid .....	2.00	+	+
Benzyl Benzoate .....	2.00	+	+
Terebene .....	2.00	+	+
Oil of Cinnamon .....	2.00	+	+
Calcium Hydroxide .....	2.00	+	+
Oil Dwarf Pine Needles .....	2.00	+	+
Vanillin .....	1.00	+	+

<i>Preservative</i>	<i>Per cent</i>	<i>Kreis Tests</i>	
Coumarin	1.00	+	+
Acetaldehyde	2.00	+*	+
Oil of Organum	2.00	+	+
Antipyrine	2.00	+	+
Acetanilid	2.00	+	+
Acetphenetidid	2.00	+	+
Oil of Sassafras	2.00	+*	+*
Phenol	2.00	+	+
Chlorethone	1.00	+	+
Resorcinol	.12	—	+*
Resorcinol	1.00	—	—
Oil of Rosemary	3.00	+	+
Creosote	.12	—	+*
Creosote	.25	—	—
Guaiacol	.03	—	+*
Guaiacol	.06	—	—
Safrol	1.00	—	+
Methenamine†	.15	—	—
Thymol	.30	—	+
Thymol	2.50	—	—
Sodium Benzoate	1.00	—	+*
Sodium Benzoate‡	.10	—	+
Sodium Benzoate‡	2.50	—	+*
Sodium Thiosulphate	2.00	+	+
Stearic Acid	50.00	+	+
Hydrogenated Oil	0.40	—	+
Hydrogenated Oil	25.00	—	—
Paraffin	50.00	+	+
White or Yellow Wax	50.00	+	+
Petrolatum	50.00	—	+
Wool Fat	50.00	—	+
Oil of Cloves	.40	—	—

\* Test indicated but slightly rancid.

+ Samples developed a yellow color after six weeks.

‡ Dissolved in water, soap added, emulsified with the fat.

Oil of cloves interferes with the Kreis test, hence the odor was the only means of detecting rancidity.

Mixtures of various percentages of ointment bases were mixed and allowed to remain exposed to light and atmosphere in a cool, dark room for twenty-five weeks, being tested after ten weeks and after twenty-five weeks. A "control" sample of lard was placed with each set so as to compare the results. The following chart indicates the smallest quantities which would not develop rancidity or the largest quantities which did develop rancidity.

#### DEVELOPMENT OF RANCIDITY IN OINTMENT BASES

<i>Bases</i>	<i>Per cent</i>	<i>Kreis Tests</i>	
Wax (white)	.25		
Petrolatum (white)	.25	—	—
Lard	.50		
Wax	.12.5		
Petrolatum	.12.5	—	+
Lard	.50		

<i>Bases</i>	<i>Per cent</i>	<i>Kreis Tests</i>	
Liquid Petrolatum .....	6	—	—
Wax .....	6		
Lard .....	.88		
Liquid Petrolatum .....	3	—	+
Wax .....	3		
Lard .....	94		
Liquid Petrolatum .....	25	+	+
Petrolatum .....	25		
Stearic Acid .....	25		
Lard .....	25		
Liquid Petrolatum .....	25	—	+
Petrolatum .....	25		
Lard .....	50		
Liquid Petrolatum .....	25	—	+
Petrolatum .....	50		
Lard .....	25		
Liquid Petrolatum .....	25	+	+
Stearic Acid .....	25		
Lard .....	50		
Liquid Petrolatum .....	25	—	—
Wax .....	25		
Lard .....	50		
Liquid Petrolatum .....	25	—	—
Paraffin .....	25		
Lard .....	50		
Liquid Petrolatum .....	25	—	—
Paraffin .....	50		
Lard .....	25		
Liquid Petrolatum .....	25	+	+
Lard .....	75		
Petrolatum .....	25	+	+
Stearic Acid .....	25		
Lard .....	50		
Petrolatum .....	50	+	+
Stearic Acid .....	25		
Lard .....	25		
Petrolatum .....	10	+	+
Stearic Acid .....	10		
Paraffin .....	15		
Lard .....	.65		
Petrolatum .....	.75	+	+
Lard .....	.25		

Bases	Per cent	Kreis Tests	
Petrolatum .....	50		
Wool Fat .....	25	+	+
Lard .....	25		
Petrolatum .....	25		
Wool Fat .....	50	-	+
Lard .....	25		
Petrolatum .....	25		
Wool Fat .....	25		
Paraffin .....	25	-	+
Lard .....	25		
Paraffin .....	25		
Wool Fat .....	25	+	+
Lard .....	25		
Paraffin .....	25		
Wool Fat .....	50	+	+
Lard .....	25		

*Summary.* Most substances used as preservatives did not prevent the development of rancidity in lard. The following substances were found to be unsatisfactory:

Acetylsalicylic Acid	Menthol
Guaiacol Carbonate	Terebene
Oil of Eucalyptus	Vanillin
Oil of Cinnamon	Coumarin
Oil of Sassafras	Phenol
Oil of Dwarf Pine Needles	Chloretone
Oil of Rosemary	Safrol
Oil of Organum	Acetanilid
Calcium Hydroxide	Antipyrine
Salicylic Acid	Acetaldehyde
Benzyl Benzoate	

Those substances which were found to have preservative action were:

Guaiacol, 0.06 per cent, which is unsatisfactory as a preservative because of its poisonous therapeutic action and its penetrating odor.

Creosote, 0.25 per cent, which is very similar to guaiacol.

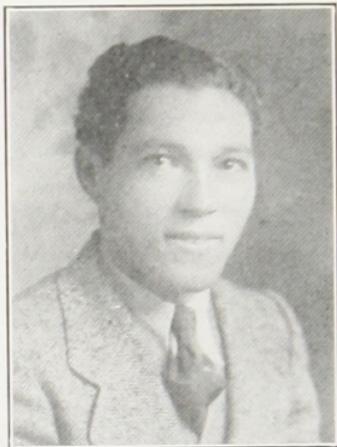
Oil of Cloves, the extent of rancidity of these samples was determined by odor, as it interfered with the Kreis test. Oil of cloves is not a good preservative because of its strong odor, and its anodyne and antiseptic therapeutic action.

Resorcinol, 1.00 per cent, which has a strong irritant, antiseptic action rendering it unfit for most ointments.

Sodium Benzoate had some preservative action although 2 per cent would not entirely prevent rancidity.

## OFFICERS IN THE GRADUATE CHAPTER AT LOS ANGELES

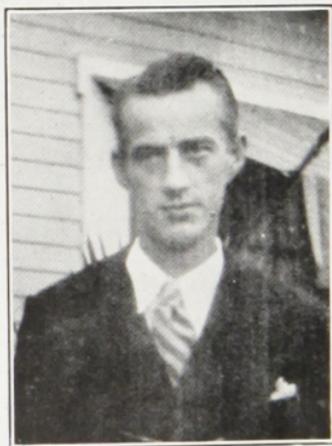
By EARL NEAL, *Tau*



LONGNIE VINCENT  
REGENT

before being elected regent occupied other important offices in the chapter.

Henri Van Rekum, another man who has done much to promote the interests of the graduate chapter. He was the second regent the graduate chapter had, and now concludes a year of service as vice-regent. Van graduated in 1925 and now owns his own store in Los Angeles.



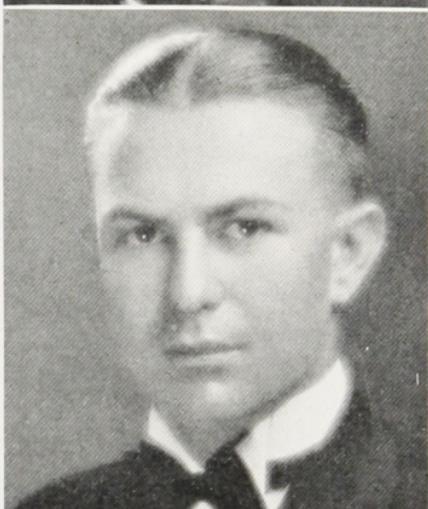
WM. LEUDEMANN

Lonnie Vincent is now closing his second year as regent of the graduate chapter. He is ending an administration which has seen the most prosperous season in the history of the chapter. Elected first for the year of 1928, Lonnie made such a splendid record that his return to the post of regent was unanimous. The outstanding social event of his first term was a dinner dance at the Elks' Club in Los Angeles on June 28, 1928. This year a dance at Rainbow Isle in the Mayfair Hotel was the big hit. Everybody seemed to agree that it was one of the best events of its kind ever staged by Kappa Psi. Lonnie has always been one of the most active members of the fraternity, and before



HENRI VAN REKUM

Creditably performing the duties of one of the least conspicuous and most thankless jobs of the chapter, William Leudemann has earned the plaudits of his fellow officers and fraternity brothers as secretary-treasurer of the graduate chapter. He was treasurer in 1928 and made such a success of it that he was uncontested for his present post at the elections.



OFFICERS OF TAU

F. Titus, Regent  
M. Moser, Secretary  
M. Larsen, House Manager

L. Phillips, Vice-Regent  
R. Geiler, Treasurer  
A. Montgomery, Historian

THE LOS ANGELES GRADUATE CHAPTER  
OF KAPPA PSI

By L. W. LUEDDEMANN

*Secretary-Treasurer, Los Angeles Graduate Chapter*

The Los Angeles graduate chapter of Tau chapter of Kappa Psi was started by a group of twenty-five alumni in order to keep in touch with the active chapter, to continue the binding ties which are so early broken after graduation, and last, but not least, to help the active chapter.

We met at the chapter house one evening, twenty-five strong, nominated and elected our officers, and, after speeches, they took over their respective duties. The first meeting of the graduate chapter was well under way.

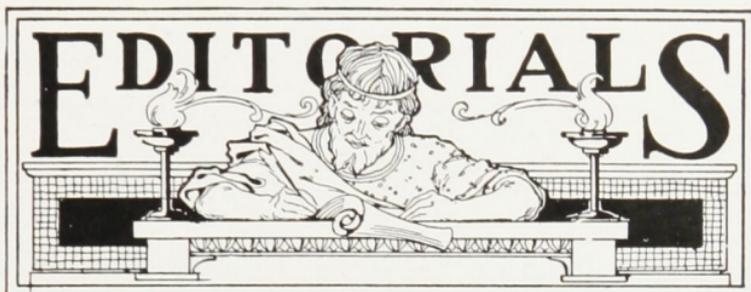
Brother Fiero, our first regent, now took the chair, and asked for comment on what was to be done. We decided that the first thing to do was to fix a date for the next meeting. We then designated the third Monday in each month as a good time to meet. It was decided to meet in conjunction with the active chapter, thus giving the alumni a chance to become better acquainted with the other men and their various activities.

The charter came up for consideration next, and a committee was chosen by Brother Fiero to write to Grand Chapter and obtain the charter. It was decided to put the names of all members present on the document.

The all important dues were next brought up for consideration, and, after much arguing, pro and con, this small but important matter was finally settled to everyone's satisfaction. Immediately after the meeting our new treasurer indicated his ability by collecting some of the dues.

As we are now all exhausted by our labors, and all dry from our orations, we decided to adjourn for refreshments.

Thus, the first meeting of the graduate chapter passed into history, and we are glad to report that the mailing list has increased from the original twenty-five to over seventy-five. We have also added many out-of-town members to our chapter. We hope to grow a good deal larger, and look forward to the time when we can buy our own chapter house, which, with the two chapters working in conjunction, should not be hard to do.



### STAFF FOR TAU NUMBER

<i>Editor-in-Chief</i> .....	CHARLES MERTON MOSER
<i>Associate Editor</i> .....	ALVIS MONTGOMERY

For a long time it has been the desire of the members of Tau chapter to compile a special "Tau Chapter Number" of THE MASK. When the Grand Council favored us with this permission and privilege, we were highly gratified indeed. Brothers Charles M. Moser and Alvis Montgomery were selected to serve as chapter editors for our number.

In presenting "Tau Chapter Number" to the membership of the Kappa Psi pharmaceutical fraternity, the editors wish to express the sincere appreciation of Tau chapter to all those who, by their co-operation and contributions, have made the number possible.

Tau has endeavored to produce an issue of THE MASK which will prove creditable both to the chapter and to the fraternity, and a serious effort has been made to reflect in some measure that spirit which has made Kappa Psi the greatest pharmaceutical fraternity, and THE MASK the leading fraternity quarterly. If this has been accomplished, we are indebted and grateful to those who by their generous support and encouragement have made possible the realization of Tau's desire.

## PETITION FROM INDIANAPOLIS COLLEGE OF PHARMACY

Indianapolis

December 3, 1929

*The Kappa Psi Pharmaceutical Fraternity,  
P.O. Box 6308, Crosstown Station,  
Memphis, Tennessee.*

GREETING:

We, the undersigned members of the faculty and the student body of the Indianapolis College of Pharmacy of Indianapolis, Indiana, do hereby petition the Kappa Psi pharmaceutical fraternity through its governing body, the Grand Council, for a charter as a collegiate chapter of Kappa Psi.

Our check to cover the charter fee, the Grand Council membership fees and life subscriptions to THE MASK for each petitioner whose name appears below, is attached. In the event a charter is not granted it is understood that the amount in full will be promptly returned.

We do promise in the event our petition be granted to abide by the Constitution and By-laws of the Kappa Psi pharmaceutical fraternity, and to do everything in our power to advance its interests and welfare, to uphold the good name of the fraternity, and to insure the successful continuation of the chapter by the annual initiation of underclassmen of the proper caliber.

Respectfully submitted,

EDWARD F. WEGENER, 1 W. Twenty-eighth St., Apt. 707, Indianapolis, Ind.  
 EDWARD H. NILES, 4450 Guilford Ave., Indianapolis, Ind.  
 OLIVER G. ANDERSON, 2712 N. Meridian St., Indianapolis, Ind.  
 FRED M. BARTON, '31, 310 N. Illinois St., Indianapolis, Ind.  
 W. B. CRONIN, '31, Spink Arms Annex, Indianapolis, Ind.  
 A. LLOYD CULLEY, '30, 235 Barton Hotel, Indianapolis, Ind.  
 MAURICE A. DRAIN, '30, 138 N. Oriental St., Indianapolis, Ind.  
 LEWIS M. FAHL, '30, 1811 N. Meridian St., Indianapolis, Ind.  
 ROBERT B. HAMILTON, '31, 310 N. Illinois St., Indianapolis, Ind.  
 J. D. KIEFNER, '30, 2445 College Ave., Indianapolis, Ind.  
 LAWRENCE LAMBORNE, '30, 310 N. Illinois St., Indianapolis, Ind.  
 LOUIS LEECHAMP, '30, 1126 N. Belleview Pl., Indianapolis, Ind.  
 CLARENCE McCLINE, '30, 310 N. Illinois St., Indianapolis, Ind.  
 J. A. MILLER, '30, 919 E. Ohio St., Indianapolis, Ind.  
 W. BATEMAN PARKER, '30, 1208 N. Tacoma Ave., Indianapolis, Ind.  
 JOHN M. PORTER, '31, 310 N. Illinois St., Indianapolis, Ind.  
 CHARLES R. ROGERS, '30, 310 N. Illinois St., Indianapolis, Ind.  
 HORACE L. SETTLE, '31, 310 N. Illinois St., Indianapolis, Ind.  
 JAMES A. SULLIVAN, '31, 1809 N. Talbott St., Indianapolis, Ind.  
 THOMAS F. WOOTERS, '30, 310 N. Illinois St., Indianapolis, Ind.

PETITION FOR THE REVIVAL OF  
GAMMA-IOTA CHAPTER

University of Buffalo, Buffalo, New York

November 22, 1929

ALPHA CHAPTER OF KAPPA PSI:

We, the undersigned students and faculty members of the School of Pharmacy, University of Buffalo, Buffalo, New York, petition the Alpha chapter of Kappa Psi pharmaceutical fraternity for the establishment of a chapter of Kappa Psi at the University of Buffalo.

Respectfully submitted,

GEORGE W. FIERO, Assistant Professor of Materia Medica

LEON MONELL, *Gamma and Gamma-Iota*, Associate Professor of Commercial Pharmacy

WINFRID J. BEDWORTH, *Gamma-Iota*, Instructor in Pharmacy

EDWARD SHUBERT

PHILIP SWARTZ

CHESTER BROOKS

BERT A. LIES

J. LESTER ALLEN

WM. H. ERNEWEIN

FRANK E. SAVIOLA

GEORGE DONOVAN

PAUL B. HOOLIHAN

PERRY E. BRIGGS, *Gamma-Iota*

W. ARTHUR SCHRADER

## KAPPA PSI HAT BANDS

\$12.00 per dozen. Order in  
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# Kappa Psi Paraphernalia

When  
Ordering  
Mention  
Item No.

	<b>OFFICERS' SASHES:</b> Set of twelve, all of adopted regulation patterns, and edged with silk braid, with correct emblem embroidered in golden-yellow silk on each, as follows:	
1	One, only, scarlet sash of fine satin, golden-yellow braid, emblem "A."	
2	Eleven—gray sashes of flannel, scarlet braid, emblems, one each as follows: Greek letter Omega, Palm 99, Short Greek Sword, Shield and Wreath, Crossed Long Greek Swords, Crossed Short Spears, Crossed Pens, Crossed Keys, Mask, Eye, Greek letters "Kappa Psi."	
3	Sashes, any of above—each \$3.30, per set of 12.....	\$35.75
5	<b>MEMBERS' COLLARS:</b> (Optional). Lined and interlined, cadet-gray flannel, scarlet silk braid on both edges, no emblems. Each \$2.25. Per dozen.....	\$22.25
	<b>MEMBERS' ROBES:</b> (Optional). Loose fitting, plain draped gowns with hood and cotton cord; waist girdle all of solid black with double facing bands of scarlet sateen down front, each decorated with a scroll design worked in narrow silk braid (soutache) of gray on the scarlet facing.	
10	Cambric, trimmed with sateen, any quantity, each.....	\$5.90
11	Cotton cashmere with sateen, any quantity, each.....	\$6.60
	Or same as above with the gray soutache scroll design omitted.	
14	Cambric, trimmed with scarlet sateen, any quantity, each.....	\$4.85
15	Cotton Cashmere, with scarlet sateen, any quantity, each.....	\$5.65
18	<b>TRIANGLE</b> (one required), wooden, painted alternating colors, scarlet and gray, each.....	\$1.40
	<b>SPEARS:</b> (two required). Each with seasoned shaft.	
		Each                  Pair
27	Gilt bronzed wooden point and ball.....	\$1.10                  \$2.20
28	Polished brass point and ball.....	1.15                  2.30
29	Nickel plated metal point and ball.....	1.30                  2.60
30	Nickel plated metal point and ball.....	1.45                  2.90
	<b>GRECIAN SHORT SWORD:</b> (one required).	
31	Leather Scabbard, Grecian hilt, steel blade, brass mounted handle and trimming—with stud for belt thong, each.....	\$5.80
	<b>BELT, FOR SWORD:</b> (one required).	
33	Shoulder sling style—heavy webbing, leather thong.....	\$1.30
34	Shoulder sling style—all leather, leather thong.....	\$2.00
35	Waist belt style—heavy leather 1¾ inch wide, plain metal plate, leather thong (advise color black, brown, red).....	\$2.95
	<b>BALLOT BOX:</b> (one required). Exclusive of ballots (see next item).	
37	Full secret swan neck pattern, walnut.....	\$7.50
38	Full secret, hinged lid pattern, quartered oak.....	\$7.50
39	Semi-secret, oak.....	\$1.50
	<b>BALLOTS:</b> 50 assorted black and white.	
41	China, glazed, per set of 50.....	\$.25
42	Rubber-noiseless—black cubes, white balls, per set of 50.....	\$.75
	<b>GAVELS:</b> (four required).	
		Each                  Per set of four
45	Oak.....	\$.40                  \$1.60
46	Walnut.....	1.00                  4.00
47	Rosewood.....	1.50                  6.00
	<b>HOODWINK:</b> (one required). Each equipped with strap to adjust size, and spring attachment to effect quick removal or replacement.	
50	Leather, velvet lined, metal eye caps are permanent, each.....	\$1.88
51	Similar to 75799 but metal eye lids can be turned open, permitting clear vision without removing hoodwink, each.....	\$2.10
52	Special pattern—permits clear view, or shows through red lens, or shuts out light completely.....	\$2.50
	<b>CHAPTER SEAL</b> —Heavy lever stand.	
55	Circular die, 1¾ inch diameter, plain lettering, no emblem or Greek characters.....	\$5.25
56	Circular die, 2 inch diameter, plain lettering, no emblem or Greek characters.....	\$35.25

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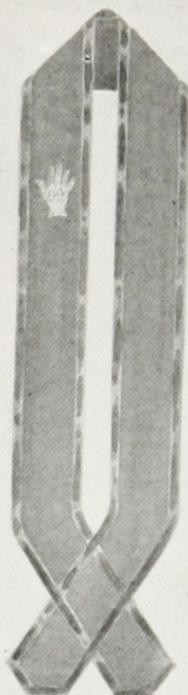


Ω



KY

Senior Officers' Sashes



Junior Officers' Sashes



Members' Collars  
(Optional)



Members' Gown  
(Optional)

## INFORMATION FOR CHAPTER OFFICERS

1. *Badges, Pledge Buttons, and Recognition Buttons* can be purchased only through the CENTRAL OFFICE of K Ψ, Crosstown Sta., P. O. Box 6308, Memphis, Tenn.

*Other jewelry and novelties* can be purchased from the sole official jeweler, L. G. Balfour Co., Attleboro, Mass., direct, if a duplicate of the order is sent the Central Office. All designs, etc., are copyrighted, and hence may not be used without official license from the Grand Council.

2. *Plaques*, bearing either the *Coat-of-Arms* or the *Insignia* in bronze, can be purchased ONLY from the sole, official jeweler, L. G. Balfour Co., Attleboro, Mass. The designs are copyrighted.

3. *Stationery, Dance Orders, Menu Cards, etc.*, can be purchased ONLY from the sole, official stationer, L. G. Balfour Co., Attleboro, Mass. Designs of badges, coat-of-arms, insignia, etc., are all copyrighted.

4. *Flags, Pennants, Banners, Pillow Covers, Skull Caps, Arm Bands, etc.*, can be purchased ONLY from the sole, official manufacturer, The Eagle Regalia Co., 298 Broadway, New York, N.Y.

5. *Constitutions & By-laws, Rituals, Membership Record Cards, Separate Leaf Forms for Secy. & Treas. Books, Transfer Cards, and Pledge Cards* can be secured only from the Central Office.

6. *Membership Certificates* are issued only by the Central Office through Chapter Secretaries to members in good standing with both Chapter and Grand Council at the time of graduation.

7. *The Per Capita Tax or Grand Council Dues*, consisting of 50c per month (for the months of Oct., Nov., Dec., Jan., Feb., Mar., April and May (eight months) of each session), per active member, must be paid to the Central Office, using the regular per capita forms provided by that Grand Officer.

8. *The Agora Assessment* of \$4.00 per year for each Collegiate Chapter must also be paid to the Central Office. Space for this is provided on the per capita forms. It must be paid by Feb. 1.

9. *The Grand Council Membership Fee* of \$2.00 for each and every initiate must be paid to the Central Office, immediately following initiation. Space for this fee is provided on the per capita forms.

10. *Life Subscriptions to THE KAPPA PSI MASK* must be paid to the Central Office for ALL members. See the Constitution for details.

11. *Membership Record Cards* (two for each initiate) must be filled out at the time of initiation, and one sent to the Central Office and the other kept in the chapter file.

12. *Annual Officers' Report Forms*, due in February of each session, may be obtained from the Central Office.

13. *Chapter Letters* must be sent the Central Office by chapter historians by the dates requested. Chapters unrepresented by letter are liable to a fine of \$10.00.

14. THE KAPPA PSI MASK is mailed chapters in bulk, c/o the Historian who is responsible for the delivery to active members. Requisition for the number required must be made to the Central Office at least three weeks before date of issue (Jan., April, July, and Nov.). The summer issue is mailed to individual members IF a summer mailing list is furnished by the chapter; otherwise no copies are mailed.

15. *Coat-of-Arms or Insignia inserts for college annuals* are furnished by the official publishers—Geo. Banta Pub. Co., Menasha, Wis.

16. *Hat Bands*.—Order from Wick Narrow Fabric Co., 931 Market St., Philadelphia, Pa.

NO PERSON IS A MEMBER OF KAPPA PSI UNLESS HIS GRAND COUNCIL MEMBERSHIP FEE, HIS PER CAPITA TAX (to date), AND HIS LIFE SUBSCRIPTION TO THE KAPPA PSI MASK (or installments to date) ARE PAID, AND A MEMBERSHIP RECORD CARD HAS BEEN FILED WITH THE CENTRAL OFFICE. THERE ARE NO EXCEPTIONS.

If an officer finds his duties interfere with his college work he should ask his chapter to give him an assistant who, besides helping him, will be trained to succeed him.



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NOTICE: CASH MUST ACCOMPANY ALL ORDERS. NO C.O.D.s

## New Price List: Kappa Psi Badges and Guards

**PLAIN**, polished or Roman, beveled border; or chased or nugget border; with two rubies in the eyes of Mask.....\$ 4.50

### CROWN SET BADGES:

Whole Pearls, Opals, or Garnets (or any combination of these alternately or in corners) .....	14.50
Whole Pearls with Ruby corners.....	17.00
Whole Pearls with Emerald corners.....	21.80
Whole Pearls with Diamond corners.....	46.00
Whole Pearls and Rubies alternately.....	22.84
Whole Pearls and Emeralds alternately.....	29.00
Whole Pearls and Diamonds alternately.....	92.00
Emeralds and Diamonds alternately.....	102.00
Rubies and Diamonds alternately.....	98.00
Emeralds with Diamond corners.....	67.00
Rubies with Diamond corners.....	60.00
Diamonds with Emerald corners.....	140.00
Diamonds with Ruby corners.....	138.00
Diamonds, entire.....	165.00
Sapphire mounting, same prices as rubies.	

Both eyes of Mask set with—

Brilliant Cut Diamonds, extra cost.....	12.00
Rose Diamond, best quality, extra cost.....	6.00

Platinum Setting: \$25.00 additional. 18K White Gold: \$5.00 additional.

### CHAPTER GUARDS:

	Small or Medium	Large
Single Letter—Plain Gold.....	\$ 2.50	\$ 2.75
Close set pearl.....	4.00	5.00
Crown set pearl.....	5.50	7.00
Double Letter—Plain Gold.....	3.50	4.00
Close set pearl.....	7.00	8.00
Crown set Pearl.....	10.00	12.00

Three Letter—Plain, \$4.50; Close set, \$10.00; Crown, \$12.00.

Additional price per stone: Rubies, \$0.53; Emeralds, \$0.79; Diamonds, \$3.15.

The Fraternity coat-of-arms with safety clasp and guard chain attachment may be had if preferred. They are furnished in gold in the miniature size at \$2.63 or the medium size at \$3.15.

18K White Gold, Single Letter.....1.50 additional

18K White Gold, Double Letter.....2.50 additional

Platinum Settings—Single letter.....5.00 additional

Platinum Settings—Double Letter.....10.00 additional

All jewels are carefully selected and matched and of brilliant cut. The badges are of 14K gold and are provided with safety catches. Three initials and chapter letters will be engraved on the backs free of charge IF cash accompanies order. All badges are made with the Mask raised in gold and a ruby inserted in each eye.

**PLEDGE BUTTONS** will be furnished for 60c apiece. These are made of gold plate, hard French enamel, and a solid back. Each chapter should have a supply of these buttons on hand as the property of the chapter.

**RECOGNITION BUTTONS**, 75c each.

**WALL PLAQUES:** Insignia or Coat-of-arms in bronze, \$5.50 each.

### TERMS

**ALL ORDERS MUST BE SENT TO THE CENTRAL OFFICE OF KAPPA PSI, CROSSTOWN STA., P. O. BOX 6308, MEMPHIS, TENN.** No jewelers will furnish Kappa Psi badges. **CASH MUST ACCOMPANY ALL ORDERS.**

Kappa Psi jewelry other than badges **MUST** be ordered from the **OFFICIAL KAPPA PSI JEWELER**—there is only one—The L. G. Balfour Co., Attleboro, Mass., and a duplicate order sent the Central Office.

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