

The GEAR
of
THETA TAU



April, 1927

VOLUME XVI

NUMBER 2



The GEAR *of*
THETA TAU



APRIL, 1927

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AN EMPLOYMENT BUREAU ESTABLISHED

At the Service of Theta Tau

THE Sixth Biennial Convention resolved that the Fraternity should be of assistance to its members in obtaining employment and to put prospective employers into touch with qualified men.

To serve these needs one of the national officers was designated as manager of the service bureau to be established.

Members of the Fraternity are engaged in many lines of engineering, or in business in which engineering has an important function. Many of them hold responsible positions, and are often in need of men for their staffs, or hear of good opportunities with other reliable concerns.

To serve our members in this way is part of that practical idealism which our founders proclaimed as a policy of Theta Tau.

Members of the Fraternity seeking positions of any kind should send in complete information about themselves, furnish an address where they can always be reached by mail or wire, give a detailed account of what experience they have had, and indicate the line of work they are most interested in.

The service of the bureau is open to all members in good standing in the Fraternity. To avoid possible delay applicants are advised to get a statement from their chapter to this effect.

Alumni are urged to notify the bureau of any openings for employment of which they get knowledge. Alumni who periodically employ certain classes of engineers are urged to furnish the bureau with information about it so that any graduates interested can apply on time. The Fraternity wishes to help the younger alumni but it also wishes to put possible employers in touch with qualified engineering graduates of personal worthiness.

Address All Communications to

PROF. H. L. BALDWIN

Care of University of Utah

SALT LAKE CITY, UTAH

The GEAR of THETA TAU

OFFICIAL PUBLICATION OF THE FRATERNITY

DONALD D. CURTIS, OMICRON '19

EDITOR AND BUSINESS MANAGER

101N ENGINEERING HALL IOWA CITY, IOWA

Subscription \$2.00 a Year

Business Card \$1.00 a Year

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Founded at the University of Minnesota
October 15, 1904

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- DELTA, *Established May 23, 1911* - - - Case School of Applied Science
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AIRPLANE VIEW OF DEVELOPMENT LOOKING UPSTREAM

The impounding of the Mississippi has created a beautiful lake more than a mile in width in its lower sections and stretching for fifty miles upstream. In the left background lies the city of Keokuk, Iowa, and in the right foreground may be seen the edge of Hannibal, Illinois. The 94, 100-foot transmission lines mounted on 85-foot steel towers spaced about 700 feet apart extend across the left foreground.

FORECASTING FLOW OF THE MISSISSIPPI AT KEOKUK

By PAUL L. MERCER, O '21 (M.S. '22), and JOSEPH W. HOWE, O '24 (M.S. '25)

IN the minds of many, the engineering work connected with a large hydro-electric project is completed when the construction days are over and the turbines pick up their load. True it is that this period is the more picturesque and so remains outstanding in the memories of those who witnessed or participated in the bending of Nature's resources to the will of man. However, the engineer finds in problems of plant operation abundant opportunity to apply his knowledge and powers of analysis in securing the greatest possible operating efficiency. One of these problems which arises in the operation of many hydro-plants is the forecasting of river flows. Such forecasts play an important role in the operation of the large plant of the Mississippi River Power Co. at Keokuk, Iowa. Since the power available here varies greatly with changes in river conditions, the forecasting of these changes is quite important to the efficient operation of the plant.

Before discussing the actual forecasting, it is well to give a brief history and description of the plant. The development lies at the foot of the old Des Moines rapids which for years were a menace to navigation because of their swift currents and jagged rocks. These rapids had a fall of twenty-three feet in their twelve miles of length, and were walled on either side with high bluffs which rose almost from the water's edge and which, when the river level was raised, helped very materially in reducing the damages to overflowed lands.

Hugh L. Cooper designed and personally supervised the construction of the dam, power house substructure and other hydraulic features of the development. The superstructure was built and all electrical equipment was installed under the direction of Stone and Webster, Inc. Construction was started in January, 1911, and the first units were put in operation in June, 1913. The dam, which is of monolithic concrete construction, is nine-tenths of a mile in length, including its abutments, is 29 feet wide at the top, 42 feet wide at the bottom, and 53 feet high. It is made up of 119 spillway sections, each 30 feet in length, separated by piers 6 feet in width. The amount of water wasted over the dam is controlled by steel gates 32 feet wide and 11 feet deep which rest on the crest of the tcege spillways when in the closed position, and which are raised clear of the water surface by a traveling crane when it is desired to waste water over the dam. Each spillway passes about 4000 c. f. s. of water when open with the lake at its normal operating level. This amount of water is roughly equivalent to the amount used by one of the large turbines at full load. It is interesting to note that the water supplied to one turbine or wasted over one spillway is sufficient in quantity to more than meet the public water requirements of the five largest cities in America.

The power house is about 900 feet long, 132 feet wide, and 177 feet high. It contains 15 main units, each consisting of a Francis type turbine rated at 10,000 H. P., at 32 ft. head and 57.7 R. P. M. with a three phase, 11,000 volt, 25 cycle generator rated at 7200 Kw. mounted on the same vertical

shaft. Two smaller auxiliary units of 2200 H. P. capacity supply the station power and light and the excitation for the main units. The building also contains the necessary switches, busses, and auxiliary equipment as well as ten large transformers for sending out the power as needed. These transformers step up from 11,000 V. as generated, to 110,000 V. for transmission over the St. Louis lines.

Immediately to the south of the power house is a foundation for future growth. This foundation provides for an additional 15 main units and 2 auxiliaries—or a duplicate of the present plant.

The principal cities served with Keokuk power are Burlington, Galesburg, Monmouth, Ft. Madison, Keokuk, Quincy, East St. Louis, and St. Louis.



INTERIOR OF POWER STATION—GENERATOR FLOOR

The 15 main units are each rated at 9000 k. v. a. and consist of a 3 phase, 11,000 V., 25 cycle generator 31 feet in diameter mounted on the same vertical shaft with a Francis type turbine 13 feet in diameter.

Of these, St. Louis and East St. Louis provide the largest market and together consume roughly half of the entire station output.

Another important feature of the development is the United States Lock and Dry Dock, built by the power company and deeded to the government free of charge. The lock is 110 feet wide, the same width as those at Panama, and 400 feet long inside. The dry dock is somewhat larger in dimensions and is said to be the largest fresh water dry dock in the world.

Because the Mississippi is a navigable stream it is essential that the natural flow of the river be passed from day to day without material storage or draft. During this period, therefore, the power output is always limited by one of two things, either machine capacity (during periods of high water) or the natural flow of the river (during periods of low water).

In the early years of the plant operation, the market for power was comparatively small and seldom exceeded the power available from the river. However, as the market expanded, the days on which the power available was

the limiting factor became more and more numerous until, at the present time, the demand is, with the exception of Sundays and holidays, usually equal to or greater than the power available.

Since, as has been explained, the water must be passed as it comes down from above, it becomes the problem of the engineer in charge to predict the flow and to so plan the station load as to use the water through the turbines rather than waste it over the spillways. He is able to effect this variation in load by increasing or reducing the sales of excess power. It might be explained here that the company markets two classes of power, namely: prime power which the company stands ready to deliver at all times, and excess power, which is dependent on river conditions and which may be supplied or denied at the discretion of the company.

In general the engineer attempts two types of forecasting—one, which is routine in its nature, consists in predicting each day what the flow will be on the succeeding day, and the other, which is made only at what may be termed the critical points, consists of forecasting the general trends in flow for periods of a week or longer.

The gage heights of the Mississippi River at Muscatine, Davenport, Clinton, Dubuque, LaCrosse, St. Paul, and other intermediate points, gathered and published daily by the Weather Bureau, are the principal data upon which the forecasts are based. Fortunately for the power company, one of the few Iowa weather bureau offices is situated in Keokuk and through this office the above river stages are made available to the hydraulic engineer within two hours after the gages are read. At the same time he receives data on weather conditions at these and other points.

The power company itself maintains several stations on the main river, one of which is located near Keithsburg, Illinois, just above the limits of back-water from the dam. Stages are read at six-hour intervals at this station, and the four readings for the preceding twenty-four hours are telephoned in each morning. At the same time the observer supplies other pertinent information such as temperature, state of weather, amounts of precipitation, ice movements, etc. Supplementing this data on the main river, daily reports are received by mail from observers at stations on the principal tributaries. Several of these stations on the larger tributaries in the southeastern part of Iowa are maintained by the United States Geological Survey with the cooperation of the power company. Most of them are so located as to record practically the entire flow each stream empties into the Mississippi. Gage heights are usually read only once daily and the report is sent in by mail as above noted so that the hydraulic engineer obtains these gage heights on the following day. Frequently, however, during floods or rapidly changing stages, the gage heights are telephoned or telegraphed in as they are obtained so that the engineer is always in close touch with conditions in each stream.

Discharge curves and rating tables have been prepared for each of the stations from which records are received. From these tables the flow corresponding to the gage height is obtained and recorded on a sheet in such a manner as to facilitate comparison of flows. As the time interval required for the water passing each station to reach Keokuk has also been computed, it is not a difficult matter at normal times to estimate from all this data what change in flow is to be expected at the plant. When this is done, the engineer translates from cubic feet per second, of water flow, to kilowatt-hours of power avail-

able and makes such adjustments in load allowances to excess power customers as the changing flow requires.

To simplify and facilitate the work as much as possible, curves showing the relation of gage heights at several of the most important stations to the gage heights at Keokuk have been worked out. Also curves giving station power outputs under different conditions are available, so that many of the computations can be made by referring to these curves.

This in brief indicates something of the process which is but daily routine with the hydraulic engineer, but which is vitally essential to the economic operation of the 15 giant turbines.

However, these daily forecasts do not always tell the entire story. Since the company is able to make use of pond storage in the non-navigation season, an effort is made to anticipate all rises during this period and draw the pond down so that any flow in excess of load requirements may be put into storage rather than be wasted over the dam. This practice is used to advantage during the late winter when the pond is drawn down in anticipation of the spring breakup with its accompanying floods. Another period at which pond storage is used to great advantage is in the fall at the time of the initial freeze. When a permanent ice cover forms over the river a sudden and marked drop in flow occurs. This is to be expected in view of the fact that the frictional area is doubled by the forming of an ice cover, thereby greatly diminishing velocities. At the same time a considerable quantity of water goes into storage in the form of ice. Since the initial freeze has such a marked effect on river flow, it has been the subject of much study by the company's engineers. As the result of these studies and a long period of experience, it has been found possible to predict the behavior of the river during this period of ice formation with reasonable accuracy. As a general rule the flow will decrease to a minimum of about 40% of its open water value during the first few days following the initial freeze. This abrupt decrease in flow is referred to as the "initial drop" and is followed by a recovery extending over two to three weeks during which time the flow gradually increases to about 70% of its original amount. At the end of the initial drop the river flow is materially less than at any other time of the year, and were this condition of long duration, would determine the minimum power available from the river and hence establish the prime load of the station. However, knowledge of this unusual behavior of the river permits drafting the pond materially to hold up the flow, knowing that it can be stored back during the period of recovery.

Most floods occur during the navigation season when it is impossible to take advantage of pond storage. Nevertheless it is distinctly desirable to be able to forecast as far ahead as possible, the peak flow and the day or days it may be expected. In preparing this type of forecast, precipitation and soil conditions are given consideration. With a drainage area of 119,000 square miles it is not at all uncommon to find one portion of the area experiencing a comparatively severe flood while streams in the rest of the area are in normal or only slight flood stages. If precipitation is heavy in the lower end of the basin a rapid rise of short duration is likely to result. If, on the other hand, the precipitation falls only over the northern half of the drainage area, the resulting flood will usually not be felt at Keokuk for a week or longer and the rise will be more gradual, have a lower peak, and will be sustained for a longer period of time. These long range forecasts must, of course, be altered

occasionally on large floods as the peak approaches because of the effect of unforeseen weather or other conditions. However, they are fairly accurate and assist materially in advising excess power customers several days in advance of just when and for how long their use of power may be curtailed. Similarly, customers are given as much warning as possible when reduction of excess is expected due to an approaching low water period.

When it is realized that the success or failure of a single critical forecast may mean a difference of several thousands of dollars in the earnings of the company, the importance of this phase of engineering becomes evident. As the station continues to approach its ultimate capacity it is obvious that the need and value of an exact knowledge of river conditions will become greater and greater. It is, therefore, not surprising that the engineers engaged in this particular branch of the work take a justifiable pride in the fact that they have been highly successful in holding power wastes to a minimum.

THE GEAR reprints this clipping from a Boston newspaper published 61 years ago: "A man about 46 years of age, giving the name of Joshua Coppersmith, has been arrested in New York for attempting to extort funds from ignorant and superstitious people by exhibiting a device which he says will convey the human voice any distance over metallic wires so that it will be heard by the listener at the other end. He calls the instrument a 'telephone' which is obviously intended to imitate the word 'telegraph' and win the confidence of those who know of the success of the latter instrument without understanding the principles on which it is based. Well-informed people know that it is impossible to transmit the human voice over wires as may be done with dots and dashes and signals of the Morse Code, and that, were it possible to do so, the thing would be of no practical value. The authorities who apprehended this criminal are to be congratulated, and it is to be hoped that his punishment will be prompt and fitting, that it may serve as an example to other conscienceless schemers who enrich themselves at the expense of their fellow creatures."

LIBRARY SERVICE

THE Engineering Societies Library, on the 13th floor of the Engineering Societies Building, 29 West 39th St., New York, contains approximately 150,000 volumes of engineering literature. It is open on week days, excepting holidays, from 9 a. m. to 10 p. m.

The library offers, on payment for the extra work required, to supply photoprints or translations of articles, make searches for information, prepare lists of references, and suggest books on engineering subjects. The cost of searching is \$2 an hour. Translations are \$6 and upwards per thousand words. Typewritten copies, \$1 a thousand words. Photoprints, 11 by 14 inches, cost \$0.25.

Members may borrow from a collection of standard treatises, on payment of a transportation charge and a small rental.

The Library is at the service of every member. Those who cannot visit it may order searches, translations, copies, etc., by mail.

Address correspondence to the Director of the Library, Harrison W. Craver, 29 West 39th St., New York.—A. I. M. E.



In Memoriam

The Executive Council Wishes To Express Its
Deep Sorrow At The Passing Of The Follow-
ing Brothers, About Whom Details Are
Not Available At This Time.

ALLA TIMOTHY ERLICH, Gamma '25

F. LAYTON TEALE, Gamma '25

EDWARD C. KRECKLE, Delta '24

HARRY AID, Iota '20





What is this mystery that men call death?
My friend before me lies; in all save breath
He seems the same as yesterday. His face
So like to life—so calm, bears not a trace
Of that great change which all of us so dread,
I gaze on him and say: He is not dead,
But sleeps; and soon he will arise and take
Me by the hand; I know he will awake
And smile on me as he did yesterday;
And he will have some gentle word to say,
Some kindly deed to do; for loving thought
Was warp and woof of which his life was wrought.
He is not dead. Such souls forever live
In boundless measure of the love they give.

—*Bell.*





EDWIN ROBERT KIME, BETA '23 (ex-NU)

April 18, 1900—September 11, 1924

Edwin Robert Kime was born April 18, 1900, in Ridgeway, Pennsylvania. His father, George C. Kime, was a prominent woollen merchant and tailor in Ridgeway and Edwin attended the public school in his home town until his graduation in June, 1918.

He then entered Carnegie Institute of Technology, Pittsburgh, Pennsylvania, to take a course in mining engineering. Leaving Carnegie with excellent recommendations and an honorable dismissal, he decided to complete his course in mining engineering at the Michigan College of Mines at Houghton, Michigan. While at Pittsburgh Brother Kime became a charter member of Nu Chapter of Theta Tau, but left very soon thereafter for Houghton, transferring his membership to Beta Chapter.

While a student at the Michigan College of Mines Brother Kime took a very active interest in chapter affairs, and because of his excellent scholastic record and pleasing personality became very popular not only with his fraternity brothers but with the entire student body. Having had some journalistic experience his services were eagerly sought for and contributed freely in connection with student publications.

Brother Kime obtained the degrees of Bachelor of Science and Engineer of Mines at the Michigan College of Mines, completing his course in June, 1923. He was married during the summer of 1921 to Miss Marie Maas of Houghton, Michigan. Following a brief illness with pneumonia he died at the University Hospital in Philadelphia, September 11, 1924. Mrs. Kime and an infant daughter survive him.



HAROLD LELAND GROESBECK, LAMBDA '17

September 24, 1895—January 3, 1927

Harold Leland Groesbeck was the son of Frank and Nellie Young Groesbeck, and a descendant of John Young, a Revolutionary War patriot. Brother Groesbeck graduated from the High School of Salt Lake City in the spring of 1913; later he attended the University of California, the University of Idaho, and the University of Utah. He was granted the Bachelor of Science degree from the University of Utah in 1917.

In college Brother Groesbeck was prominently identified with social life, having been instrumental in the organization of a local fraternity which was granted a charter in Sigma Nu, a national social fraternity. He was initiated into Lambda Chapter of Theta Tau as Number 30.

In 1919 he graduated from the Palmer School of Chiropractic. He was a member of Delta Sigma Chi a professional chiropractic fraternity, and was also a member of the Sons of the American Revolution.

Brother Groesbeck was among the first to volunteer for army service in the late war, but was rejected on account of his physical condition—a condition which was directly responsible for his recent death.

After some years of the practice of chiropractic, he returned to engineering work in 1924 in the employ of the International Smelting Company of Salt Lake City.

Brother Groesbeck was ill for over a year previous to his passing on January 3, 1927. He is survived by his parents who reside in Salt Lake City.



CARLETON RICHARDSON, GAMMA '21

February 11, 1894—August 20, 1924

Carleton Richardson was born in Denver, Colorado, February 11, 1894. He received his public and high school training in the state of Massachusetts, graduating from the Norwood High School, in Norwood, Massachusetts. He entered Phillips Exeter Academy, a college preparatory school, in New Hampshire, from which he was graduated in 1912. In 1916 he entered the Colorado School of Mines, at Golden, and was pledged to Sigma Alpha Epsilon Fraternity. He left school in June, 1917, to enlist in the Air Service, receiving his training at the University of California, Berkeley. Although in the service for seventeen months he was never sent abroad. He received his discharge November 18, 1918, with an excellent record. On May 18, 1923, he received a commission as Second Lieutenant, Engineer, of the Officers Reserve Corps of the United States Army.

He was married in July, 1919, before reentering school at Golden the following September. In his senior year he was initiated to Gamma Chapter of Theta Tau. He completed his college work at Christmas time, receiving his degree of Engineer of Mines with the June graduating class of 1923. Shortly after graduation, he accepted a position with the El Tigre Mining Co., in Sonora, Mexico, where he and his wife lived until his death on August 20, 1924, following an operation for appendicitis.

"Rich," as he was known by his friends and classmates, was well liked everywhere he was known and had scores of friends. He is survived by his wife, his little son, born seven months after his death, and a sister. He is buried beside his mother and father in Cambridge, Massachusetts.

PETROLEUM ENGINEERING IN OKLAHOMA

*As Conducted by the United States Department of Commerce, Bureau of
Miners, in the Seminole Oil Field.*

By W. S. MORRIS, RHO '24

THE Bureau of Mines was established in 1910, under the Department of the Interior, to promote safe operation of the coal mines. In this work, the Bureau has won for itself an enviable reputation.

In 1915, the work was extended to the petroleum industry and, in 1917, the Petroleum Experiment Station was established at Bartlesville, Oklahoma, to conduct research in oil and gas. Besides the experimental work that is carried on in the laboratory at Bartlesville and throughout the mid-continent oil fields, the Bureau of Mines has undertaken the task of making engineering studies of the various oil fields. Many reports of this nature have been written and distributed to the great benefit of the oil operators.

The Bureau of Mines is now studying the oil fields of Seminole and Pottawatomie Counties, Oklahoma. This area contains the famous Seminole City field; also the adjoining fields known as Searight, Bowlegs, and Earlsboro. These fields are very close to each other and are producing oil from the same horizons, namely, the Hunton lime and the Wilcox sand.

The wells in these fields are spaced one to ten acres, or 660 feet apart. The general practice in drilling the wells is by the rotary method to a depth of approximately 3500 to 3800 feet; the 8 $\frac{1}{4}$ -inch casing is then set and cemented, and the well drilled into the productive horizons with standard cable tools.

The oil operator is confronted with many complex problems before the bit reaches the pay sands. He must determine the best point to set his water-string of casing, he must adopt a casing program in general keeping with the peculiarities of the area, and he must know where to expect to encounter water in drilling. And finally, he should know where he will find the various distinguishing formations. The Bureau of Mines assists the operators in working out these drilling problems.



W. S. MORRIS, RHO '24

In the Seminole Field, the Bureau has established a field office in the heart of the activities and maintains a corps of three engineers, who collect and disseminate information free of charge.

Horizontal, vertical, and diagonal cross sections are kept on the wells in the field and as the wells are drilled into the sands, the logs are platted and correlated on these sections.

In the Seminole area there are at least four horizons that can be accurately checked. These are, in the order of their appearance, the Hunton lime, the Sylvan shale, the Viola lime, and the Wilcox sand. The Hunton lime is encountered approximately 3910 feet below the surface of the ground or 3000 feet below sea level. The Wilcox sand is very irregular and in but a few cases can be found running true to structure. Perhaps an average depth will be 4200 feet (3320 below sea level).

Many wells have been drilled into water in the base of the Wilcox sand and the well practically ruined. At times the water can be plugged off with lead wool, but the practice of drilling into water is one that the oil companies do not care to adopt.

The Bureau of Mines engineers determine the water levels in the field and warn the operators when they are drilling near the horizon.

The problems of the field in general are studied by the Bureau and such information as casing points, well elevations, well locations, drilling time, water analyses, oil distillation tests, oil production, production decline, air and gas lift data, well logs, shooting records, cementing records, and general field geology are among the data collected and distributed.

The results of the work are published by the United States Department of Commerce, and are available to the public.

FRED COFFMAN, Lambda '15, is associated with W. H. Booker, Ohio State '08, in consulting engineering practice with offices in Charlotte, N. C. The firm specializes in municipal improvements including water works, sewers, street paving, and hydro-electric plants.

MASON STORER, Omicron '25, has received considerable publicity for his outstanding work as regular center on the Army (U. S. Military Academy, West Point) basketball team. "Jack" ranks well in his class, too.

W. H. EMMONS, Hon. Alpha, has been engaged by the Mining Corporation of Canada to make an examination of its extensive holdings in Montbray Township in the Rouyn area of the Province of Quebec, Canada.

J. G. REILLY, Iota '17, is superintendent of the Chico District for the Cia. de Real del Monte y Pachuca, at Pachuca, Hidalgo, Mexico.

The address of Brother Edmund Chisholm, Epsilon '25, is P. O. Box 7, Klerksdorp, Transvaal, Union of South Africa.

ALAN PROBERT, Epsilon '25, is now assistant Mill Superintendent of Sunnyside Mining & Milling Co. at Eureka, San Juan County, Colorado. After graduating from California he spent a season in Nome, Alaska, and then went up to the Coeur d'Alenes in Idaho for a year.

DURAND A. HALL, Beta '14, is acting as consulting geologist at the El Gachi mine in Sonora, Mexico, about 50 miles west of Nacozari in the Arispe district. He has just returned to his home in Berkeley from Sonora but expects to return to the El Gachi in the near future.

WHAT MATTER A FEW THOUSAND MILES?

Our undergraduate days do certainly go to make up one of the most enjoyable periods of our lives, and not the least factor contributing to this enjoyment is our privilege of association as brothers in Theta Tau. However, our association does not stop with the end of our college days. As undergraduates we merely lay the foundation for something bigger to come.

When we leave school and enter the field of engineering, we often leave all our friends and take up our work among total strangers, but it doesn't seem to matter where we go, we invariably find some brother in Theta Tau and we're among friends again. The following illustration is just one incident of many which are happening nearly every day.

Four young fellows were seated at a small table in the mess hall of a mining company in Chihuahua, Mexico. Two of them were recent additions to the engineering staff of the company, having been there only a day or two. The third had been a member of the staff for about a month, and the fourth was a visitor—the representative of a large manufacturing concern.

The country being more or less new to all of them, there was a great deal to talk about and they lingered over their coffee, reluctant to bring the chat to an end.

As is almost invariably the case with fellows not long out of school, the talk finally drifted into the channels of undergraduate days. Someone mentioned Theta Tau; there were exclamations of surprise and pleasure, and it didn't take long to establish the fact that, sure enough, there at the same table were none other than brothers:

P. J. Shenon, Epsilon
Mac McDougal, Beta
T. F. Mitchell, Lambda
M. R. Weiler, Lambda

Such an occasion seemed to call for some sort of official recognition and inasmuch as the Mexican Constitution has no 18th Amendment, it was deemed only proper that a toast be drunk to Theta Tau, and we hope we may be excused for promptly giving the matter our personal attention.

To come into contact with Theta Taus in out-of-the-way places is to experience a real thrill of pleasure, and it brings forcefully to mind the thought that we should try to keep in closer touch with the fraternity and do our little bit to further its objects.

When we leave school and enter the world of competition, we are kept pretty busy, it is true, and we are a little bit inclined to neglect such duties, but the pleasure derived from our association with the brothers in H. & T. more than compensates us for the little time and effort expended in attending to these duties.

M. R. WEILER, Lambda.

THETA TAU members meet in many odd corners of the earth and an unusual meeting was at the Governor's Inaugural Ball in Carson City, Nevada, when E. G. Snedaker, Gamma '14, met the Grand Scribe, E. J. Schrader, Alpha '05, after an interval of many years. Brother Snedaker is living at the University Club in San Francisco, California.




THETA TAU

ANNUAL

DINNER-ELECTION

UNIVERSITY CLUB SALT LAKE CITY, UTAH
JANUARY 8, 1927



INTERMOUNTAIN ALUMNI ASSOCIATION

A Dinner-Election held on January 8th proved to be a huge success. The accompanying illustrations show the banquet program. The banquet occupied the front portion of the University Club dining room. Thirty-three members were present, including all of the honorary members of Lambda and a guest, Brother P. A. Peck, Jr., of Pi Chapter. The food was all anyone could ask. Item number 8 on the "bill of lading" (see list below) needed no rubbing. In a few instances we saw brothers disregarding the remark accompanying item number 4,—but no matter. The program was excellent. Particularly interesting was Dr. Merrill's report on "New Engineering Curricula," especially so when we learned that the course of study as prescribed at the University of Utah meets all of the requirements set forth as best practice. On November 14, 1926, Lamb-

Compared to IAA&T

BILL OF LADING

January 8, 1927.

Destination ?

NO.	ARTICLE	SHIPPED FROM	REMARKS
1	Fruit Cocktail	Mexico	Use right-hand spoon.
2	Celery	Wong Lee-Murray	Maximum fibre stress not given.
3	Olives	Holy Land	Save stones for future buildings.
4	Wafers	R.B.C.	Crumbling or flaking not permitted.
5	Condomme	Kitchen Soney File	Gargle quietly. Do not inhale.
6	Flesh	Cold Storage	Altogether - Row! Row! Row!
7	Peas	Morgan	Use widest knife.
8	Murphys	Ireland	If cold - rub until warm.
9	Asparagus Tips	Bountiful	Drain moisture to sump.
10	Frozen Desert	Kealey's	One order only.
11	Cakes	Same as #4	Synchronize with number 10.
12	Coffee	Java	None for Minors - odd dilute solution of Cow
13	Tea	Japan	dillo
12	Milk	Clover Leaf	Order with number 6 if desired.

ON THE AIR FOR TONIGHT

STATION IAAST

ANNOUNCER :	<i>Stubby Gray</i>
FOUR HANDED SOLO :	
NEW ENGINEERING CURRICULA :	<i>Dr. Jos. F. Merrill</i>
GT DURING 1926 :	<i>Otto Harris</i>
AUDITING COMMITTEE REPORT :	<i>Lynn Raybould, com</i>
SECY-TREASURER'S REPORT :	<i>H. G. Hall</i>
HISTORIAN'S REPORT :	<i>(He ought to duck.) Otto Duke</i>
ELECTION OF OFFICERS FOR 1927 :	
AT RANDOM :	<i>Tune in on station URSOL</i>

da Chapter initiated three alumni: Richard A. Hart, '07, B. S. (E. E.), Manager Western Clay Products Ass'n, Salt Lake City; Albert Z. Richards, '03, B. S. (C. E.), member firm Caldwell & Richards, Engineers, Salt Lake City; C. L. Berry, Jr., '17, architect, Salt Lake City. Another alumnus, Eugene Delos Gardner, '06, B. S. (M. E.), of Tucson, Arizona, will be initiated as soon as he can attend an initiation of the fraternity.

William J. Walker, Lambda '21, may be addressed at Dividend, Utah. He is assistant engineer in the Geology Department, Tropic Standard Mining Company. A son, Wm. James, Jr., was born to Brother Walker December 31, 1926. He also has a girl, Lorraine Esther, two and a half years old.

Arthur K. Olsen, Lambda '25, is located at Iowa City, Iowa, as an inspector of materials for the Iowa State Highway Department. He spent the winter in the Highway Laboratories at Ames. Brother Olsen was married to Bernice Duncan of Salt Lake City on August 7, 1926.



Θ - "Hey, here's the point! Watcha lookin' at anyway?"

T - "I just spotted the air mail comin' in. I wonder if it's bringin' in any news from any of those brothers we haven't heard from for 3 years?"

TWIN CITY ALUMNI ASSOCIATION

Alumni items furnished by James A. Colvin, Secretary

P. H. Williams, Electrical, '22, who has been Traffic Engineer for the Long Lines Department of the A. T. & T. at Minneapolis, was promoted in February to a similar position in Chicago. His Chicago address is 7506 North Robey Street.

Ernest W. Seeman, Civil, '19, is now designing for Whitney Bros., Contractors, at Duluth, Minnesota. He has been there since September 1.

Verne Curtis, Mechanical, '22, is no longer employed by the city of Minneapolis but is now with the White Motor Co. at Cleveland, Ohio, in the Vocational Sales Department.

Wm. D. Timperley, Civil, '10, has recently been elected to the Board of Directors of the Builders Exchange of Minneapolis.

Neal Kingsley, Mines, '11, is now located with the Standard Oil Company at Minneapolis. He is in the Employment Department.

Les. Halliday, Civil, '21, has returned from Florida and is again with the City Planning Commission of Minneapolis. He is working up estimates and plans for proposed widenings and improvements.

Loren Dawson, Mines, '21, is with the Bridge and Building Section of the Operating Department of the Northern Pacific Railway Co. with headquarters at Duluth, Minnesota.

Thomas K. Leonard, Civil, '15, was seriously injured in an automobile accident near Crookston, Minnesota, about Thanksgiving time. He received a severe concussion and it was a matter of doubt for weeks as to whether he would pull through or not. However, he is his old self again now.

Berkeley Lewis, Electrical, '25, is with the Northern States Power Co. at Montevideo, Minnesota.

Tom Andrews, Mines, '26, is another one of our miners who went to South Africa. He is doing geological work at N'Dola, Northern Rhodesia, South Africa, with the Anglo-American Mining Co.

Ed Hennen, Mines, '25, is now located at the New York office of Ingersoll Rand Co.

Alva Haley, Mines, '25, is in the Geology Department of the Anaconda Copper Co. at Butte, Montana.

Winn Hilgedick, Electrical, '26, is doing some of the travelling which he always wished for. He is radio operator on a steamer and when last heard from was in Honolulu.

Alex M. Gow, Mines, '23, who is an Instructor at the Minnesota School of Mines, has been seriously ill with malarial fever but is returning to work April 1st.

Don Brunner, Mines, '24, has left the employment of the Idaho Gold Mining Co. and is now with the Engineering Department of the Empire Zinc Co. at Gilman, Colorado—elevation 9000 feet.

Phil Hartmann, Civil, '25, has finished the training course of the Good-year Rubber Co. at Akron, Ohio, and is now located with them at Chicago.

Lewis T. Baumgartner, Electrical, '23, announces the arrival of a 10½-pound boy—Richard Lewis—on March 21st.

Harold Cleary, Electrical, '22, is now with Stone & Webster, Boston, Massachusetts.

That Theta Taus are largely responsible for Minnesota's good highways may be seen from the large number that is represented in the following list:

Joe C. Robbers, Civil, '18, is Office Manager at the headquarters of the Highway Department in Midway.

Wendell P. Chapman, Electrical, '14, has recently been promoted from Division Engineer of the Highway Department to Assistant Construction Engineer.

Don Gray, Mines, '22, and Hugo Erickson, Civil '26, are in the Plans Department of the Highway Commission.

O. M. Rufsvold, Civil, '15, is designing bridges for the Highway Department.

Orin Markson, Civil, '22, is Resident Engineer on No. 1 Highway between St. Paul and Duluth. By July 1st this stretch of road will be completely paved.

CHICAGO ALUMNI ASSOCIATION

On January 27, 1927, fifteen men out of twenty from Omicron Chapter got together to talk over old times and to discuss the possibilities in making the Chicago Alumni Chapter more active. Many ideas were advanced and they have been withheld until every chapter is represented. Some of the men agreed to contribute an article to the GEAR and we are sure that Brother Curtis will appreciate it.

A suggestion was made to send out a letter to each chapter asking for a list of their men living in Chicago and in the vicinity of Chicago. To date Alpha, Beta, Theta, Mu, Sigma, and Rho Chapters have replied and our list shows the correct addresses of 117 men living in Chicago. With that number of men we can see a big future for the Chicago Alumni Association. In order to back-check these addresses we mailed out a return information card and most of them have been returned. We find that it is too much work for one man to get in touch with these men so we have mapped out a program so that one man from each chapter will be responsible for his men.

Brother Hopkins, Brother Holbrook, and Brother Van have had lunch together in the past few weeks and they discussed and formulated plans for the Alumni Association. Brother Hopkins has called a meeting on Thursday evening, March 17, 1927, and we expect a large turnout. The results of that meeting will reach Brother Curtis and he will find every active man in Chicago a subscriber to the GEAR.

Some ideas have been extended and will no doubt be of some interest to the chapters located in the Middle West. They may develop this spring if we can get in action soon enough.

Many of the men from the different chapters have been meeting each month and it is our desire to bring these men together in a regular meeting. In one case seven or eight men from Xi Chapter have been meeting in that manner.

If any alumni or actives know the addresses of Theta Taus living in Chicago, please be kind enough to send them to R. W. Van, 5055 Sheridan Road, Chicago, Illinois.

R. W. VAN, O '25

Chicago, March 11, 1927.

JAMES DOUGLAS MEDAL AWARDED ZAY JEFFRIES

Reprinted from Mining and Metallurgy by permission of the A.I.M.E.

ZAY JEFFRIES, who has been awarded the Douglas medal, established in 1922 by a group of the friends of the late James Douglas for distinguished achievement in non-ferrous metallurgy, is one of the most notable graduates of the South Dakota School of Mines where he took his B. S. degree in 1910. The following year he was manager of the Ideal Mining Co., at Custer, and in 1911 he became instructor in metallurgy at the Case School of Applied Science, Cleveland, where he remained until 1917, and in 1918 he took his D. Sc. degree at Harvard.



DR. ZAY JEFFRIES, Hon. Delta

During all this period he was engaged in experimental and consulting work for the Electric Railway Improvement Co., the Cleveland Steel Tool Co., the W. S. Tyler Co., the Lincoln Electric Co., the Aluminum Castings Co., and the Cleveland wire division of the General Electric Co. He is now engaged

in general consulting work, especially for the Aluminium Co. of America, the General Electric Co., and the National Tube Co.

He has contributed to the *Transactions* papers on the determination of grain size in metals (with A. H. Kline and E. B. Zimmer), LIV, 594; grain growth phenomena in metals, LVI, 571; the tungsten-molybdenum equilibrium diagram and system of crystallization, LVI, 600; grain size inheritance in iron and carbon steel, LVIII, 669; effect of temperature, deformation and grain size on the mechanical properties of metals, LX, 474; metallography of tungsten, LX, 588; physical changes in iron and steel below the thermal critical range, LXIII, and LXVII, 56; and the trend in the science of metals, LXX, 303. In addition to participating freely in the discussion of other papers before the Institute he has found time to contribute notable papers to the Institute of Metals (Great Britain), the principal technical journals, and to write a book on "The Science of Metals" in collaboration with R. S. Archer.

The method of measuring grain sizes which is now in general use was developed by Dr. Jeffries and he has probably done more than anyone else to clarify the complex phenomena encountered in connection with grain growth in metals. Especially noteworthy are his contributions on the phenomena of "germination" and on the effects of mechanical obstruction to grain growth. It is well known that the properties of metals depend to a marked extent on various conditions among which the grain size of the metal, the amount of deformation it has received, and the temperature of testing are very important. Dr. Jeffries has added considerably to our fundamental knowledge concerning the effects of these factors. His "equi-cohesive temperature" conception may be especially mentioned, as well as his work on the effects of temperature of deformation.

Dr. Jeffries has contributed more largely than anyone else to the metallography of tungsten, a subject of practical importance on account of the increasing commercial use of tungsten, and also of considerable theoretical interest on account of the fact that tungsten is an ideal example of metals of very high melting-point. One of the outstanding recent developments in metallography is the extended application of the X-ray method of crystal analysis to metallographic problems. Dr. Jeffries has taken a prominent part in this development and has made some important contributions to metallographic theory which are based at least in part on the results of this method of investigation.

Under the title "The Slip Interference Theory of the Hardening of Metals" Dr. Jeffries presented a general theory of the causes and mechanism of hardening in metals and alloys. As special applications, he developed in considerable detail the theory of the hardening of steel and of the red hardness of high-speed steel. These contributions embody what are at the present time probably the most widely accepted ideas on the subject of hardening. He has also taken an important part in the rapid developments of the last few years in the metallurgy of aluminum. Among the developments for which he may be considered largely responsible are aluminum pistons, heat-treated aluminum castings, and new types of high-strength wrought alloys.

JOHN LYLE HARRINGTON

Zeta Honorary No. 227

A review of the career of John L. Harrington, in all of its minor, yet always interesting details, would read like a page from a standard Alger novel. So great have been his achievements, and so swift his rise to international fame, that his case rivals that of some of the famous old fairy story heroes.



JOHN L. HARRINGTON, ZETA, HON.

All great things have a beginning, so quoth someone of the great sages, and John Lyle Harrington had his on December 7, 1868, on a farm a few miles from the historical little village of Lawrence, Kansas. His early education consisted of only two years in a little country school. The rest of his knowledge was gained through his own resourcefulness. Books have always been great friends to Mr. Harrington, and particularly so in his early days when he was compelled to be his own teacher. At any rate, he reached college at the age of twenty-two, entering the University of Kansas in the fall of 1891. At the end of four years in the university he found himself in possession of two degrees, an A. B., and a B. S. in Civil Engineering.

It was at this point that Mr. Harrington embarked upon his spectacular career. He started out to gain plenty of experience, and did this at the cost of several jobs. He stayed only long enough in one place to gain what he believed to be all the new knowledge he could glean from that particular station in the profession. His first job was with the famous J. A. L. Waddell; then to the Elmira Bridge Company; on to the Pencoyd Iron Works; thence to the Keystone Bridge Works, where he designed the Monongahela Railroad Bridge, and several other heavy structures. His next move was to the Cambria Steel Company, where he was assistant chief engineer; then to the Bucyrus Company; thence to the Northwestern Elevated Railroad Company; next to the Berlin Bridge Company; the C. W. Hunt Company; and then into his first partnership, with his former employer, Mr. Waddell, the firm name being Waddell and Harrington. He is now a member of the firm of Harrington, Howard and Ash, of Kansas City, Mo.

Mr. Harrington never has finished his education. In 1906 he took his B. S. from McGill University at Montreal, Canada, and in 1908 he received his M. S. Still on the lookout for more knowledge, Mr. Harrington was recently quoted as saying that he never passes up a chance to learn something new, even though it is far removed from his professional life.

In all probability there is not an engineer in the profession who covers more ground than Mr. Harrington. His travels average 100,000 miles a year. In fact, practically all of his time is spent on the road. His practice is now concentrated on the financial consulting end of engineering. His enterprises take him from San Francisco to New York and from the north to the south of the United States.

Several of the largest organizations of the engineering profession find their rolls honored with Mr. Harrington's name. He is a member of the A. S. M. E., having served as national president of that organization; the A. S. C. E.; the A. S. T. M.; the American Railway Engineering Association; Sigma Nu; Tau Beta Pi, of which he was president in 1917; and lastly, Theta Tau.

It is indeed with great honor that Zeta of Theta Tau announces the formal initiation of John Lyle Harrington to honorary membership, on April 27, 1926.

RALPH W. NUSSER, Zeta '27

THE November, 1926, *California Monthly Magazine* showed a picture of some mining engineers in South America among whom was Brother Roy Starbird, Epsilon '17, at the Araca Tin Mines in Bolivia which are at an elevation of 17,000 feet.

DURING the week of November 13, Dean L. S. Grant, Gamma '99, Hon., was in Washington, D. C., attending the session of the Society for the Promotion of Engineering Education. Much valuable data were presented and the dean was greatly impressed with the progress being made in the engineering education field.

JAMES A. FLIIG, Zeta '26, returned to the east immediately after his graduation, and is now living in Philadelphia, at 7619 Mountain Ave.

PAUL S. FOX, Zeta '20, is connected with the New Mexico State Board of Health. Address, Box 750, Santa Fe, New Mexico.

LETTERS FROM THE CHAPTERS

ALPHA

Number of initiates	287
Number of honoraries	5
Number of actives	28
Number of pledges	12

We started the present school year with nineteen actives and five pledges. We have had two initiations so far this year; on November 10, 1926, the following men were initiated: Joseph L. Armstrong, John A. McRae, Sam R. Hamilton. On February 17, 1927, we initiated Evans M. Healy, Walter R. Kreuzer, Leon A. Mears, Hugo F. Gustafson.

The chapter house is located at the same place, 406 S. E. 11th Avenue, but the lease runs out September 1, 1927. We expect to move into larger and more attractive quarters at the beginning of the school year of 1928.

Alpha's furniture fund was drawn upon to purchase some new equipment for the dining room. Because of the large number of men eating regularly at each meal the dining room is too small to feed them all at once, so the sittings are divided into two tables.

We now have twelve pledges, of whom some will be initiated before the miners leave for the western trip.

When announcements for Tau Beta Pi were made for the year Alpha had three men on the roll. Two men qualified for Eta Kappa Nu (honorary electrical fraternity) and three were taken into Chi Epsilon (honorary civil). The scholastic standing for last year was 1.48. Theta Tau is again represented on the All-University Council by Russ L. Sorenson.

The annual Founders Day Banquet was held at the Nicollet Hotel, and proved to be the most inspiring and enthusiastic banquet on Alpha's records. Two social events have taken place on our calendar this year, the fall party given at the Columbia Golf Club, and the winter party at the Glenwood Chalet. Several rushing smokers have been staged during the school year.

ALPHA CHAPTER



TOP ROW (left to right): Malmgren, Mears, Garrison, Thwing, Johnson, Armstrong, Spokely.
 THIRD ROW: Hamilton, Detinger, Sorenson, Healy, Erik, McCrea, Witt.
 SECOND ROW: E. Pearson, Gustafson, Mearry, Bartholmey, H. Pearson, Kreuzer, Weitz.
 FIRST ROW: Witt, Larjestrom, Cobbs, Dr. Holman, Marsech, Prof. Johnson, Teske, Miller.

Prof. J. O. Jones of the hydraulics department gave an illuminating talk on "The Conservation of Natural Resources." Brother Jones is a Theta Tau from Zeta Chapter.

The annual canoe trip of Alpha Chapter is scheduled to take place in the middle of May, the trip being as usual on the St. Croix River from Taylor's Falls to Stillwater.

Brother Richard Malmgren, after completing Chicago Central Stations course has returned to school to get a degree in mechanical engineering. Brother N. C. Davies has accepted a position as assistant geologist, traveling over the southwest.

Tom F. Andrews wrote a letter to the chapter which tells of his experiences as a geologist in Northern Rhodesia in South Africa. Art Kroll and Mrs. Kroll are blessed with a bouncing baby boy. Loren Neubauer was appointed to the staff of the engineering college in the Mathematics and Mechanics Department. Winn C. Hilgedick writes a card from Freland on his tour around the world as a radio operator on board a merchant marine ship.

The outlook for next year is bright, both financially and scholastically.

E. H. ERCK

Minneapolis, Minnesota, March 12, 1927

BETA

Total number of initiates	297
Pledges	2
Active Members	24

When school opened last fall, Beta found that graduation had reduced the active members of the chapter to the lowest number in many years. Only eleven men returned at the beginning of the term. This called for a careful rushing campaign, which was entirely successful. Thirteen men were pledged during the term and were duly initiated into the mysteries of Theta Tau. Of these men, three were sophomores and ten were freshmen. Lately two more men, both freshmen, have been pledged and will be initiated at an early date.

The chapter has been working hard. Despite the limited number of actives, Beta progressed wonderfully. The success of the pledging season was due to the energy and vim which every man contributed to the task at hand.

For the school year, Beta has reason to be proud of her achievements. The chapter has been very well represented in every activity on the campus. The offices held by Theta Tau men are many. The most important office, that of president of the Student Organization, is held by Brother Moore. The Senior Council has one H. and T. man. Brother Westin, a Tau Beta Pi man, is chairman. The Athletic Board of Control has a majority of Theta Tau members. Brother Bardill is president of the Mining Club, a new, but strong organization on the campus. Beta is well represented in the several committees on the campus. The vice-president of the senior class, vice-president, secretary and treasurer of the sophomore class, and the president of the freshman class are Theta Tau men. The *Lodge* staff has five H. and T. men.

In varsity athletic activities, Beta has taken the lead. Brother Westin is basketball manager, while Brother Seestedt is manager of the football team.

The college teams have had a goodly number of Theta Tau men in the line-ups.

Of interest to alumni members is the recent action of the State Legislature to enlarge the curriculum of the college. Henceforth, the school may give, in addition to the degrees of Engineer of Mines, and Metallurgical Engineer, a bachelor's degree in general engineering, chemistry, and geology, and in the Graduate School, the degree of Master of Science. The college is to be known as the "Michigan College of Mining and Technology." This will probably shorten to "Michigan Tech," a fit name for the school.

The college has a real hockey team this year. On account of the loss of the Amphidrome, the ice rink, by fire, the schedule was shortened considerably. One trip was made, and several home games were played. On the trip, the "Huskies," as the team is called, played the University of Michigan and Notre Dame. The two-game series with Michigan resulted in a deadlock, the "Wolverines" taking the first game 1-0, and the "Huskies" winning the second by the same score. Notre Dame was beaten, 3-0. The home games included two games with Notre Dame and a game with the very strong sextette from Marquette University. The "Huskies" won these games by decisive scores, but students here at Michigan Tech will remember the Marquette University game for a long time to come. It was a slam-bang battle from start to finish but the terrific pace set by the invaders could not last, and the "Huskies" won in the overtime period 7-4. These victories mark the team as the outstanding sextette of the Middle West. It is hoped that next year the college will again specialize in hockey.

One of the important events of the year was the College Ice Carnival on February 22. A parade was staged in which the entire student body took part. Floats were entered by the respective organizations on the campus and many special exhibits and novelties added to the spectacle. Unfortunately, weather conditions were adverse for the remaining events, and the carnival did not receive the large measure of success it deserved. However, even the partial success was of such proportions as to warrant the establishment of the Ice Carnival as an annual college function.

BETA CHAPTER



TOP ROW (left to right): Swanson, Struble, Pagotto, Kennedy, Supple, Weston, Howard
 SECOND ROW: Bardill, Sessolt, Cugarski, Longacre, Werkocky, Hawn, Nilson
 THIRD ROW: Harrington, Fisher, Orvas, Becker, Young, Grelko, Nash
 FRONT ROW: Rodman, Adams, Hoos, Blanchard, Leick, Gertz

Beta has been a leader in all social activities this year. Dances have been given from time to time and these have proved to be highly successful in every sense of the word. The Initiation Banquet, a traditional event here at Beta, was as usual a very enjoyable party. The Founders Day Banquet was given October 15. Professor Fisher, an honorary member of Theta Tau, gave a very interesting talk on the history of the chapter. On March 3, a professional meeting was held, at which Professor Fisher lectured on the "Mathematics of Animal Sizes" and also gave a short history of the Copper Country. The lectures were followed by an informal discussion, and then refreshments were served. Several members of the faculty, including President Hotchkiss, also attended the meeting. The chapter is planning on having more professional meetings in the future. This type of entertainment is a very enjoyable way to absorb a great deal of useful information.

Beta will lose heavily this year through graduation. The senior members are Brothers Seestedt, Westin, Moore, Bardill, Weider, Paquette, Nilson, and Dewald. These men have contributed much to Beta, and the chapter will miss them keenly.

In conclusion, we urge the alumni to "drop us a line" once in a while to keep us informed as to their location. We of Beta are always interested in alumni news. Also, to all members of Theta Tau, fraternal greetings, and a warm welcome to any of you who happen to come this way.

W. M. A. LONGACRE

Houghton, Michigan, March 10, 1927

GAMMA

At the present time Gamma has twenty active members, four of whom were initiated on February 3, 1927. Last semester the chapter had nineteen actives. Three of these men dropped out of school. The four newly initiated are Brothers R. F. Herndon, Fred B. Kinley, T. L. Wells, and G. H. Allen.

GAMMA CHAPTER



STANDING (left to right): Weista, Keet, Gahagan, Herndon, McGowan, Keet, Becken, Bond, McLaughlin, Mueh, McNeil, Ludner.

KNEELING: Ludgren, Gallagher, Shaw, Bosgan, Doerr, King.

The chapter has initiated a new plan for professional activity. Each man in the chapter will present a paper or talk on some phase of the work he performed during the summer vacation. These will be delivered at the regular bi-monthly chapter meetings. The first of these will be given Tuesday, March 8th.

Gamma has been very active in the fields of sport during the past semester. In some ways it has been hard on the chapter to have had the majority of its members on the squads. Brother Bob Much was an able football captain and he will be succeeded by another Theta Tau equally as able, Brother Walter Lotgren. Besides these two men the following brothers all had places on the first string: Reagan, Bond, McNeil, Shaw, and Gallagher. Gallagher is also captain of the baseball squad. In basketball Brother Sotock was captain and Brother Bond was a member of the first string.

The following positions held by various men of the chapter will serve to give some idea of the place Gamma holds in the school: President of Tau Beta Pi, Brother Al Ladner; Interfraternity Council, Brother Kuno Doerr (President), Brother Fred B. Kinley (Secretary), and Brother Bob McGlone. Both student members of the Athletic Council, as well as the faculty member who is the chairman, are Theta Taus. In the student governing body, the Student Council, Brother Phil Doerr is President, and Brothers McGlone and Cahagan serve as council members. In the honorary group we have seven members in Blue Key and a number of men in Tau Beta Pi. Brother King is serving as president of the junior class, and has just finished his term as basketball manager.

So it may be seen that the boys in Gamma are a busy bunch.

PHILIP DOERR

Golden, Colorado, March 5, 1927

DELTA

At Case members are not elected to Theta Tau until the junior year. At our annual initiation on December 11 we initiated nine juniors and nine seniors. Brother T. M. Chapman is with us again this year, swelling our active chapter roll to 26 men. In our senior class is the president of the Case Senate, the captains of football, basketball, and track, the manager of the Case News Service, and the editor of the *Case Week*. In fact Delta Chapter does not have a man who is not among the campus leaders both in scholarship and in activities. Of the first five men in the senior class three are Theta Taus. Nine of the twenty-six actives are members of Tau Beta Pi.

At our last meeting a resolution was passed to hold regular meetings every two weeks at which speakers will address the chapter on subjects pertaining to the engineering profession.

The new brothers who were initiated in December are: A. C. Ellsworth, L. C. Fisher, M. C. Fruehauf, B. Griffin, E. D. Kemble, L. B. Rayl, R. F. Simokat, A. G. Thailing, O. Tichy of the class of '28, and J. N. Glidden, C. H. Junge, R. J. Kappanadze, W. F. Meckel, M. E. Nall, J. W. Owings, J. W. Thompson, W. S. Wilcox, H. T. Williams, of the class of '27.

E. B. BOSSART

Cleveland, Ohio, March 7, 1927

ZETA

Total number of honorary members	4
Total number of initiates	240
Total number of actives	31
Total number initiated this year	13
Total number of pledges	16

New initiates since last GEAR: Donald Black, Active 233; Roy F. Dent, Jr., Active 234; Edward A. Farmer, Active 235; Stuart G. Hazard, Active 236; Manley J. Hood, Active 237; Charles H. Jarret, Active 238; Donald C. Little, Active 239; Logan H. Woolley, Active 240.

Since the last publication of the GEAR, Zeta Chapter has come to the front in several ways. Paul Swanson was elected President of the Engineering School. George Cash and Edward Farmer have been placed on a committee to revise the by-laws of the student chapter of the A. S. C. E. at Kansas. R. W. Nusser successfully managed the Annual Engineers' Banquet.

We held a professional meeting shortly after the first of the year and were given a very good discussion on the development of steam turbine railway locomotives by Professor Sluss of the mechanical engineering department.

In athletics we have George Cash, Perry May, and Dale Kentner. Cash will receive his letter in the pole-vault this year, and May will no doubt win a "K" in swimming. Kentner is on the swimming team but will not get a letter this year. We have won our first game in the intramural basketball tournament and expect to go to the top this year.

The entire chapter is looking forward to the Founder's Day banquet this year and we wish to extend a cordial invitation to all Theta Taus who might be in this part of the United States on April 20, 1927.

H. H. HINES

Lawrence, Kansas, March 16, 1927

ZETA CHAPTER



TOP ROW (left to right): Thor, McCarty, Little, Huns, Feil, Mellis, Berry, Muller.
 THIRD ROW: Jarret, Woolley, Sluss, Hines, Perkins, Hood, Farmer, Addington, Cash.
 SECOND ROW: Brungle, Hanson, Black, W. L. Patterson, McEwen, Nusser, Kindervater, R. E. Patterson, Luff, Swanson.
 FIRST ROW: Hilkey, Hazard, Tomlinson, Kinney, Winner, Young, Kentner, Vaughn, Dent.

EPSILON

The chapter started the spring semester out with a bang under the leadership of "Tom" Koch, our new regent; not only started out with a bang but has been going that way ever since. "Tom" returned to school last fall after being away for two years doing economic work, and with his return to school he brought some new ideas for H. & T. that have worked out for the good of all concerned.

We had our spring initiation on the 19th of February. In the evening there was the traditional banquet at the Clift Hotel in San Francisco, and all that that means to those who have participated in them in the past. We missed Brother Lawrence ("Larry") Tabor and his speech-making. The seven new members taken in were V. L. Vander Hoof '28, J. D. Cerkel '28, F. W. Anderson '27, A. M. Tweedt '27, L. L. Phillips '29, K. C. Bertelsmann '29, and C. Barton '28. All of these boys show promise of making something of themselves and doing their share for H. & T.

Our regular meeting, scheduled for March 22, is to be held down at Mt. Herman, in the Santa Cruz Mountains. The following day being a University holiday, it was the wish of the chapter to have a stag party and general good time. Through the kindness of one of the brothers, du Boise Eastman, it was made possible, by his parents offering the chapter the use of their lodge. This is the first time in the history of Epsilon Chapter that a stated meeting has been held out of town or off the campus. Incidentally that was one of the new ideas that Tom brought back.

So far we have had one open house this semester and were very fortunate in having Dr. Meade, late of the University of Wisconsin, be the principal speaker of the evening. Another, and the last, open house of the semester is scheduled for March 24th.

Final examinations are only six weeks off as this is being written and commencement this year will see our ranks somewhat depleted. Those who will not be back next semester are: Bill Bakke, Reel Winterburn, Ralph A. McGoey, H. C. Rea, Mason Hill, Bert Stephens, Lee Parish, Jim Kimball, and with all probability some of our graduate students.

It may be of interest to some of the old boys to know that "Charlie" Anderson went up for his preliminary examination for his Ph. D. this spring. I think Charlie and Dave Sharpstone are in some kind of conspiracy because Charlie is always getting letters from Dave who is up in Butte, Montana, addressed to Professor Chas. Anderson.

HENRY C. REA

Berkeley, Calif., March 14, 1927

ETA

This school year has been an exceptionally successful and prosperous one for Eta. Even though we had twenty old men back this fall we started the year with quite a handicap, due to the fact that the chapter was very inactive last year. M. I. T. is blessed with far too many honorary societies and fraternities and most members of Theta Tau are also members of several other organizations. After a year of inactivity the majority of the fellows in Eta came to consider the organization as just one more honorary fraternity. So

it was that it took some time last fall to bring the chapter back together and get the members to realize the value of Theta Tau.

Now we are all happy to report that we are one of the most active engineering fraternities on the campus. On January 9, 1927, we initiated twenty-four new men, all of them leaders in school activity work. Twenty-three of these men are juniors and one is a senior who is returning for a year of graduate work in hydro-electric engineering. We boast of having the finest crowd of fellows of any engineering fraternity or society at school, and so far no one has met our challenge. We have the general managers of three of the four school publications, the newspaper, the year book, and the engineering publication; and the junior editorial boards are all dominated by Theta Taus. The president of the Athletic Association and the managers of all the major athletic teams are all members of Eta. Also we boast of several class officers and we have more men on the Institute Committee, the student government body, than any other one organization. Many other honors that have come to members of Eta could be mentioned. We have chosen to put this information in the chapter letter to show that we have a live crowd of fellows in Theta Tau this year.

Beginning last November we have averaged one formal dinner meeting every five or six weeks and one informal business meeting between each dinner meeting. At each informal meeting we have three or four of the members read papers or give talks on engineering subjects which are of particular interest to them. These talks have proved intensely interesting and the wide range of topics discussed has been the source of a great deal of broadening information. At the dinner meetings we have always had some outside speakers, either professors at school or some prominent Boston engineers. Our meetings have always been interesting and as a result Theta Tau has come to mean a great deal to all the members.

We plan to hold another election this spring at which time we will select several promising sophomores for initiation before the end of the school year.

The following is a list of the men who have been initiated this year: T. S. Wood, J. C. Melcher, E. D. True, R. T. Johe, E. Gray, G. V. Patrick, J. M. White, R. Y. Barbour, P. E. Ruch, G. I. Chatfield, H. A. Burnell, Jr., E. E. Chute, E. B. Grover, H. S. Root, T. B. Taylor, Jr., J. S. Harris, E. Hartshorne, F. W. Sammis, G. J. Ackerman, P. A. Johnson, F. D. Riley, Jr., C. H. Topping, R. P. Westerhoff '27, E. N. Wells.

JOHN W. MORRIS

Boston, Mass., March 12, 1927

THETA

Theta Chapter is spending a most successful year. On the completion of John Jay Hall, the new social center of the campus, we transferred our activities there from the Livingston Collegiate Club. The weekly meetings have been so well attended that we expect in the near future to increase the number to two a week.

The annual spring dance is to be held soon. Brother Johnson has charge of the arrangements, but to date has not set any definite time or place.

Spring rushing is proceeding in a very satisfactory manner. At present we have several candidates of fine caliber whom we expect to pledge shortly.

JOHN BALET

New York City, March 8, 1927

IOTA

At the present writing Iota has an active chapter of twenty-four members, eight of whom were initiated in the fall semester. Nine prospective pledges are being considered for the spring semester. This will bring the active chapter members to a total of thirty-three in addition to two honorary members. Eleven actives will receive their degrees in May, leaving a prospect of at least twenty-two men present next fall to start the ball rolling. Iota has a total of 184 initiates to date.

G. F. McCrorey is president of the junior class which is quite a campus honor, carrying with it the planning of the Engineers' St. Pat's Celebration. Regent Kraft is also head of the local chapter of Tau Beta Pi. Brothers Sewell, Baumgardner, and Couch were pledged to Tau Beta Pi at the recent spring elections.

Honorary member H. A. Buchler, State Geologist, was the speaker of the first open meeting in November. He discussed the various engineering problems concerning the construction of the Panama Canal. Another interesting talk was given by Professor Hanley at the January 11 open meeting. His subject embraced the metallurgical treatment of unusual ores and baghouse fumes.

At the last Iota open meeting on February 15, H. M. Lawrence, Superintendent of the Mississippi Valley Station of the Bureau of Mines, took "Alaska" as his topic. The development of various Alaskan mining projects and the government railroad from Seward to Fairbanks furnished the basis for an enjoyable evening's instruction.

Plans are being made for the annual spring banquet of Iota in honor of the spring initiates. With twenty-two actives expected to return to school next fall Iota will have a fine foundation for a successful year.

E. R. CUSHING

Rolla, Missouri, March 7, 1927

KAPPA

Kappa Chapter has been very active during the fall semester and succeeded in securing the most outstanding men for the fall initiation which was held December 5, 1926. The late initiates are: P. E. Seepé '28, F. W. Gartner '28, H. L. Winter '28, W. L. Shattuck '28, G. S. Heylin '27, D. O. Baker '28, K. L. Mertz '27, H. F. Irving '28, D. Lyon '28, C. A. Basedow '27, and D. E. Peterson '28.

An informal dance was held December 10, 1926, at the Phi Delta Theta house and all of the brothers declared it a good dance. The Illini Aces furnished the music and entertainment and were red hot for the occasion.

Brothers McKeague and Alexander were taken into Tau Beta Pi this fall. Brother Helvenston was initiated in his junior year and is now secretary. Brother Miller was initiated in Chi Epsilon. Brothers Seepé, Gartner, Winter, and Peterson were initiated into Scabbard and Blade.

Brother Shattuck has been one of the mainstays of the swimming team this season while Brother Lyon has been the same for the track team. Brother McKeague is on the baseball squad, Braun on the fencing team, and Landon on the gym team. Brother Bush is a junior track manager with excellent chances of becoming senior manager.

Three brothers, Supple, Morrison, and Landon, were named on the Engineering Dance Committee while Braun and Johnston served on the Military Ball Committee. The office of business manager of the *Technograph* is held by Brother Landon.

Short talks have been given at the meetings by the faculty members. Professors King, Marshall, and Vawter are generally on hand to lend aid and encouragement to the struggling engineers.

Plans are now being made for a smoker to be held March 24th to secure pledges from the sophomore and junior classes.

R. H. LANDON, Corresponding Secretary
Champaign, Illinois, March 11, 1927

KAPPA CHAPTER



TOP ROW (left to right): Hejlin, Winter, Bassler, Soops, Lyon, Gartner, Shattuck, Peterson.
THIRD ROW: Metts, Irving, Lindquist, Gifford, Alexander, Miller, Johns, Spawell, Baker.
SECOND ROW: Kresler, Hanney, Henry, McKrigan, DeMott, Williams, Milroy, Bush, Landon, Kenyon.
FIRST ROW: Pasley, Bicknell, Morrison, Supple, Madison, Johnston, Halverson, Steinmetz, McCut.

LAMBDA

Since the last report we have been making plans for the pledging of sophomores. The chapter has a ruling which prohibits the pledging of men before the third quarter of their sophomore year unless the chapter votes to waive the resolution on any special case.

On a Wednesday evening during March the active chapter held a bust on the campus for the purpose of getting acquainted with sophomores and other rushees. A fine turnout of actives as well as of guests made possible a very enjoyable time for all. The pledges and some of the actives blessed with talents provided an entertaining program. Of unusual interest were Brother Seeley's magic stunts and card tricks. Following the entertainment, pop and sandwiches were served, and the latter followed by the usual "bull-session."

During the winter quarter an initiation was held at Shay's Cafeteria, during which three junior engineers took upon themselves the obligations of Theta Tau. These men were James Mather, Elmer White, and Ross Rozelle, all giving fine indications of being influential members in the fraternity and school. The initiation was well attended by both actives and alumni. Of special note was the appearance of several charter alumni who had never heard the Ritual since their initiation.

The plan of having meetings following a bi-weekly supper down-town at

Shay's Cafeteria is proving exceptionally satisfactory. The fellows seem more congenial and turn out well for every meeting and the bond between the individuals seems to be greatly strengthened by such gatherings.

The chapter wishes to thank Professor Baldwin for the fine results he has and is obtaining in reducing the chapter's alumni debt. Due to his unceasing and unselfish efforts the chapter expects to be soon free from this blemish and then keep that way.

Brother Funk was deservedly awarded a Phi Kappa Phi key with the first group of honor graduates for this year. Brother Lyon has represented the chapter in athletics by playing regular guard on the basketball team this season.

MERVIN B. HOGAN

Salt Lake City, March 14, 1927

LAMBDA CHAPTER



FRONT ROW: (left to right) Dick, Sooley, Matthew, Bowler, Greene, Funk
BACK ROW: Hartmann, E. Thompson, Bylesick, Farrell, Lyon, Wilson, Jones, R. Teismann, Halton, White, Smalley, Forester.

MU

Total number of initiates	73
Total number of actives	17
Number initiated this college year	7

Mu Chapter has kept pace with its distinguished University, and we are glad to announce a very favorable inauguration of the college year. May we introduce to the other chapters our recent initiates? They are listed with chapter numbers: C. P. Almon, Jr. (67), Florence, Ala.; M. M. Broyles (68), Johnson City, Tenn.; J. J. Clarkson (69), Tuscaloosa, Ala.; W. O. Harris, Jr. (70), Huntsville, Ala.; Calvin Jones, Jr. (71), Birmingham, Ala.; A. B. Leach (72), Tuscaloosa, Ala.; and J. R. Maxwell, II (73), Sheffield, Ala. We pride ourselves on all these men; and we are particularly proud of our new honorary member, Professor Fred R. Maxwell, Jr., of the electrical engineering department of the University. Prof. Maxwell was initiated on November 9th, and has already shown a great deal of interest in the chapter and its doings.

The college career of our Regent, Brother Robert Baugh, has been crowned in a fitting manner by his being awarded the 1927 Rhodes Scholarship from Alabama. He will leave for Oxford in September, where he expects to specialize in physics. To list his honors here would fill almost too much space; but chief among them are membership in Tau Beta Pi, Phi Beta Kappa, Omicron Delta Kappa, and other honorary Greek-letter societies; in Scabard and Blade, Jasons (senior honor society), "A" Club (president, 1926-27), and an interfraternity club; captain, University of Alabama golf team, and president of the Southern Intercollegiate Golf Association; and holder of a roomful of trophies won by his excellence at golf. His social fraternity is Delta Kappa Epsilon, and he is one of the most prominent men on the campus. And by the way, the present holder of the Rhodes Scholarship from Alabama is another Theta Tau—Brother Robert J. Van de Graaff, charter member of Mu Chapter, who was graduated here in 1922.

Mu Chapter has this year begun the annual custom of awarding a medal to the student chosen by a committee from the engineering faculty as being the outstanding man of the year in the College of Engineering. The award is made at the annual Engineers' Banquet, which is given in March. Brother Speake was presented with the medal this year.

It is our good fortune to have with us again this year Brother Sam Britton, who was awarded a graduate fellowship in the School of Mines. Several others in the chapter hold undergraduate assistantships in engineering laboratories; and our scholastic record is further upheld by the fact that Long, Baugh, and Speake are charter members of the newly established Alabama Beta Chapter of Tau Beta Pi, of which the last two named are respectively vice-president and president. We are represented in Phi Beta Kappa by

MU CHAPTER



FRONT ROW (left to right): Pugh, Bumples, Finnerl, Louch, Mosby, Clarkson, Maxwell, Almon,
SECOND ROW: Speake, Britton, DeVanez (affiliate member), Harris, Blackford, Ayres,
BACK ROW: Evans, Baugh, Goodrad (affiliate member), Paul, Maxwell (honorary member),
Long.

Baugh and Speake, and in the two senior honor societies, Jasons and Omicron Delta Kappa, by Baugh, Blackford, Long, and Speake. Brother Long is high up in the managing of Alabama's athletics, being first assistant athletic director. He made the trip to the Tournament of Roses in that capacity both years. Brother Evans was chosen to represent St. Patrick in this year's celebration, and Brothers Ayres and Speake were members of his court. Space will not permit my listing all the activities engaged in by the members of Mu Chapter, but the above will serve as a fair sample. It is enough to say that we are represented in just about everything that goes on at Alabama, in the College of Engineering and the University as a whole.

Along social lines, we have enjoyed a few festal occasions. In the late spring, last year, we gave a highly successful swimming party on the banks of the Black Warrior River, near Lock 14. It turned out to be almost too cold for swimming; but that did not spoil the rest of it at all, and we are planning a "repeat" this spring. We were also honored with a "lead-out" at the recent Engineers' Ball.

Several alumni have been our welcome visitors during the year, among whom the writer remembers especially John Peerson, Bill Buckler, and Edward Pritchett, all of last year's graduating class; Tom Newton, of '23, and H. C. Gause, of '24.

PAUL M. SPEAKE, Scribe

University, Alabama, March 12, 1927

OMICRON

At the present writing the Theta Tau house in Iowa City is teeming with activity in preparation for the engineering school's annual celebration. The event is known as Mecca Week and consists of a banquet, show, dance, and exhibit. Brother Carlson is president of the Associated Students of Applied

OMICRON CHAPTER



TOP ROW (left to right): Knowlton, Falter, Kline, Harp, Carson.
 SECOND ROW: Beatty, McCann, Jensen, Wickham, Park, Hamel.
 THIRD ROW: Schneider, McClane, Meyers, DeWalt, Flanagan, Barber, Thomas.
 FOURTH ROW: Menzer, Lewis, Wertzbaugher, Little, F. Smith, Fawcett, Emil Schuler, McGuire.
 FIFTH ROW: Reid, McLarney, Edwards, Josephill, Ashton, Edwell, Hyatt, Edmondson.
 FRONT ROW: H. Smith, Hookett, Miller, Farrell, Carlson, Schuler, Vierek, D. Thomas, Tuck.

Science and is in charge of all the activities of the week. Omicron men are plentifully sprinkled throughout the committees as well as in the show cast.

Since the last letter one professional meeting has been held. Prof. A. H. Holt of the civil engineering department read a paper to both the pledges and actives on "The Development of Engineering Practices." The usual discussion that followed other professional meetings had to be dispensed with because Mr. Holt was unable to remain long with us. No professional meeting is scheduled for March, because the Mecca celebration has resulted in a calendar crowded with activities. Our next meeting will be around the first of April.

On February 26 the chapter held a party at Youde's Inn. Several of our alumni were able to return and about ten guests from outside the chapter were present. Two more parties are scheduled for spring.

Realizing that engineering students are somewhat hampered in their desire to broaden their friendships, the idea of holding joint smokers with other professional fraternities was originated. Delta Theta Phi, legal fraternity, was approached and they sanctioned the idea enthusiastically. On the evening of February 16 the two organizations met at Omicron's house and a good time was enjoyed. Each fraternity entertained with a stunt, and after an hour of bridge and general discussion, refreshments were served. The Phi Delta Chi, pharmacy fraternity, has expressed its desire to stage a smoker with us, but no definite arrangements have been made.

To further form and strengthen friendships both in and out of the engineering school a system of interchanging dinner guests once a week is practiced. At present Triangle, Kappa Eta Kappa, and Phi Delta Chi are included in the system.

Omicron's basketball team has suffered a more or less disastrous season. Most of the games came at a time when it was almost impossible to get the regular lineup on the floor and we were obliged to forfeit several games.

Brothers Boyles, Beatty, Folwell, and Elliott were entered in the Big Ten indoor meet and helped Iowa garner enough points to place third. Edwards is entered in the conference gym meet to be held in Chicago.

Brothers Stewart Meyers, Fred Smith, John Folwell, E. P. Schuleen, and E. T. Schuleen were recently initiated into Sigma Xi, and Brothers Wertbaugher and Wickham are pledges to Tau Beta Pi.

The schedule of monthly news letters to alumni has been more or less strictly adhered to. A suggestion from Brother Schrader resulted in the letters being written under the title, "The Pyramid of Omicron Chapter." We find these letters an excellent means of keeping in touch with our alumni, and the replies that we receive from them are posted on the house bulletin board where they are eagerly read by the actives.

ERNEST SCHULEEN '26

Iowa City, Iowa, March 11, 1927

NU

Reply received too late for publication.

XI

No reply received.

RHO

Twelve members of Rho Chapter returned to school this year, ready for work and with the idea of making Rho even more active than in the past.

On November tenth a smoker was held for the purpose of looking over new men. Six of these men were pledged, the initiation taking place on January 26.

The annual Installation Banquet was held on February 16 at the Peacock Alley Tea Room. Professor Harry Tucker, head of the highway engineering department, and Professor J. W. Harrelson of the mathematics department were the speakers of the evening. Short talks were made by several members.

Brother Coffman visited the chapter on February 19. He gave a very interesting talk on the fraternity, including a few pointers for the new members. Brother Coffman's visit was thoroughly enjoyed.

An Engineers' Day is to be held by the Engineering School on March 17. Rho Chapter has planned an active part in the work and festivities of the day.

During the past school year two alumni members and one active member of Rho Chapter have embarked on the good ship matrimony. The alumni members are J. M. Potter '26 and R. W. Luther '26. The active member is J. C. Mason '27.

JEFF. C. DAVIS

Raleigh, N. C., March 6, 1927

SIGMA

The total number of Sigma initiates is now seventy-six. Three men were initiated in the winter quarter. Their names and numbers are as follows: I. W. Miller (74), H. Z. Schofield (75), C. W. Allen (76). There are at present thirty-one actives and ten pledges. We have not pledged any freshmen as yet but we expect to do so during the spring quarter. As there will be nearly a dozen actives graduate this year, we need more pledges.

SIGMA CHAPTER



BACK ROW (left to right): Falton, Swain, Marshall, Knorr, Couch, Strawberry, Leedy, Gena, Patten.

MIDDLE ROW: Kalo, Brierwell, Trout, Davis, Meiler, LeVale, Dumbault, Hise.

FRONT ROW: Kalo, Anastas, Sordet, Mass, Knorr, White, U'bery, Beck, Smith.

Two professional meetings have been held this quarter. At the January meeting Prof. Alva Smith, of the physics department, gave a talk on the opportunities for the engineer in the field of research. At the February meeting Prof. John Younger, head of the industrial engineering department and editor of *Automotive Abstracts*, discussed some of the problems of production confronting the young engineer. For the March meeting Col. Nash, of Williams, Nash, Hays & Thomas, lawyers, has been secured to give the talk.

After a short business meeting on the evening of February 28, actives and pledges listened to a talk by Brother Nold, a member of the faculty from the mining department, on the wasteful methods used in the mining of clay, one of the most important of Ohio's natural resources. Prof. Nold made a survey of the State of Ohio as to its magnitude of clay mining and manufacture during the fall quarter.

The winter quarter has seen the addition of the names of more Theta Tau men to the list of those taking part in campus activities. Fred Ullery, our past treasurer, was elected president of A. S. M. E. W. A. Meiter has been elected secretary of the same organization for the spring quarter. Pledge Raymond Armington is president of the newly organized Society of Student Industrial Engineers. Paul Crouch has been elected permanent secretary-treasurer of the electrical engineering class of 1927. Theta Tau won the University Championship Cup in intramural rifle shooting. The members of the team were Charles Smith, Ray Snider, Paul Crouch, Arthur Falter, Curtis LeMay, and Pledge Richard Beer. Clifford LeVake is a member of the Men's Glee Club. Pledge J. S. Decker is a pledge of Eta Kappa Nu and C. P. Smith and Curtis LeMay are pledges of Scabbard and Blade.

Brother Charles Smith, Brother Theodore Swain, and Pledge Raymond Armington were elected to Tau Beta Pi on March 10th.

Elmer Marshall followed in the footsteps of our Regent, Harold White, and was married December 29. His wife is the former Miss Marion Stevens. Elmer is not in school this quarter.

The social committee is making plans for the annual spring dance to be held at the Elks Country Club on May 14. It is to be a formal dinner dance. Following the usual custom it will be a joint dance with the alumni.

Edwin Beriswell and Harlan Mace graduate at the end of the winter quarter. The usual graduation banquet will be held at the chapter house Sunday noon, March 13.

WALTON O. LEEDY

Columbus, Ohio, March 9, 1927

TAU

Tau Chapter has just finished a very successful rushing and initiation season. Our new initiates are: Theodore Hall '27, Norman Seiter '27, Richard Rickards '27, Lewis Bizik '28, Elliott Lynde '28, Walter Carey '28, Stanley Wilson '28, Carl Andrews '28, Arthur Wood '29, John Shappell '29, Herbert Sanford '29. These men make 26 on the active chapter roll at the present time.

We are in the midst of preparations for the annual engineering banquet, of which Theta Tau has charge each year. We are all out to make this year's banquet the biggest and best one yet.

Tau Chapter has recently made the gift of a drinking fountain to the main building. Each year it is our custom to make a donation of some kind to the college and in this way have some permanent means of being remembered by the faculty, as well as being recognized by the underclassmen.

Practically every one of our new initiates, as well as the older actives, are now busily engaged in sports and other activities.

"Jimmy" Frink, our retiring regent, has been elected president of the senior class. "Jimmy" is a member of Double Seven, Senior Council, sings in the Glee Club and is vice-president of that organization, and at the present time is out for crew and has practically cinched a seat in the varsity shell. Kenneth Cramer, our new regent, who rowed on the championship freshman crew two years ago and in the varsity boat last year, is unable to go out this year due to carrying a heavy scholastic schedule.

Willis Clarke, star halfback on the football team and stellar defense man on the lacrosse team, also won his letter in wrestling this year. Wrestling in the 175-pound class he lost his first match but won every start the remainder of the season. Waldo Kirkpatrick, wrestling in the 158-pound class for his third successive season, also won every match but one, and that was lost on a decision.

Lewis Bizik, football player and regular on the lacrosse team, also invaded the field of minor sports this year, boxing in the 160-pound class. This being his first year out, of course he has not too much science, but he has everything else. "Lew" can take more punishment, and give as much, as any man on the squad.

Kenneth Gray, president of the junior class last year, is our two-sport captain. He recently finished the season as captain of the hockey team, and is now busy trying to lead the wonder Syracuse lacrosse team to another championship. Jack Shappell and "Art" Wood, two of our sophomores, are also out for lacrosse. Both played on the freshman team last year.

Norman Seiter, another lacrosse man, won his letter in swimming this year, placing in every meet in which he participated. "Bill" MacAlpine, one of our Chem engineers, is varsity cheer-master, and also a member of the Senior Council. "Hal" Merry is manager of the rifle team, and has played for three years in the University Band.

Theta Tau also took the honors in the junior class elections. Wilson L. Sutton was elected president and Morrell Blesh vice-president.

TAU CHAPTER



TOP ROW (left to right): MacAlpine, Blesh, Cramer, Whitehead, Sutton, Merry, Richards.
 BOTTOM ROW: Stearns, Irvine, Clarke, Frink, Garthoff, Noble, Kirkpatrick.

The GEAR of THETA TAU

OFFICIAL PUBLICATION OF THE FRATERNITY

DONALD D. CURTIS, OMICRON '19

EDITOR AND BUSINESS MANAGER

101N ENGINEERING HALL IOWA CITY, IOWA

*Subscription \$2.00 a Year**Business Card \$1.00 a Year*

VOLUME XVI

APRIL, 1927

NUMBER 2

ATTENTION should be called to an omission in the last issue of the GEAR. The authorship of the article entitled "Syracuse University and College of Applied Science" was not given. In the haste of making up the final copy for the printers this oversight was not observed. The author was brother Morrell H. Blesh, Tau '28. The editor regrets this omission and takes occasion to congratulate Brother Blesh upon his excellent article and to acknowledge his valuable assistance as Tau Chapter correspondent.

All chapters of Theta Tau who maintain a post office box should make careful provision for the keeping of the same box permanently. During the present school year the GEAR editor has found it necessary to change box numbers for a good many of the chapters because it was found that mail addressed to the box number given in the directory was not being delivered. The cause of this in most cases has been the failure of the chapters to pay the box rental which is due the first of July, no one being present to attend to it. This situation leads to a good deal of confusion and loss of time because of the slow delivery or the loss of mail. It is urged that you pay attention to this matter and make provision for advance payment to be made or have some one pay the rent when it comes due so that your continued occupancy of the box may be assured for another year.

Some chapters of Theta Tau have a custom which is well calculated to perpetuate efficient conduct of chapter offices. The thing particularly in mind is the passing on by an officer of a book of memoranda of his practices while in office. Everyone knows how difficult it is for one in responsibility to adjust himself to the new condition he finds himself laboring under when he takes office, and understands the consequent loss of time. In view of the fact that our chapter officers for the most part hold office only nine months, a large percentage of this time is lost in becoming acquainted with the duties of the office and devising effective procedures. An hour or two of time on the part of an outgoing officer in noting the things he has observed and found to be helpful in his work might clear away difficulties that the new man would meet. If a small book were kept for this purpose, the accumulations of a few years would prove an exceedingly valuable manual for the chapter. In our opinion such a large part of a chapter's success depends upon its officers that we can ill afford to miss any opportunities to augment their effectiveness. The record-keeping mentioned appears to be one such opportunity. Better grasp it.

DEPARTMENT OF THE EXECUTIVE COUNCIL

A COMMUNICATION FROM THE GRAND INNER GUARD

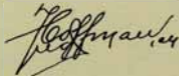
Brothers in Theta Tau,

As you perhaps know, until January, 1926, Theta Tau Fraternity was divided naturally into two groups—the active chapters and the alumni associations. A member of the fraternity upon his graduation or otherwise leaving his chapter was supposed to affiliate himself with the alumni association that held jurisdiction over the territory in which he happened to reside. If no such alumni association existed then he was urged to cooperate with other members in forming one. Membership in alumni associations carries with it many privileges, among them being the power to vote on the granting of new charters and other fraternity matters and the right to send a delegate to the National Conventions. In spite of these advantages of fraternal intercourse very few alumni associations were ever formed and all those that were organized and chartered with one exception (Intermountain Alumni Association) have had a checkered existence, sometimes succumbing to lack of interest almost before the charter had been received.

Realizing that the ultimate strength of Theta Tau lies in the organization of its alumni into active associations the Seventh Biennial Convention held at Columbus, Ohio, authorized the formation of the third unit of the fraternity—Alumni Club. The alumni club is less formal in its nature than the association and carries fewer privileges with it but it is much easier to bring into existence. After two or more years of successful functioning as a club the unit has the right to apply for a charter as an association and in the future no charter will be granted to an association that has not previously existed as a club for at least two years. The reason for this legislation is self-evident.

The Executive Council feels that it is for the best interest of Theta Tau to have as many of these alumni clubs as possible organized in the larger cities throughout the country and to the Grand Inner Guard has been assigned the duty of supervising this phase of the fraternity work. Alumni clubs may be authorized by action of the Grand Regent who shall have the power to issue a letter of authorization to four or more alumni members who apply for it. The application must contain the proposed time and place for meeting. In the very near future the Grand Inner Guard expects to be instrumental in forming an alumni club in Charlotte, North Carolina, and it is hoped that alumni in other cities will avail themselves of this splendid opportunity not only to perpetuate the Theta Tau spirit and assist the fraternity after graduation but to benefit themselves professionally as well. Inquiries concerning the formation of alumni clubs will be appreciated by the Grand Inner Guard who will also be glad to assist in the formation of such clubs.

In H. & T.,



Grand Inner Guard.

We quote from the January, 1927, issue of the *Compass of Sigma Gamma Epsilon*:

"Recently the Grand Secretary [of Sigma Gamma Epsilon] has received a protest from an official of Theta Tau concerning the initiation of a member of Theta Tau into Sigma Gamma Epsilon. We believe that no chapter of Sigma Gamma Epsilon would wilfully initiate into its membership a man who is a member of another fraternity whose interests conflict with those of Sigma Gamma Epsilon.

"Theta Tau has taken action which places Sigma Gamma Epsilon on a competitive basis and considers Sigma Gamma Epsilon as a competitive organization. Accordingly it behooves us to find out whether or not a man proposed for membership in Sigma Gamma Epsilon is a member of Theta Tau and if so, he is not eligible for membership in Sigma Gamma Epsilon.

"Furthermore, in case a man has been pledged to Theta Tau, he is not eligible to be pledged to Sigma Gamma Epsilon.

"It is one of our cardinal purposes 'to promote cordial relations among students in kindred lines of work' but to do this we must not in any manner injure the rights of others.

"Sigma Gamma Epsilon was not organized as a competitive organization; it has never taken action which places a member of any other organization whose interests do not seriously interfere with the interests of Sigma Gamma Epsilon in a position of being ineligible for membership. Action has been taken by other organizations which prohibits their members from becoming members of Sigma Gamma Epsilon. The wishes of other organizations in this regard should be respected."—C. B. C.

The records of Theta Tau show that Sigma Gamma Epsilon was voted competitive in March, 1916, by the Executive Council of Theta Tau and it has been so classified by us since that time.

E. J. S.

Elsewhere in the GEAR you will see a notice relative to the Theta Tau Employment Bureau, which was established some time ago. The Bureau has been functioning regularly. Brother Baldwin says that he would be able to do much better if alumni who are in need of men would tell him when the jobs were open. He ordinarily knows of plenty of men who would be glad to receive employment. If you need any one now or at any time in the future, communicate with Brother Baldwin and he will be able to tell you of some Theta Tau in your locality who would be available. Brother Baldwin has gone to a good deal of trouble to make his information as complete as possible, and if you do not make use of it now that it is available, all parties concerned are the losers.

Apparently all fraternities face certain common difficulties. Two of the important ones of these are accounts receivable and inefficient chapter management. We paraphrase two editorials from the *Deltaist* of Delta Sigma Pi, professional commerce fraternity, on these subjects:

Each year some chapters make the mistake of electing to important offices brothers who are wholly unqualified for the work. The first and foremost requisite of a chapter officer is that he have the time and the inclination to

serve. A man may have all the ability in the world, but if he will not give the time to his office his duties will not be executed in a credible manner. Offices cannot be passed out simply as campus honors. A brother must not be burdened with several major offices in different organizations. Responsibility and work must be divided. A chapter which elects a campus leader who has not time to fill office has ordered a bad year and is going to get it. Possibly the chapter will wake up, realize its mistake, get a new officer on the job, and make up for lost time. Probably it won't, and a year of retrogression will result.

It is urged that this spring all chapters give more thought to this vital problem and elect officers solely on the basis of merit and inclination to serve.

With regard to fraternity financial obligations which alumni leave behind them, it is pertinent that some universities have established a rule that all degrees will be withheld from students if indebtedness contracted during the college course is reported to the university office in time. There is no reason to assume that fraternities or merchants should look to the school as a collection agency, but it is reasonable that a university can and should withhold a degree from a student who has not satisfactorily adjusted his debts.

Such a rule is probably the extreme. As an intermediary, some fraternities suspend a member if he has left indebtedness unadjusted. The usual custom is to remove certain fraternity privileges, among them the alumni card, the certification of good standing, affiliation privileges, and access to the fraternity publications. Here, again, it cannot be assumed that the National Council or executive body can be responsible for chapter collections; but it may be possible for the governing body to withhold certain privileges pending the discharge of financial obligations.

LEON E. EDWARDS, Zeta '22, holds the quite responsible position of Assistant Electrical Engineer for the Santa Fe Railway. His address is 1308 Elmwood Street, Topeka, Kansas.

ROY STARBIRD, Epsilon '17, and Clarence R. King, Epsilon '22, sailed from Los Angeles on January 3, for Chili and Bolivia on examination work for Yeatman & Berry of New York.

PAUL S. ENDACOTT, Zeta '26, is now supervising construction activities for the Phillips Petroleum Company, in the Panhandle of Texas.

KARL H. ENGLUND, Zeta '26, is employed in the Kansas City office of the Kansas City Southern Railway. He is drafting and recently had a great deal to do with the design of one of their large new yards and stations.

GEORGE ASHTON, Omicron '23, and Petr Phelps, Omicron '25, who were star distance men on Iowa's track teams of a few years ago, are again teammates, running under the colors of the Chicago Athletic Association. They recently returned from New York where they helped their club place third in the National Indoor Meet.

J. H. ASHLEY, Epsilon '21, is foreman for the Mexican Corporation at Fresnillo, Zacatecas, Mexico.

LEWIS A. BOND, Epsilon '17, is living at 2034 Bridgen Blvd., Pasadena, California.

LUTE PARKINSON, Gamma '22, has returned to Africa to the Union Miniere Properties. Lute was married just previous to his returning.

TONI HOLMES, Gamma, finished his work for a Master's degree and is now in New Jersey.

NEW PUBLICATIONS

- RESEARCH INVESTIGATIONS, YEAR 1925-26, Bulletin 17, Utah Engineering Experimental Station. By Thomas Varley, Lambda '07. This bulletin covers the following subjects: Reduction Treatment of Lead Blast Furnace Charge, Flotative Properties of Common Gangue Minerals, and Roasting Zinciferous Sulphide Ores.
- PROBLEMS OF PUMPING DEEP WELLS. By Lester C. Uten, Epsilon '11. A. I. M. E., Vol. LXXIV, pages 828-855.
- RELATIONS OF METALLIFEROUS LOSE SYSTEMS TO IGNEOUS INTRUSIVES. By W. H. Eiddons, Alpha, A. I. M. E., Vol. LXXIV, pages 29-70.
- GOLD AT BANNACK, MONTANA, by Philip J. Shennon, Epsilon '22. *Engineering and Mining Journal*, February 19, 1927.
- THE ALUMINUM INDUSTRY IN 1926.—A REVIEW OF THE YEAR'S ACTIVITIES. By Dr. Robert J. Anderson, Delta '14. January, 1927, issue of the *American Metal Market*, Magazine Section.
- MINING METHODS OF THE JARRIDGE DISTRICT, NEVADA. By John F. Park, Theta '17. Volume LXII, A. I. M. E.
- TOP SLICING IN OLD FILLS AT EL BORDO MINE, MEXICO. By R. J. Mechin, Gamma '19, Volume LXII, A. I. M. E.
- MINING METHODS OF THE MOTHERLODE SECTION OF CALIFORNIA. By Stanley L. Arnot, Epsilon '13. Volume LXII, A. I. M. E.
- MINING METHODS IN THE VERDE DISTRICT, ARIZONA. By C. E. Mills, Beta '15. Volume LXIII, A. I. M. E.
- METHODS OF SAMPLING AND ESTIMATING ORE IN UNDERGROUND AND STEAM-SHOVEL MINES OF THE COPPER QUEEN BRANCH, Phelps-Dodge Corp. By W. R. Prosty, Alpha '12, and Mr. R. T. Green. Volume LXII, A. I. M. E.
- At the annual meeting of the American Institute of Mining and Metallurgical Engineers a number of members submitted technical papers. Among these were: TUNGSTEN AND THORIA, of which Brother Zay Jeffries, Delta, was one of the authors; CAPILLARY RETENTION OF PETROLEUM IN UNCONSOLIDATED SANDS, by L. C. Uten, Epsilon '11; CORE STUDIES OF THE SECOND SAND OF THE VENANGO GROUP, by Charles R. Fetke, Nu; and RELATIONS OF DISSEMINATED COPPER ORES IN PORPHYRY TO IGNEOUS INTRUSIVES, by W. H. Eiddons, Alpha.

UNDERGROUND AIR CONDITIONS AND VENTILATION METHODS AT TONOPAH, NEVADA

By R. O. PICKARD, Berkeley, Calif. [Beta '06]
(Pamphlet No. 1649-A. 14 pp. \$700 w.)

The Tonopah mines have an interesting ventilation problem because they have many shafts and stopes opening to the surface inter-connected underground, their underground temperatures are high, dust in them is a health hazard, certain rocks in them give off inert gases, their altitude is 600 feet above sea level and they are in a dry desert climate. This paper reviews the findings of a ventilation study of this district made in 1921 and compares them with a study made in 1925 with comments on the improvements in ventilation found at the latter date. Details are given of the underground air-volume, temperatures,

—A. I. M. E.

RELATIONS OF THE DISSEMINATED COPPER ORES IN PORPHYRY TO IGNEOUS INTRUSIVES

By W. H. EMMONS, Minneapolis, Minn. [Hon. Alpha]
(Pamphlet No. 1638-I, 11 pp., 4100 w., illus.)

The classification of lode deposits, previously discussed by the author, is reviewed, followed by a history of disseminated copper ores in porphyry. Deposits in fourteen districts in the western United States and Mexico are described with maps. The intruding rocks genetically associated with the disseminated copper ores are given for these districts.

Deposits of disseminated copper ores are of the acrobatholithic group, which more often than any other shows zonal arrangements of the lodes of the metals. These ores seem to be confined to relatively small intruding masses and to areas near such masses. The present paper is the third of a series treating of the relations of ores of the metals to igneous rocks.—J.J.M.E.

RAY SWEET, Epsilon, paid us a visit about six weeks ago. He had just returned from Cuba where he had been with some copper mines. He was around here for two weeks and then left for Rhodesia, Africa, where he was going to work for the American Smelting and Refining Co.

P. T. (TORY) HOHENSHELL, Epsilon, is working for Joe Shell, at Ventura, California.

C. F. SMITH, Epsilon, who is now enrolled as graduate research assistant at the University of Illinois, is listed in the program of the short course in Highway Engineering, given at the University of Illinois February 22-25, 1927, for a paper on "Experimental Road Results on Earth Roads."

FRANKLIN E. DEVORE, Zeta '26, is employed by the Engineering Department of the International Motors Company of Allentown, Pennsylvania. Address, 1244 Union Street.

RAYMOND ANDERSON, Omicron '24, is now located in Crawfordville, Iowa.

RADIO listeners may hear the voice of Brother Menzer, Omicron '20 (M. S. '21, E. E. '26), by tuning in on the University Station WSUI. Menzer is announcer and chief operator of the station.

TED CAMBERN, Zeta '25, is doing work for the firm of Harrington, Howard and Ash, out on the Pacific Coast. Palo Alto, California, is the place and 651 Gilman Street is the address.

CLIFFORD G. DAVIS, Zeta '26, has been out of school only a few months, but he is making a big go of life. He is employed by the Kansas City Southern Railway, as party chief, and is working out of the Division Engineer's office at Pittsburg, Kansas. Address, 208 West 5th St.

CLIFFORD VON HOENE, Omicron '24, is with the Southern Bell Telephone Company at Atlanta, Georgia. Von is busy making a survey of the unit costs of the different branches of the system.

JAMES A. CLARK, Gamma '21, is with the Lago Petroleum Corporation, at Maracaibo, Venezuela, S. A. GERALD PARKINSON, Gamma, is now with the Copper Queen at Bisbee, Arizona.

A. L. FERRIS, Beta '11, is with the Compania Minera de Penoles in Monterey, N. L., Mexico. Brother Ferris is a field engineer on a property fifty miles south of the city of Oaxaca.

CHAS. L. (PUDDLE) LAKE, Epsilon, '24, is with the Superior Oil Co. in Texas and New Mexico.

HONOR SOCIETIES CONFERENCE

By FRANCIS W. SHEPARDSON, Phi Beta Kappa.

At a meeting of representatives of college honor societies held in Kansas City, Missouri, December 30, 1925, an executive committee, with full powers, was appointed. During the year since that gathering the committee has given much thought to its main problem, namely, to select from a large number of so-called honor societies in American colleges those justly entitled to membership in the Honor Societies Conference.

A meeting of the committee was held in Williamsburg, Virginia, November 26 and 27, 1926, in connection with the sesquicentennial celebration of Phi Beta Kappa. In two long sessions the members deliberated, finally reaching the conclusion that the initial members of the Conference should be Phi Beta Kappa, Tau Beta Pi, Sigma Xi, Phi Kappa Phi, The Order of the Coif, and Alpha Omega Alpha.

Provision was made for the admission of other organizations with the proper qualifications, for initiation fees and annual dues, and for needed equipment of the office of the secretary. The committee on constitution, appointed at the Kansas City meeting, was continued, its members being Dr. Walter L. Biering, Professor Floyd K. Richtmyer, and Dr. William W. Root.

The Council of the Honor Societies Conference was created, this always to be composed of a representative, preferably an officer, of each member society selected by the society, together with three members at large to be chosen by the representatives. The selection of the initial Council resulted in the choice: for Phi Beta Kappa, Oscar M. Voorhees, secretary; for Tau Beta Pi, Arthur D. Moore, president; for Sigma Xi, Edward Ellery, secretary; for Phi Kappa Phi, Charles H. Gordon, secretary; for The Order of the Coif, Walter W. Cook, president; for Alpha Omega Alpha, William W. Root, secretary-treasurer. These six then chose as members at large, Francis W. Shepardson, Floyd K. Richtmyer, and Henry B. Ward.

Officers of the Conference were then chosen as follows: President, Francis W. Shepardson; Vice-President, Edward Ellery; Secretary-Treasurer, William W. Root. To these officers was delegated the authority to select the time and place for the next meeting and to prepare such literature as should be needed for the Conference. All communications for the Conference should be sent to the secretary, Dr. William W. Root, Slaterville Springs, N. Y.—*Banta's Greek Exchange*.

WHAT IS AN HONOR SOCIETY?

This question has been seriously debated by Theta Tau since its founding and the loose line drawn between some "honor" ratings and professional groups has been at times a puzzling and difficult problem for our fraternity.

We are glad to note that some progress is being made by the real honor societies themselves to solve the question. It is to be hoped that as a result of this new Conference definite rules and regulations will be adopted which will serve as a guide to Theta Tau as well as all other professional and social groups. It is admitted by everyone that membership in an honor society should be a distinctive scholastic honor conferred on an individual and that it should have a real and unquestioned meaning as such.

E. I. S.

NOTES ON THE CHAPTERS

ZETA

A year's work on an original line of research recently brought to two Zeta Chapter men, Thomas Hipp '26 and Dean Magee '26, the much coveted honor of membership in Sigma Xi. This honor comes to the chapter equally as well as to the men themselves, since it is an unusual occurrence for student engineers to be elected to so high an honor, and these men are the only engineers elected at the University this past school year.

Their experiment covered a rather new field, that of stream erosion. The men ran the experiment as a senior thesis, and to aid Prof. F. M. Dawson, of the Department of Hydraulics, and Dr. R. C. Moore, of the Department of Geology, in their efforts to gain some knowledge of the action of running water on different kinds of soil under varying conditions.

For their work they had a large metal tank especially made to order. This tank was some eighteen feet long, three feet wide and perhaps ten inches deep. The tank was placed in a wooden frame which was in turn supported on jacks. By this device it was possible to arrive at any desired slope condition. Water was pumped into a large tank at the head end of the stream bed and allowed to flow over the artificial bed of sand and earth, or both, at various rates of flow. The water was carried off at the end of the stream.

At different stages of each of the runs the water was drained from the stream bed, and actual set of levels taken, and the contours thus determined were placed on the stream bed with the aid of pins and red string. The stream bed, thus marked, was then photographed from one or more desired positions, and the test resumed. By dropping small drops of colored oil into the stream at the head end, and by observing their course and action, it was possible to note the various conditions of flow.

It was the hope of the professors in charge to develop a formula, or law, for the meandering of streams, but thus far their experiments have not warranted any such results.

Zeta feels that Brothers Hipp and Magee deserve congratulation on their work and the unusual recognition it received.

RALPH W. NUSSER, Zeta '27

PI CHAPTER RENDERS SERVICE TO UNIVERSITY OF VIRGINIA

Pi Chapter, at present, is engaged in an extensive campaign in cooperation with the administration of the Engineering School of the University of Virginia, in advertising our engineering school. Our equipment and teaching corps with but little more expense could handle twice as many students.

Theta Tau has long awaited an opportunity whereby it could prove its benefit to our school. When the matter was brought before our chapter by Dean Newcomb and Professor Rodman, our brothers of the Faculty, we enthusiastically pledged our support.

Our first step was to finance an enlargement of the *Virginia Engineering Journal* so that it might print articles which, when read by students of the preparatory schools of this and the nearby states, would set forth the advantages of an engineering career and what our school has to offer them in va-

rious lines of engineering. The journal is now being sent at the chapter's expense to the leading preparatory and high schools of this and neighboring states.

As a result the Dean has been receiving numerous applications for admission, and letters of inquiry, many of which will result in new students.

Our plan also is to send chapter members to these various nearby schools and get in personal touch with these men. This we feel will be the most effective means of obtaining the type of men which we desire.

The policy of announcing a dean's list of students who are given special privileges as a reward for having maintained a high average on work done the session before, will be carried out in every department of the University of Virginia next session.

Three years ago this policy was adopted by the college and when it was found to be a success the law department took it up. This year the dean's lists have been announced in medicine and education, and the department of engineering will try it out in 1927.

LOFGREN NEW GRID CAPTAIN

Walter Lofgren, Gamma '28, of Denver, outstanding Mines player in the past season, was elected captain of the squad for 1927 at a meeting of the players at a banquet at Hosa Lodge at the conclusion of the season. Lofgren is a Denver man and was prominent in athletics and student activities at North Denver High School. He played both guard and tackle on the Oredigger line and was mentioned for all-conference honors by the official guide. He will be a senior next year and his friends are confident he will finish his playing days in a blaze of glory. He is a member of Sigma Nu and Theta Tau fraternities and is president of his class.—*Clipping.*

DAN McMILLAN, Epsilon '22, is the outside man for the East Bay District of the General Petroleum Corp. His offices are in the Ray Building, Oakland, Cal.

THE last we heard of Gavin Wither-
spoon, Epsilon '24, he was still with the Standard Oil Co. at Bakersfield, Cal., and was just on the verge of becoming a proud daddy. Later reports show that he became the proud daddy all right and he now has a little baby daughter.

H. H. HOPKINS, Beta '08, Chicago, Illinois, was a visitor to Beta this year. Brother Hopkins takes an active interest in affairs of Theta Tau, and the chapter was happy to welcome him.

EDWARD S. MCGLONE, Gamma '23, is the proud father of Junior, born at Butte, Montana, on January 16th. Associated Press reports from Butte carried the announcement with the hope that the son would be a football player equal to his famous dad. Brother McGlone is with the A. C. M. Co., in Butte.

JIM DEAN, Epsilon, is another of the hermits that we seldom hear of. He was, last November, the resident geologist for the General Petroleum Corp., at Bakersfield, Cal. Jim is likewise a proud papa.

WAL G. GALLAGHER, JR., Epsilon '23, is a geologist for the Union Oil Co. of California and stationed at Fort Collins, Colorado.

NEW COURSES AT COLORADO SCHOOL OF MINES

COURSES in Geophysics have been announced by the office and matriculation starts at the beginning of the second semester, January 26. Dr. C. A. Heiland, German expert, who will head the department, arrived in Golden early in December and announced that instruments are on the way and will be here soon. The equipment purchased is valued at \$7,000 and includes a torsion balance and two magnetometers.

The courses as announced by the office are as follows:

1. General Geophysics. Lectures. Elective.

This course aims to familiarize the student with the geophysical science as a whole. After an outline of the range of pure geophysics has been given, the physical properties of the earth and their measurements will be studied. After this, special methods will be described as applied to the solution of the practical problems which local geology offers geophysics. The first part of the course will deal more particularly with the gravitational field of the earth, earth magnetism, radio-activity, seismology, the thermic properties of the earth, and earth electricity. In the second part of this course, a description is given of the special instruments and methods which are used in determining the disturbances of the above fields of force or physical properties as caused by local inhomogeneities of the subsoil. The following methods and instruments, which are used for the discovery of mineral deposits, will be described and demonstrated: Torsion Balance, Pendulum Measurements, Magnetometers, Seismographs, Geothermic and Electric Measurements. A general outline of the theory of the instruments and the methods of calculation based thereon will be given. The operation of instruments, by the students, will be restricted to the special courses.

Prerequisites: Enrollment in this course is limited to regular members of the senior class and to graduate students. Periods per week: Lectures, two hours; credit, one hour. Fee: \$10.

2. Special Course. Operation of Torsion Balance. Lectures, Laboratory and Field Work. Elective.

In this course, the theory of the torsion balance is studied. The formula for the use of the balance is derived, and practical calculations are made. Actual measurements with the torsion balance, as well as the computation of the results will be made by the students themselves, both in the laboratory and in the field. One half day each week, or its equivalent, will be spent in the field or in the laboratory.

Prerequisites: Engineering graduates. (For exception see Note No. 3.) The number admitted to this course, because of the expensive equipment, will be limited to a maximum of ten. Periods per week: Lecture, one hour; laboratory and field work, equivalent to four hours. Credit, two hours. Fee: \$50.00 minimum. (See Note No. 3.) Extra expense for field trips to be paid by students.

3. Special Course. Operation of Magnetometers. Lectures, Laboratory and Field Work. Elective.

This course will be conducted in a manner similar to course number 2. The course will begin as soon as the instruments are delivered. At this

writing we do not know the exact date. Those especially interested will be advised later.

Fee: \$35.00 minimum. (See Note No. 2.) Prerequisites: Same as course number 2. Number of students limited to ten. Periods per week: One hour lecture; laboratory and field work equivalent to four hours; credit, two hours.

Note 1: There is no tuition fee for bona fide residents of the state of Colorado. A tuition of \$100.00 per semester is charged for non-residents. A matriculation fee of \$5.00 and a student fee of \$12.50 is paid by all students. Payment of these fees entitles the student to enroll also in any other course offered in the school provided he has the required prerequisites.

Note 2: Any member of the class in Courses 2 or 3 desiring to receive instruction in the theory, computation, and operation of the instruments, which is in excess of the amount of time provided regularly in such courses, will be required to pay an additional fee depending upon the time required for such special instruction and upon the amount of personal use of the instruments.

Note 3: *Men especially recommended by operating oil and mining companies, and who have had engineering experience may be admitted to Courses 2 and 3 above.*

New courses in ceramics under the direction of W. P. Huleatt, assistant professor of geology and metallurgy, are announced as follows:

1. GENERAL CLAY INVESTIGATION.

A lecture course which is to serve as an introduction to the subject and which the properties of occurrence, mining, sampling, preparation, products, manufacturing methods, etc., of ceramic materials are studied. Several inspection trips to manufacturing plants are included in this course.

2. CHEMICAL CLAY ANALYSIS.

A laboratory course in which ultimate and proximate analysis of typical clays are made.

3. PHYSICAL CLAY TESTING.

A laboratory course in which the materials and products are tested according to standard tests. This course also includes burning of ceramic bodies.

4. REFRACTORY MATERIALS.

A combination course dealing with refractory materials.

As soon as time permits, which will probably be next fall, other courses will be added to the above list. These will cover work on glazes, enamels, slips, colors, etc.

YES, boys, J. P. (Whitey) Fox, Epsilon, is still around Bacon Hall, but in a different capacity than of old. Whitey has accepted a two years contract from the U. S. G. S. to map about half of California or something like that. Anyway he says half of the geology of the Berkeley Hills is all wrong according to the present map.

V. A. BRUSSOLO, Epsilon '21, is a division foreman for the Moctezuma Copper Co. at Pilares de Nacoziari, Sonora, Mexico. This is a branch of the Phelps-Dodge Co. N. M. Erskine, Epsilon '24, is also there and in the engineering department. C. E. Stott, Gamma '24, left Nacoziari recently and is now with the Standard Oil Co.

MINING ENGINEERING SENIORS, AND OTHERS

There are in the colleges of the United States, according to the figures of the Society for the Promotion of Engineering Education, about 9,000 senior students for engineering degrees, of which 7,900 have been classified, as follows:

Seniors in civil engineering	2,044
Seniors in mechanical engineering	2,148
Seniors in electrical engineering	2,482
Seniors in mining and metallurgical engineering	426
Seniors in chemical engineering	801

These figures have not been checked; if the graduating mining engineers are too few in number, we should be glad if the above figures could be corrected. It is evident that Eastern mining schools have languished, in some cases almost to the point of extinction; while Mid-Western mining schools have the bulk of the students. We do not have at hand the number of colleges which are equipped to turn out mining engineers; but clearly if this number were divided into the number of senior mining students above mentioned, the average would be small. And the number of graduated mining engineers relative to the graduates in other departments of engineering is also strikingly small, when viewed in comparison to the total number of members in the A.I.M.E., as compared with the other three founder societies; the A.I.M.E. membership compares favorably with the others.

The enumeration of graduating students of engineering above given probably indicates well enough the current trend: it shows the preponderance of the field of electricity, with mechanical and civil engineering following close behind. These are the soldiers of the age of mechanization; the young field of chemical engineering, growing rapidly, is depicted by 800 students in chemical engineering—a third of the number graduating in electricity; while the one listed field of productive engineering—mining and metallurgy—shows only half as many as chemical engineering and a sixth as many as those about to take charge of the operation of electricity. When it is considered that this production group embraces both coal and metal mining, the figures become still more significant.

It is difficult to believe that the listed number of senior students in mining and metallurgy is not abnormally small. A few years ago the depression in mining, together with the tendency toward centralization of management of mining operations, produced a floating surplus of mining engineers, and a consequent discouragement of new students. In the future, coal mining should need more engineers rather than fewer, for the coal industry is under-engineered; and the metal-mining enterprises of the world will still look largely to the mining schools of the United States for recruits of new technologists and managers.—*Engineering and Mining Journal*.

ALUMNI NOTES

BROTHERS BURNETT, McCrory, and Bruslerick (Kappa) are working for the General Electric Company at Schenectady.

E. H. TAZE, Kappa, is with the American Blower Co. at Grand Rapids, Michigan.

WARREN S. MANN, Rho '21, studied mechanical engineering at North Carolina State College, was graduated in 1921 as an electrical engineer and has practiced civil engineering ever since. Brother Mann has been connected with the North Carolina State Highway Commission for six years and has been variously promoted, finally becoming Office Engineer for the Sixth District, which position he now holds with headquarters in Charlotte.

R. R. VAN VALKENBURGH, Beta '13 is superintendent of the Mount Hope Iron Mine at Wharton, N. J. He participated in the discussion of "Mining Methods" at the recent meeting of the American Institute of Mining Engineers held in New York. B. O. PICKARD, Beta '06, is resigning from the U. S. Bureau of Mines to assume charge of a department of safety and welfare for the Marine Shipping Association of San Francisco. Brother Pickard is considered an authority on mine safety work and has written many able bulletins on this subject for the U. S. Bureau of Mines.

RECENT western newspapers carried the report of the sale of the Canterbury Hotel, San Francisco, by George D. Smith, Epsilon '11, who built and opened it in 1923. This is one of the finest hotels on the Pacific Coast, and was valued at about \$1,250,000.

W. S. (BUCK) MORRIS, Rho '24, is with the U. S. Bureau of Mines at Bartlesville, Oklahoma.

L. MCPHERSON is an engineer with the Hupp Motor Car Co.

A. E. WUESTEMAN and F. Ambarry, Kappa '23, are employed in Champaign.

BROTHERS SMITH and Sorenson have attended several meetings of Kappa this fall. They are from Lambda Chapter and are taking graduate work at the University of Illinois.

LEW SUVERKROP, Beta '17, is Associate Editor of *Oil Field Engineering* and is located at Taft, California, at present.

BILL RAND, '26, Gordon White, '25, Cy Hardy, and Gordon Heidt, '25, all Epsilon men, are all working for the Standard Oil in the southern part of the State.

AL LIVINGSTON, ex '22, is back at school to get rid of the "ex" after his numerals. Al was out of school for a few years and now he is back again with a wife and three little Livingstons. How do you do it, Al?

JOHN F. MAHONEY, Krug Henry, and Jim P. Bailey, Epsilon, are working in the Maracaibo Basin, Venezuela. From all reports they say they like it down there.

H. C. (HUNK) PYLE, Epsilon '26, is with the Shell Oil Co. somewhere in South America.

LAWRENCE L. TAROR, Epsilon '25, recently left for Colombia, South America, on a two years contract for the Standard Oil of California. His mailing address is the San Francisco office, Geology Department.

VERN J. COLLINS, Epsilon '26, is sitting on a wild-cat well for Joe Shell at Half-Moon Bay, Cal.

CLARENCE R. KING, Epsilon '22, who has been metallurgist for the California Rand Silver Mine at Randsburg, California, for three years, has resigned and is now at Hinckley, California.

CLEMENT ("SLICK") WEINTZ, Gamma, is with the Midwest Oil Company, in the Amirillo district, doing magnetometer work.

WAYNE H. DENNING, Gamma, is also with the Midwest Oil Company in the Amirillo District.

JOHN O'CONNOR, Gamma, is on his way to Persia to enter the oil game.

JOHN CHRISTOPHER, Gamma, is on his way to Chile.

GEORGES VORVE, Epsilon '23, is now District Geologist for the Texas and Pacific Coal and Oil Co., at Midland, Texas.

GUY E. MILLER, Gamma '19, is a geologist with the Shell Company of California, at Los Angeles.

GEORGE P. MAHOOD, Gamma '24, is now addressed in care of the Bethlehem Steel Company, 1807 Oliver Building, Pittsburgh, Pa.

BOYD C. STEED, Rho '26, has been employed as "instrumentman" by the North Carolina State Highway Commission since his graduation. The instruments he uses most are drafting instruments in the Charlotte office.

LAWRENCE COLE, Zeta '16, is now located at Carteret, New Jersey, where he is employed by the U. S. Metal Refining Company.

PAUL D. CORNELIUS, Zeta '23, holds the position of Sales Engineer for the Sullivan Machinery Company, in San Francisco, California. In a recent visit to the middle west, he stopped off to spend a day or two with the Zeta boys, and reports that all is well, including his two children, one of a very late date.

CHARLES LAKE, Epsilon '24, working out of Carlsbad, N. M., for the Superior Oil Company, recently visited the Grand Marshal, Prof. Richard Russell, at Lubbock, Texas, for two days.

BOB THORNBURGH, Epsilon '22, is working for the Roxana Petroleum Co. at San Angelo, Texas.

SAM BURRIS, Gamma '15, is now addressed in care of the St. Louis Smelting Company, Baxter Springs, Kansas. His home address is 1638 Ogden St., Denver, Colorado.

HAROLD R. ("PETE") PHELPS, Omicron '25, was married on February 19, 1927, to Miss Gladys Hirt of Hills, Iowa. Mrs. Phelps was graduated from the University of Iowa in 1926. "Pete" was a member of Delta Upsilon, A. F. I., honorary senior organization, was captain of the cross country team, and Big Ten champion in cross country for two successive years. He was one of the best distance runners Iowa has ever had. He participated as a member of the American Olympic Team that went to Paris in 1924. Mr. and Mrs. Phelps will be at home in Chicago, where the groom is employed by the American Blower Company, as sales engineer.

HUGH S. MCKNIGHT, Gamma '15, is with the U. S. Metals Refining Company at Carteret, N. J.

CARL TONSON, Omicron '26, who has been with the American Blower Company in Detroit, is now in San Francisco, working for the same company. Carl visited Omicron a few days on his way west.

DALE BROCKMAN, Omicron '25 (M. S. '26), is with the General Electric Company in Schenectady, N. Y., as research engineer.

WILLIAM W. CLAWSON, Zeta '23, is now connected with the Indian Territory Illuminating Oil Company, at Bartlesville, Oklahoma. Address all mail to Box 1052, of the same place.

ELGIN F. CLARDY, Zeta '23, is in the Engineering Department of the Ralston Purina Company, St. Louis, Mo. Mail reaches him at 5696 Kingsbury Place.

PROF. BOWMAN, Honorary Eta, is now at Drexel Institute in Philadelphia.

THE last heard of Tom M. Gardiner, Epsilon, was that he was with the Shell Co. at Bakersfield, Cal., and was just about to push his boat out on the sea of matrimony.

KENNETH L. GOW, Epsilon '24, was last heard of touring Europe; he said in his letter he was having a swell time and expected to be home in April.

TRAVIS P. LANE, Epsilon '17, has been made superintendent of the Lucky Jim Mine at Zioctown, British Columbia. He has been superintendent for three years of a palladium mine owned by A. Chilbery of Seattle, at Saltchuck, Alaska, and previous to that was assistant superintendent of the Kennecott Copper Corporation in Alaska. It is interesting to note that W. C. Douglass, Gamma '11, has been superintendent at Kennecott for many years.

N. L. TALIAFERRO, Epsilon '12, was recently elected Secretary-Treasurer of the Pacific Coast Section of the American Association of Petroleum Geologists. Brother Taliaferro is now Professor of Geology at the University of California and was formerly chief geologist of Ventura Consolidated Oil Fields. Carol M. Wagner, Epsilon '16, is Taliaferro's predecessor in the office to which he has recently been elected.

CURTIS F. BURT, Beta '14, is Mine Superintendent for the A. S. & R. Co. at Minas Dolores y Anexas Matehuala, San Luis Potosi, Mexico. TOM ANDREWS, Alpha '26, has gone to South Africa. His address is N'Dola, Northern Rhodesia, South Africa. He had a meeting with Henry LaTendresse, Alpha '23, who is in another camp about 50 miles away.

H. C. WEED, Beta '25, and Miss Betty Prout of Hancock, Michigan, were married recently. They are now in Jerome, Arizona.

WILLIAM E. BAINBRIDGE and Charles Weiler, Eta '21, have gone with the Johns Manville Co. of New York City.

LOUIS HAGA, Beta '24, is now at Purdue, and announces that he is the proud possessor of a baby girl, born February 14. Mrs. Haga was formerly of Calumet, Michigan.

R. M. MOON, Beta '20, announces the arrival of a baby boy, February 2. Brother Moon and Mrs. Moon are at present living at Calcutta, India.

H. C. KRANENBURG, Beta '24, was married to Miss Ethel Alice McClung, of St. Louis, early in November.

CHARLES M. COATA, a charter member of Zeta, may be reached at 430 Thompson Avenue, Eldorado, Arkansas. He is in the employ of the Lyon Oil Company.

ROBERT E. FERGUSON is now located in Kansas City, Missouri, and may be reached at 3138 Campbelle Street.

JULES GUERDALLA, Theta '25, is now with the Irving Bank, Columbia Trust Company, in New York City.

DAN JAMESON, Theta '26, is located in Johnstown, Pennsylvania, with the W. A. Marshall Coal Company.

GEORGE BOSS, Theta, is with the Texas Company of Houston.

At the Columbia Varsity Show given last week there was a small reunion of recent Theta Tau graduates. Among those present were: Devlin, '25, Steffins, '25, Crawford, '24, Galiazan, '24, Pyle, '24, Gainness, '25, Merritt, '25, Harnett, '25, Winkler, '26, Ferguson, '25, Porske, '26, Howell, '26, Guerdalia, '25, and Ferriera, '26.

CHARLIE STEFFINS, Wes Devlin, and Charlie Brinckerhoff, all of Theta '25, have been married during the past year.

THETA TAU PROFESSIONAL CARDS

DON C. BILLYCK

Epsilon '11
 Consulting Mining Engineer
 24 Avenue 18
 Venice, California

V. A. BRUSSOLO

Epsilon '29
 Engineer, Moctezuma Copper Co.
 Pilares de Nacozari
 Sonora, Mexico

FRED COFFMAN

Lambda '15
 Supervising Engineer
 W. H. Booker, Consulting Engineer
 1014 Queens Road
 Charlotte, N. C.

W. V. DeCAMP, E. M.

Gamma '08
 General Superintendent
 United Verde Copper Co.
 Jerome, Arizona

IRVING D. JAKOBSON

Eta '21
 Marine Architect and Engineer
 Ft. of 16th Avenue
 Brooklyn, N. Y.

PHIL J. LAURENCE

Alpha '15
 Engineer for Johnson, Drake & Piper
 Hill Building
 Miami Beach, Florida

J. SIDNEY MARINE

Eta '18
 Vice-President and Secretary
 Arlando Marine Co., Inc.
 Quarry Sales Agents
 7 East 42nd Street, New York City

ERICH J. SCHRADER

Alpha '05
 Engineer of Mines
 Consulting and Management
 Box 244, Reno, Nevada

BEN B. WALLING

Alpha '09
 Realtor, Specializing in Business and
 Industrial Properties
 1046 McKnight Building
 Minneapolis, Minnesota

WALTER H. WHEELER, E. M.

Alpha '06
 Designing and Consulting Engineer
 Investigations, Reports, Plans, Specifi-
 cations, Supervision of Construction,
 Valuations for Structures, Bridges,
 Buildings, Dams, Manufacturing
 Plants, Etc.
 Metropolitan Life Building
 Minneapolis, Minnesota

GEORGE H. YEOKUM

Zeta '17
 Gaines, Yeokum, and Mackey
 Bridge Contractors
 Oklahoma City, Oklahoma

GEO. A. LEIGHTON, Pres.

C. A. LEIGHTON, Secy.

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CORREN EDDY, Beta '26, is now working on his Master's degree in Metallurgy at Michigan Tech.

WILLIAM E. HUGER, Eta '21, Atlanta, Georgia, is married and has a son.

AL REDWAY, Eta '22, was married recently and is living in Ansonia, Conn.

W. R. McKEEN, Eta '21, located at Terre Haute, Indiana, is married and has a daughter.

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