

*The* GEAR  
*of*  
THETA TAU



*Fall, 1928*

WALTER BROWN

EDITOR

the 1980s, the number of publications on the subject has increased steadily, and the field has become more interdisciplinary.

In the 1980s, the focus of research shifted from the general concept of social capital to more specific applications in areas such as education, health, and economic development.

In the 1990s, the concept of social capital was further refined and its measurement became a major focus of research.

In the 2000s, the concept of social capital has become a central theme in the study of organizations and communities.

In the 2010s, the concept of social capital has been applied to a wide range of issues, including climate change and global development.

In the 2020s, the concept of social capital has become a key concept in the study of digital communities and online networks.

In the 2030s, the concept of social capital is expected to continue to evolve and be applied to new and emerging issues.

In the 2040s, the concept of social capital is expected to become a central concept in the study of human well-being and societal progress.

In the 2050s, the concept of social capital is expected to be a key concept in the study of sustainable development and global equity.

In the 2060s, the concept of social capital is expected to be a central concept in the study of human resilience and societal adaptation.

In the 2070s, the concept of social capital is expected to be a key concept in the study of human flourishing and societal well-being.

In the 2080s, the concept of social capital is expected to be a central concept in the study of human progress and societal achievement.

In the 2090s, the concept of social capital is expected to be a key concept in the study of human destiny and societal future.

In the 2100s, the concept of social capital is expected to be a central concept in the study of human civilization and societal legacy.

In the 2110s, the concept of social capital is expected to be a key concept in the study of human history and societal evolution.

In the 2120s, the concept of social capital is expected to be a central concept in the study of human culture and societal values.

In the 2130s, the concept of social capital is expected to be a key concept in the study of human identity and societal meaning.

In the 2140s, the concept of social capital is expected to be a central concept in the study of human existence and societal purpose.

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THETA TAU



FALL, 1928

VOLUME XVIII

NUMBER 1

## THETA TAU EMPLOYMENT BUREAU

**T**HE 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 in which they are most interested.

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*

**HOWARD L. BALDWIN**

Box 112

**SAN FRANCISCO, CALIFORNIA**

# The GEAR of THETA TAU

OFFICIAL PUBLICATION OF THE FRATERNITY

DONALD D. CURTIS, OMICRON '19

EDITOR AND BUSINESS MANAGER

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October 15, 1904

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ZETA CHAPTER HOUSE, 1409 TENNESSEE STREET, LAWRENCE, KANSAS



## ENGINEERING ADVENTURING

By R. S. CANNON, Kappa '26

The engineer, like the scientist, possesses an adventurous mind. In research, design, construction, he is continually adventuring, trying new methods, improving old. Often this spirit of adventure leads him into foreign countries, out of the way parts of the world.

Mining camps, scattered here and there in nearly all parts of the globe, are particularly alluring to young engineers. For an electrical engineer who has not definitely decided just which branch of his profession he wishes to follow, the foreign mining camp offers the advantage of a number of phases of the electrical industry, from telephones to power plants, as well as gratifying somewhat his desire for adventure. The higher rate of compensation is also an added inducement.

The opportunity to obtain experience in design, construction, and maintenance of a great variety of electrical equipment was perhaps the major inducement for me to accept the position of assistant electrical superintendent of the New York and Honduras Rosario Mining Company, located in San Juancito, Honduras, Central America.

A journey inland into Honduras is at best rather arduous. If one enters from the Pacific port, Amapala, he must take a small launch across the bay to



R. S. CANNON, KAPPA '26

San Lorenzo, on the mainland, across waters often very choppy for so small a launch. Then if the dry season is on, a car will convey him to Tegucigalpa, the capital. If during the rainy season, he may ride all the way to Tegucigalpa, and again he may do quite a bit of walking in the mud.

I had the misfortune to come in during the rainy season, and also entered at Puerto Cortés, on the Atlantic side. Coming inland from Puerto Cortés, one



ARC WELDING, GUADALUPE POWER  
PLANT, PENIXOCA

my opinion of transportation in Honduras was quite low by that time.

The trip across Lake Yojoa is made in a gasoline launch, and the rest of the way to Tegucigalpa is nearly always passable for an automobile. The total trip from Puerto Cortés to Tegucigalpa, approximately 190 miles, took close to 42 hours, and cost altogether \$53.68. What a contrast to the Pennsylvania Limited running between New York and Chicago!

Tegucigalpa, from a distance, looks rather pretty, but close up, one finds a few picturesque Spanish type houses, and the rest crumbling adobe huts, and all manner of filth and poverty. About half of the people live on government salaries and pensions and graft, a few tend shops of various kinds, and the rest beg for their living.

The electric light plant, government owned and operated, produces energy from 6 P. M. to 5 A. M. at from 100 to 220 volts, direct current. Due to the fact that the voltage frequently goes up to 220, lamps of that voltage are required to prevent burn-outs, but



TEGUCIGALPA, HONDURAS

is treated to a ride on a railroad as far as Portrerillos, about fifty miles. The trains are hauled by small wood-burning locomotives, and first class passage is hardly more agreeable than a ride in a caboose on a freight train on some branch line in the States. On the train I rode up, the conductor, instead of the genial, courteous public servant found on the American trains, was a swaggering youth of 18 or 19, with a Colt .45 automatic in plain view on his hip.

Portrerillos is nothing more than the end of the railroad, a small dirty hotel, and a few tumble down houses. Due to the swollen condition of the Rio Blanco, frequent during the rainy season, it was impossible for automobiles to ford it and get through to Lake Yojoa. Rather than take chances of being marooned a week or ten days in Portrerillos, I engaged a mozo with a couple of mules, one for my luggage, and one for myself, and rode muleback from two thirty in the afternoon until two the next morning, in a steady downpour of rain most of the time. Needless to say,

the average voltage is approximately 150, and as a result the lights are very poor. None of the energy is metered, but is charged for by the number and wattage of lamps in the customer's house or store. For instance: one 100 watt lamp costs something over \$1.00 per month, American money. Naturally large numbers of the people have 25 watt lamps in all the sockets when the government inspector comes around, and change to higher wattage after he has gone.

It is rather amusing that even in the largest hotel in the city, containing about thirty guest rooms, there is only one poorly constructed shower bath, and no hot water for that. The water comes down from the mountains and is quite cold, too.

Setting out for San Juancito, which was my destination, it was necessary again to ride muleback, for the precarious mountain trail is impassable any time of the year for automobiles. Along the trail I noticed two wires strung haphazardly on all sizes of trees and poles, which, my mozo explained to me, are the government telephone and telegraph lines from Tegucigalpa to San Juancito. I asked him if the wires didn't break quite often, strung up in such a fashion. He said yes, but the wires could always be strung up on other trees or poles in a short time, and apparently it made little difference if there was no communication between the two cities for a day or so.

Seven months in a foreign mining camp has taught me that a mine electrician cannot be a specialist in any one branch; he must know something of all kinds of electrical apparatus. I have been called on to fix everything from the company's radio to installing nozzles and needles in water wheels in the power plants; telephones, circuit breakers, switchboards, motors and generators, mine locomotives, meters, transmission lines, constructing substations.

It was desired to increase the capacity of the Guadalupe power plant, and to do this necessitated installing larger water wheels, and 3000 feet of 30-inch pipe line, the pipe line to be arc welded. The originally installed wheels were not large enough to obtain full capacity of the generators, and the 20-inch penstock was worn out, hence the installation of larger wheels and larger penstock instead of another unit in the plant.

The motor voltage of the welding set used is 2200, and, there being no spare transformers to install in the Guadalupe plant to step down from the generated voltage of 6600 to 2200, a transmission line from the mill substation to the pipe line was necessary. From the substation to the junction of the lines from the San Juancito and the Guadalupe plants, there are two lines, one being



PRIMITIVE TRANSPORTATION IN HONDURAS



A VIEW OF THE ROSARIO MINING CAMP OF THE NEW YORK AND HONDURAS MINING COMPANY; SAN JUANITO IN THE BACKGROUND

used as a spare 6600 volt line. Over this spare line, 2200 volts was run to the junction, and from there to the pipe line, a distance of about  $1\frac{1}{2}$  miles, a temporary new line was constructed. The welding machine and main panel, as well as a small 2200 to 220 volt transformer for lighting, was installed in a temporary structure, halfway between the ends of the pipe lines. Two portable auxiliary panels were used to enable two welders to work at once, these to be moved as the work progressed. In one month, the welding job was half done, welding outside and inside, a fairly wide weld outside, and a pencil line weld inside.

A disastrous fire in the electric shop, caused by a mine locomotive jumping a switch and running through the shop, necessitated the complete rebuilding of the shop, rearranging of the tracks to prevent the recurrence of such an accident, and building a new distribution substation. Transformers, 2200 to 220 and 110 volts, feeding the electric shop, the machine shop, cyanide recovery process plant, laboratory, and the upper pump house, which were located in the shop previous to the fire, were placed in a new transformer house built for the purpose.

Experiences in a mining camp in a foreign country are many and varied. Working with all kinds of electrical equipment, the electrical engineer gains a wide variety of knowledge, but what is perhaps of even more value, is the resourcefulness developed in the man. When a machine is repaired, or a new one put in, he hasn't at hand the elaborate means of testing that machine that he would have in the States, but usually he must devise his own testing apparatus. When new construction is put in he hasn't everything at hand that he wants to use, but must use what he has on hand. When an accident happens to important machinery he cannot secure spare parts in a short time, but must make them, or devise some makeshift that will work until the necessary spare part may be ordered from the States.

Considering the wide variety of experience and the resourcefulness developed in the man, as well as the broadening of his mind by travel, the mining camp in a foreign country offers a great deal to the young electrical engineer.

## UPSILON CHAPTER AT THE UNIVERSITY OF ARKANSAS

By GERALD D. STODOL, Upsilon '28

The University of Arkansas owes its origin to a public land grant of the Federal Congress, which was accepted by the General Assembly of the state March 27, 1871, in an act which provided for the location, organization, and maintenance of the institution. Fayetteville was selected as the seat, and the University was opened January 22, 1872. It has been in continuous operation since that time.

The growth of the University has been steady from the beginning, and the institution is now developing rapidly in attendance, in standards of scholarship, and in breadth of influence. Every section of the state is represented by students on the campus, and the University is also attracting a growing number of students from other states. Young women have been admitted to its courses from the first day of its existence.

The University of Arkansas is composed of the following divisions: College of Arts and Sciences, the College of Education, the College of Engineering, the College of Agriculture, the School of Law, the School of Business Administration, the General Extension Service, and the School of Medicine. The College of Engineering includes the Engineering Experiment Station, and the College of Agriculture includes the Agricultural Experiment Station and the Agricultural Extension Service.

All the divisions of the University are located at Fayetteville except the School of Medicine, which is located at Little Rock. Fayetteville is situated in Washington County, in the northwestern part of the state, in the heart of the Ozark Mountains, at an elevation of 1,500 feet. The surroundings are of great natural beauty, and the excellent climate of the region in all seasons is known throughout the Southwest. It is the site of the Western Methodist Assembly, on Mount Sequoyah on the eastern border of the city. There are twelve churches in the town, representing eleven denominations. The pastors of these churches actively interest themselves in the moral and spiritual welfare of the students.

The campus at Fayetteville comprises a tract of wooded land of one hundred and sixty acres overlooking the town, and includes some twenty buildings. The University has its own heating plant, and is supplied with electric current and water from the city plant. Among the most notable improvements which have been made recently are the erection of two new buildings on the campus, the Agricultural building and the Engineering building, which were completed in the summer of 1927. The Agricultural building is a stone structure, fireproof throughout. It is 260 feet long with wings at each end. It contains the main administrative offices of the College of Agriculture, the bulletin rooms, the agricultural library, and the departments of agronomy, rural economics and sociology, plant pathology, horticulture, and etymology. The Engineering building, completed for occupancy in 1927, is a fireproof stone structure, 215 feet long by 83 feet wide, three stories high. It houses the departments of civil, electrical, and mechanical engineering and of drawing and architecture. There are eleven class rooms, eleven laboratories, eleven

offices, six drafting rooms, a library of 10,300 volumes and an auditorium with 209 seats. The remainder of the buildings are mostly old brick structures and are used to house the other departments of the University.

The new Agricultural and Engineering buildings inaugurate a "One Hundred Year" building program which eventually will absorb all the old buildings into new, up-to-date, fireproof structures of ample capacity to care for the needs of the growing University.

The early history of the entire University is the early history of the College of Engineering. The principal object in establishing a school at the time was



ENGINEERING BUILDING, UNIVERSITY OF ARKANSAS

to provide an institution where one could obtain some knowledge of the practical sciences related to agriculture and mechanic arts. In the beginning there was no elaborate course offered, nor smoothly running organization to take care of the students' needs. The University acted under one head, which was later deemed inadequate. Departments for this subject and that were slowly added until today we have the present efficient organization. The financial success of the early University was due to the first executive committee who carried the University through the initial stages of formation. The University is the product of the steady growth of the faculty and students alike.

At the time of Morrill's bill for the establishment of state universities by "donating public land to the states and territories to provide a college for the benefit of agriculture and the mechanical arts" the government of Arkansas was in the hands of the federal government, and was entirely without a follow-

ing except for a few people in the northern and western part of the state. They made an attempt to accept the offer in behalf of the state of Arkansas, but Congress would not recognize them. After much agitation, an act was passed in 1866 by the Arkansas assembly to establish an Industrial University. There was not much interest in this matter until 1870, when the Governor appointed a new board who acted under an act passed in 1871 for the "location, organization, and maintenance of the Arkansas Industrial University." Accordingly bids were received by the board from those sections of the state which desired the University to be located within their limits. The various locations were investigated by a committee appointed by the board. Fayetteville was accepted as the site for the establishment of the University. On November 15, 1871, the committee in charge officially notified Fayetteville of the acceptance of its bid. In 1871, Fayetteville had a population of 1,500. It was considered a progressive town and was out of debt, as was the entire Washington County. Washington County was considered well educated for they had 57 of the 652 schools in the state within their borders. Arkansas College which was founded in Fayetteville in 1852 was discontinued in 1862 because of the war.

The first building erected was a two story frame structure, and housed the first students who enrolled for the term beginning January 1, 1872. Another frame building was erected in June of that year to provide for the increased enrollment, which could be used as a dormitory if needed. The first catalogue issued in 1872-73 offered a course leading to a B. A. degree. Science was recognized but was not offered for a degree. In 1873 courses leading to a degree in civil engineering and agriculture were added. From 1872 to 1875 the only income was derived from the sale of public lands; no tuition was charged. After some very fortunate financing, the executive committee announced that an administrative building would be erected at once. Several plans were submitted. None of the plans proved adequate except those of the Main Building at the University of Illinois which were adopted by the committee. The contract was let so that the building would be completed for the opening of the fall term of 1875.

The University was not very well organized. There were no departments nor department heads until 1877, when chairs of mathematics and physics were established. The degrees of civil and mechanical engineering were offered for undergraduate work. Later, in 1889, those degrees were discontinued and were replaced by B. C. E. and B. M. E. About 1880 the geology department offered a course leading to a Mining Engineer degree which was later changed to a B. M. E. This course in mining was changed to the jurisdiction of the department of mechanical engineering. In 1887, the legislature appropriated enough money to rebuild the shops which housed the machinery laboratories and to buy some new machinery.

A very odd arrangement was inaugurated in 1887 which changed the school year to run from March to December of each year in order to give the agricultural students benefit of the seasons for their crops. This scheme was later dropped.

A course leading to the degree of Bachelor of Electrical Engineering was announced in 1891. Professor W. N. Gladson, who was later to become Dean of the Engineering College, was an instructor in the engineering de-

partment in 1894-95. Dean Gladson has carried on original research work in electricity.

Up until 1897 the technical school was not departmentized, but existed as one unit. In this year, however, the departments were separated into civil, mechanical, and electrical with a professor in charge of each.

The Board of Directors changed the name of the Arkansas Industrial University in 1899 to the University of Arkansas in keeping with the trend of state schools to broaden the scope of their educational facilities.

An appropriation for a new Mechanic Hall in 1895 began a period of building which lasted about five years. This Mechanic Hall contained the machine, wood, and forge shops, which accommodated about seventy-five students at one time. The boiler room containing the heating plant for the entire University was located in one end of this building. The Mechanic Hall was destroyed by fire in May, 1928, and has been replaced by a fireproof structure for the opening of the fall term 1928-29. All the equipment in this



MAIN BUILDING, UNIVERSITY OF ARKANSAS

building has been purchased new and will make one of the most complete shops in the Southwest.

The necessity of a mixed liberal and technical education was soon recognized. In 1902, students in the engineering college were allowed several hours of electives, preferably in the B. A. college. During 1903, \$25,000 was appropriated for an Engineering building and equipment. The next year an appropriation was made for a chemistry building.

At one time a course leading to a degree in shop and another to a degree in cement engineering were added but did not continue for lack of candidates. The degree of mining engineering was later dropped on account of lack of student interest.

The period after 1910 is marked by very little building in the college. As money became available new equipment was bought and new courses added. The tendency for the students to take more interest in the activities in the



college was more apparent after 1910. The erection of the two new buildings in 1926-27 inaugurated a building program which is to extend over a period of a hundred years. The equipment in all of the laboratories has been kept up-to-date with the purchasing funds as they became available. Wise purchasing enabled the different laboratories to purchase equipment to perform all of the standard tests rather than an abundance of machines to duplicate several tests at one time.

Standard four-year courses leading to degrees in civil, electrical, and mechanical engineering have always been offered. Prior to 1926, these courses were accompanied by those in mechanic arts, trade courses and other two-year short courses. Before the establishment of the four district agricultural schools, the University was the only school in the state offering industrial training. But since their foundation, they have improved the courses offered



#### UPSILON CHAPTER

*First Row (left to right):* McGhee, Pate, Spitzberg, Clark, Byrd, Stephens, Wilson, Prof. Spencer.  
*Second Row:* Ray, Richardson, Dranks, Lamm, Schneider, Hubbard, Souph, Hinkley.  
*Third Row:* Pond, Natch, Hart, Owen, Camp, Bowman.

until they now have recognized collegiate standing. The school system of the state of Arkansas offers sufficient means for instruction in any technical line its citizens may wish for.

During the spring and summer of 1918, the Engineering College conducted an army training school in mechanic arts in which about six hundred soldiers were trained in various capacities for the United States army. For five years after the war, vocational training was given to an average of 128 wounded soldiers a year.

The standard four-year courses as now offered include two years of liberal preparatory training which is uniform for all of the engineering students. The latter two years are given to specialized study in the separate branches. During the junior year, the civil engineers spend ten days in actual field ex-

perience in unsurveyed territory. The electricals, mechanicals and chemicals tour the state inspecting the industries. The senior trip is made by all of the senior engineers and covers most of the important industries in the large cities in the middle west.

The College of Engineering increased its scope of service very materially by adding its Engineering Experiment Station which was created by an act of the Board of Trustees on November 6, 1920. The purpose of this service is to investigate the natural resources of the state and to issue some authentic information as to their availabilities and characteristics.

The personnel of the college has been added to as the need arose. Two-thirds of the faculty are members of the Society for the Promotion of Engi-



ELECTRICAL ENGINEERING LABORATORY

neering Education. The University is a member of the North Central Association of Universities and Preparatory Schools, which is one means of defining its standing among other institutions.

The history of any institution is not complete without some reference to its activities. The students in the college of engineering have realized more than ever the need for organization. When we look over the activities in the college we will find that the student branch of A. I. E. E. was the first to make its appearance on the campus. Being organized and accepted by the national A. I. E. E. in 1909, this chapter paved the way for student chapters of the A. S. M. E. in 1910 and of the A. S. C. E. in 1925. These chapters are well attended and are a credit to the national organizations sponsoring them. During the year 1913-14 a group of men with the support of the faculty organized an honorary engineering fraternity which later in the year became a chapter of Tau Beta Pi.

The need for some organization in the college to stimulate activities and to promote greater interest in engineering affairs was realized by a few students

during the winter term of 1918-19, who met for the purpose of organizing the Engineers Club whose objects were clearly defined as a professional club which would also guide the student interests of the college. This group continued as a club until the fall of 1920 when it was organized into the Delta Psi fraternity in order to promote a closer relationship among its members and to proceed with plans to petition the national fraternity of Theta Tau. A formal petition was edited and sent to the Executive Council in the spring of 1922, but no action being taken. The interest in petitioning Theta Tau became lax after that, although regular meetings were held and the Delta Psi fraternity enjoyed a healthy growth both in personnel and in respect from the engineering students.

During the fall of 1926, the members of Delta Psi fraternity revived interest in the petition which had been presented with no results. After a year of correspondence with the Executive Council and being visited by two members of Theta Tau, Professor C. V. Mann of Rolla, Missouri, and Dr. R. J. Russell of Lubbock, Texas, our plea for a charter was brought before the National Convention in Chicago in December, 1927. The convention granted Delta Psi a charter to operate as Upsilon chapter as soon as installation services could be made. The first opportunity which presented itself for the installation was during the Easter holidays. The date set was April 7, 1928. The installation team was composed of Prof. R. J. Russell of Texas Tech, Prof. D. D. Curtis of the University of Iowa, Prof. C. V. Mann of Missouri School of Mines, and L. F. Burg of the chapter at Rolla, Missouri. They arrived in Fayetteville on Friday night, April 6th. That night complete arrangements were made to hold the installation the next afternoon in the Mountain Inn Hotel in absence of better accommodations. Twenty-four men including two alumni of Delta Psi were initiated. A banquet was held afterward in the dining room of the hotel in honor of the installation team. A smoker and general discussion followed.

I feel that Upsilon chapter will prove itself worthy of the honor which has been bestowed upon it. It will find itself a unique place on the campus not only as a professional fraternity of the engineering college, but as the one organization which holds more leaders on the campus than any other, for the Engineering College at the University of Arkansas has always been the leader in all of the activities. The saying "Leave it to the Engineers" has a meaning to the student body. Upsilon chapter has a good foothold on the campus for its members are found in every organization on the campus and usually hold the more important offices in them.

As soon as possible we intend to have a house where we can really realize the spirit and magnitude of the national organization better than at present in our bi-weekly meetings.

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At the last annual meeting of the American Association of Petroleum Geologists, G. C. GESTER, Epsilon '10, Chief Geologist of the Standard Oil Co. of California, was elected president by a unanimous vote. Members will remember that at the previous annual meeting Brother JOHN R. SUMAN, Epsilon '12, Director and Executive, Humble Oil & Ref. Co., missed being elected by only eight votes. Eighteen hundred and twenty-seven registered for the annual meeting.

## THE PRESIDENCY OF THE AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS

An engineer in Mr. F. W. Bradley's exploration department said: "I first met Mr. Bradley in Nevada City under the following circumstances: I was a small boy and had just been in a single-handed fight with several of the youngsters about town. I was considerably the worse for wear, and was down in the dust of the road, when a thin, angular man approached and helped me up, leading me to a near-by pump, where he bathed my face and said, 'You have had a hard time of it, but you put up a good fight.' That was Mr. Bradley."



FREDERICK WORTHEY BRADLEY, Epsilon Hon. '86

Mr. Bradley's interest in young men is shown by his establishment of a loan fund for mining students and an annual prize in mining at the University of California, where he was a student for three years. Another plan, now in formation, is the establishment of a permanent field camp for mining students at the Sulphur Bank quicksilver mine, near Clear Lake. Apart from this, Mr. Bradley is training his own sons in the business of mining. The oldest one is in charge at Sulphur Bank, and the next oldest [James Bradley, Epsilon '28] has just become superintendent of the Spanish Mine.

As a boy, Mr. Bradley had to work his own way, and this fact no doubt has directed his attention to constructive efforts in advancing young men of initiative. His early manhood was in the mining districts of Nevada County, California. That he built a substantial foundation is shown by the fact that in 1890 he was offered and accepted a position at the Bunker Hill & Sullivan mine in Idaho. Within three years he was advanced to manager, and in 1897 to president of the company, since when he has administered the affairs of this important enterprise. Mr. Bradley is an able administrator. He selects men, establishes company policies, advises on operation and maintains intimate touch with the affairs of his companies. His present organization investigates and acquires properties, finances and operates.

Mr. Bradley was born in Nevada County, California. His father was the

county surveyor and Bradley was his assistant. He later became a United States deputy surveyor. He attended the College of Mining at the University of California from 1882 until 1884. In 1885, he became superintendent of the Spanish Mine in California. He accepted a position in 1890 with Bunker Hill & Sullivan Mine in Idaho. He soon became assistant manager and in 1893 he was made manager. Mr. Bradley became president of the company in 1897 and still holds that position. Success breeds success and it has been so in the subsequent career of Mr. Bradley. He has been president of many mining and commercial companies in the United States and also in Alaska. He married Miss Mary Parks whose father was superintendent of the Kennedy Mine at Jackson, California. Character first placed Mr. Bradley where he is in the topmost ranks of the mining profession, but executive ability and determination, accompanied by wisdom, have kept him there. His tenacity and grasp of fundamentals are well shown by his refusal to abandon Alaska Juneau in the face of a widely held opinion that the property could not be made to pay.

Mr. Bradley's adventure in the Mayo district, Yukon Territory, resulted in the establishment of a profitable mine in the Mayo claims of the Treadwell Yukon. A concentrating mill was erected in 1924, since which time production has been made and the property has materially prospered and grown. In 1925, Treadwell Yukon secured options upon 6,000 acres in the Chelmsford area of the Sudbury district, Ontario. A diamond-drilling campaign indicated widespread occurrences of very complex zinc-copper-lead-silver and gold ores in an important shear zone, and the Errington mines were started. Underground mine exploration and development have been actively under way. A pilot mill has also been started and the working out of the details of ore treatment has begun. The Treadwell Yukon also acquired a mining property at Tybo, Nevada. As a result of deeper exploration, important extensions of ore bodies were found and a mill is to be erected. The statement could be continued to name Mr. Bradley's further quicksilver mining activities.

The mining industry is too often considered from its material aspects—production, equipment, technical procedure, mineral deposits. The virile element of the industry is accepted too casually. Men—prospectors, engineers, managers, workers, financiers, operators, and others—make the industry. Upon their initiative, courage, vision, and resource must the mining industry depend for its maintenance, growth, and stability. True enough, mineral deposits are necessary, but upon human capacity and courage to take chances must depend their successful development. The West has been conspicuous in the number of its successful miners.

Frederick Worthen Bradley has played a leading rôle in the development of the mining industry. Instead of retiring with well-earned laurels, as some have done, he prefers to stay in the game, where his experience and power are especially effective.

The recent announcement of the nominating committee of the American Institute of Mining and Metallurgical Engineers (in the November issue of the *Bulletin*) of the nomination of Mr. Bradley for the presidency of the Institute for 1929 is in recognition of his achievements. The Institute will be especially honored in selecting as its president one of the conspicuous mining leaders in the West—a man whose character and achievements will assure to the office both honor and distinction.—*Engineering and Mining Journal*.



## In Memoriam

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

WENDELL P. CHAPMAN, Alpha '14

GEORGE B. MARSHALL, Beta '06

LAWRENCE C. O'SULLIVAN, Epsilon '29





CARL JOHN NATHO, UPSILON '29

August 16, 1905—August 27, 1928

Carl John Natho, son of Mr. and Mrs. J. H. Natho, was born at Gillett, Arkansas, August 16, 1905. His father was one of the pioneer rice growers of Eastern Arkansas. After being graduated from Gillett High School in the spring of 1924, Brother Natho entered the University of Arkansas. Believing there to be a broad field in the development of electric power for use in the rice fields, he enrolled in the Engineering College and worked toward an Electrical Engineering degree. He was out of school in '26-'27 working for the Missouri Pacific Railroad installing their Block Signal System in Missouri and Arkansas. He returned to the University in the fall of '27 and finished his Junior year. Carl was initiated into Theta Tau April 7th, 1928, directly after the installation of Upsilon Chapter and was number 18 on the Chapter roll.

While on an outing August 27th, 1928, Carl was drowned when a boat in which he and a girl friend were being towed was swamped in the wake caused by the motor-boat ahead. He succeeded in keeping his companion's head above the surface until a boat reached them but sank as the girl was drawn into the boat.

Brother Natho is survived by his parents, Mr. and Mrs. J. H. Natho, three brothers, Paul, a sophomore engineering student, L. W., and W. C., and three sisters, Tillie, Mrs. Wm. E. Berthold, and Mrs. A. H. Huckstadt.



RICHARD L. ROHN, ALPHA '29

March 25, 1906—July 4, 1928

Theta Tau Fraternity lost a true and faithful member when Brother Rohn was killed in an automobile accident on July 4, 1928.

Richard Lawson Rohn was born on March 25, 1906, at Baraboo, Wisconsin and had reached the age of 22 years, 3 months, and 11 days at the time of his death. He was graduated from Baraboo High School in 1924 and attended the University of Denver for two years prior to entering the University of Minnesota in the Electrical Engineering department. During the time Brother Rohn attended the University at Denver, he was very active in extra-curricular activities and very popular with his fellow students.

In addition to Theta Tau suffering an irreplaceable loss, the University as a whole mourns the passing of Brother Rohn, for he was a campus leader and engaged in many extra-curricular activities. In the field of publications, he had been elected to the position of Business Manager on the 1928-1929 *Techno-Log* staff and was an advertising representative for both the *Minnesota Daily* and the *Sti-U-Mah*. Among social achievements, Brother Rohn acted as parade committee chairman for the 1928 Engineers' Day, and also served on the Junior Ball committee in 1928. He was an active member of Chi Phi and at the time of his death was secretary of that organization.

Brother Rohn is survived by his parents, Mr. and Mrs. A. W. Rohn of Hibbing, Minnesota, and a brother, Robert, who is in the Junior class in Chemical Engineering at the University of Wisconsin, another brother, John, and a sister, Marion, who are high school students.

Theta Tau unites in extending its sincere sympathy to relatives and friends of our deceased Brother Richard L. Rohn.



## FRANK MORSE SMITH

May 5, 1888—April 1, 1928

Frank Morse Smith, Epsilon '14, died on April 1, 1928 as the result of an automobile accident near Rawalpindi, Punjab, India. He had been engaged by the Attock Oil Company, Ltd., of London, as Consulting Petroleum Engineer, and expected to make a visit to their fields in India and Burma, lasting about two months. He had been in India only three weeks when the accident occurred. He was riding as a passenger in the automobile with three other officials of the company when the car skidded and overturned, killing one man instantly and fatally injuring Brother Smith who died twelve hours later.

Frank Smith was a native of California and was born May 5th, 1888. He graduated from the University of California in the year 1914, having majored in mining engineering. He followed mining until the year 1917 at which time he enlisted in the Signal Corps of the United States Army, for which branch of the service he was admirably suited because of his training in telegraphy during boyhood. During the World War he served in France and was for a time in charge of communications in Paris, with rank of first lieutenant. After the signing of the armistice he attended the University of Birmingham, England, where he met Miss Elsie McIntosh who became his wife in 1922.

After the war he returned to California and entered the employ of the California State Mining Bureau, Department of Petroleum and Gas, and was stationed at Taft, California, as inspector and later as petroleum engineer. During this connection he gained a wide experience and acquaintanceship with the California oil industry. Early in 1922 he resigned to join the geological staff of the Union Oil Company of California, and later took charge of operations for an oil company in Arkansas. On his return to California he entered the employ of the Pan-American Petroleum Company and held a leading position with its geological staff for three years.

During the last two years of his life he was consultant in geology, engineering and management for various oil operators, one of his noteworthy achievements being the successful handling of a trusteeship in bankruptcy for an oil company in Kern County, California, which through his skill and integrity paid a large return to its creditors.

Frank Smith was a man of sterling and lovable qualities, and of unusual size, both mentally and physically. He enjoyed the highest regard as a petroleum engineer and geologist, and the oil industry has lost by his untimely death, a man who would have been one of its leaders.



FRANK MORSE SMITH, Epsilon '14



WILLIAM BACON WELLS, ZETA '21  
August 26, 1899—February 17, 1928

William Bacon Wells was born August 26th, 1899. He was baptized on September 8th, 1899, in the Episcopal church.

In September, 1911, he entered high school in Lewis, and finished his course in May, 1917. In the fall of that year he entered the college of engineering of Kansas University and pursued his studies but a short time when he enlisted in the student training camp at Lawrence. He was transferred to Camp Grant, Ill., and at this camp received an honorable discharge from the service on December 10th, 1918. He entered school at the University with the beginning of the second semester.

He was affiliated with the Delta Upsilon fraternity. In his sophomore year he attained membership in the Black Helmet Society, in his junior year, the Owl Society, and in his senior year, honorary membership in the Satchems and the Pachacamac. He served as president of the Owl Society, vice-president of the A. S. C. E., Junior Prom Manager, Men's Student Council three years, Varsity Dance Committee, Freshman Baseball, and Manager of the Hob Nail Hop. Bill, as he was affectionately known by his close friends and family, served twice as treasurer of Delta Upsilon and had the distinction of being the only man who was chosen twice as president of that fraternity.

He was graduated from the School of Engineering of Kansas University in June, 1922. His first position was engineer in charge of installation of the water system. While at Ellsworth he became a member of the American Society of Civil Engineers.

At Amarillo, Texas, on June 4th, 1925, he was united in marriage to Miss Norma McFadden, of Nevada, Missouri, whom he had met in college, at his initiation into the Owl Society.

In June, 1923, he associated himself with F. E. Devlin, Consulting Engineer of Wichita, Kansas, doing promotion and residence work for this company in Kansas, Colorado, Oklahoma, New Mexico, and Texas until his death, February 17, 1928.

## LETTERS FROM THE CHAPTERS

### ALPHA

The year 1927-28 has been a successful one for Alpha, in spite of the fact that rapid expansion was necessary in order to fill the places of the large number of men who were graduated.

Perhaps the most satisfying achievements since the last account of Alpha's activities is the improved condition of finances and of the chapter house. At the beginning of the winter quarter, there were nineteen men making their homes at the house. All the way from twenty to twenty-eight men ate lunch at the house regularly and attendance at dinner was but slightly less. In the matter of parties also, the house proved to be an excellent place to hold them and three highly enjoyable affairs were held there during the course of the year.

There have been three initiations since the last account was published in the GEAR. The initiates were: George W. Langenberg, Leslie G. Haverland, Ernest C. Kroo, Fred J. Johnson, Paul A. Sanders, Adolph G. Ringer, Robert C. Ramsdell, Donald G. Felthous, Karl H. Sommermeyer, Clayton Forsythe, Richard Rohm, LeRoy M. Abrahamson, and William Thomson.



#### ALPHA CHAPTER

*First Row (left to right):* Erich Schroeder, Bailey, Hamilton, Thwing, Bartholomew, McCross, Kivogge.

*Second Row:* Johnson, Alderson, Fenton, Jolly, Evck, Kutz.

*Third Row:* Davison, Mears, Englund, Gustafson, Hindermant, Sanders, Haverland.

*Fourth Row:* Morse, Gertlicher, Fakes, Langenberg, Finn, Kren.

The first initiation of 1928 will be held shortly after the beginning of the fall quarter. At present Alpha has eleven pledgemen but this number will be increased after the fall smoker is held, which will be earlier than has been the custom.

Alpha has carried away its share of honors, and more too, during 1927-28. Brother Thwing is a member of Iron Wedge, all-Senior men's honorary society, while Brother Mears is a member of Silver Spur, a similar organization for Junior men. In addition, Brother Mears was elected to the all-Univers-

sity council. During the spring quarter, Brother Felthous was initiated into Pi Tau Sigma, honorary fraternity in mechanical engineering. We are represented in publications by having Brother Sommermeyer on the staff of the *Minnesota Techno-Log* and by Brother Bailey who is on the *Ski-U-Mah* staff.

Brothers Davies and Langenberg upheld our prestige in athletics by winning letters, the former making his letter in wrestling while Brother Langenberg made his in baseball. Both Brother Langenberg and Hinslermann were on the baseball squad throughout the season and made the Southern trip with the team last spring. Alpha was represented in hockey by having Brother Fenton on Coach Iverson's squad all season. Pledgeman Finch made a good showing in track.

In inter-fraternity athletics, Alpha, while not winning any championships, played clean and hard at all times and has excellent prospects for winning some titles during the coming year.

Last spring marked the graduation of eight men from Alpha chapter, namely, Brothers Thwing, Gustafson, Gerlicher, Foker, Hamilton, McCrea, and Erck; these men have served both Theta Tau and Alpha chapter loyally and unselfishly, and it is with a feeling of real regret that we see them go.

One of the bright spots of the year was the announcement that Brother Berkner, E. E. '27, had been selected by Commander Byrd as one of the radio operators on his polar flight. The honor was indeed a distinction as Brother Berkner was chosen out of a large number of candidates.

Brother Tom Andrews was back with us on leave of absence but he has returned to Africa where he is employed as a geologist for a British concern. While in Minneapolis, Brother Andrews gave us an interesting account of his work at a professional meeting. Other alumni who have visited at the house are Brothers Malmgren, Banovetz, Nelson, Pearson, Teske, Johnson, Mork, Neubauer and Witts. Brother Gow and Mrs. Gow were also frequent callers.

Alpha's annual canoe trip down the St. Croix River from Taylors Falls to Stillwater was a success in every way and was enjoyed by twenty-four fellows. Features of the trip were many, the chief ones being a theft of all the canoes by three brothers (they paid the penalty), and an accidental ducking of "ye corresponding secretary" in the river at 4 A. M.

Only one touch of sadness marred an otherwise perfect year. Brother Rohn was killed in an automobile accident near St. Paul early this summer. The news came as a shock to everyone and Alpha unites in expressing its sympathy.

Alpha is ready to start the current year out with a real program backed by understanding, purpose and enthusiasm.

PAUL A. SANDERS, '29

Minneapolis, Minn., September 6, 1928

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## BETA

Another term is drawing to a close here at Michigan Tech, and the most active part of the year has gone by for Beta. The house will be kept open for the summer term, but chapter meetings will be held only for very special reasons.

As we look back over the year, we can feel proud of the progress and success that Beta has enjoyed. It has been a "red-letter" year for the chapter.

In the first place, the financial affairs of the house have been kept in good order, and a substantial profit has been made on the running of same. In eight months of operating, fifteen hundred dollars has been cleared, and this money is being turned over to Brother H. H. Hopkins of Chicago to apply on old debts which stand against Beta from other years. A campaign is on, conducted by Brother Hopkins, to enlist the aid of the alumni in repaying the remainder of these old debts, before the beginning of the next fall term. These debts have been hanging over Beta for years, and although we actives are not directly responsible, we feel the moral responsibility keenly. The clearing of our financial record will be a fitting climax for a year of hard work and united effort.



#### BETA'S BASKETBALL SQUAD

*First Row (left to right):* Backwell, Hawn, Longacre.  
*Second Row:* Kennedy, Leisk, Sipple, Adams, Buck, Haen, Fremont.

For our success, we are greatly indebted to our housekeeper, Mrs. Cora Malfroid. A business woman of means, Mrs. Malfroid has devoted her time and ability to the chapter for no other reason than love for "her boys." We, of Beta, are duly appreciative and our love and respect for Mrs. Malfroid knows no bounds.

Beta has been active on the Tech campus all year. In social, political, scholastic and athletic activities, H & T men have taken a decided leadership.

The social affairs that Beta has sponsored have proven decidedly successful. Our dances and banquets have been the best given all year. Our final house dance for the school year was given May 31st and our dance committee chairman, Brother Eliot, furnished us a pleasant evening. On May 29th, an inter-fraternity formal at the Onigaming Yacht Club ended the social season.

The political offices held by Beta men were many and varied. A large percentage of H & T men have held offices or been members of the various committees at Michigan Tech.

On the *Lude* staff is Brother Redman, news editor; Brother Kennedy, advertising manager; Brother Adams, assistant advertising manager, and Brother



#### BETA'S HOCKEY SQUAD

*First Row (left to right):* Tamm, Swanson, Buck.  
*Second Row:* Tollen, Lord, Hawn, Adams, Leisk, Sipple, Redman.

Rockwell, business manager. Brother Redman has been elected editor-in-chief for the next year.

The scholastic standing of the chapter is very good, and has improved a great deal this year. We have held the highest average of the fraternities during the winter and spring terms. Our policy of insisting on a good scholarship record as a requirement for initiation has helped to maintain our scholastic supremacy.

Brother Redman made Tau Beta Pi this spring, and there are several prospective members for the next election.

Beta entered all intramural athletics for the year, and enjoyed a year of lively competition. The basketball team had a successful season, even though



#### BETA CHAPTER

*First Row (left to right):* Blanchard, Eliot, Hoen, Langsore, Bastian, Hawn, Gertz, Cemper, Winder.

*Second Row:* Gelske, Wright, Smith, Workowski, Madison, Lelak, Radman, Touss.

*Third Row:* Garnet, Buck, Professor Falkinghorne, Harrington, Professor Seaman, Professor Fisher, Henderson, Professor Duggan, Seemold, Graves.

*Fourth Row:* Nash, Rockwell, Fremette, Adams, Supple, Kennedy, Cugarsak, Lord, Seaman.

the school championship did go to the strong independent team. The hockey team went through the season without defeat, and won the college championship and the Hotchkiss hockey cup. Bowling was not specialized in, but the house team was among the leaders. In the winter sports events of the Michigan Tech Winter Carnival, the Theta Tau team amassed six times as many points as the other fraternities together and lost to the strong independent team by the slightest margin.

In varsity athletics, Brothers Seestedt, Kennedy and Redman were regulars on the football team and Brother Kennedy was elected captain of next year's team. Brother Hawn was manager of the basketball team.

The varsity hockey team went through the season without defeat by a

college team and won the Michigan championship easily. The "Huskies," as the team is called, is recognized as possessors of the mid-western championship.

The varsity track team is ably captained by Brother Seestedt and is enjoying a successful season. Brothers Leisk and Gertz are also on the team.

Theta Tau men to win varsity letters so far this year are: Brothers Seestedt, Kennedy, Redman and Hawn.

The college play, "The Lucky Break," had on its cast Brothers Bush, Blanchard and Leisk. The chapter also entered a chorus girl act that easily took the honors for special attractions.

Beta also initiated two honorary members this spring: Professor L. F. Duggan, B. S., E. Met., M. S., Registrar and Professor of Mathematics; and Professor W. C. Polkinghorne, B. S., E. Met., E. M., Assistant Professor of Mechanical Engineering. We feel that these men will do a great deal for the chapter as they are taking an active part in affairs of the fraternity.

Since the last issue of the GEAR, Beta has taken in these new members: C. J. Bastian, Calumet, Mich.; C. L. Bush, Ann Arbor, Mich.; P. Cooper, Granville, Ohio; H. L. Fiedler, River Rouge, Mich.; L. L. Frenette, Hubbell, Mich.; S. Gaynor, Lawrenceville, Ill.; F. C. Lord, Hancock, Mich.; V. S. Madison, Charlevoix, Mich.; W. H. Smith, Hubbell, Mich.; H. W. Thomas, Jr., Birmingham, Mich.; J. S. Wright, Owensboro, Ky.

The chapter will lose three men by graduation at the end of the summer term. They are: Brothers L. P. Tonne, E. L. Eliot, and C. F. Seaman.

Beta has high hopes for another very good year beginning next fall. Almost all the actives will be back for the fall term, and there is every indication of an even greater year than the last.

In conclusion, we issue a cordial invitation to any Theta Tau men who may happen by; also, greetings to our new chapters, Phi and Upsilon, and to all Theta Tau, fraternal good wishes.

Wm. A. LONGACRE, '29

Houghton, Mich., June 1, 1928

## DELTA

The school year is just getting under way at Case and things are not very well settled yet, but with the present active chapter Theta Tau will have as much prestige as ever at Case School. Dudley Crawford, William Greeley, John Herbster, Hayner Marshall, Fred Mautz, Stanley Midnight, Edward Morrill, Richard Rupp, Arnold Siedle, Robert Shankland and Wattson Slaugh are all back and ready to do things.

We must say a word about the activities that members of Delta were engaged in during the last school year. It would be a rather long story to give all the boys due credit for all that they did but the fact that six of them received varsity "C's" for their athletic ability, nine received honor keys for being leaders in various school activities, seven were elected to Tau Beta Pi for excellence in scholarship, and six of the seniors were elected to Sigma Xi for marked ability at scientific research, is something of an indication of success in various lines of endeavor. Graduation saw the following members of

Delta chapter receive their sheepskins: George Currie, Albert Ellsworth, Leonard Fisher, George Fisher, Alfred Focke, Milton Fruehauf, Boyd Griffin, Edward Kemble, Robert Osterholm, John Parr, Lawrence Rayl, Grant Rubly, Robert Simokat, Keith Stevens, Andrew Thailing, Otto Tichy and Lloyd Yesberger.

This year we are planning to start pledging early and we are quite certain



#### DELTA CHAPTER

*First Row (left to right):* Ellsworth, Fruehauf, Rayl, Thailing, L. C. Fisher, Tichy, Griffin, Yesberger.  
*Second Row:* Currie, Herbolter, Osterholm, Rubly, Wilson, Parr, Allen, Simokat, G. H. Fisher, Merrill.  
*Third Row:* Rupp, Marshall, Stabaugh, Greeley, Midnight, Pierce, Stevens, Biello, Crawford.

that there are enough good prospects in the upper two classes to enable us to have a series of worthwhile professional meetings. Last year we had a few interesting professional meetings and with that experience to build on and with Dr. Frank R. Van Horn to advise us, I am sure we can plan a better program this year.

FRED R. MAUTZ, '29

Cleveland, Ohio, September 27, 1928

#### EPSILON

Epsilon chapter has had twenty men during the spring semester.

The spring initiation was held Saturday, February 25th, and was followed by a banquet at the Mark Hopkins Hotel in San Francisco, which is managed by Brother George D. Smith, Epsilon '11. Those initiated were: Christian Jensen, Carl Lindgren, Roger F. Rhoades, Homer D. Erwin, Francis A. Johnson, R. Edmund Turner and Francis J. Pettijohn.

An open house meeting was held during the semester on February 3rd at the Sigma Alpha Epsilon house. T. A. Rickard, one of the foremost authorities on the history of mining, was the principal speaker.

Howel Williams, Epsilon '20, gave an illustrated lecture on "Recent Eruptions in Northern California" at a regular meeting on February 7th.

On March 1st, the chapter held an open lecture at which time Dean Frank Probert, Epsilon Honorary '97, spoke on the "Romance of the Royal Metal."





#### EPSILON CHAPTER

*First Row (left to right): Phillips, Mosley, Williams, Stephens, Eastman, O'Sullivan, McQuinton, Barron, Livingston, Waddis, Hoffman, Vander Hoof.*  
*Second Row: D. E. Koch, Lindgren, Jensen, Bradley, Pettigrew, Rott, Heenan, Johnson, Simpson, Tallaferra, Dean, Probst.*  
*Third Row: Donaldson, F. W. Anderson, C. Anderson, Irwin, Allen, Tweedt, Berthman, Tutson, Dober, Lumberback, T. Koch.*

During the week of March 20th, the A. A. P. G. held a meeting in San Francisco. At this time the chapter held an initiation and alumni banquet at the Mark Hopkins Hotel. Mr. Frederick W. Bradley, California '86, was elected and initiated to honorary membership and Capt. Moses W. Pettigrew was initiated as honorary member for Lambda chapter. The banquet seemed to be a great success both for the active men and the alumni.

LAWRENCE C. O'SULLIVAN, '29

Berkeley, Calif., April 12, 1928

#### ZETA

Initiates since the last issue of the GEAR are James A. Flatt, Donald W. Auld, Marvin Hensley, Elmer Rush, Floyd King, Frank Baxter, Virgil Carrier and Theodore Grant. These are all good material for Zeta chapter and are the coming men in the Engineering School.

To offset these new initiates, however, Zeta is going to lose the following graduates: Donald Black, George Cash, George Feil, Loring Hanson, Stuart Hazard, James Stokes, Wilbrandt Baum, Dale Keutner, Perry May, Benjamin McCrary, Ralph Nusser, Frank Verr, Vivian Smeltzer, George Tomlinson and Miller Troup.

Recent announcements of the pledges to Tau Beta Pi include three of our juniors. These are Edward Farmer, Roy Dent and Manley Hood.

Out of the seven men in the Engineering School who were honored by Sigma Xi this spring, Zeta claims the following four: Donald Black, George Cash, Loring Hanson and Stuart Hazard.



## ZETA CHAPTER

*First Row (left to right):* May, Baxter, Bush, Jackson, Kottner, Hensley, Campbell, Banjeat, Carriot, Faust.  
*Second Row:* Hanson, Wimmer, Black, Professor McNewa, Smeltzer, Dean Shaad, Professor Anderson, Vint, Hazard.  
*Third Row:* Shook, Auld, McCarty, Dunge, Grant, Farmer, Cook, Wood.  
*Fourth Row:* Schumaker, Davidson, Fall, Trapp, Bawn, Miller, Stover, Hood.

In recent all-University election, Edward Farmer was elected vice-president of the Men's Student Council.

Brother Earl Wimmer, our retiring Regent, was married on Easter Sunday.

We held our annual Founder's Day Banquet on April 17th. John Lyle Harrington, Zeta Honorary '95, of Harrington, Howard and Ash Engineering Company, Kansas City, was the principal speaker, talking on "Engineering and Citizenship." Other speakers were Dean Shaad and Ralph Nusser. Among the old men back were Webster Kehr and Vivian Smeltzer of Topeka; Lewis Brotherson, Ralph Nichols, R. M. Ryan and Gale Jones of Kansas City.

WARREN C. STOVER, '30

Lawrence, Kansas, April 21, 1928

## THETA

After the usual heavy casualty list due to graduation, the less fortunate are back to start a promising year for Theta chapter. Those appearing for the fall roundup are: H. A. Grant, G. R. Gohn, D. O. Noel, A. H. Wing, J. J. Knox, M. M. Dubig, A. W. Ackerman, G. B. Hogaboom, and J. V. B. Wells.

The initiation of Brothers C. F. Curran, H. E. Crampton, and R. T. Jones on October 26th marked the real start of the coming year's activity of Theta chapter.

The chapter is again well represented in the honorary societies. In Tau Beta Pi we have George Gohn, president; Ward Ackerman, vice-president; and A. H. Wing. Of the graduating class last spring, Brothers Foster, Linderoth, Alexander, and Davis made Sigma Xi.

Ward Ackerman is president of the senior class, and Byron Hogaboom is editor of *The Columbia Engineer*, the senior class publication of the Engineering School.

Brothers Theobald and Darnell of last year's class are now out in the world demonstrating that the engineer can not only make a living for himself, but also proving that it can be done for two as easily as for one (which one?). Brother Theobald is holding down a construction job, teaching at the College



## THETA CHAPTER

*First Row (left to right):* Dickson, Foster, Harrington, Thobald, Baumsteier, Linderoth.  
*Second Row:* Bowen, Gahn, Dwyerick, Johnson, Davis, Boddin, Budding, Darnell, Wing.  
*Third Row:* Bagalboom, Dahig, Knox, Wells, Crompton, Curran, Nood, Ackerman.

of the City of New York, and making week-end trips to his home in New Haven. Brother Davis, who dared the matrimonial seas even before graduation, has just returned from a delayed honeymoon in Europe and is now associated with J. P. Morgan & Co. Brother Rowen is out in the Coeur D'Alene district of Idaho. Others who left the chapter through graduation are Brothers Foster, Linderoth, Prince, and Smith.

Brother Hinckley, '27, has returned to instruct in the electrical engineering department. Brother Boeker, '27, has also returned to his alma mater to take a doctor's degree in physics.

Brother Dickson will not be with us this year but will be back again next September, and our misfortune will be next year's good luck.

ALEXANDER H. WING, JR., '29

New York, New York, November 3, 1928

## KAPPA

At a smoker held last May the following men were pledged: Bruce G. Eaton, Walter Scott, R. C. Oehler, H. F. Smith, W. D. Jenkins, L. C. Brooks, H. Stoehlze, J. F. Schroeder, R. G. Purnell, C. I. Luckman, R. P. Shanks. These men will be initiated October 4th.



#### KAPPA CHAPTER

*First Row (left to right):* Braun, Coffel, Lyon, Miller, Baker, Heylin, Peterson, Green, Collins, Greeman, Richards, Winter.  
*Second Row:* Ballard, Busch, Shattuck, Irving, Dolan, J. Gifford, Hadley, S. Elliot, Linsay, A. Elliot, Morrison. — *rust*  
*Third Row:* E. Gifford, Masterson, Anderson, Smith, Julian, Martin, Leutwiler, Jarvis, Madson, Byerson.

Mr. William James Putnam, Assistant Professor of Theoretical and Applied Mechanics at the University of Illinois, was recently initiated to honorary membership in Kappa chapter. Professor Putnam received his B. S. in E. E. in 1910 and M. S. in Theoretical and Applied Mechanics in 1919 at the University of Illinois. He is a member of the American Society for Testing Materials Associate, American Institute of Electrical Engineers, American Concrete Institute, Sigma Xi and director and member of the Illinois Society of Engineers. We believe that his election to membership is an onward step in the work of carrying Theta Tau forward on this campus and elsewhere.

Of the six most prominent engineers who graduated last year, four were members of Theta Tau. They were George Greene, Norman Miller, Walter Shattuck and Paul Bush.

LESTER G. LEUTWILER, '29

Urbana, Illinois, September 21, 1928

#### LAMBDA

At our first meeting in the new year Brother Mather gave a report of his trip to Chicago. His report included the main business of the convention, a few of Sidney Marine's stories and such lesser events as a certain black-bottom contest in room 1230.

One of the most outstanding events of the winter quarter was the initiation of Doctor Hylon Theron Plumb, honorary member. Doctor Plumb said that since the initiation he has very much appreciated his initials, H. and T. In the electrical world, Doctor Plumb is known as "High Tension" Plumb. Doctor Plumb has proven himself to be a very loyal and enthusiastic member of Theta Tau. At a recent spring meeting, Doctor Plumb led the chapter in a round-the-table discussion on "How Lambda Chapter Can Help to Better



## LAMBDA CHAPTER

*First Row (left to right):* Donk Ketchum, Maltseff, Forrester, Chytrons, Dannonoy, Mather, Alter.  
*Second Row:* Lundquist, Gowans, Whimyer, Lloyd, Trincaman, White.  
*Third Row:* Funk, B. Jones, R. Jones, Minor, Hugen, Porter, Campbell.  
*Fourth Row:* Jamison, Merrill, McLewis, Wood, Klotting.

Conditions on the University of Utah Campus." Although not directly connected with the University, Doctor Plumb is very much interested in the school.

Lambda chapter has put two very large feathers in her hat in the way of school doings this year. Brother Ketchum, one of our honorary members, was elected to succeed Doctor Merrill as Dean of the Engineering School. Every man elected to office in the University Engineering Society was a member of Theta Tau.

We held one informal dancing party during the winter quarter and everyone present had a wonderful time, even the married men. The climax of our social activities came with our annual dinner dance, which was held at the University Club. A very interesting program was presented between courses, the most interesting act of all being a dance by one of the Capitol's dancing girls. Of course, the party committee had places at the table closest to the dance floor. Little leather bound memorandum books, having the fraternity seal stamped on them, were given as favors. Those members not having a good time were not present at the party.

Inasmuch as the Colorado School of Mines conducts a field trip through the mines and mills around Salt Lake each spring, Lambda chapter has always tried to arrange her installation banquet at that time so that any possible members of Gamma chapter may be present. On that account our installation banquet was held early this year and as a result seven members of Gamma were present.

This year we have had two seniors win high scholastic honors. These men are Brother Mather, past regent of Lambda, and Brother Maltseff. Both of these men were elected to Phi Kappa Phi, national honorary scholastic fraternity.

Through the kindness of Doctor Lyons, Nu Honorary '98, we have been holding our meetings in his apartment. This has been by far the best meeting place that we have ever had. We turned the last meeting of the year into a get-together good time meeting and Doctor Lyons served hot dogs, cheese, potato chips and ginger ale. All the brothers enjoyed a very sociable evening, much to the neglect of their studies.

Out of an active membership of twenty-seven, we expect to have seventeen men back to start out the new school year next fall. With this comparatively large membership to start with, we hope to make Theta Tau as big or a bigger influence for good in the Engineering School as it has been in the past.

RICHARD V. JONES, '29

Salt Lake City, Utah, June 4, 1928

### OMICRON

Omicron chapter started the year with twenty actives and sixteen pledges. This is the first year in many that all of the men came back. We are initiating the following men this year: Lawrence Cain, John Lykins, John McIntyre, Charles Mullinax, Ramon Jessen, Luvern Kebe, Carl Rantzow, Arthur Stanley, Ralph Spear, Walter Secrest, Lyle Starkweather, James Stober, Lawrence Smith, Arnold Thiesen, Frank Wells and Philip Krouth. This initiation will swell our active membership to thirty-six with twenty-six living at the house. We already have ten pledges this year.

During the summer Robert B. Dickson, Regent of Theta chapter at Columbia University, stopped in Iowa City to pay Omicron a visit while en route to California.

We feel quite proud of our chapter here having the highest grade average of the fraternities in the College of Engineering. Our Regent Alfred Hess is president of the Associated Students of Engineering; editor of the *Transit*, our monthly college publication; vice-president of our student chapter of A. S. M. E., and is a member of A. F. L., the University of Iowa senior men's honorary organization. Our junior and sophomore class officers are all members of Theta Tau and also the vice-president of the freshman class. Brother Cain is president of A. S. of C. E. The following three brothers are Tau



### OMICRON CHAPTER

*First Row (left to right):* Edwards, McGuire, Reid, Khan, Hard, D. Thomas, Vinick, Secrest, Wortshugler.  
*Second Row:* Ashton, Hess, Elliott, Wells, Hampkell, Fawcett, M. Stanley, Schmeider.  
*Third Row:* Smith, Thiesen, Krouth, Hockett, R. Thomas, Richter, Beck.  
*Fourth Row:* Mathis, Menner, Jessen, Starkweather, Wickham, A. Stanley.  
*Fifth Row:* Kebe, Kautman, Swanson, Loveland.

Beta Pi men: Jerome Reid, William Wertzbaugher, Victor Richter. We also have five men in Scabbard and Blade, two men in Phi Lambda Upsilon, one associate member of Sigma Xi and one Phi Beta Kappa.

We have placed into effect our new plan of conducting professional meetings by having an active placed in charge of each meeting. Brother Beck is responsible for the first meeting and has invited Professor Rood, acting head of the electrical engineering department, to be our guest. We feel sure Professor Rood will have something interesting to tell us as he has had an extensive and successful experience both as a practicing engineer and as a teacher.

Campus attention is turning toward Homecoming and the engineers are planning to erect the traditional arch over Washington Street near the Engineering Building and also a corn monument on an adjacent street intersection. The electricals will erect a flash sign on a corner of the roof of the Physics Building. Brother Fawcett is in charge of the Homecoming decorations for the house.

Brother Reid, our capable steward, has our house looking like new, having refinished the walls and floor in the dining room, put new curtains over all and made numerous repairs all over the house. However, the chapter now owns a lot and we expect to have a home of our own in a few years.

In view of all our good fortune, this year promises to be one of the greatest for Omicron.

VICTOR RICHTER, '29

Iowa City, Iowa, October 8, 1923



#### NU CHAPTER

*First Row (left to right):* Schmitt, Jacobs, Bivens, Patti, Beidle, Ross, Daniels, Davis, McMillan, Lovesterman.  
*Second Row:* Callen, Sheppard, Trice, Johnson, Marlock, Turner, Gemmill, Buckner, Rabston.  
*Third Row:* DeBlin, Kuester, Wile, Auld, Albrandt, Lyons, Campbell, Bell, Connolly.



#### PI CHAPTER

*First Row (left to right):* Mayers, Geigg, Via, Professor Bodman, Professor Newcomb, Joachim, Symington.  
*Second Row:* Hunt, Gildea, Richards, Harman, L. R. Quarles, Peach, Lee.  
*Third Row:* Browning, Wilkinson, Kyle, G. M. Quarles, Holt, Godday.

#### PI

Pi chapter has just closed a very successful school year with prospects of even a more successful one next year as we lose only one member by graduation.

After a somewhat intensive drive to collect back dues, we find ourselves in a much better financial condition than we have been for some time past.

During the past year two members have won their varsity "V." Brother Symington played a stellar game at guard during the whole football season while Brother Via played the same position on the basketball team.

During the year, Brother Quarles was elected editor of the *Virginia Engineering Journal*. Besides Brother Quarles, we have several other men on the *Journal* staff.

For its size, there is probably no other organization in school with a better representation in the various honorary societies. Brothers Joachim, Selden, Quarles and Harman are members of Tau Beta Pi. Brothers Selden, Quarles and Harman are also members of the Raven Society while Brother Harman was initiated to Phi Beta Kappa.

Before bidding new members this spring, we had one of the best and most enjoyable weeks that it has been my privilege to attend. Four men accepted our bids and were initiated. The new initiates are Frank W. Rose, G. Donald Haring, W. L. Davis, Jr., and Paul Krebs.



Brother Hunt received his C. E., Brother Joachim, his B. S. and M. E., Brother Via, his B. S., and Brother Harman, his B. A. at the end of this session. Brothers Hunt and Via will not be with us next year. They will be very much missed by the chapter but we wish them a very successful career after leaving us.

With so many returning next fall, we expect to make it a banner year. There is much that we expect to do and hope to make our chapter better and stronger in every way.

CHARLES D. HARMAN, '30

University, Va., June 21, 1928

### SIGMA

Sigma chapter started the year with a chapter roll of twenty-four actives. On October 27 four men were initiated, bringing the total active membership up to twenty-eight and the total number initiated to ninety-eight. Those men taken in were G. F. Glass (95), W. M. Webster (96), J. W. Jordan (97), and E. M. Stanbery (98).

Since the last issue of the GEAR, Sigma has also initiated another honorary member, Prof. F. W. Marquis of the Department of Mechanical Engineering. We are very proud to have Brother Marquis with us, and he is proving to be a decided asset to the chapter.

Homecoming was held on November 3, the day of the Ohio State-Princeton football game. In celebration, an alumni banquet was held at the chapter house after the game, and the attendance by alumni was the largest ever experienced by Sigma, seventeen of our alumni having been present. Immediately following the banquet, the semi-annual meeting of the Central Ohio Alumni Association was held, and at that time it was announced that our past regent, Brother T. J. Kauer, had been elected as president for the coming year. Since this alumni association is composed mainly of Sigma men, a very close spirit of cooperation exists between it and the chapter.

Two smokers have been held this year to entertain prospective pledges. Judging from the caliber of the men who were entertained Sigma's future looks very bright. Our pledge organization now has eleven members, and within a very short time we are expecting to add several more names to the list.

The first monthly professional dinner-meeting of the year was held on November 12, at which time Prof. F. H. Haskett, the University photographer, gave us a very interesting and instructive talk on Kodaco'or, illustrated with colored movies. The second of these meetings is scheduled for December 10, but as yet the speaker has not been announced.

Theta Tau is very active on the campus again this year, being represented in practically every professional engineering society, and holding a goodly share of the offices in them. In addition we have a very large membership in the various honorary fraternities on the campus, two members in the Ohio State University Band, and not a few officers in the R. O. T. C. unit here. Brother LeVake, also of Sigma, is representative from the engineering college to the Student Senate.

EDGAR R. ROBINSON, Sigma '29

Columbus, Ohio, November 23, 1928



#### IOTA CHAPTER

*First Row (left to right):* Kilpatrick, Cushing, Herman, Miller, Fasskner, Burg, Gregory, Diets,  
*Second Row:* Thatcher, McCannan, Grantham, Sewell, Prof. Mann,  
*Third Row:* Luckfield, Gerard, Cutler, Baumgartner, Sundstrom, Temple, Kraft, Boyce, McClaw,  
 Couch,  
*Fourth Row:* Husted, Lajno, Hachin, McCrorey, Dr. Turner, Dr. Fulton, Smith, Brickner.

#### TAU

After a summer of invaluable assistance to the engineering profession, the brothers returned to college with more than the usual abundance of spirit and enthusiasm. Several of the brothers were employed by Brother Mitchell in surveying the ground for the new Hendricks Memorial Chapel which is now under process of construction. Brothers Wood and Gidlow were instructors at the summer surveying camp under the direction of Brother E. F. Berry.

The school year was started off successfully by the welcoming party given to the frosh by the wives of the faculty. Brothers Carey and Whitehurst gave valuable assistance in arranging the program.

The fraternity year will be started with plans to hold at least two rushing smokers in the near future. When Tau chapter was first installed several of the alumni of the Tau Delta Sigma, the original local, were not reinstated. A special effort will be made to correct this and regain their interest.

The annual gift to the college has not been selected but the committee is now trying to find something suitable.

As you will assume we have not yet started any serious work; however, we are looking forward to real business in the near future.

G. HERBERT SANFORD, '29

Syracuse, N. Y., October 9, 1928

## PHI

It is with a keen sense of mingled pride and pleasure that Phi chapter enters into the fraternity of Theta Tau—pride, in being admitted into the brotherhood of an organization of such high ideals and character; and pleasure, in the anticipation of further social and professional association with the fraternity at large.

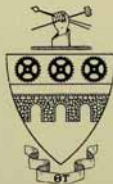
Phi chapter feels that the appearance of Theta Tau on the Purdue campus adds prestige, not only to its members, but also to the University.

It is the ambition of Phi chapter to uphold the high scholastic standard which it has maintained in the past, and to still further increase our influence in all of the engineering activities on the Purdue campus.

Phi chapter takes this opportunity to thank those officers and brothers in Theta Tau who so willingly rendered their services in acquainting us with the traditions and customs of the Theta Tau fraternity.

LOUIS S. DIVAN, '29

W. Lafayette, Ind., September 25, 1928



# The GEAR of THETA TAU

OFFICIAL PUBLICATION OF THE FRATERNITY

DONALD D. CURTIS, OMICRON '19

EDITOR AND BUSINESS MANAGER

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NUMBER 1

**M**EMBERS of Theta Tau in good standing have at their service the alumni files in the GEAR office. Card files for all members are being kept complete with the latest information we are able to obtain. We should be pleased to help in any way with them, and welcome requests. Probably the information most frequently desired is that on the members in any locality, and this we are prepared to get, as far as shown by our files, on short notice.

The new general directory has at last become a reality, after being a hazy dream of an eagerly sought goal for two years. Now that it is out it proves to be an inconspicuous little 200 page book that in no way shows the labor and expense incident to its making. Figures mean little, but this one may tell something; aside from the editor's time and two solid weeks Erich Schrader spent, the labor of compiling the data in the GEAR office amounted to about 1400 person-hours.

Five years ago the last general directory was published. No records of members other than that directory and chapter roll lists the Grand Treasurer furnished were available when the present editor took office. Therefore it was necessary to begin at the very beginning. Now, files are being kept in such a way that it will be a relatively simple job to get the material ready to turn over to the printers for the making of a new directory. Issuance of yearly supplements should make the present directory satisfactory for several years.

Distribution was made about the first of October as far as possible. Three general classes of Theta Taus were entitled to directories: alumni who have sent money for the directory; alumni who subscribed to the GEAR during the past two years; all members, either alumni or actives, who paid national dues during the past two years and thereby were GEAR subscribers. It has been our intention to get directories to all such, and if you fall in one of these classes, let us know if you have not received a copy.

We regret to say that we shall be unable to include the directory as a part of the GEAR subscription from October, 1928, forward, or to furnish it to actives initiated later than June, 1928. It was feasible to print only a limited number of extra copies. As long as these last we shall be glad to sell them.

## REPRESENTATIVE SENIORS

On this page and the two following, are presented pictures of Illinois and Iowa Theta Taus who were among the groups of senior engineers selected as outstanding on the basis of activities, scholarship, and general worth at the two universities last spring. At Illinois, of six seniors so honored, four were Theta Taus, and at Iowa, of nine, seven were Theta Taus. The pictures originally appeared in the respective engineering college magazines, *The Technograph* and *The Transit*. THE GEAR is indebted to these two for permission to republish the pictures.



M. J. REIM, Omicron '28



J. R. MCGUIRE, Omicron '28



W. A. ELLIOTT, Omicron '28



C. H. LEWIS, Omicron '28



W. H. WICKHAM, Omicron '28



F. L. KLISE, Omicron '28



F. W. EDWARDS, Omicron '28



NORMAN R. MILLER, Kappa '28



PAUL R. BUSH, Kappa '28



GEORGE D. GREENE, Kappa '28



WALTER SHATTUCK, Kappa '28

## NEW PUBLICATIONS

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## HONORS

### TAU BETA PI

*Alpha*—Donald G. Felthous.

*Beta*—C. Redman.

*Gamma*—A. S. Donnelly, P. A. Lewis.

*Delta*—G. J. Currie, L. C. Fisher, F. R. Mautz, A. D. H. Marshall, R. W. Osterholm, R. S. Shankland, W. E. Slabaugh, O. Tichy.

*Zeta*—Donald M. Black, George Cash, Roy F. Dent, Edward A. Farmer, Loring O. Hanson, Stuart G. Hazard, Manley J. Hood, Carroll D. Kentner.  
*Eta*—John C. Melcher, Arthur A. Nichols.

*Theta*—Allen W. Ackerman, Henry G. Davis, Justin W. Foster, George R. Gohn, Martin T. Linderoth, Alexander H. Wing, Jr.

*Iota*—R. P. Baumgartner, Robert W. Couch, Edward C. Faulkner, Floyd E. Sewell, William S. Temples.

*Mu*—Charles P. Almon, Merrill Bruyles, J. R. Maxwell.

*Nu*—R. H. Johnson, J. W. Luoma, T. L. McCombs, C. Susserrott, George Wile.

*Omicron*—F. W. Edwards, J. H. Folwell, J. S. Meyers, M. J. Reid, V. J. Richter, C. M. Stanley, W. W. Wertzaugher, W. H. Wickham.

*Pi*—C. D. Harmon, E. F. Joachim, L. R. Quarles, R. F. Selden.

*Rho*—J. C. Davis, H. M. Ellis, T. C. Farmer, H. T. Ghesling, G. P. Hall, J. T. Mason, W. E. Moseley, A. L. Tanfield.

*Sigma*—R. Q. Armington, H. E. Ashmead, J. S. Decker, B. F. Gayer, E. R. Robinson, H. Z. Schofield, C. P. Smith, T. J. Swain, F. E. Ullery.

*Tau*—M. H. Blesh, F. C. Casavant, G. T. Fayle, R. Gemmill, F. S. Gibbs, E. D. Lynde, W. D. McNamara, H. G. Merry.

*Upsilon*—Robert A. Bowman, Porter J. Byrd, Cecil S. Camp, A. B. Hubbard, Charles H. McRaven, Henry W. Schneider, T. T. Spitzberg, Eugene B. Stokes, Gerald D. Stough.

*Phi*—R. W. Carson, L. S. Divan.

### SIGMA XI

*Delta*—G. J. Currie, L. C. Fisher, A. B. Focke, R. W. Osterholm, J. B. Parr, G. R. Rubly.

*Epsilon*—V. T. Allen, T. W. Koch, F. J. Pettijohn, E. H. Rott, Jr., E. C. Simpson, Howell Williams.

*Zeta*—Donald M. Black, George Cash, Loring O. Hanson, Stuart G. Hazard.

*Theta*—Henry G. Davis, Robert B. Dickson, Justin W. Foster, Martin T. Linderoth.

*Omicron*—J. H. Folwell, J. S. Meyers, C. M. Stanley, W. W. Wertzaugher.

*Sigma*—F. E. Ullery.

*Phi*—R. W. Carson.

### PHI BETA KAPPA

*Epsilon*—F. J. Pettijohn.

*Theta*—Henry G. Davis, Robert B. Dickson, Alexander H. Wing, Jr.

*Omicron*—W. W. Wertzaugher.

### PHI KAPPA PHI

*Iota*—R. P. Baumgartner, Edward C. Faulkner, Floyd E. Sewell.

*Lambda*—George M. Jones, Michael N. Maltseff, James Mather.

*Tau*—E. D. Lynde, W. D. McNamara.

## SCHOLARSHIPS, FELLOWSHIPS, AND ASSISTANTSHIPS

*Assistance Offered Engineers Wishing to Pursue Graduate Study*

### MICHIGAN COLLEGE OF MINES

Michigan College of Mines is offering twelve graduate fellowships carrying stipends of \$1,200 each to encourage research. Among subjects approved for this year are: Hydrogen concentration in cupric solutions; occurrence and formation of copper and iron minerals and associated rocks; earth resistivity; magnetic determinations and variations of magnetic permeability in rocks; study of rock temperatures in deep mines; design of metallurgical equipment; classification in concentration processes; constitution of Michigan iron ore formations; ventilation in metal mines; timber and timber substitutes underground.

### MISSOURI SCHOOL OF MINES

In cooperation with the U. S. Bureau of Mines and the state mining experiment station, the School of Mines and Metallurgy of the University of Missouri offers four fellowships. These fellowships are open to graduates who have the equivalent of a bachelor of science degree. The income of each fellow is \$800 for ten months beginning Sept. 1, 1928. The purpose of this work is to undertake the solution of definite problems confronting the mining and metallurgical industries of the State of Missouri. For 1928-1929 the four fellowships will be granted in the following subjects: Ore dressing, problems in gravity, concentration, and flotation.

### UNIVERSITY OF UTAH

Invitation was extended to qualified men to make application for fellowships in the department of mining and metallurgical research, University of Utah, during the year 1928-29. This department is maintained in connection with the Intermountain Experiment Station of the U. S. Bureau of Mines, and is a department of cooperative research maintained by these two organizations. Fellows work under the supervision of experts in this department. Recent appropriations of the Utah Legislature permit of a considerable expansion of this department this year. Problems to be investigated in the course of the year 1928-29 are:

1. Flotation, Fundamentals on flotation of pure minerals and gangue constituents. (a) Physical-chemical investigations. (b) Experimental investigations.
2. Hydrometallurgy of zinc. Study of losses in present hydrometallurgical practice and of their prevention where not due to mechanical causes.
3. Hydrometallurgy of lead. Purification of lead leach liquors.
4. Pyrometallurgy of complex lead-zinc ores.
5. Differential sulphating of complex ores and concentrates to facilitate subsequent separation by milling or leaching.
6. Pyrometallurgy of lead. A study of the forms in which lead is lost in lead blast furnace slags and of methods for prevention of these losses.

Several fellowships were awarded, each having an annual net value of \$720. These fellowships were open to college graduates who had a good training in chemistry and metallurgy. Holders of these fellowships will be subject to the rules governing employees of the U. S. Bureau of Mines. They also register as students in the University of Utah and become candidates for the degree of master of science (unless this or an equivalent degree has been previously

earned). Their time will be devoted to classroom, library, and laboratory work. Fellows are appointed for one year, but the appointment may be renewed.

#### UNIVERSITY OF ALABAMA

Four fellowships in mining and metallurgical research have been offered by the school of mines of the college of engineering of the University of Alabama in cooperation with the U. S. Bureau of Mines. The fellowships are open to graduates of universities and engineering schools who have the proper qualifications to undertake research investigation. The value of each fellowship is \$675 per year of nine months beginning Sept. 1, 1928.

#### CARNEGIE INSTITUTE OF TECHNOLOGY

The department of mining and metallurgy, College of Engineering of the Carnegie Institute of Technology, is offering ten fellowships in mining and metallurgical research, in cooperation with the Pittsburgh Experiment Station of the U. S. Bureau of Mines and advisory boards representing these industries. Fellowships are open to the graduates of colleges, universities, and technical schools who are properly qualified to undertake research investigations. Each fellowship carries a stipend of \$750, paid in ten monthly installments. Fellowship holders are required to register as graduate students and become candidates for the degree of Master of Science unless an equivalent degree has previously been earned. Fellows will not be required to pay registration fees. The purpose of these fellowships is the solution of problems which are of special importance to the mining, metallurgical, and allied industries. A major part of the time of the fellow may be devoted to assigned research in the experiment station of the Bureau. School vacations will not be observed.

#### UNIVERSITY OF WISCONSIN

Two research fellowships in engineering were appointed on April 30th by the University of Wisconsin. Candidates for the fellowship were required to be graduates of engineering colleges of recognized standing, and, preferably, with one or two years of graduate study, of teaching, or of engineering experience. Appointments were for a period of two years, subject to satisfactory service, and the salary is \$900 for the first year and \$1,100 for the second. Not less than half time is to be devoted to research in the College of Engineering, but a fellow will be given an opportunity to complete the requirements for a master's degree within the two-year period. The period of service will be the usual academic year, including short vacations.

#### UNIVERSITY OF IOWA

Two research assistantships in Hydraulics are offered by the Department of Mechanics and Hydraulics in the College of Engineering at Iowa University. The recipients are to devote half time, 22 hours per week, to departmental work,—for the most part observation and computation in connection with hydraulic research. They are to be registered in the Graduate College, and to be candidates for advanced degrees. The stipend is \$800 for eleven months, vacations not being observed. In addition to these two appointments, scholarships and fellowships of various grades are available, at the discretion of the Graduate College, in engineering and for engineers in several science departments.

## ALUMNI NOTES

### ALPHA CHAPTER

- L. V. BERKNER, '27, was selected by Commander Byrd to be a radio operator on his Polar flight. This was a signal honor, to be chosen from so many candidates.
- L. L. FOLEY, '18, is President of the Tulsa Geological Society and is geologist for the Mid-Kansas Oil & Gas Co. with headquarters at Tulsa, Okla.
- ALEX M. GOW, '23, is Assistant Metallurgist, State Coöperative Staff, at the Missouri School of Mines, Rolla, Missouri.
- ERICH J. SCHRADER, '05, is General Superintendent of Gold Circle Consolidated Mines, Midas, Nevada.
- H. J. WASSON, '13,—a son, Robert Alexander, was born to Brother and Mrs. Wasson on May 18th, 1928.

### BETA CHAPTER

- C. BJORK, '22, has accepted a position with the Montreal Mining Co. on Gogebic Range.
- W. DEWALD, '27, is with the M. A. Hanna Co., at Wakefield, Michigan.
- J. FISHER, '93, has been elected member of the Michigan Authors Association.
- DR. D. A. HALL, '15, of Berkeley, Calif., is examining mines in Butte, Montana.
- C. J. KINGSTON, '06, mining engineer of San Diego, Chile, S. A., has been in New York and sailed October 27 for London, England.
- H. C. KRANENBERG, '22, is a proud father of a baby boy. Congratulations!
- S. H. LORAIN, '15, formerly on the engineering staff of the Chichagof Development Company, Alaska, has been appointed engineer for the Apex-El Nido mine.
- P. R. MELCHER, '22, has joined the benedicts according to a recent announcement. Congratulations, Paul!
- H. A. NEIL, '25, is with the Verona Mining Co.
- A. L. SEAMAN, '22, is down in South America on an inspection trip for the Bethlehem Steel and is expected to locate there permanently.
- C. C. WIEDER, '27, has accepted a position with the Oglebay-Norton Co., Crystal Falls, Michigan.
- G. STRABLE, '28, is attending the Colorado School of Mines.

### GAMMA CHAPTER

- DONALD L. BAILEY, '21,—Brother and Mrs. Bailey announce the birth of a son, Donald, Jr., on July 26, 1928. Mrs. Bailey was formerly Miss Blanche Dunn, of Golden.
- LUTHER BUCK, '20, is with the A. S. & R. Co. in Durango.
- M. R. BUDD, '24, is with the Publicity Department, General Electric Co.
- I. M. CHARLES, '21,—Brother and Mrs. Charles announce the birth of a daughter, Lucretia Mary, born May 28, 1928, at Walsenburg, Colorado.
- JAMES A. CLARK, '21, is assistant superintendent of the Logo Petroleum Corporation at Maracaibo, Venezuela, S. A.
- WAYNE DENNING, '26, is a geologist for the Midwest Refining Co.
- JIM DORRANCE, '20, is a geologist for the Marland Oil Co. temporarily located at Bakersfield.
- GEORGE V. DUNN, '20, is geologist for the White Eagle Oil & Refining Co. in Tulsa, Okla.

- LESTER S. GRANT, '99, has handed in his resignation as dean of the faculty of the Colorado School of Mines, at Golden, Colo. He is to be manager of the McElroy ranch in Texas.
- CLARENCE GUTH, '21, is with the Westinghouse Electric Co. in Pittsburgh, Pa.
- ROBERT HIGGINS, '17, is with the Goodyear Tire Co. in El Paso, Texas.
- WILLIAM L. JUDE, '25,—Brother and Mrs. Jude announce the arrival of a baby boy, William Albert, on April 1, 1928. Brother Jude is with the Empire Zinc Co. at Gilman, Colo.
- ALBERT L. LADNER, '27, is with the Geological Department of the Texas Company at Shreveport, La.
- GEORGE LEMLAIRE, '25, is now on the training staff of the State Industrial School at Golden, Colo. He was formerly doing petroleum research in New Jersey.
- EDGAR R. LOCKE, '28,—announcement has been made of the engagement of Miss Josephine Spindler to Brother Locke who is now in Jerome, Ariz.
- JACK MAY, '12, who is operating in Utah, has the contract for the sinking of workings into a coal mine that is to be opened the first of next March. Tentative plans call for the erection of a tippie with a capacity of 2500 tons daily.
- CEDRIC McWHORTER, '24, was married to Miss Genevieve Blincoe in Denver, Colorado, on Thursday, July 25. Miss Blincoe is a graduate of the University of Colorado. Brother McWhorter was captain of the School of Mines football team in 1924. He is the son of Dr. and Mrs. E. S. McWhorter of Denver.
- JAMES A. PECK, '23, is assistant treasurer of the Portland Gold Mining Co., Colorado Springs, Colo. This is one of the largest gold mines in the state.
- LINDLEY M. REITH, '18, is a consulting engineer with offices at 453 Holbrook Bldg., 38 Sutter Street, San Francisco, Calif.
- HENRY G. SCHNEIDER, '18, is chief geologist for the Dixie Oil Co. in Shreveport, La.
- D. C. VALDEZ, '22, is with the Cia Minera de Penoles, Apt. 251, Monterey, N. L., Mexico.
- ARTHUR J. WEINIG, '08, is Director of the Experimental Plant of the Colorado School of Mines.
- ROGER F. WHITE, '18, now lives at 1214 West 42nd Street, Los Angeles, Calif.

#### DELTA CHAPTER

- DR. ROBERT J. ANDERSON, '14, vice-president of the Fairmont Manufacturing Co., Fairmont, W. Va., arrived in New York on October 5th after an extended trip through Europe. He visited a number of the principal aluminum plants abroad and made a study of the foreign aluminum situation. Brother Anderson was accompanied by Mrs. Anderson.

#### EPSILON CHAPTER

- F. W. ANDERSON, '28, is engineer for the North Lilly Mine, Eureka, Wash.
- W. E. BAKKE, '27, is with the Roxana Co. in Oklahoma.
- These men are at Fresnillo, Mexico, with the Mexican Corporation: J. H. ASHLEY, '22; R. E. BYLER, '24; A. M. SPERRY, '18.

- NEIL ERSKINE, '24, was married on January 6th, 1928, to Miss Alice Williams of Barrie Mountain, Nevada. They are now located at Kirkland Lake, Ontario, Canada.
- KENNETH L. GOW, '25, is with the Gypsy Oil Co. in Oklahoma.
- FREDERICK C. GREEN, '23, is mill foreman at Magna Mill, Utah Copper Co. at Magna, Utah.
- TOM KOCH, '24, is a geologist with the Standard Oil Co. at Taft, Calif.
- HAROLD B. LLOYD, '23, was married to Phyllis Baker of Berkeley, Calif., on January 6th, 1928.
- DR. GEORGE D. LOUDERBACK, '96, was appointed by Gov. C. C. Young as geologist on the committee investigating the St. Francis Dam disaster.
- RALPH MCGOY, '27, is engaged in oil work in the Los Angeles Basin.
- HENRY C. REA, '26, is with the Standard Oil Co. at Whittier, Calif.
- DAVE SHARPSTONE, '25, is now at Butte, Mont., working as a mining geologist and "microscopist."
- E. C. STEPHENS, JR., '28, is in the geological department of the North Lilly Mine, Eureka, Utah.
- LARRY TABOR, '25, is with the Richmond Petroleum Corp. at Barransquilla, Colombia, South America.
- WHITNEY B. WRIGHT, '17,—Brother and Mrs. Wright announce the arrival of a baby daughter, Joan Marie, on June 29, 1928.
- The Grand Scribe visited the geological department of the Shell Co. of California in Los Angeles and discovered that all except one man in the department were members of Theta Tau. Since Brother Schrader was leaving that same night, a luncheon was hurriedly arranged for. Those who attended were: FRITZ DAVIS, '11; F. S. HUDSON, '11; R. R. MORSE, '13; SAM HILL, '27; M. G. EDWARDS, '16; FRANCIS E. VAUGHAN, '12; and ERIC CRAIG, '16.

## ZETA CHAPTER

- WILLIAM BAUM, '28, is with Burns & McDonnell in Kansas City.
- WAYNE BENTLEY, '24, is now operating a chain of stores in the hardware business.
- DONALD BLACK, '28, is with the Bell Laboratories in New York City and says he likes it fine.
- EVERETT CARLSON, '25, is with the Power's Regulator Co. of St. Louis, Mo.
- VIRGIL CARRIER, '29, is with the War Department in Kansas City.
- GEORGE CASH, '28, is in Whittensburg, Texas, with Phillips Pet. Co.
- L. E. EDWARDS, '22, is in Topeka, Kansas, with the Santa Fe Co.
- GEORGE FEIL, '28, is with the J. C. Nichols Investment Co.
- G. L. HAWLEY, '23, is in Hutchinson as assistant superintendent of the United Power Corporation.
- STUART HAZARD, '28, is with Phillips Petroleum Co. at Crane, Texas.
- HOWARD H. HINES, '28, is back in school this year after doing railroad surveying out in California all last year.
- ALEX S. KENNEDY, '25, is with the Link Belt Co. of Chicago.
- DALE KENTNER, '28, is with General Electric Co. of Schenectady.
- FLOYD KING, '30, is doing construction work and road locating near Cawker City.
- STANLEY LEARNED, '24, is in Bartlesville with the Phillips Petroleum Co.

- PERRY MAY, '28, is with the General Electric Co. in Schenectady.
- ROBERT PATTERSON, '27, has recently been married to Miss Margie Fiddler. Brother Patterson is in Elkhart, Indiana, working on a sewer construction job for BUTTS & McDonnell of Kansas City.
- WILLIAM PATTERSON, '26, is with BUTTS & McDonnell Co. in Kansas City.
- GEORGE SMEE, '17, is City Manager of Ponca City, Oklahoma.
- RALPH STAGG, '24, is with the Kansas Highway Department at Norton.
- WARREN STOVER, '30, is near Windfield doing construction work.
- FRANK VIER, '28, is at Russell Springs, Kansas. His official title is Assistant County Highway Engineer of Logan County.
- EARL WENNER, '28, was married to Miss May Ellison on last Easter Sunday.
- LOGAN WOOLEY, '29, is back in school this fall after doing surveying down in Mexico last year for the Kansas City, Mexico, and Orient Railroad.
- ROBERT MALCOLM KALR, '27, is a Transmission Research Engineer for the Bell Telephone Laboratories in New York.

#### THETA CHAPTER

- J. W. ALDEN, '15, is Mill Superintendent of the Central Alloy Steel Co. at Massillon, Ohio.
- MAX M. DIXON, '17, has an office in London, England, as consulting mining engineer and geologist. He is now in Anatolia conducting an extended series of examinations.

#### KAPPA CHAPTER

- ROBERT S. CANNON, '26, is now employed as engineer in the Distributing Department of the Mexican Railway Light & Power Co. His address is Cuatro No. 509, Y. M. C. A., Avenida Morelos y Balderas, Mexico, D. F., Mexico.

#### LAMBDA CHAPTER

- ARVID E. ANDERSON, '19, until recently metallurgist for the Ohio Copper Co. in Utah, has accepted the position of research metallurgist for the American Cyanamid Co.
- J. D. FORRESTER, '28, is a fellowship holder at the University of Utah and is engaged in microscopic research work in the department of mining and metallurgical research work.
- D. O. FRYBERGER, '24,—Brother and Mrs. Fryberger announce the arrival of a baby daughter, Fay Elaine, on Sunday, October 14, 1928.
- GUY A. HART, '13, is Resident Engineer for the State Road Commission of Utah. His headquarters are in the Capitol Building in Salt Lake City.
- RICHARD B. KETCHUM, Hon. '96, has been appointed dean of the school of engineering of Utah University, which includes the undergraduate school of mines.
- GLENN D. ROBERTSON, '19, is Secretary of the Southern California section of the A. I. M. E. He is geologist for the Associated Oil Co. in Los Angeles.
- GEORGE F. STOTT, '15, is in Bingham, Utah, where he is taking charge of a lead-silver mine.



## NU CHAPTER

- ALPHONSE F. BROSKY, '21, is Associate Editor of *Coal Age Magazine*. His office is 1406 1st National Bank Bldg., Pittsburgh, Pa.
- EDWARD STEIDLE, '11, has been appointed dean of the School of Mines, Pennsylvania State College.

## XI CHAPTER

- WENLEY S. WALKER, '26, was married to Miss Lee E. Redwine of Jamaica, Long Island, on October 15th, 1928. Brother Walker is working with the Research & Engineering Laboratories of the Linde Air Products Co. at Buffalo, New York.

## SIGMA CHAPTER

- GORDON M. AMSTUTZ, '27, has been married to Miss Elizabeth Kiss. Brother Amstutz is still with the B. F. Goodrich Co. at Akron.
- MAURICE COVERT, '25,—Brother and Mrs. Covert announce the arrival of a seven-pound daughter.
- JACOB S. DECKER, '28, is with the Electric Machinery Manufacturing Co. at Minneapolis, Minnesota.
- M. F. DEVINE, '23, is now located in Boston as district sales manager for the Ohio Varnish Co.
- GEORGE EAGLE, '26, has been married to Miss Marie Finnell.
- ROBERT M. KALR, '27, is with the Bell Telephone Co. at East Orange, New Jersey.
- THEODORE J. KAUER, '28, is an assistant engineer with the State Highway Department at Garfield Heights in Cleveland, Ohio. He is working on the construction of a reinforced concrete bridge project.
- MERLE S. KLINCK, '26, is living in East Orange, New Jersey.
- CURTIS E. LENAY, '29, is at March Field, Riverside, California, enlisted in the Flying Cadets.
- WILLIAM A. MEITER, '27, is with the Worthington Pump Co. at Cleveland, Ohio.
- CHARLES P. SMITH, '29, has been married to Miss Catherine Shea.
- HAROLD A. WHITE, '27, is employed as Resident Engineer on a large intercepting sewer project in the city of Columbus.
- E. G. WILLIAMS, '26, has been married to Miss Charlotte Correll.

## PHI CHAPTER

- JOSEPH A. KIOVSKY, '28, is with the Illinois Highway Department.
- JAMES F. MENAUGH, '28, is in Osceola, Indiana.
- S. L. SMITH, '28, is in Indianapolis.
- HAROLD V. WRASSE, '28, is now in New Jersey.



LAMBDA GRADUATES 1928

INTERMOUNTAIN ALUMNI ASSOCIATION  
OF THETA TAU

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Circular Letter No. 2.

Salt Lake City, Utah, May 15, 1928.

*Dear Brother:*

In line with our established custom, we take this means to introduce to you the Lambda graduates of 1928. There are ten this year to add to our ranks, all of whom we hope will become 100% I. A. A. members. Some of these men have positions waiting for them, others have not. We request your hearty cooperation in assisting us to place these men as soon as they leave school. If you have a place for any of them or know of a position, kindly advise us at once.

The above picture and letter are reproduced from a printed letter the Intermountain Alumni Association sent to its members last spring. This practice is highly commendable. The Intermountain Alumni Association is one of the most active units of Theta Tau and is worthy of being emulated by other groups.

## NEW MINES BUILDING AT UNIVERSITY OF UTAH NEARS COMPLETION

### *Structure Will Provide Necessary Additional Laboratory Space for Research Department and Intermountain Station of the U. S. Bureau of Mines*

Rapid progress is being made in the erection of the new mines building at the University of Utah, the cornerstone of which was laid with appropriate and interesting ceremonies on October 7 of last year.

Erection of the building was made possible by the legislature of the State of Utah, which at its last session not only increased the appropriation for the research work that the university is carrying on in cooperation with the U. S. Bureau of Mines, but also appropriated \$45,000 for the construction of this building to provide additional necessary laboratory space required by the department of mining and metallurgical research of the university and for the work of the Intermountain Station of the Bureau.

The action of the Utah state legislature is attributed particularly to the foresight and efforts of the university authorities, the mining committee of the Salt Lake Chamber of Commerce, the Utah section of the American Institute of Mining and Metallurgical Engineers, and influential members of the mining industry of the various mining districts tributary to Salt Lake.

The building, which is situated just east of the metallurgical building, where it will form an integral part of the mines group of buildings on the north side of the campus, will comprise three stories. On the first or ground floor, in addition to furnace, storage, and supply rooms, a machine shop and smoke and mine rescue laboratories will be installed. Microscopic and ventilation laboratories, two lecture rooms, and three offices will be located on the second floor. About one-third of the top floor will be used for a technical library, the remaining space providing quarters for gas fuel and hydrometallurgical laboratories, a drawing room, and two offices.

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The Spring 1928 issue of the GEAR was mailed in wrappers instead of envelopes and, too late to remedy it, we realized that the return address was given in such a way that postal authorities might fail to notify us of non-delivery. Accordingly, we should appreciate being told if you failed to receive your copy.

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Alumni may be annoyed at being asked to fill out record cards a second or third time for us. We apologize, but hasten to say that these record cards are our best source of information. We beg indulgence and request that at least the essential items be furnished where possible. The form has been shortened in an effort to reduce time and bother of filling out.

## LOST THETA TAU ALUMNI

Mail has recently been returned from the best addresses we have for the following alumni.

### *Alpha*

Caddy, Howard T., '27  
Hamilton, S. R., '28  
Johnson, F. W., ex '30  
Pearson, Einar O., '27

### *Beta*

Barton, Gerald M., ex '26  
Gehrke, Randall F., '29  
Henderson, Enoch B., Hon. '05  
Moore, C. F., '27  
Paquette, Radnor J., '27  
Poss, John R., '16  
Robb, Cyril B., '26

### *Gamma*

Bliss, Paul D., '26  
Gahagan, Donald L., '27  
Ladner, Albert L., '27  
Pratley, Henry H., '22  
Weller, John M., '26

### *Delta*

Crass, M. F., '26  
Kmith, E. C., '26  
Nall, M. E., '27  
Parmelee, M. G., '26  
Williams, H. T., '27

### *Epsilon*

Hill, Mason L., '26  
Kerr, John B., '15  
McDonald, O. G., '24  
Sharpstone, David G., '24

### *Zeta*

Baum, W. S., '28  
Jacques, Fred P., '29  
Kennedy, Mason H., '26  
King, Ralph A., '26  
Krehbiel, Kenneth R., '26  
Troup, Milfer H., '28

### *Eta*

Ackerman, Gilbert L., '28  
Wood, Thos. S., '28

### *Theta*

Ross, G. F. C., Jr., '26  
Olstad, Martin H., '27  
Triska, Jos. A., '27

### *Iota*

Frame, Wayne S., '23  
Kilpatrick, Harold R., '28  
Machin, Wm. B., '28

### *Kappa*

Broderich, James R., '26  
Cope, Allison J., Jr., '26  
Seepe, Richard A., '26  
Shattuck, W. F., '28  
Stresser, Thomas C., '26  
Tucher, M. L., '26

### *Lambda*

Funk, A. M., '27  
Greene, K. S., '27  
Lyon, R. E., '27  
Olsen, A. K., ex '26  
Rutledge, D. H., '26  
Stott, G. F., '15

### *Mu*

Peerson, John W., '26

### *Nu*

O'Connor, John M., '26  
Williams, Paul M., '27

### *Xi*

Highleyman, Charles D., '27

### *Pi*

Holt, A. W., '26  
Mayers, L. C., ex '27  
Vought, H. K., ex '26

### *Rho*

Currin, Roy M., Jr., '26  
Smith, Perry M., '28  
Sutton, Edward A., '26

### *Sigma*

Beriswill, E., '27  
Bozman, W. D., '26  
Dutro, H. L., '26  
Ledy, W. O., '27  
Meiter, W. A., '27  
Ullery, F. E., '27

### *Tau*

Foell, C. F., '26  
Grove, J. V., '27  
Reynolds, E. S., '26



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### DON C. BILLYCK

Epsilon '13  
Petroleum Engineer  
Caribbean Petroleum Co.  
Maracaibo, Venezuela  
South America

### J. D. BRANCE

Mu '22  
Industrial Engineer  
Specialist to the Petroleum Industry  
1809 Post Dispatch Building  
Houston, Texas

### V. A. BRUSSOLO

Epsilon '20  
Engineer, Moctezuma Copper Co.  
Pilares De Nacozari  
Sonora, Mexico

### T. W. CALLAHAN

Gamma '14  
Geologist  
501 Texas Theatre  
San Antonio, Texas

### FRED COFFMAN

Lambda '15  
Asst. Chief Engineer  
Duke Construction Company  
(Builders of New Duke University)  
Durham, N. C.

### W. V. DeCAMP, E. M.

Gamma '04  
General Superintendent  
United Verde Copper Co.  
Jerome, Arizona

### GEORGE H. HARDING

Sigma '26  
Coulson & Harding  
Civil and Municipal Engineers  
Land Developments, Power Investigations,  
Surveys—Air, Ground, Topo-  
graphic or Harbor  
609-10 Gerke Building  
Cincinnati, Ohio  
Main 7611  
Any Size, Anywhere, Any Time

### IRVING D. JAKOBSON

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

### PAUL A. LAURENCE CO., Inc.

Alpha '11  
Builders  
Paper Mills—Power Plants  
Boiler Settings  
832 Builders Exchange  
Minneapolis, Minn.

### PHIL J. LAURENCE

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

### J. SIDNEY MARINE

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

## THETA TAU PROFESSIONAL CARDS

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### W. S. MORRIS

Rho '24  
U. S. Bureau of Mines  
Petroleum Experiment Station  
Bartlesville, Oklahoma

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### DONALD F. PANCOAST

Delta '17  
Moulton & Panoast  
Consulting Engineers  
214 Hippodrome Building  
Cleveland, Ohio

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### LYNN WM. RAYBOULD

Lambda '22  
Architectural Engineer and Draftsman  
528 South West Temple Street  
Salt Lake City, Utah

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### ERICH J. SCHRADER

Alpha '05  
Engineer of Mines  
Reno, Nevada  
*At present* General Superintendent  
Gold Circle Consolidated Mines  
Midas, Nevada

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### O. E. STONER

Iota '20  
Petroleum Geologist  
112 Tulboma Building  
Tulsa, Okla.

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### H. R. THORNBURGH

Epsilon '22  
Geophysicist  
Seismograph, Torison Balance, Magnetometer  
With Roxana Petroleum Corp.,  
Houston, Texas  
(Not open for outside engagements)

### THOS. VARLEY

Lambda '07  
Consulting Metallurgical Engineer  
Flotation, Ore Dressing and Metallurgical Tests  
Office and Laboratory  
451 South 10th East Street  
Salt Lake City, Utah

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### BEN B. WALLING

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

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### WALTER H. WHEELER, E. M.

Alpha '06  
Designing and Consulting Engineer  
Investigations, Reports, Plans, Specifications, Supervision of Construction, Valuation for Structures, Bridges, Buildings, Dams, Manufacturing Plants, etc.  
Metropolitan Life Building  
Minneapolis, Minn.

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### GEORGE H. YEOKUM

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



Ulysses' fame made  
him a logical rushee  
at the Olympus club.  
Yet all persuasion  
left him unresponsive.  
The story goes that Penelope  
one day admired a Balfour  
badge. That is how Ulysses  
went Olympian and why,  
perhaps, they both lived  
happily ever after.

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