



The GEAR *of*
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EXPLORATION IN COLOMBIA

By LAWRENCE V. TARBOW, *Epsilon '26*

Up to the present the scene of greatest geological exploration in Colombia has been in what is known as the Magdalena Valley. This is a large valley about six hundred miles long by sixty to eighty miles wide, bounded on the east by the Eastern Andean Cordillera and on the west by a Cordillera of the same system, but of lesser prominence, known as the central unit.

Running slightly east of north throughout the length of the entire valley is the Magdalena river, a stream which heads in the Andes at the Colombo-Ecuadorian border and discharges into the Atlantic Ocean not far from the coastal city of Barranquilla.

This stream is navigable as far south as the town of La Dorado, at which point passengers for the more southerly points take the train to Beltran on the Upper Magdalena river. A short steamer ride south from Beltran brings one to Giradot from whence Bogota, the capital, is reached by a one-day trip on another railway.

Geological problems in the Magdalena Valley are made more difficult because of the fact that all outcrops in the



A DAY CAMPSITE

middle of the Valley are mantled by late alluvial material. Along the valleyward toes-of-slope of the delimiting cordilleras, however, there may be found narrow bands of outcropping earlier formations, and it is from these that the geology of the Valley has been mapped.

Traversing east to west in the more northerly parts of the Valley, a typical cross-section shows the presence of intensely faulted, east dipping Cretaceous shales and limestones overlying a similarly faulted, but intruded series of light colored Mesozoic sandstones and shales. The basement rocks are acidic to medium basic igneous of the deep intrusive type.

On the eastern side of the more northerly parts of the Magdalena Valley the Tertiary is not always well represented. To the south, however, it rapidly increases in thickness, attaining in certain districts a thickness of not less than 15,000 feet.

The predominant type of diastrophism along the eastern border of the northern part of the Magdalena Valley is that of westward thrust faulting with consequent up-ending, and, in some cases, overturning of strata. On the same side of the Valley to the south, however, normal faulting is the main type of deformation.

To the geologist who has worked on both sides of the Magdalena Valley the fact is at once obvious that the rocks of the west side have been subjected

to much less tectonic movement than those of the eastern margin. In a few instances there is evidence of eastward thrusting in the Cretaceous, but this faulting when compared to that of the eastern margin of the Valley, is relatively insignificant. So far as the writer knows, major faulting has not affected the Tertiary of the western border of the Magdalena Valley.

As is well known, geological exploration in most tropical countries is carried out in the face of extremely difficult natural obstacles, one of the most nearly unsurmountable of which is the forcing of one's way through the dense jungles and forests that characterize such regions.

Traversing may be by plane table, from canoes, from horseback, or on foot. It is generally desirable, of course, to travel as much as possible in a direction perpendicular to the regional strike which, in Colombia, is usually about fifteen degrees east of north. For this purpose it may many times be found profitable to use canoes to ascend the tributaries of the Magdalena River. Working from canoes, distances are usually estimated and directions taken with the Brunton compass; in cases where special accuracy is required the plane table may be used in traversing, but this is a tedious process, for it is generally necessary to cut the brush from each instrument position in order to get a clear view of back and fore sights.

However slow such river traverses may be, it cannot be denied that they are of value in studying outcrops which, because of the dense vegetation, may be partially or completely hidden on the inter-stream areas.

When the stream becomes too shallow for the canoes, the geologist is usually obliged to finish the traverse by wading, a method that may require from one to five or six days, according to the length of the stream and the detail with which the work is being done. Unless it is for the searching out of structural irregularities, these cross-sectional traverses are generally carried no farther than the igneous rocks of the cordillera, toward which the traverse has been directed.

In the course of the season's work it will generally be found that the geologist has made the greatest use of the pace traverse method. Accurate pacing is especially desirable in terrain such as is encountered in Colombia because it is seldom that a traverse is closed back on its initial point. Most of the published maps of the country are so unreliable that they cannot be used for checking or any other geological purpose.

The lowly pace traverse may seem primitive to the men who have worked in regions similar to our Rocky Mountain terrain, where horizontal and vertical control may, if necessary, be established to the tenth part of a foot; but in this part of South America with the lack of good base maps, with the scarcity of plane table topography, and where trails must be traversed that turn each twenty feet or so, the lowly pace traverse is not so lowly after all.

In a tropical country such as Colombia where travel routes are long, and tediously covered by slow moving steamers, and by only fairly reliable train service, one of the main problems of the geologist is the food and equipment replenishment of his party. For a geological party based on Barranquilla the custom is to start out with about a two or three months' food supply, in tins, and the necessary equipment, including small shelter tents, army cots, cooking utensils, etc. Upon arrival by steamer at a point on the Magdalena river opposite the region to be mapped, the greater portion of the supplies may be stored (at the owner's risk) in the nearest village. The balance of the supplies are

carried by peon, mule, or canoe along the route of the traverse, replenishments being made from the base stores as they are needed.

Orders for the re-stocking of the original supply must be sent in weeks ahead of time, due to the slow service of transportation. This is particularly true when the Magdalena river is low, for the carrying vessel may be hung up for days in the shallow water.

What the geologist carries with him on these trips depends on several factors, not the least of which is his individual preference. Some parties start out equipped with all sorts of luxuries; others are more moderate in their demands. There are stories of geological parties, unaccustomed to tropical work, doing their exploration laden with folding bath tubs, radios, and champagne, but the geological parties encountered by the writer have always been intelligently outfitted and led by experienced men; companies are somewhat averse to entrusting leadership to men who have not been thoroughly seasoned in jungle exploration.

In general, a good pack in this part of the tropics demands the same articles it would in any other part. One should have with him a small, compact, medicine kit; a balanced ration of tinned food; a few clothes; a good bedroll or hammock; two or three balloon silk tent flies; mosquito nets; army cots, etc.

The nightly camp is usually made in a cleared spot on the bank of a river or creek. Other places such as corrals, isolated huts, or the houses of small villages may serve, however, to hang one's hat for the night.

Sometimes one is lucky in find-



POLEING CANOE THROUGH A SHALLOW SPOT
IN A "QUERRADA"

ing a good campsite; at other times he is decidedly out of luck. Thus, during the field season just passed, campsites were utilized ranging in desirability from that of a semi-marsh to that of a clean, green-turf meadow watered by a cold mountain stream. It is this hit or miss possibility of living conditions that makes it desirable for one to ascertain before coming to the tropics, if possible, whether or not he is going to be able to adapt himself. For those who each night would pitch their tents on the coral strand within sound of tinkling mandolins and the verses of soft-spoken señoritas, the writer prescribes a preliminary period of careful thought before plunging themselves into work near the Equator.

Although somewhat without the scope of this article as originally planned, it is thought desirable to discuss what more brilliant but less experienced authors have termed the sensational part of the explorer's life in the tropics. If, in discussing this phase of tropical work, the writer casts discredit on the favorite stories of those engaged in exploration in other equatorial regions, he apologizes and hastens to add that his convictions hold true only for the Magdalena Basin of Colombia.

Much has been written concerning the dangers of the tropics, both as to the

physical dangers of the jungle and the hazards to the health of the worker obliged to live in the smaller towns and villages. So far as the writer is concerned, these dangers and hazards are seemingly exaggerated. He has spent some sixteen months in and about Colombian villages, towns, and cities. From this experience, provided it cannot be accounted unique, the following may be said regarding the supposed "dangers".

First, let us consider the snakes. The first warning one generally receives on declaring his intention to live in the tropics is that concerning snakes; yet, during the approximate term of sixteen months that the writer has spent in jungle exploration, fewer than a score of poisonous snakes have been seen, and of that number no more than four or five were over six feet in length.

Most of the deadly snakes encountered in Colombia are of the species known as the "mapinau", resembling in color and action the well known North American rattlesnake. The rattlesnakes proper are poorly represented in Colombia and when found are generally of small size.



PUEBLO BERRIO—UPPER PART OF THE
MAGDALENA VALLEY

The scarcity of dangerous snakes in the Magdalena Valley region of Colombia is well demonstrated by the experiences of the chief geologist under whom the writer previously worked. This man had been in Colombia for six years, and in all that time

had had but one bad experience with a poisonous snake. Therefore, if any of the readers of this article are contemplating work in this part of South America, let them not be deterred by the snake hazard.

It would be folly, of course, to go unprepared to treat snake bite, and it is always well to observe carefully when walking or climbing through localities that are natural snake habitats; but so far as the constant danger of snake bite is concerned, there is but little need of precaution.

In other tropical countries the reverse may be true, just as within our own country there are certain regions infested by snakes; but in Colombia, or as much of Colombia as the writer has seen, there are but few snakes.

Alligators many times play the deep-dyed villains in gruesome tales of the tropics, but here again the evidence is that their voracity is exaggerated.

Ask the average peon about alligators and he will undoubtedly be able to cite several instances in which some of his "paisanos" have been carried away by alligators; but that is his story and so one can only wait in the hopes of being able to verify it by actually seeing the deed accomplished. The opinion is that one would have to wait for a long, long time.

Many times, if one listens, he can hear his accompanying peons discussing this, that, and the other thing in regard to the tigers and hostile Indians to be met with (or that have been met with) in Colombia. The favorite hour for such discussions is at night, when the setting is ripe for the full impression of the story.

The writer has seen many tiger tracks, some of them large enough to warrant more than a passing glance, but the only tiger he has ever seen in Colombia was behind the bars of a cage, the property of a traveling circus. It is to be doubted very much if the Colombian tiger would attack a man, even in cases where prompted to do so by extreme hunger.

Concerning hostile Indians, there can be no doubt but that one is in danger of attack in certain areas along the Colombian-Venezuelan border, but so far as the central part of the country is concerned there is but little danger of being molested. The writer knows of only one attack on the central region of Colombia, and this seems to have been made by Indians far without their bounds. This attack, in which several people lost their lives, took place in the vicinity of a small village known as Tamalameque, located in the northern part of the Magdalena Valley.

Indians were reported in a certain area that the writer helped map in 1924, but since neither the Indians nor any signs of them were seen, the authenticity of the report is to be very much doubted.

Turning to the less spectacular forms of danger, one has always to consider the two illnesses that beset workers in practically all tropical countries: dysentery and malarial fever.

Dysentery in the tropics is not, unfortunately, the same kind of "dysentery" that sometimes afflicts people in our more northern latitudes during the hot summer months. The real tropical dysentery is an organic disease affecting the lower intestines, incipient infection arising from the drinking of polluted water or from eating food prepared in filthy surroundings. Manifestly, potential infection is greater in places having inadequate or lacking sanitation.

The best way to circumvent dysentery is to follow the old adage advising the use of an ounce of prevention; failing in that, the only possible alternative is, of course, to put one's self in the hands of a competent physician, and then try to decide whether or not the cure is more disastrous than the malady.

Water should be boiled or otherwise purified. Food should be shunned, in so far as that is possible, if conditions indicate preparation under unsanitary conditions. Often this is impossible, and in such cases one must simply take his chances.

Fever is rather prevalent in the southern part of the Magdalena Valley, but the chronic victims and the casualties are usually the poorer classes of the peon element who, either because of ignorance or because of poverty, are unable to avail themselves of the use of quinine or of its derivatives.

A man contemplating work in this or any other part of the tropics should seek the advice of a competent physician, and then follow that advice as faithfully as possible. Some physicians may prescribe large preventative doses of quinine taken at stated intervals, while other doctors are inclined to pre-



MOVING CAMP

scribe more moderate potions. One should disregard the enthusiastic recommendations of non-medical men as to how much or how little quinine to take.

Aside from dysentery and fever, there remains one hazard outstanding in its potential capacity to maim or destroy one engaged in tropical exploration. This hazard is that of serious accident or organic illness of such nature that it admits of no delay in obtaining expert medical or surgical attention. In jungle exploration accidents may be of any kind, such as those resulting in broken limbs, a fractured skull or gunshot, ax, and machete wounds. Manifestly, one unfortunate enough to suffer such an accident in a place four to five days' travel from expert medical attention is, to use the vernacular, distinctly "out of luck".

Of the organic illnesses that become serious under such circumstances probably the two worst are those of acute appendicitis and blood poisoning. But these are hazards to be assumed and one soon learns to view them in a what-is-to-be-will-be manner. If one cannot assume this manner, it would be better were he not to come to the tropics for the type of work that takes him, many times, far from civilization.

In closing, the writer apologizes to the readers of this article who are already veterans in tropical exploration. To them, perhaps, the different topics discussed are no more than every day platitudes, but to the men who have not been in the tropics, and to those undergraduates or recent graduates, especially, who are contemplating tropical work, it is felt that no harm can be done by pointing out a few of the salient considerations incident to exploration near the Equator.

The student branch of the American Institute of Electrical Engineers, for its May meeting inaugurated a new type of technical session. The members of this Society gathered for lunch in Walker Memorial at 12 o'clock. After the lunch an hour and a half was devoted to the presentation and discussion of two original student papers on the Gas-Electric Drive for Automobiles. The benefits of this type of meeting, where the students do the presiding, present the papers, and take part in the discussion, are greater than those derived from any other type of meeting. Apparently, the problem of ensuring the attendance has been successfully solved by having the session immediately following a well-planned luncheon.

Prof. Harold W. Gardner, Gamma Hon, Professor of Civil Engineering and Mechanics at the Colorado School of Mines, has successfully passed the Colorado bar examination. Seventy-five took the tests, fifty-nine passed, the Colorado Supreme Court announced. Prof. Gardner will be eligible to practice as soon as he is sworn in.

Prof. Gardner, however, is not contemplating hanging out his shingle. He took up the study of law, not as a means of livelihood, but rather in order to have first hand information and facts concerning the application of law in its relationship to the engineering profession.

The most singular thing about Prof. Gardner's entrance into the legal profession is that it places him in a small group wherein the individual has the qualifications to carry on in both the engineering and legal professions. As far as is known, there is no parallel case in Colorado.

FEATURES OF NEWFOUNDLAND

By ELLSWORTH Y. DOUGHERTY, Esquire '11

GEOGRAPHY AND CLIMATE

If the reader will consult a map of North America he will see the Island of Newfoundland resting in the Atlantic, east of the Gulf of St. Lawrence. If a map showing North America and Europe be consulted, it will be observed that Newfoundland is nearest to Europe of any part of the mainland or closely contiguous islands of North America, and by this geographical circumstance it will be understood why several trans-Atlantic flights have started from



HARBORERS OF "SPRING"—"THE NARROW", ST. JOHN'S HARBOR

Newfoundland, or have made that island the objective of flights from northern Europe. The map will also show why trans-Atlantic steamers, seeking the shortest route between northern Europe and northeastern United States or eastern Canada, pass close to the Newfoundland coast.

To some who may have thought of Newfoundland as part of the Arctic regions it may be a surprise to observe that the 48th parallel which passes between Seattle and Vancouver, and through Lake Superior, also crosses Newfoundland. I know a chap from Baffin Land who took a "summer" vacation in Newfoundland last February. On January 11th of this year I comfortably enjoyed tramping in the woods of north central Newfoundland without a coat. But to dispel a picture of semi-tropical environment I add that two days later I welcomed a heavy sheep-skin-lined coat when I faced snow hurtling horizontally. Newfoundland weather dances to the tune of shifting winds that cause rapid changes in temperature and frequent precipi-

tation. Clouds shift with the winds throughout the year and cloudy weather is characteristic. Fog on the island itself is not as prevalent as is popularly supposed. In the interior of the island fog is rare. The average winter temperature is above zero Fahrenheit and the average summer weather is delightfully cool. You who swelter in the summer heat of eastern and southern United States and Canada, and shiver in midwinter in central Canada or northcentral United States, would find the Newfoundland climate a relieving contrast. But in Newfoundland you would yearn for Spring, for there is no Spring. The Arctic ice, floating southward along Newfoundland shores during the Spring months, refrigerates the atmosphere and prolongs the winter snow and ice and cold winds. No flowers in May; here, truly, "winter lingers in the lap of Spring".

GEOLOGY

The map of Newfoundland will also show the extraordinarily indented short line. Note also the significant N. N. E. elongation of numerous bays, peninsulas and lakes. These delineate physiographically the dominant rock structure of the island. If the geological map of Newfoundland¹ is available, it will be seen that the rock formations of sedimentary, extrusive igneous, and intrusive igneous, origin have this same dominant elongation. Here we see expressed a dominant folding with major axes trending N. N. E., and intrusive bodies elongated in the same direction, their disposition obviously controlled or influenced by the structure of the rocks they intruded.

Along the west coast the prominent Long Range Mountains, trending N. N. E., average about 2000 feet above sea level but reach several hundred feet above this elevation. Twenhofel² has inferred, very reasonably, that the general flat-topped summit of this range is an uplifted peneplain, possibly the correlative of the extensive peneplain of the Appalachians in the eastern states, completed before the end of Cretaceous time. Twenhofel has also pointed out the gradual decrease in elevation of the entire upland area of the island from northwest to southeast, varying from about an average of 2000 feet on the Long Range Mountains to about 700 feet on the eastern shore. A plane resting on the surface of the highlands of Newfoundland slopes downward southeast and suggests an uplifted and tilted peneplain over the entire island. Numerous bare rock eminences rise above the general level of this imaginary plane, but the evidence for the former existence of a tilted peneplain seems well-founded. This tilted peneplain has been much dissected by stream and glacial erosion. Faulting of the uplifted block is also indicated. In the interior region the topography has been especially modified by accumulations of glacial debris which fill depressions and spread over extensive areas. This is in contrast with most of the coastal rim of the island, where the bare rocks, rising steeply from the ocean, have mainly been swept clean of loose surficial accumulations.

Coleman³ has adduced evidence of two periods of Pleistocene glaciation, the earlier one having covered all the island except the highest tableland of the

¹Obtainable from Department of Agriculture and Mines, St. John's, Newfoundland.

²Twenhofel, William H. "The Physiography of Newfoundland"—*The American Journal of Science*, Fourth Series, Volume XXXIII, No. 191, January, 1912.

³Coleman, A. P.—"The Pleistocene of Newfoundland"—*Journal of Geology* Volume XXXIV, No. 3, 1926.

southern part of the island, and the later one having filled only the lower elevations. Daly⁴ has summarized evidence of a raised Newfoundland shoreline along the northern segment of the island, resulting from the post-glacial warping that followed the removal of its glacial load of ice. He also summarizes scattered observations of the direction of glacial striae, that indicate centrifugal flow of the ice for the island in general.

In brief, then, the present Newfoundland topography is mainly the net result of stream and glacial degradation and aggradation upon an uplifted, tilted and faulted peneplain, plus post-glacial warping. The major factor that produced the striking N. N. E. elongation of bays, lakes, valleys and ridges has been differential erosion of N. N. E. elongated formations of varying susceptibility to degradation. In general the softer or the more fissured rock-zones occupy the depressions.

To those of us engaged in searching for orebodies in Newfoundland the physiographic and structural features and the glacial history are significant and helpful. We seek to understand the disposition of the ore occurrences in belts striking in the N. E. quadrant and I think we have the answer in the major structural features of the metamorphosed rocks and their associated intrusives. We find ore float in various places and the attempt to trace it to its source is aided by an understanding of the glacial geology.

We are nibbling at the truth of the geology. The geological map shows formations ranging from the Archaean to the Carboniferous. But we have no clear picture. Much of the central area is mapped as "Laurentian or Undetermined". Scientific honesty should impel removal of the "Laurentian". Our problem in ore-searching would be lightened by active co-operation from an efficient government geological survey organization. But so far the Newfoundland government has not seen fit to supply this desideratum. The general geological picture of the important central mineralized belt is of elongated zones of metamorphosed sedimentaries and volcanics engulfed and penetrated by a granitoid batholith and its differentiated products. The time of the major batholithic intrusion, and presumably of approximately contemporaneous folding, has not been clearly worked out, but available evidence suggests that it took place in Paleozoic time, probably post-Silurian, and may be referable to the Appalachian upheaval, rather than in pre-Cambrian time and therefore linked with the pre-Cambrian history of the Canadian shield. This problem is susceptible to a clear solution, but it requires the attention of geologists not primarily engrossed in finding orebodies. Possibly there have been both a pre-Cambrian and a Paleozoic period of batholithic intrusion. If it should be logically indicated that important sulphide mineralizations were products of a pre-Cambrian magmatism, the value is obvious, because it would exclude subsequent formations from consideration as hosts of the orebodies. If the age of ore deposition could be fixed within a definite period of the Paleozoic, this would exclude later rocks as possible country rocks of ore. If there have been two or more major periods of batholithic intrusion, it would be very helpful to know this, and especially helpful if ore-forming magmatic processes could be linked to one of these periods.

⁴Daly, Reginald A.—"Post Glacial Warping of Newfoundland and Nova Scotia"—The American Journal of Science, Fifth Series, Volume I, No. 1, May, 1921.

ORE DEPOSITS AND EXPLORATION

The present activity in mining exploration in Newfoundland was stimulated by the discovery of the Buchans bonanzas. About three years ago⁴ electrical prospecting indicated conductive areas which proved to be rich zinc-lead-copper ore-bodies, with some silver and gold. The extent to which these orebodies are likely to enrich their owners may be judged by the following figures on



A TYPICAL GLACIATED SEA SHORE—LOGY BAY

ore reserves given in the last public report on the property by the American Smelting & Refining Company who are the joint owners with the English paper-making company on the island known as The Anglo-Newfoundland Development Company, 5,750,000 tons assaying as follows:

Gold	.033 oz.
Silver	3.25 oz.
Copper	1.4%
Lead	7.65%
Zinc	17.85%

The major bodies are massive replacements contiguous to sheared quartz porphyry. They can be mined cheaply and conveniently but the fine-grained intimate mixture of the various sulphides makes an exacting problem in selective flotation in order to obtain high recoveries.

On Notre Dame Bay, in the northern part of the island, several chalcopryite deposits associated with pyrite, and in part with pyrrhotite, were important producers of copper ore during the latter part of the 19th century. At Gull Lake in northcentral Newfoundland, about 11 miles inland from tidewater, there is being explored an interesting deposit of chalcopryite, pyrite and pyrrhotite, with abundant cordierite and secondary amphibole, and some biotite, as characteristic mineral associates of the sulphides. The secondary amphibole is mainly actinolite in acicular radiating masses.⁵ Pyrite, pyrrhotite and chal-

⁴Written in July, 1929.

⁵Beay, Alton C.—"A Petrographic Study of Certain Cordierite-Bearing Rocks". (Submitted in partial fulfillment of the requirements for the degree of M. Sc. Department of Geology, McGill University, 1929.)

copyrite have followed and partly replaced the significant earlier-formed cordierite and secondary amphibole, in a wide and persistent fissured zone, mainly in altered andesitic lavas. The margin of a segment of a granitoid (mainly varying from granite to diorite) batholith is exposed about $1\frac{1}{2}$ miles S. E. from the deposit and swarms of offshoots from this batholith intrude the andesitic lavas. Offshoots of the batholith, probably underlying Gull Lake, may be near or contiguous to the orebody. A few miles or less to the north, lies another segment of the granitoid batholith. There is therefore a strong presumption that the andesitic lavas are engulfed by the batholith, which doubtless underlies the orebody, but at what depth can only be conjectured. Numerous diabase dikes, comparatively fresh and containing only a sparse amount of metallic sulphides, but certainly of pre-sulphide age, penetrate the country rock of the orebody. Entirely similar dikes intrude the granitoid batholith. Acid dikes (granophyre in the one microscopically studied) have also intruded the andesitic lavas and the granitoid batholith. Whether these acid dikes are pre-mineral is not positively known, but this is probable. In this Gull Lake deposit we therefore have a very illuminating picture of a magma intruding and engulfing a belt of fissured and metamorphosed rocks and sending its differentiated products upward through penetrable zones in the intruded rocks. First, the exposed granitoid rocks were emplaced. Differentiation obviously was active within this mass because we find gradations between granite and diorite, and more acid and basic facies than granite and diorite, within the same exposed mass. Next after the solidification of the exposed granitoid mass, diabase dikes, and probably acid dikes, were intruded into all the overlying rocks. We may logically infer that these dikes were differentiates of the same granitoid magma, the upper portions of which had already solidified. The emplace of the dike-forming magma was widespread but confined to definite comparatively narrow channels, as would be expected of rock-forming magma. Thirdly, there was a migration of silicate-mineral-forming magmatic fluids, very penetrant and with strong capacity for metasomatic action and diffusion.* Lastly, there was migration of the sulphide-mineral-forming magmatic fluids, more confined along fissured zones than the silicate-forming fluids, and presumably less penetrant. It is significant that chlorite, which contains abundant water, was characteristically formed during the stage of sulphide deposition, and one may logically conclude that water had an important role in the emplacement of the sulphides. The metallic sulphides were deposited along innumerable minute fissures and they have also extensively replaced the metasomatic silicates, so it is quite apparent that fluids capable of such penetration and removal of the replaced substances, were active during sulphide deposition. The fundamental distinction between rock-forming magmatic injection such as dikes connote, and the emplacement of these metasomatic silicates and sulphides, clearly hinges upon the varying physico-chemical nature, abundance, and efficacy of the magmatic fluids responsible for the various emplacements. The field and mineralogic conditions of this Gull Lake deposit surely point strongly to the conclusion that dikes, silicates and sulphides all were products of the differentiation of a cooling granitoid magma, which sent variable products upward during the course of its cooling.

*Metasomatic silicates have not been found in diabase dikes, so it is not now positively known that dike emplacement preceded silicate emplacement, but this is probable.

Throughout the central mineral belt, extending from Notre Dame Bay on the north, to the south shore of Newfoundland, there is a strong suggestion of a metallogenetic province in which copper, lead and zinc sulphides occur as differentiates of the major granitoid bodies.

But the problem is to find the orebodies. Along the coast the bare rocks are well exposed and numerous deposits are known. However, most of these are small. The old productive copper mines of Notre Dame Bay present some possibilities. One can see many a good chance for an orebody but to find the happy combination of quantity and quality is a problem. In the interior area, swamps, lakes, glacial debris and forests thoroughly hide much of the rock formation in which orebodies would be expected to occur. Geophysical prospecting is the chief weapon. But valuable as this method is, it is limited in utility. The geologist, the practical prospector, the mining engineer, the scientific geophysical prospector, all have their hands in the cash drawer. Prospecting is very expensive under such conditions. One cannot take a burro and a grub-stake and visually search the ridges and canyons on a few dollars a day. Expensive organizations and scientific methods are necessary, and the high-priced geophysical prospecting organizations check lavish use of their men and methods. The logical sequence of exploration is: (a) Geological reconnaissance to determine the major mineralized zones, combined with ordinary prospecting in which ore float as well as in-place outcrops are looked for. (b) Magnetic (dip needle) surveys of favorable areas when there is reason to believe that the ore minerals are associated with pyrrhotite or magnetite. (c) Electrical surveys of promising areas to attempt to indicate concentrated bodies of sulphides. (d) Detailed geological study or supplementary geophysical investigation to weigh the evidence that conductive zones, indicated by electrical surveying, are or are not, apt to be ore. This is usually the crux, and the disturbing uncertainty. (e) If correlative evidence is favorable, and the possible reward is worth the risk, or if one has faith, or confidence, or is using someone else's money, or has some ulterior motive, one may venture to drill on the conductive zones most likely to be orebodies.

The usefulness of the field geologist is generally recognized by exploration companies in Newfoundland, as well as in the extensive pre-Cambrian area of Canada. If he works hard enough he may even find an orebody. There is a demand for energetic young geologists of sound training.

On Bell Island, in Conception Bay, near St. John's, which is the capital of Newfoundland, are the famous Wabana iron ore deposits. An interesting operation of important magnitude is exploiting these deposits. The perfectly bedded iron ore beds dip at a low angle under the sea, and submarine workings have been carried over two miles along the dip. Hayes⁶ has written an interesting description of these deposits.

NATURAL FEATURES, PEOPLE AND INDUSTRIES

Anyone interested in Newfoundland's scenic charms and sporting attractions can obtain descriptive literature and photographs from the Newfoundland Tourist Commission, St. Johns, Newfoundland. You will find poetic praises of the delights of the everchanging inland scenery, the beauties of the

⁶Hayes, A. O.—"Wabana Iron Ore of Newfoundland". Memoir 78, Canada Department of Mines, 1911.

rugged coast, the innumerable lakes and rivers teeming with lordly salmon and sparkling trout, the wide spaces and woodlands where the caribou roam and the feathered game have their haunts. I can recommend a steamer trip along the Newfoundland coast as very worth-while for the lover of rugged shore-line scenery and the student of geology, especially of glacial geology and physiography. There are many striking exposures of steep bare cliffs and mountains with numerous clearly exposed erosion-sculptured facets. In the coves at the heads of numerous deep-water bays, that have been formed by drowning of young valleys, nestle quaint old fishing villages. One of the most friendly, courteous and hospitable of peoples live along the Newfoundland coast. You will find humble refinement of feeling in the majority of homes. In some you will find contradiction of the notion that illiteracy necessarily fosters degeneracy. For the man or woman who because of isolation has never learned to read or write will surprise you with a courtesy in speech, and a sincerity in



IN COVES NESTLE QUAIN OLD FISHING VILLAGES—SEAL COVE,
NEWFOUNDLAND

manner and purpose, that would put to shame many a college graduate. In the typical dialect of the people can be detected an Irish brogue mixed with Cockney or South of England peculiarities. Many names indicate Irish ancestry. There is also a sprinkling of French people and ancestry, and the French Island of St. Pierre and Miquelon, near the south coast of Newfoundland, harbor a French colony as Frenchy as a bit of the old sod itself. To St. Pierre comes staggering quantities of alcoholic beverages, unprohibited and inexpensive, destined for a surreptitious distribution and consumption, where, we can only vaguely conjecture.

The chief industry of Newfoundland is still the fisheries, mainly the cod fisheries. But herring, salmon, haddock, caplin, halibut, smelts, squid, turbot and trout are also caught in the prolific shoreline waters, or in the interior lakes, or streams. The greater part of the population of the country is engaged in fishing or in dealing in fish, or in supplying fisherman's wants. During the months of March and April the Hair Seal families, including numerous young seals, float down from the north on the ice floes that drift along the Newfoundland shores. Then ensues a veritable slaughter as seal-killers turn loose

on the ice among the herds of seals. Some 200,000 seals are killed every season for their oil and leather.⁷

Forests of spruce, fir, pine, birch, juniper and aspen cover large areas of the island. Two large paper manufacturing enterprises are exploiting Newfoundland forests.

There are no reptiles in "Britain's Oldest Colony", it is said (and I have never seen any) but insects thrive in the numerous swampy breeding places. The mosquito, the sand fly, and the particularly voracious black fly inhibit enjoyment of summer outdoor life in the interior.

⁷See "The Sealing Sage of Newfoundland", by Captain Robert A. Bartlett, *The National Geographic Magazine*, Vol. LVI, No. 1, July, 1929.

Enrollment in one hundred and forty eight engineering schools in the United States has increased from 62,312 in 1926-27 to 65,520 in 1927-28. The Massachusetts Institute of Technology leads with an enrollment of 2,250; Purdue is a close second, with 2,228, while the University of Illinois ranks third with 1,800.

Seven of this year's graduating class at the Missouri School of Mines entered foreign service, six going to South America and one into Old Mexico. Nineteen remained in Missouri, and the remaining thirty-seven were placed in other different states in the United States. It would have easily been possible, according to those engaged in senior placement, to have placed several times the number graduating. A check in the registrar's office made on July 1st of this year showed an increase of 38 per cent over the same date for 1928, in the number of applicants accepted for admission to the freshman class next fall, indicating an increasing interest in mining education on the part of high school boys.

Massachusetts Institute of Technology—Fully twenty-five thousand visitors inspected the Institute at the Annual Open House, April 27th. The Nautical Museum attracted special attention with its unusual exhibition of ships, including war vessels, merchant vessels and yachts, a complete radio direction-finder and automatic sounding devices. The drama shop presented two plays for visitors at the Walker Memorial. During the afternoon the Crew race with Princeton took place on the Charles River Basin. In the evening the Institute buildings were flood-lighted by powerful searchlights located on the Boston side of the Charles River Esplanade.

To meet the ever-increasing demand for scientifically trained Sanitary Engineers, the Institute next fall will offer a new course, called "Public Health Engineering". The curriculum of this course is unique in the scope of its application, ranging as it does from the fundamentals of pure milk control, to the design of playgrounds and parks, and is practically the first course to be offered in this country for the training of engineers for the specific task of the scientific sanitation of our rapidly growing cities.

LETTERS FROM THE CHAPTERS

ALPHA

The year 1929-30, has started successfully for Alpha with twenty-eight active members and eight pledges. The men initiated last spring were: Rex S. Anderson, Francis J. Biltz, Morris J. Hauge, Hugo V. Kojola, Lawrence J. Oberg, Kenneth F. Peterson, Stanton T. Smith, and George F. Snodgrass. Another group will be initiated the latter part of this fall quarter. Nineteen of our active members are seniors, so we will have to get busy and pledge more men. There are at present seventeen men staying at the house and the meals are well attended, so we are in good condition financially, although there are some outstanding bills.

Thus far we have had one professional meeting. Brother Irving Sommermeyer arranged for Lieutenant Weld of the U. S. Naval Reserve to give a talk on naval aviation. This proved to be a very interesting meeting and we hope to have more like it in the future.

Our activity in intramural athletics has awarded us with two more cups, one for swimming and one for track. We plan to enter everything this year and hope to add to our collection of trophies. Alpha is represented in school athletics, too, with Brother Langenberg holding a regular tackle position on the varsity football squad and Brother Kojola a member of the cross-country team.

That Theta Tau is well known in the professional schools is shown by the fact that we have Brother Fenton as president of the student branch of the A. I. E. E., Brother Ringer president of the student branch of the A. S. M. E., and Brother Crippen president of the student branch of the A. S. C. E. Brother Fenton is chairman of the Technical Commission and Brother Ringer is secretary-treasurer. Brother Hauge is assistant business manager on the Techno-Log staff.

Our representatives in the honorary military organizations are Brother Thompson in Scabbard and Blade, Brother Englund in Pi Tau Pi Sigma, and Brothers Ramsdell and Snodgrass in Mortar and Ball.

Scholastically our average of 1.451 placed us second in the Engineering fraternities. This is the highest average we have had for over ten years. We now have Brothers Rex Anderson and Kutz and pledgeman Hertel in Tau Beta Pi, Brother Anderson and pledgeman Hertel in Chi Epsilon, Brothers Ringer and Kojola in Pi Tau Sigma and Brothers Fenton and Karl Sommermayer in Eta Kappa Nu. This fall Brother Snodgrass was elected to Chi Epsilon, Brother Eckley to Pi Tau Sigma, and Brothers Hanson and Kendall to Eta Kappa Nu. We hope to have some more honoraries before the year is over.

The class of '29 is pretty well scattered now. Several of the members are working in the eastern part of the country and Brother MacLean is working for a Belgian company in South Africa. Among the Alpha men who have visited us are Brothers Bailey, Barthelemy, Grettum, Johnson, Young, Krantzfelder, Moore, Witt, Witts, Alderson, Felthous, Hindermann, and Lockhart. We get acquainted with some of the older men at the alumni meetings held at the house.

The annual canoe trip was a big success, as was the spring party at the Lowell Inn at Stillwater. Just now we are looking forward to the fall party, which is set for Homecoming night.

We take this opportunity to invite all Theta Taus to join us in celebrating the Twenty-fifth Anniversary of the founding of the Fraternity by attending the biennial convention to be held in Minneapolis this winter.

DONALD B. KENDALL, '30.

Minneapolis, Minnesota, November 12, 1928

BETA

With the start of the new school year, prospects look brighter for Beta than they have for a number of years. During the summer, numerous improvements were made in the appearance and convenience of the chapter house. The exterior was repainted and much work was done on the interior.

On October 7th, seven new members were initiated into the chapter, bringing the number of actives up to twenty-six. The new members are: S. J. Owens, Jr., Wooddale, Ill.; E. E. Clever, Holt, Mich.; F. M. Foster, Jr., Menominee, Mich.; L. A. White, Chicago, Ill.; F. George, Wolverine, Mich.; G. E. Putnam, Ottawa, Canada; R. W. Swinehart, Gladwin, Mich.

On October 12th Beta celebrated the silver anniversary of the founding of

BETA CHAPTER



UPPER ROW (left to right): Thresher, Knopf, Fiedler, Weiss, Cicino, Brophy, Coggeshall.
MIDDLE ROW: Adams, Madison, Lord, Zwart, Blanchard, Rowley, Baker.
LOWER ROW: Hawn, Wright, Frenette, Kennedy, Gaynor, Bastian, Thomas.

Theta Tau with a banquet in the chapter house. Brother Prof. W. F. Holman, of the University of Minnesota, was present in behalf of the national organization. Among the alumni present were Brothers W. F. Holmes, Ironwood, Mich.; L. J. Haga, Chicago; and L. F. Duggan, C. H. Knaebel, C. T. Eddy, W. A. Longacre and R. W. Drier of Houghton, Mich. The banquet was successful in every way, except that we should have enjoyed having more of our alumni present.

Last year H & T men took active part in social, political and athletic activities on the campus.

The social activities sponsored by Beta were very successful. The final dance of the year was held at the Houghton Club, April 21th.

In political affairs, H & T men held offices and were members of the various committees at Michigan Tech.

On the "Lode" staff, Brother Thresher is business manager with Brothers Hawn and Clever as his assistants, and Brother Foster is sports editor.

In varsity athletics Brother Zwart is captain of the football team. Brother Putnam is also a regular, and Brother Owens is manager. In basketball we were represented by Brothers Putnam and Foster, and in track by Brothers Putnam, Foster, and Gaynor.

In the local R. O. T. C. unit, the two highest offices are held by Brothers Adams and Thomas. Brothers Clever, Wiegel, Hawn and Foster also hold offices.

We of Beta chapter take this opportunity to extend to all the chapters and alumni our best wishes for success throughout the coming year.

FREDERICK M. FOSTER, '32.

Houghton, Michigan, October 15, 1929.

GAMMA

Gamma chapter of Theta Tau ushered the new school year in with increased campus activity.

The Round Table dinners which proved so successful during the past few years were again resumed, and Brother Donald Dyrenforth, Gamma '10, gave a very interesting talk on Dorr products, illustrating his apparatus with a moving picture film.

The Round Table dinner is held first at one fraternity house and then rotated each time until all fraternities represented have had Theta Tau members as their guests. This tends to develop a closer unit and the talks prove very educational.

In the customary manner, six men were pledged to Theta Tau this semester. Frank Hayward, Marion Mercer, Edgar Rice, Frank Carruthers, James Woodburn, and Daniel Lyons are the men chosen.

The chapter is well represented as to scholarship and activities this year. Several of our men are candidates for Tau Beta Pi this semester, Lawton Conger now being our only active representative in that group.

Captain Floyd Carr, Mines All-Conference halfback last year, is playing the same good brand of football this year, along with Ivan Burrell, Art Barney, Ken Dicky, Lefty Eads, Reamer Patton, Clyde True, Charlie Bonnet, and Lindy Barker, all of whom are regulars. Eads, Carr, Gernert, Kerr, Dickey, and Wheeler are members of the basketball team.

Brother Carter is president of the "M" club. This organization has been doing very good work this year in impressing Mines traditions upon our Freshman class. Over half of the chapter are members of the "M" club.

Members of Gamma are taking a prominent part in the activities of the Blue Key fraternity, a national pep organization. Plater, Carter, Conger, Fleischman, Scheble, Williams and Pulver are members of that group.

Under the able leadership of Brother Kerr, Gamma chapter is looking forward to one of the most successful years in its history.

WM. W. CLINE, '30.

Golden, Colorado, November 8, 1929

DELTA

Delta chapter has pledged twenty-six men this fall. They are: T. H. Anspacher, E. L. H. Bastian, W. O. Binder, J. B. Clough, W. W. Dill, F. S. Ebinger, R. N. Envall, B. W. Gemmill, F. Herzegh, W. R. Johnston, F. K. Koerner, J. T. Leach, E. E. Lodge, F. P. McLain, M. M. McGrew, R. G. Minarik, W. R. Persons, A. I. Schau, W. L. Schever, T. F. Shaffer, H. W. Smith, H. L. Sneed, W. C. Styerwah, R. C. Taft, M. A. Weppner, and R. C. Wintrich.

Men were selected from those having a high scholastic average, and only those whom we thought had the requisite qualities for membership were chosen. Consequently, Brothers Davies, Fraser, Vaughan, Van Voorhis, Wilson, and pledgemen Bastian, Clough, Koerner, Johnston, Schau, Smith, and Sneed are either members of or pledged to Tau Beta Pi.

Brothers Hudson, Spangenberg, Tyler, Volmar, Wilson, and pledgemen Anspacher, Dill, Herzegh, Persons, Weppner, and Winfrich have earned varsity letters in football, basketball, or track. Brother Tyler is captain of the basketball team and Brother Wilson is captain of the track team.

Case honor keys, awarded for participation in a required amount of student activities, are worn by Brothers Davies, Vaughan, and Volmar, and pledgemen Dill, Persons, and Smith.

Initiation of pledges will take place December 6th in the rooms of the Cleveland Engineering Society. After initiation meetings will be held every two weeks, at which we expect to have speakers selected from the faculty and prominent engineers around the city.

The success of our chapter is due largely to the interest taken by Brother F. R. Van Horn, Professor of Geology and Mineralogy.

ROGER R. WILSON, '30.

Cleveland, Ohio, November 5, 1929

EPSILON

Epsilon chapter returned this semester with a loss of five men. To replace these, five new men, including one honorary candidate, were initiated on November 9th at the Hotel Mark Hopkins. The honorary candidate, Dr. Ralph W. Chaney, is a well known paleo-botanist, and he held that position for the third Asiatic expedition. The regular initiates were: Andrew Miller, '30, a center on the California football team and center on the 1927 all-coast eleven, majoring in economic geology in the College of Mining; George Seag-

er, '30, president of the interfraternity council and a member of the welfare council, majoring in geology in the College of Letters and Science; Francis Frederick, '30, a member of the world's championship California crew, majoring in metallurgy and chemistry; and Bert Dawson, '31, who is majoring in mining.

Eight members of the chapter spent a very enjoyable week-end at a cottage on the Russian river. Studying the geology of the region by the moonlight proved to be a very interesting pastime.

Dan Cupid has been busier than usual this year. Our ex-football captain, Irving Phillips, married the past queen of the Big C circus. Other casualties were: DuBois Eastman, '26; Thomas Koch, '24; Wm. Donaldson, '24; Cecil Barton, '28; Carl Bloom, '27; and Edmund Turner, '29.

Many of the members of Epsilon took advantage of the invitation of the A. I. M. M. E. and attended their annual meeting in San Francisco from

EPSILON CHAPTER



BACK ROW (left to right): Huffman, Anderson, Johnson, Jensen, Burger, Prof. Hulin, Etherington, Williams, Prof. Tallaferra, Prof. Louderback, Prof. Harsam, Lindgren, Livingston.

SECOND ROW: Tweed, Fairbank, McCarson, Johnson, Bedford, Sprinkel, Gould, Merriam, Ross.

FIRST ROW: Cory, Irwin, Bartelmann, Koch, Turner, Gollins, Johnson, Hazard.

October 8th to 10th. The lectures presented at the meeting were both interesting and instructive, and the personal contacts were invaluable as many of the foremost mining engineers and metallurgists were present.

We, of Epsilon, extend fraternal good wishes to all members of Theta Tau.

HAROLD V. GILMORE, '30.

Berkeley, California, November 1, 1929

ZETA

We're back to school again and all ezrin' to go. Of course we are glad to get back to old K. U. Why shouldn't we? During the summer our chapter house was remodeled and repainted and many improvement made. The House

Corporation opened up their pocketbook and we certainly appreciate all they have done for us during the past year. We find the house repainted, new hardwood floors on the second floor, a new bathroom, and the house completely rewired with floor plugs provided at all study desks. With a goodly number of the old fellows back with us again and a fine bunch of new pledges, you may be sure that Zeta will certainly bear watching. The house is only fairly well filled, but it is hoped that by the end of another month every desk will have been taken.

Pledging has been at its height, but in accordance with our policy we have picked wisely and obtained very good men. Among our new pledges are Fred J. Benson, Jr. Kansas City, Kan.; Tex McJunkins, Texarkana, Tex.; George Wasson, Kansas City, Mo.; L. E. Sharp, Topeka, Kan.; Jack Worner, Leavenworth, Kansas; Charles Clutz, Atchison, Kansas; and S. Deming, Kansas City,

ZETA CHAPTER



BACK ROW (left to right): Younstrom, Snell, Platt, Gallweath, Bieing, M. Hood, Grant, Farmer, Knepper, Guy.
 THIRD ROW: McMurray, Wootler, Gould, Powell, Hines, Johnson, Wood, Stillinger, Q. Kehr, Luff, Hanson.
 SECOND ROW: Bonjour, Campbell, Prof. Warner, Kehr, Prof. McNow, Prof. Rios, Damp, Dean Shad, Prof. Anderson, Prof. Jones, Prof. Barron, H. Hood.
 FIRST ROW: Nelson, Hensley, Kirkpatrick, Smith, Baxter, Bach, Knepp, Bens, Moske, Cox, Dent.

Mo. Clark Hopkins, who was pledged in the spring of 1927, returned this fall and was re-pledged. We are certain that these men will be worthy of carrying on the affairs of Theta Tau in still better form than they have in the past.

The following have been chosen as candidates for Probation Week and Initiation: Clair Wood, Liberal, Kansas; George Hughes, Topeka, Kansas; Glen Mitchell, Lawrence, Kansas; Clark Hopkins, Chicago, Illinois; Lewis Faust, Kansas City, Missouri; Tom Long, Wichita, Kansas; Russell Straight, Bartlesville, Okla.; Stanley Fletcher, Kansas City, Mo.; Leslie Tyson, Lawrence, Kansas; and Archibald Kennedy, Lawrence, Kansas.

The chapter is making up a professional directory of its alumni which is to be issued in February.

Our first Fall party will be staged Saturday, November 2nd, at the chapter house. This date has been selected in order that all the alumni who possibly can will be able to enjoy the party with us.

Zeta chapter takes this opportunity to extend to the other chapters of Theta Tau its best wishes for a successful year.

MARVIN S. HENSLEY, '30.

Lawrence, Kansas, October 19, 1928

IOTA

Twenty-one active members of Iota returned this fall determined to put forth their best efforts to maintain the standards of Theta Tau. We look forward to a big year.

Theta Tau ranked high among the campus organizations last year, being one of the foremost in scholarship. J. E. Barton and E. C. Long have been elected to Tau Beta Pi this fall. J. R. Jarboe and R. B. Sherrill are president and treasurer, respectively, of the Missouri Mining and Metallurgical Association. M. F. Thomas is Business Manager of the M. S. M. Players. T. J. Dover is president and J. R. Jarboe, vice-president of the Athletic Association. M. F. Murphy, R. B. Sherrill, M. F. Thomas, and J. E. Barton are members of the Senior Council.

We have twelve promising pledges this fall. These men are: J. B. Hubner, A. W. Gunther, B. H. Rucker, H. Wallace, L. Wilson, P. Ware, V. F. Ancell, B. Walters, C. F. Page, A. Mitchell, D. Heilig, and R. Throgmorton.

The officers for this term are: E. C. Long, Regent; J. R. Jarboe, Vice-Regent; T. J. Dover, Secretary; A. P. Heiser, Treasurer; R. Williams, Marshal; A. Reid, Inner Guard, and S. Breckinridge, Outer Guard.

Plans have been made for a series of lectures this year to be given informally by members of our faculty and older brothers. One lecture has already been given by Prof. Kerschner of the Chemistry Department. We had a very good turnout.

THOMAS J. DOVER, '30.

Rolla, Missouri, November 16, 1929

KAPPA

The C. E.'s are no happier than the rest of us in having James J. Doland, Assistant Professor of Sanitary Engineering, a Brother in Theta Tau. Brother Doland was initiated into honorary membership on September 26, 1929. We feel that he will indeed be a great asset in helping Kappa chapter to carry on its work.

Kappa plans its usual bi-weekly meetings at different fraternity houses on the campus. Programs are planned that will consist fundamentally of informal talks given by faculty members, and possibly student members, regarding some engineering experience that the speaker has had or with reference to research experiences.

Occasionally we hear from an alumnus, but not as often as we should like. We should appreciate it a great deal if you alumni of Kappa would drop us a line telling what luck you are having fighting "the wolf at the door".

Two of the brothers evidently possess confidence in the financial possibilities of the future. Brothers Carl Braun, '28, and Dick Sawtell, '29, entered the portals of matrimony, and from what we hear, they are lucky boys. Carl is busy designing bigger and better buildings for New York, while Dick is in Champaign as an architectural engineer.

Tom Dolan, '29, is back in the University working for his M. S. He also serves on the teaching staff of the Department of Theoretical and Applied Mechanics.

G. T. Sands and E. T. Reeder were gathered into the fold October 24th. The chapter has certainly missed the men of '29, but we shall carry on with the old tradition of keeping Kappa chapter on the top rung.

JACK H. MUNTZ, '30.

Champaign, Illinois, October 24, 1929

LAMBDA

Concerning the chapter activities at Lambda, it seems that the Brothers of the graduating class of 1929, have been especially active in the pursuit of matrimonial bliss. The following Brothers were married during the summer: William Funk, J. Winston Alter, and Roy Lundquist, past Regent. The families of Floyd Gowans, '29, and Wallace Smith, present chapter Regent, were each blessed with the addition of a boy.

The graduating class were also fortunate in securing positions with various companies. Floyd Gowans is employed by the General Electric Company at Fort Wayne, Indiana. William Funk is at Pittsburgh with the Westinghouse

LAMBDA CHAPTER



BACK ROW (left to right): Thomas, Scott, Paine, Griggs, Moore, Alter, Dunsen, Campbell.
FRONT ROW: Smith, Treanen, Sloan, Turpin, Olsen, Gertsch.

Company. Richard Jones has gone to Chicago to work for the Mountain States Telegraph and Telephone Company. Roy Lundquist is employed by a prominent firm in Salt Lake City. Rudolph Wise is with the Bureau of Public Roads. Walter Kletting has received a fellowship for an Illinois University and is at present studying there. Information concerning the whereabouts and activities of the remaining Brothers is not available at present.

We regret very much the loss of Brother Rudolph Lyons, class of 1924. His sudden decease at Pittsburgh while employed by the Westinghouse Company was a blow to all of us.

Lambda chapter extends to the other chapters their best wishes for success through the coming year.

E. IRVING ALTER, '30.

Salt Lake City, Utah, November 2, 1929

NU

Nu chapter of Theta Tau got off to a fine start for this year with a business meeting during the first week of school. Several meetings have been held since then, including one social meeting, the feature of which was an interesting talk on the subject of Lubricating Oils, by a former student at Carnegie. Nu chapter finds itself in the best financial condition that it has enjoyed since the establishment of the fraternity at C. I. T., due largely to the active campaign for the collection of back dues. We are planning an extensive program of activities for this year and expect to have at least one social meeting each month, at which some engineer will be present to speak on a subject of general interest in the engineering field. Plans are also under way for a dance, probably formal, to be held before, or immediately after the Christmas holidays. These activities, we believe, will help to strengthen the position of Theta Tau on the campus.

Our high scholarship requirement seems to be successful, for five members of the chapter have been elected to Tau Beta Pi last spring and this fall. Our members are also participating in other campus activities. Brother Tomer is president of the Science Senate; Brother Mayne is president of the Senior class in the College of Engineering; Brother Schmidt is distinguishing himself in the varsity line; Brothers Auld, Johnson, and Suesseroth have been appointed Cadet Captains in the Carnegie Unit of the R. O. T. C.; and Brother Bunker is prominently identified with the staff of the Carnegie student publications.

We are looking forward to a big year and wish all the success in the world to our Brothers in other chapters.

ROBERT H. JOHNSON, '30.

Pittsburgh, Pa., November 8, 1929

OMICRON

Omicron began this year with twenty actives and sixteen pledges. We regret very much that some of our men were unable to return. On November 3rd twelve men were initiated into Theta Tau. They are: Leo Aschenbrenner, Paul Arvidson, Ernest Arvidson, Harold Embree, Raymond Kerch, Urban Miller, Wendall Munro, Alvin Lundy, Carol Phelps, Joe Sherod, Jerome Tlusty, and Carlton Vernon.

Our pledging has been slower than usual, but we wish to use care in our selections. So far we have picked ten men in whom we have confidence. They are: Edward Cerny, Eugene Clearman, Edwin Kringel, Jack Maloney, Herbert Mathis, Harold Peterson, Lawrence Quigley, Ken Smith, Olin Sogge, and Raymond Steele.

Taking our time in pledging must have its merits for we have five active members in Tau Beta Pi—Frank Ashton, Harold Embree, Paul Arvidson, Ernest Arvidson, and Wendall Munro. Brother Munro is president of Tau Beta Pi. Two of our brothers have earned Representative Engineers of Iowa keys that are awarded for participation in campus activity. Brothers Ashton and Jensen are the possessors of these keys. Advance military is quite popular with the men of the chapter. We now have four men in Scabbard and Blade, two active and two alumni members. Brothers Rausch, McCann, Fawcett, and Jensen have this honor. Five of the men are in Pershing Rifles, two active

and three inactive. Pershing rifles is an honorary military society for basic course men who are chosen for their ability at drill. All but three of the class officers and two of the Associated Students of Engineering officers are Theta Taus, so when Mecca week comes Omicron will do a full share of the work.

Our meetings are held every Tuesday. On the last Tuesday of each month we have our professional meeting and these meetings have been very successful. The general practice is to have a member of the Engineering College faculty speak to us about some interesting work that he has had contact with. At the October meeting Lieut. J. B. Newman, Jr., spoke on the aspects of Military Engineering.

Hopes for a new chapter house are becoming a realization rather than a dream. The Alumni House Building Association has been organized and is working hard to make these hopes a fact. The lot we owned last spring was in the territory that is under option to the University and during the summer

OMICRON CHAPTER



BACK ROW (left to right): Bantow, Lohme, Duckett, Phelps, McIntyre, Koebe, Flanagan, Humphrey.
 FOURTH ROW: Hemphill, Mullinen, Jensen, Loveland, Achenbachner, Thady, Weir.
 THIRD ROW: Cain, Thilman, McCann, Gray, Rauch, Stanley, Spear, Harrington.
 SECOND ROW: Ashton, Lundag, Fawcett, Mathis, Barrett, Wells, Young.
 FIRST ROW: Starkweather, Smith, Reid, Prof. Curtis, Hess, Kantsman, Prof. Holt, Richter, Jensen, Ketch.

we were forced to surrender our title. This leaves us without a place to build; but there are other good locations, so we are not discouraged.

Our annual Homecoming party was a great success, due to the efforts of Brother Jensen. If this is indicative of the remaining parties, we ought to have some great times during the year.

We were hosts to a very enjoyable visit by the Brothers of Alpha who came to witness the annual struggle between the Minnesota and Iowa teams. During the Tau Beta Pi convention held in October, five brothers from other chapters visited us. They are: Brother Robinson of Sigma, Brother Dunning of Mu, Brother Banks of Tau, Brother Young of Theta, and Brother Conger of Gamma. We certainly enjoyed their stay here with us.

Omicron wishes to send greeting to all members of Theta Tau and extends a hearty welcome to all who might be able to visit us.

LUVERN W. KEHE, '31.

RHO

Fourteen active members returned to Rho chapter this fall with all the zest necessary to make this year a very successful one. Owing to some difficulties in college activities, we have not held a fall initiation as yet, although we are entertaining a group of engineering students at a smoker November 13th, for the purpose of selecting some good material for Theta Tau.

Rho chapter is well represented in College Activities. We have five members in Tau Beta Pi. These are: Brothers W. W. Weltmer, J. H. Douthit, E. B. Worth, D. E. Jones, and E. H. Proctor. Phi Kappa Phi has three of our members, Brothers Worth, Weltmer, and Proctor. We have two members of the Engineers' Council, Brothers Weltmer and T. G. Smith, President and Vice-President, respectively. As President of the Engineer's Council, Brother Weltmer is automatically "St. Pat" of the Engineer's celebration held March 17th. Brothers Smith and Weltmer are also members of the Golden Chain, Senior Honorary fraternity, that is composed of twelve seniors.

Rho chapter is anticipating a very successful year.

E. H. PROCTOR.

Raleigh, North Carolina, November 9, 1929.

SIGMA

The spring and summer quarters of last year terminated the college careers of the following brothers: Craydon Trout, (B. E. E.), Russel Knox, (B. E. E.), Zane Schofield (B. Cer E.). Edgar Robinson and Eugene Ashmead also received their (B. E. E.) but have returned to school this fall for graduate work.

Sigma will miss these brothers, indeed, but feels very proud to think that they possessed that fine engineering quality, preparation for the future, by leaving behind them a strong and well balanced chapter to carry on their work.

We are still located at 70-18th Avenue, with the house accommodating its full capacity (twenty-two men), the chapter roll numbering twenty-five and with eleven in the pledge organization.

We are looking forward to a very successful year in furthering Theta Tau both locally and nationally, under the guidance of the following officers: Regent, Francis W. Davis; Vice-Regent, Howard W. Allmon; Scribe, Elwood M. Stanbery; Treasurer, Charles A. Cook; Inner Guard, John W. Jordan; Outer Guard, Arthur H. Falter; Steward, Edgar R. Robinson.

Since the beginning of the school year we have pledged two men: Russel Steenrod, E. E. 3, and Richard Hindman, M. E. 3.

On October 26th we initiated: Joseph L. Weaver, Mining 3; Robert M. Diehl, C. E. 3; Charles L. Lucal, E. E. 2; Irvin T. Fenneman, C. E. 3, and on the following Sunday a banquet in their honor was given at the Fort Hayes Hotel.

From reports compiled by the Inter-Fraternity Council for Scholastic standing of last year, we learned that out of the fifty-one fraternities, both social and professional, comprising its membership, Theta Tau ranked second, and with a standing above that of any social fraternity on the campus.

It has been said that activities, scholastic and otherwise, are some indication

of engineering leadership, so we will mention the following that does not include honors earned so far this year: *Tan Beta Pi*, Robinson (President), Ashmead, Cook, Stanbery; *Eta Kappa Nu*, Gilchrist (President), Robinson, Ashmead, Cook, Stanbery; *Pi Mu Epsilon*, Robinson; *Sigma Xi* (Associate) Robinson, Ashmead; *Phi Eta Sigma*, Lucal, Fenneman; *Kappa Kappa Psi*, Dumbauld, Beer, Steenrod; *Scabbard and Blade*, Osborn (Captain), French, Feidler, Glass, Davis, Falter, Fenton; *Pi Tau Pi Sigma*, Stanbery, Webster, Davis; *Texnikoi*, Osborn (President), Stanbery (Sec.-Treas.), Robinson; *A. I. E. E.*,

SIGMA CHAPTER



BACK ROW (left to right): Fenneman, Speer, Weaver, Prof. Marquis, Jordan, Petrie, Steenrod, Hohenshil, Altvater.
FOURTH ROW: Cook, Simon, St. John, Cole, Cunningham, Ashmead.
THIRD ROW: Feidler, Falter, Robinson, Shannon.
SECOND ROW: Lower, Webster, Lucal.
FRONT ROW: Diehl, Spangler, Gilchrist, Stanbery, Allison, Glass.

Webster (President), Gilchrist (Vice-President); *S. S. I. E.*, Feidler (President); *A. S. M. E.*, Hohenshil (Vice-President); *A. S. C. E.*, St. John (Sec.-Treas.); *A. I. Ch. E.*, Lower (Treas.); *Inspector's Club*, Spangler (President), Speer (Sec.-Treas.); *Engineer's Council*, Stanbery (President), Spangler (Vice-President), Burlingame (Sec.-Treas.), Allison, Osborn, Weaver, Steenrod; *Advisory Board*, Ohio State Engr., Spangler (President), Lucal (Sec.-Treas.), Diehl; *Student Senate*, Osborn (Engineering College Representative).

We are especially proud of Brother Osborn, who in addition to his many other activities this year, holds the rank of Brigade Colonel. This position is no

little honor, considering that it is the highest ranking commission in our R. O. T. C. unit, which, by the way, is the largest in the country, having an enrollment of approximately 3700.

Brother Jordan who was the high point man on the Varsity Rifle Team last year is again competing this year.

Sigma, this year as usual, will hold its regular schedule of professional meetings.

Brother Robinson, who was the delegate of the Ohio State Chapter of Tau Beta Pi to their National Convention at Iowa City on October 10-12, returned with much to say of his pleasure in meeting many Theta Tau Brothers at the Convention; he also brought the good news that two of our faculty members, Prof. P. W. Ott and Prof. F. W. Marquis were elected to the National Executive Council of Tau Beta Pi, from which the national officers for next year will be selected.

Brothers Jay Edmonson and Charles Vierck from Omicron who are now instructors in the Department of Engineering Drawing, have been taking considerable interest in our chapter activities.

The Sigma house fund that has been accumulating for the last five years has been taken over by our Alumni Association and is in the process of incorporation.

Professor F. W. Marquis, Sigma Honorary, was recently elected Chairman of the Department of Mechanical Engineering. He received his Bachelor's and Professional degrees from the University of Illinois in 1905 and 1909, was connected with the Engineering experiment station there, has been a Professor of Mechanical Engineering at Ohio State University, and has done considerable consulting work. Professor Marquis is a member of the following organizations: A. S. M. E., S. P. E. E., Sigma Xi, Tau Beta Pi, Alpha Delta Phi.

The calendar tells us that the Ninth Biennial Convention, which is to be held at Minneapolis, Minnesota, is fast drawing nigh, so we wish to announce that as our representatives we are sending Francis W. Davis (Regent) as delegate and Caleb E. Osborn as alternate. We have heaps of confidence in these brothers and know that they will do all in their power to add understanding, purpose, and enthusiasm to the Convention.

ELY G. FENTON, '29

ROBERT M. DIEHL, '31

JOSEPH L. WEAVER, '31

Columbus, Ohio, November 8, 1929

TAU

The year just closed was a very successful one for Tau chapter. The initiation of William P. Graham as an Honorary Member was one of the outstanding events. Brother Graham is an electrical engineer of prominence and Vice-Chancellor of Syracuse University. He is a member of Beta Theta Pi, Tau Beta Pi, Phi Beta Kappa and Sigma Xi.

This year gives promise of being one of the best years, if not the best year, that Tau chapter has ever experienced. To date we have pledged twenty-four men and have acquired some of the best and most promising men in the three upper classes of the College.

Thus far we have held three business meetings and three social gatherings or smokers. The program for the future has not been fully outlined and published; we are, however, planning an informal banquet to be held the latter part of November, at which we expect the good old Theta Tau spirit to be much in evidence.

We sincerely hope that the outlook for the other chapters is as promising as it is here and we wish them all a successful and prosperous year.

DAVID M. MACALPINE, *Graduate Student*.

Syracuse, New York, November 10, 1929

TAU CHAPTER



BACK ROW (left to right): Neel, Henderson, Hannan, Pfaffhausen, Gemmill, Fellows, MacAlpine.
 THIRD ROW: Newton, Blosser, Subierski, Crook, Easton, Sanford, Branner, Vinciguerra.
 SECOND ROW: Casavant, Deyoe, Adams, Gidlow, Fitzgerald, Banks, Vania, Bryant.
 FIRST ROW: Shappell, Gibbs, Carey, Whitehurst, Bibbens, Dean, Mitchell, Wood, Prof. Berry.

UPSILON

The beginning of school this year found eight old men back to carry on with the present chapter of Theta Tau. They at once set out to pledge some of the leading men in the Engineering College. The result was that ten men were pledged. They are: H. N. Oldham, J. L. McManus, Morris Brady, Gerald Stelzen, Robert Hunt, Willard May, Calvin Shaw, Kermit Potts, Gordon Matthews, and Lake Greene. Formal initiation for these pledges will be held November 18th at 4:30 P. M. With the co-operation of every new member and with the hearty support of every old member, Theta Tau should be the best engineering fraternity in school.

Lloyd Pond, '29, is working for the Phoenix Utility Company in Dermott, Arkansas. He is in charge of a surveying party. Much credit is due him, as he is the youngest foreman with the Company. He will be remembered as an outstanding engineer on the campus.

Theo E. Peter, '29, is working for the Arkansas Power and Light Company at Pine Bluff. At present he is in the office of the Engineering Department.

Hugh B. Carruth, '29, is working in the Engineering Department of the Commonwealth Edison Electric Company at Chicago.

Harold C. Leimer, '29, is with the Westinghouse Electric and Manufacturing Company at Pittsburg. He plans to enter the Design Department.

Professor W. B. Stelzner worked for General Electric Company the past summer. He worked in the Research Department with lightning disturbances and their effects.

Taking everything into consideration, last year was a successful one for Theta Tau; the fraternity was only installed early in the year on the local campus. This year we should be able to accomplish even greater things.

CECIL R. WROTEN, '30,

Fayetteville, Arkansas, November 1, 1929

PHI

The rush committee has been working hard for Phi Chapter and has succeeded in filling all vacancies left by the graduating seniors of last year. Phi Chapter now has twenty-one active members and twenty pledges.

Our first initiation of this school year was held at 12:15 A. M., Sunday, October 6th. We have found that an initiation in the wee small hours of

PHI CHAPTER



BACK ROW (left to right): Antle, Adkins, Fillinger, Rinehart, Cloud, Guinnop, Dix, Winslow, Swann, Moss, Furwell.

SECOND ROW: Kemp, Compton, Terrell, Ardross, Chandler, Stradling, Wilson, Halliwell, Heath, Haney, Robinson.

FIRST ROW: Zwinger, MacLaren, Walomith, Kirkham, Pence, DeVaney, R. Ward, Burns, Hanson, D. Ward, Bartholomew.

the morning is more impressive to the initiates than an initiation in the daytime. The active members who were initiated at this time are: R. M. Adkins, Paul W. Bartholomew, A. E. Fillinger, Joseph K. Haney, R. K. Pence, B. D. Rinehart, and F. G. Zwinger. Professor George P. Springer, our Honorary member, was initiated at the same time. Professor Springer is connected with the faculty of the School of Civil Engineering at Purdue University and is a member of Tau Beta Pi, Sigma Phi Sigma, and Chi Epsilon. We are planning another initiation before Christmas.

Our first professional meeting this year was in the form of a Father and Son banquet, held at the chapter house on October 12th with Professor L.

Hadly as the speaker. We are planning more professional meetings in the near future with both faculty members and students furnishing talks. Our Sixth Annual All Engineering Smoker will be held at the chapter house in the very near future. Our annual Homecoming dance was held on the night of the Iowa-Purdue football game, November 16th.

Brother L. S. Divan, our Regent last year, made Tau Beta Pi, Pi Tau Sigma, and Sigma Xi. Brother Joe Chevarek, '29, made Tau Beta Pi, Pi Tau Sigma, and won his letter in baseball. Last year Brothers Divan, Lowell Fawcett, and Joe Walsmith made letters in wrestling. Brother Thomas Meuller, '29, was a member of Chi Epsilon and Scabbard and Blade. Pledge Mitchell won his letter in fencing.

Due to the large number of men living in the house this year we were able to completely refurnish the main living quarters of the house. Above all things, Phi Chapter is striving to place itself among the top few, scholastically.

A. E. FILLINGER.

West Lafayette, Indiana, November 9, 1929

FOUNDERS DAY OBSERVED

Alpha chapter celebrated the Twenty-fifth anniversary of its founding by a smoker on October 11th, and sent its usual annual wire of fraternal greetings to Brother Schrader.

Beta chapter celebrated the Twenty-fifth anniversary of the founding of the Fraternity by a banquet on October 12th, at which Dr. W. F. Holman, Alpha Honorary, was the chief speaker. During the evening a wire was sent to Brother Schrader.

Theta chapter celebrated Founder's Day on October 17th. Brother Robert B. Dickson, delegate from Theta at the 1927 Convention, acted as toastmaster and Brother J. Sidney Marine represented the Executive Council. In addition to the Theta actives and alumni, alumni members of Lambda, Sigma, Eta, and Iota were present.

Omicron chapter celebrated Founder's day with a banquet at the chapter house. Following the banquet, Brother Edwards, graduate student, traced the history of the national organization and of Omicron chapter, and outlined some of the principles and hopes of Theta Tau.

NEW BAIRD'S MANUAL AVAILABLE

A volume of Baird's Manual of College Fraternities has been printed and can be obtained by sending \$4.00 to the George Banta Publishing Company, Menasha, Wisconsin. Every officer and chapter should have a copy.

In Memoriam

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

DON C. BLACKMAR, Beta '12

RUDOLPH E. LYONS, Lambda '27

**CARL A. BRAUN, DELTA-EX '15**

March 23, 1891-October 29, 1928

Carl A. Braun was born at Lima, Ohio, March 23, 1891, and lived there until his graduation from the Lima high school in 1911. Later he attended the Case School of Applied Science, entering the Mechanical Engineering Department. While in school he became affiliated with Delta chapter of Theta Tau.

He left school, however, before he had completed his college course and secured work in Cleveland. In 1914 he went to Toledo where he accepted a position as engineer and draftsman for the Etna Machine Company, which place he held until 1921. From 1921 until his death in October of 1928, he was chief engineer for the Toledo plant of Steel and Tubes, Incorporated.

He was married October 8, 1919, to Miss Phyllis Suk, and had one son, Carl Albert, born August 18, 1920.

He was a member of the Pilgrim Congregational Church, Toledo, and of the Masonic order.

Theta Tau wishes in extending its sincere sympathy to relatives and friends of our deceased Brother Carl A. Braun.



HOMAR L. JOHNSON, GAMMA '25

January 18, 1900-September 17, 1929

Homar Lincoln Johnson, son of A. L. and Althea Howard Johnson, was born near Athens, Ohio, on January 18, 1900, and died at Alexandria, Virginia, September 17, 1929, age twenty-nine years, seven months, and twenty-nine days.

His early life was spent in Athens, Ohio, where he attended the public schools, graduating from the Athens High School in 1920, his school work having been interrupted by two years service in the World War. He attended the Ohio State University for one year, and in 1921 entered the Colorado School of Mines, Golden, Colorado, from which he graduated in 1925. While a student at the School of Mines he served as assistant editor and business manager of the *Ore-digger*, the official organ of the school. He was also a member of Beta Theta Pi, social fraternity, and served as chapter secretary.

Upon graduation from college, Brother Johnson entered immediately into the active work of mine engineering and followed this profession in Utah and California. In January, 1928, he was chosen as Assistant Editor of the *Engineering and Mining Journal*. He held this position for eighteen months when he was made Assistant Secretary of the American Institute of Mining and Metallurgical Engineers.

Brother Johnson was a Mason, and president of the Square and Compass organization. He served as second lieutenant in the Reserve Engineers Corps.

On February 8, 1925, he was married to Louise K. Barnes of Denver, Colorado, who died from injuries received in the same accident that resulted in the almost instant death of her husband, the surviving him but three days, and in their death leaving an orphan son, Homer J., now five years of age, and in whom all their hopes and ambitions were centered. Brother Johnson's father and mother and two sisters survive, as do the parents and one brother and sister of Mrs. Johnson.

Brother Johnson's industry, energy, and ambition led him to prepare for his life work with a thoroughness, which, with his genial and gentlemanly bearing kept him to the fore-front. And during his short life he accomplished what one of more mature years might view with pride, leaving in passing the priceless heritage of an honorable, useful, and well-spent life of a gentleman.

GEORGE B. MARSHALL, BETA '07

1879-July 1, 1928

George Bowen Marshall, a charter member of Beta chapter, met a tragic death in Nicaragua, while in the hands of rebel forces who had captured the La Luz and Los Angeles Mining Company properties, of which Brother Marshall was Assistant Manager. The rebel raid led by Sandino occurred in April, 1928, and at this time he was carried away as a prisoner. For several months unconfirmed rumors gave conflicting statements, some to the effect that he had been killed; others, that he was alive and well. It was not until December 26, 1928, that a statement issued by the United States Marine Corps gave reliable news of his death. A description given by his mother, identified as George B. Marshall a man who had died of fever in the home of Emilio Aguilar, a follower of Sandino, at Matawar on July first.

George Bowen Marshall was born in New York City in 1879, and graduated from Michigan College of Mines in 1907. Starting in as a surveyor at the Standard Consolidation Company at Bodie, he worked at the El Oro, El Cubo, and Aguacote, and in 1912, was Superintendent of the cyanide plant of Mina La Union, in Costa Rica. In 1923, he was with the Abangarez Gold Fields, Costa Rica, and he went to the La Luz and Los Angeles Company mines at Bluefields, Nicaragua, only five months before his capture by the rebels.

Brother Marshall is survived by his mother, who, during the period of his captivity, resided at San Jose, Costa Rica.

LIFE SUBSCRIPTIONS

Among matters which should be given attention at the Convention this year is the question of life subscriptions for the GEAR. Although this subject is not a new one, it has received so little discussion in recent years as to seem new.

At the present time every active member is automatically a subscriber to the GEAR with subscription paid through the national dues. Alumni become subscribers only upon payment of the regular rate of \$2.00 per year. The result of this system is that a majority of the alumni fail to take advantage of the best method of keeping in touch with the fraternity. The average alumnus is likely to neglect the GEAR and in other ways lose contact with the fraternity soon after graduation, not because of a lack of interest in Theta Tau, but because other affairs absorb practically all his time. As the years roll by, and they do very quickly, he finds he would like the fraternity to mean more to him. But by this time he has grown so far away it is difficult for him to take even the first steps in the right direction. So, at this stage also, he may fail to subscribe to the GEAR, or he does subscribe, and if the first issues do not revive all the old memories, he permits his subscription to lapse after a year.

To avoid this condition, the life subscription seems outstandingly the best answer. Under this plan each member pays such a sum of money into a Trust fund as will provide an annual income sufficient to pay his share of the publication costs. In this way the subscriber is put to no further inconvenience after his first payment but may look forward to receiving the GEAR for the rest of his life. If the subscription is collected through the initiation fee and the national dues of the members during their years as actives, the costs should at no time prove burdensome and every member would thus become a life subscriber to the GEAR at the time of his graduation from college almost without realizing that he had paid for such a subscription.

The following excerpts from a current issue of *Banta's Greek Exchange* are indicative of the action other fraternities are taking in this direction:

At the last convention of Delta Sigma Lambda one of the important matters passed upon was, "the establishment of a publication fund. Such fund to be raised by the increase of national initiation fees and entitling the member so initiated and the member paying the specified amount a life subscription to the fraternity magazine, *The Viniculum*."

From the account of the Alpha Phi Delta convention: "By far the most important work of the convention was the provision of an endowment fund for its publication. The money received through granting of charters to alumni clubs will be used exclusively for this purpose. In addition, part of the yearly balance and a definite undergraduate tax will augment the fund."

Again—"Establishing an all-fraternity record, the University of Illinois Theta Chi chapter secured a 100 per cent subscription of its members in the life subscription campaign of *The Rattle of Theta Chi*, each of its 217 living members becoming a life subscriber to the fraternity publication. The national subscription drive ended with 2614 life members out of a total of 8607 living members, or 30.36 per cent. From now on each initiate into Theta Chi automatically becomes a national endowment member, his membership carrying with it a life subscription to the fraternity publication."

ENGINEERING THE NEWS

By ARTHUR C. DECK, Lambda '28

Perhaps an engineer in the strictest sense of the term would feel slightly abashed at knocking at a "lady's" boudoir door at eight in the morning to ask if she had been the victim of a Peeping Tom the eve before and to get the whole story of the affair.

Don't be startled, we'll admit right off that little item was cribbed from our friend Ben Hecht of "Front Page" fame—but it's a potential possibility nevertheless. I recall having done much worse things than that in the daily feverish pursuit of news.

It's a lousy job, this pounding out news—or perhaps I should say attempting to pound out news. It's one thing for a reporter to be a reporter, and it's quite another thing for an engineer (am I?) to be a reporter.

Nevertheless, here I am. I've been asked why and how by scores of people and I still can't answer the question satisfactorily. Frankly, I don't know how it happened any more than scores of other engineers now engaged in pounding out stories for dailies throughout the country know how they became affiliated with the newspaper game.

More than once I've been called a nincompoop and what-have-you? by engineers and brothers in Theta Tau, and I remain pounding out stories in spite of their criticisms.

I can't say why an engineer should choose the newspaper vocation. They never fall into it as I did, perhaps. However, it is interesting to note that there are three ex-engineers or rather engineering students on the staff of the Salt Lake Telegram, and on a competitive daily in the city there are two more, one of whom is now city editor.

It is possible that members of the engineering profession have not realized this fact, but of all professional men who turn to journalism—I believe and am substantiated in this opinion by local engineers and journalists—engineers rank the highest.

From the time I left engineering school at the University of Utah, as it were, at the end of my junior year to edit the college sheet, until I was "retired" from that position I haphazardly made up my mind that I was not going to be an engineer.

The romance of journalism wormed its way under my hide and, strange as it may seem, there it stuck. I managed to affiliate with a local newspaper in the capacity of literary editor shortly after I left school and there did everything from review books to act as chief office boy and drama critic in addition to filling in on murders, rapes, and what have you?

Don't be fouled by high brow newspaper titles! They don't mean a thing.

And now—just one of the millions pounding on Underwoods, giving food for thought (wrong word) for millions of gum chewing flappers and drug store cowboys.—Just another of the sob sisters who make housewives and elderly matrons weep over a yarn relating how little Mary Jane was burned to a crisp while trying to save her doll from a horrible holocaust.

As I said before—lousy! But still fascinating.

Seriously, however, there are times when engineering is brought into important play in the day's news. Let us take, for example, the consideration of the Boulder Dam and similar engineering projects. Even a slight knowledge of geology, such as is obtained in the engineering curricula is indispensable.

The erection of a new building, a road project, or any of the thousands of events which enter into the daily news—each has for its background an engineering principle that a reporter with a slight knowledge of the subject may make clear to the average layman.

Then, too, engineering is a great aid in the courts. One of the fundamentals an engineer must learn is accuracy and one of the fundamentals of reporting in the court room is accuracy. Label laws are too stringent to permit unauthorized statements or misconstrued reports.

With all due respect to brothers in Theta Tau and other members of my one time chosen profession, I must confess that of all people to "get a story" from, an engineer is about the epitome of the impossible.

An engineer seldom realizes that, in the event he has something of public interest, as he does almost daily, a reporter can interpret his facts accurately.

A reporter, however, realizes his duty to the few serious minded requires that he be accurate. There are some "yellow sheet" newspapers that give little thought to accuracy, I will admit, but even they on vital issues break forth with the facts—the true facts.

I have never had occasion to interview an engineer that he has not been anxious to see the matter before it goes into print. Impossible! Especially on an afternoon newspaper it is impossible to re-write stories after they are once written. It must go as soon as it is written.

Linotypers are eating copy up as fast as it comes from typewriters. Composing room men are making it up as soon as proof has been read, and press room men stand ready to send it on the street as soon as they get it.

Delays are dangerous in the newspaper game. Professional men should realize this and also assume a certain degree of confidence with a reporter.

Such frothing is unwarranted, however. I dare say a "run in" with a professional man occurs only once in a hundred stories or so—but they are disagreeable in any event.

As I sit here in the paper-bespattered office listening to the clatter of other Underwoods and the whirl of telegraph relays and the patter of the wire keys I wonder what will next fall to the lot of this pseudo-engineer.

At the moment I have a hankering to return to college and become, believe it or not, a physician.

What's more, perhaps I shall.

The GEAR *of* THETA TAU

OFFICIAL PUBLICATION OF THE FRATERNITY

P. L. MERCEK, Omicron '21 and J. W. HOWE, Omicron '24

Editors

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FALL, 1929

NUMBER 1

After three highly successful years of editorship, Brother Donald D. Curtis was obliged to give up his position as editor of the GEAR when he accepted increased responsibilities as Professor of Mechanics at Clemson College, South Carolina. The new editors, in undertaking to carry on the good work of Brother Curtis, feel that they are accepting a real responsibility. The prosperity of our fraternity nationally is, to a large degree, dependent on the strength and leadership of our officers. But the GEAR also, in its position as the forum of the fraternity, has important opportunities for leadership. Cognizant of these possibilities and with confidence in the cooperation of the officers and brothers the new editors pledge themselves to give of their best that the GEAR may stand for fraternal unity and progress in Theta Tau.

It is particularly fitting that the Ninth Biennial Convention, coming, as it does, on the twenty-fifth Anniversary of our founding should be held in Minneapolis, the birthplace of the fraternity. It is to be hoped that many of the founders and older alumni of Alpha Chapter can be present at the meetings to tell us of the early history and to see the present success of the organization they worked so hard to perfect. Incidentally, this is another opportunity for all brothers, especially the actives, living in the Middle West to attend a National Convention of Theta Tau. The help and inspiration to be gained by meeting and knowing the national officers and the delegates from each of the chapters cannot fail to make any brother a more loyal and enthusiastic Theta Tau.

The proposed absorption of Sigma Tau by Tau Beta Pi was rejected at the 1928 Convention of Tau Beta Pi. While we do not know the details, the Bent of Tau Beta Pi states that it was pointed out that the two fraternities occupied entirely different fields, and apparently the delegates were of the opinion that Sigma Tau did not occupy the field of an Honor fraternity. From the standpoint of Theta Tau, the outcome is to be regretted. We have always felt that one scholastic honor society was ample for the Engineering Department of any college. We hope, therefore, that the discussion will be resumed in the near future, or that both fraternities will not appear on the same campus with the inevitable dual membership or overlapping of fields that serves no useful purpose.

Brother Ellsworth Dougherty, who is located in Badger, Newfoundland, kindly consented to give the GEAR readers a description of the country in which he is working. His article delves deep into the geology of Newfound-

land, and those of you who are geologists should find this portion of the article very informative. To those who lack geological knowledge, the editors suggest a detour when the topic "Geology" is reached. Come back on to the main road about the fifth paragraph of the topic "*Ore Deposits and Exploration*" and you will be given an interesting insight into the problems of a field geologist and, as well, an idea of the people and industries of the Island. Brother Dougherty gave the editors permission to omit the technical parts of the article, but inasmuch as so many of the fraternity are familiar with geology, the article is printed in full with the foregoing guide to the geologically uninitiated.

Geologists rejoice! Brother Tabor's article, *Exploration in Colombia*, put in its appearance this fall, and although the editors are a bit hesitant to give space to two articles of a geological nature in the same issue, they believe they will be forgiven when you have read the excellent accounts of Brothers Dougherty and Tabor.

Editorial guidance again suggests that those not familiar with geology may find the opening paragraphs of Brother Tabor's article a bit technical. The remainder, however, gives a clear picture of the vicissitudes of the exploring geologist and should prove extremely interesting to those considering South American employment. (What young engineer does not!)

When Brother Arthur C. Deck, Lambda '28, sent in his reply giving directory information, and indicated that his official title was Literary Editor of the *Salt Lake Telegram*, the possibility of a story immediately arose in our minds. Accordingly, a letter was dispatched accusing Brother Deck of infidelity to his profession, and asking for an explanation of his most unusual engineering occupation. With true engineering efficiency he gave our letter prompt consideration, and if you like entertaining reading you will turn to page 42 and read "*Engineering the News*."

NINTH BIENNIAL CONVENTION

The Ninth Biennial Convention will be held on Dec. 29 to 31 at the Francis Drake Hotel in Minneapolis, Minn. There has been some difficulty in deciding upon a satisfactory date for the convention, some favoring January 2 to 4, others December 29 to 31. As the GEAR goes to press, however, the latest word confirms the December dates.

The tentative program of events includes business sessions in the morning and afternoon of each day, while a smoker, banquet, and an informal dance will occupy the evenings. There will doubtless be other sessions, the program of which is difficult to forecast.

The Twin City Alumni Association joins with Alpha Chapter as host to the convention and will issue more detailed information to the delegates and others who indicate their intention to attend. This being the 21th anniversary of the Founding of Theta Tau, the National Officers would appreciate hearing from any alumnus who cares to write to the convention or to send a wire.

To All Members of Theta Tau

Fraternal Greeting:

You are hereby informed that

MR. JOHN F. HOTCHKISS

(Nu Roll No. 114)

Is no longer a member of this Fraternity

In H. & T.

E. J. SCHRADER, Grand Scribe

Nov. 1, 1929.

To All Members of Theta Tau

Fraternal Greeting:

You are hereby informed that

MR. HAROLD M. DEMING

(Tau Roll No. 42)

Is no longer a member of this Fraternity

In H. & T.

E. J. SCHRADER, Grand Scribe

October 20, 1929.

ALUMNI NOTES

ALPHA CHAPTER

- LEROY M. ABRAHAMSON, '29, has accepted a position with the Commonwealth Edison Company at Chicago.
- STUART L. BAILEY, '27, is with the Bureau of Lighthouses in Detroit.
- HOWARD T. CAIDDY, '27, resigned his position with the Ingersoll-Rand Company and is now employed by the Wisconsin Steel Company in their Hibbing, Minnesota, office.
- HUGO F. GUSTAFSON, '28, is employed by the B. F. Goodrich Rubber Company at present. His address is 56 South Balch, Akron, Ohio.
- OLIVER S. HAGERMAN, '18, who is with the American Light and Traction Company, formerly of New York, has moved with that company to Chicago. He is at home at 1802 Cherry Street, Winnetka, Illinois.
- EDWARD H. HENNEN, '25, is a business efficiency expert with the Erwin-Wasby Company of New York.
- LAURANCE V. JOHNSON, '27, was married to Myrtle Bloemers on November 8, 1928.
- WALTER R. KRUTGER, '29, is located in New York City with the American Telegraph and Telephone Company.
- C. ORRIN MARKSON, '22, formerly resident engineer with the Minnesota State Highway Department at Minneapolis, is now with the Sculley Equipment Company of St. Paul.
- WILLIS J. McLEAN, '29, is employed in geological development work by the Societe Miniere de la Tela in Eastern Belgian Congo, Africa. Brother McLean is the fourth Alpha man to venture into that country.
- ROSWELL W. PRIDUTY, '12, is on a mine examination trip to South America and expects to be gone three months.
- MAX F. QUINN, '12, is now with the United Mines at Guanajuato, Gro., Mexico.
- FRED C. TESKE, '26, who is employed with the bridge department of the Northern Pacific Railway, has been awarded the Lord Strathcona Fellowship in transportation at Yale University.

BETA CHAPTER

- EDWIN N. BLANCHARD, '29, is working for the Phelps-Dodge Corporation at Clifton, Arizona.
- HUGO F. GUSTAFSON, Alpha '28, dropped in for a short visit this summer while enroute to his home in Duluth. He is employed as a Mechanical Engineer with the Goodrich Rubber Company at Akron, Ohio.
- DURAND A. HALL, '14, of Berkeley, Calif., has returned to his home after a trip to northern Chihuahua, Mexico.
- HARRY H. HOPKINS, ex '16, is a "clock Engineer". He is employed as a watch and clock repairer in Flint, Michigan.
- LAURENCE A. SMALE, '22, is with the ceramic engineering staff of the A. C. Spark Plug Company.

ENOCH B. HENDERSON, Hon. '05, is Assistant Superintendent for the Horne Copper Corporation, Ltd., Noranda, Quebec, Canada.

LEROY M. NASH, '29, is with the Dow Chemical Company, Midland, Michigan.

CLYDE W. NICOLSON, '16, is General Manager for the Canam Metals Company, Joplin, Missouri.

CHARLES H. REDMAN, '29, has a position with the Oglebay Norton Pump Company at Cleveland, Ohio.

CLARENCE F. SEAMAN, '28, is now working for the Fontana Mining Company, Fontana, N. C.

LLOYD L. SEESTEDT, '28, is located at Romulus, Michigan.

JOHN H. TRAVERS, '22, formerly associated with the Lindsley interests in Canada, has been appointed resident engineer at Siscoe Gold, in the Rouyn District of Quebec.

WM. O. VANDERBURG, '23: The following is a newspaper clipping:

"Tonopah, April 4th,"—Wm. O. Vanderburg, Supt. of the Tonopah Extension, has resigned, effective April 13th, in order to accept an appointment to undertake a new branch of work undertaken by the United States Bureau of Mines.

His first assignment will be at Ely, where he will remain for three or four months before returning to Tonopah. The work consists of writing reports on district geology, mining methods, cost analysis, and bonus systems.

At Ely he will deal in detail with the undercut system of mining. Vanderburg is a graduate of the Michigan School of Mines at Houghton, and entered the service of the Tonopah Extension in 1924, as engineer.

JOHN R. VAN PELT, '23, is now Curator of the Rosenwald Industrial Museum Division of Geology and Mineral Industries, Chicago, Ill.

CHARLES C. WIEDER, '27, is now working for the Sherwin-Williams Paint Company at Riverdale, Illinois.

GAMMA CHAPTER

REX J. ALLEN, '22, is now in the Engineering Department of the Cananea Consolidated Copper Co., at Cananea, Sonora, Mexico.

LIONEL BROOKE, '14, formerly of Guffs, Calif., is now connected with Chibougamu Prospectors Ltd., c/o Curtis Reid Airways, St. Felician, Quebec.

LEROY T. BROWN, and GAYLORD C. WEAVER, both '26, are with the Cerro de Pasco Copper Corp. at Cerro de Pasco, Peru. S. A. Brown is Mine Foreman at the Excelsior Mine, and Weaver is on the Engineering Staff.

GEORGE W. CRAWFORD, '23, is with Brown and Root, Contractors, and is located at Corpus Christi, Texas.

G. HAROLD CRONIN, '26, who is with the U. S. Geological Survey, has been transferred from Casper, Wyoming, to Cushing, Oklahoma.

THOMAS J. CLIFFORD, '21, was married last December to Miss Kathryn Delcour of Elwin, Missouri.

MARK B. DANFORD, '28: The engagement of Brother Danford to Miss Florence Hopkins of Denver has been announced.

ALDEN S. DONNELLY, '28, was married in Denver on October 31st to Miss Adelaide Field. They will make their future home in Midland, Texas.

- JOHN H. EAST, JR., '10, is the father of a boy, John Herschel East III, born September 10th. Brother East is with the U. S. Gypsum Company at Alabaster, Michigan.
- JOSEPH E. EDGEWORTH, '21, of the Union Pacific Coal Company at Rock Springs, Wyoming, attended the Coal Men's Convention at Cincinnati, and gave a paper treating of long face mining with shaking conveyors and universal duckbills at the mines of the Union Pacific Company.
- THOMAS G. FOULKES, '22, is the father of twins, Patricia Ellen and Winifred Alice, born August 11th. Brother Foulkes is with the Bethlehem Steel Co., at Bethlehem, Pa.
- DANIEL C. FROBER, '24, is with the Gardner-Denver Company, and his address is 602 Tulsa Trust Building, Tulsa, Okla.
- CHARLES B. GAUTHIER, '16, is General Manager for E. A. Pukford, Los Angeles Oil Operator.
- CLARENCE W. GUTH, '22, is Mechanical Engineer for Westinghouse, and his address is 706 Coal Street, Wilkesburg, Pa.
- ALLEN E. HAMBLEY, '23, is doing steel construction work for the Gulf Refining Company at their new refinery at Port Arthur, Texas.
- VAN DYNE HOWBERT, '16, who has been in charge of the El Paso office of the American Metal Company for the past six years, has been transferred to the New York office of that Company.
- CHARLES H. JENKINS, '29, was married on August 10th to Miss Chandos Marie Williams of Golden, Colorado. He is employed by the Whitlock Mines Corp. at Mariposa, Calif.
- WM. H. KING, '28, was married to Miss Pauline Skaer of Denver on July 9th. They are located at Mariposa, California, where Brother King has a position with the Whitlock Mines Corp.
- ALLAN KISSOCK, '12, who invented the process of alloying molybdenum with steel by use of calcium molybdate, has just been elected vice-president of the Climax Molybdenum Company. For three years after his graduation from the Colorado School of Mines Brother Kissock was engaged in mining examination and management. From 1915 to 1918, he was manager of the Molybdenum Products Company of Tucson, Ariz., and then became president of the Steel Alloys Company of Los Angeles, where he remained until 1922. The next two years he devoted to mine management and then he became connected with the Climax Molybdenum Company. Since 1924 he has been active in mining and milling and the construction of plants for the production of calcium molybdate, as well as promotion work in connection with the use of molybdenum steels in the mining and other industries.
- GEORGE W. LEMAIRE, '26, is with the Humble Oil Company in Texas.
- PAUL S. LEWIS, '29, is with the geological department of the E. W. Marland Company, Inc., his address being P. O. Box 338, Ponca City, Okla.
- ELMER E. LINBURG, '24, is now Sales Engineer for the Gas Utilities, Inc., 44 East Broad Street, Columbus, Ohio.
- MAX McCORMACK, '26, is with the Ingersoll-Rand Company at Lima, Peru, S. A.

- PHILLIP J. MCGUIRE, '15, and Miss Vera M. Nipp of Minneapolis were married July 10th at Hollywood, Calif. Brother and Mrs. McGuire will make their home in West Hollywood. McGuire is Engineer for the Oliver United Filters, Inc.
- WM. A. McLAUGHLIN, '27, formerly with the Empire Gas and Oil Company, is now with the Venezuela Gulf Oil Company at Maracaibo, Venezuela.
- JOE McNEILL, '28, is with the Ingersoll-Rand Company at their Denver office in the Cooper Building.
- MILWARD MILLER, '26, Geologist for the Humble Oil and Refining Company, has been transferred to the Roswell, New Mexico, office.
- PHILIP E. NOLAN, '13, is Assistant to the Chief Geologist for the Venezuela Gulf Oil Company, Maracaibo, Venezuela, S. A.
- RUSSELL J. PARKER, '19, is the proud father of a boy, Michael Parker.
- LUTE J. PARKINSON, '22, assistant managing engineer for Companhia de Diamantes de Angola, operating in Portuguese Angola, arrived recently from London for several weeks' vacation in the United States. Companhia de Diamantes de Angola is one of the largest diamond producers outside the Union of South Africa and has recently completed mechanizing its alluvial workings.
- JAMES W. PEARCE, '14, is associated as Engineer with the A. C. Nielson Company, 4450 Ravenswood Avenue, Chicago, Illinois.
- HOWARD C. RENKEN, '25, is now with the El Paso Smelting Works of the American Smelting and Refining Company at El Paso, Texas.
- JOSEPH A. RYAN, '23, has moved from Washington, D. C. to 10 Perry Street, New York City.
- PHILIP W. SIMMONS, '29, was married on May 23rd to Miss Jessie Williams of Golden, Colorado. Simmons was a student at Golden under the Carnegie Hero fund and was prominent in all campus activities. He is now with the Ingersoll-Rand Company of New York.
- CHARLES E. STOTT, '25, formerly geologist with the Presido Mine at Shafter, Texas, is now in the El Paso office of the American Metals Co., Ltd.
- EARL A. STRONG, '14, has gone to London to help design the new mill for the Roan Antelope Copper Corp., Ltd.
- ROBERT H. WATERMAN, '28, has gone to Hannover, N. H., to enter the Tuck School of Administration and Finance of Dartmouth.
- RAYMOND V. WHETSEL, '16, is Manager of the Empire Oil Company at Tampico, Mexico.
- BENJAMIN F. ZWICK, '29, is in the Natural Gas Department of the Tropical Oil Company in Colombia, S. A. His address is Apartado No. 30, Barranca Bermeja, Colombia, S. A.

DELTA CHAPTER

- ROBERT J. ANDERSON, '14—The following is a clipping recently sent the GEAR office—"Negotiations that have been carried on during the last two years between Dr. Robert J. Anderson and the Soviet government relative to construction of an aluminum-reduction plant in Russia have come to an end. The parties to the negotiation were unable to agree to terms and details of carrying out the project.

"Plans called for the design and erection of a plant to produce about 10,000 tons of aluminum per annum, together with an alumina plant and carbon-electrode factory. Power was to be supplied from the Dnieper-stry hydro-electric plant, now under construction. Russian bauxite was to be used as the ore. A special process had been developed to treat this bauxite for the preparation of alumina. Plans were also in hand for the design and erection of rolling mills and other plants for the fabrication of aluminum and its alloys."

EPSILON CHAPTER

WM. L. DE CARBONEL, '29, is Engineer for the Moctezuma Copper Company at Pilares de Nacozari, Sonora, Mexico.

DONALD E. KOCH, '29, is in the Geology Department of the Consolidated Coppermines Corporation at Kimberly, Nevada. Brother Koch states that the Geology Department consists of four Epsilon men, namely, E. N. Pennibaker, E. H. Rott, A. M. Tweedt, and himself. And that in all there are six Theta Taus in the camp.

IRVING L. PHILLIPS, '29, was recently married to Marian Garrettsen of Berkeley.

GEO. D. SMITH, '11,—the following is a newspaper excerpt: "George D. Smith, former Chairman of the Nevada Industrial Commission and at one time Secretary to the late Gov. Emmet D. Boyle, heads a company that has purchased the Fairmont hotel in San Francisco for \$6,000,000, according to news dispatches from the Coast. Smith, who is a mining engineer by profession, went to San Francisco over ten years ago to engage in the hotel business and after operating a large apartment hotel, headed a company that built the Mark Hopkins hotel, one of the largest hotels in the city. He is managing director of the company that purchased the Fairmont yesterday. It is one of the landmarks of San Francisco and adjoins the Mark Hopkins on Nob Hill."

ZETA CHAPTER

FRANK I. BAXTER, '29, is employed by the General Electric Company at Schenectady, New York.

DANIEL L. BUMP, '29, is with the Stearman Aircraft Company in Wichita, Kansas.

WALLACE M. JAMES, '25,—Brother and Mrs. James are the parents of a girl, Dorothy Jean James.

ALEX S. KENNEDY, '21, was married to Frances Lonnberg on May 3rd.

MANLEY J. HOOD, '29, has a position as Junior Aeronautical Engineer at Langley Field, Hampton, Virginia.

THEO W. GRANT, '29, is with the General Electric Company at Schenectady, New York.

ELMER H. RUSH, '29, is in the Long Lines Department of the American Telephone and Telegraph Company at St. Louis.

HENRY E. SAMSON, '16, is with the Southwestern Public Service Company at Roswell, New Mexico.

MILLER H. TROUP, '28, is at Kelly Field, San Antonio, Texas.

THETA CHAPTER

- REGINALD M. BANKS, '25, is with the American Cyanamid Company, 333 Fifth Avenue, New York City.
- GLENN D. HAWKINS, '23, is Resident Geologist for the Standard of New Jersey. His address is c-o West India Oil Company, Trinidad, British West Indies.
- RANDALL H. ORMBEE, '15, of Lovelock, Nevada, has taken a position in the Research Department of the Phelps Dodge Corporation at Bisbee, Arizona.
- ARTHUR L. WALKER, Hon. '83, has opened offices as Consulting Mining Engineer at 15 Park Row, New York City.

IOTA CHAPTER

- HARLAN H. HOPPOCK, '20, was married at Nice, France, to Mademoiselle Yvonne Belger on March 28, 1929.
- ARTHUR H. KEMP, '29, is Civil Engineer for the City of Tulsa. His address is 714 West Fourth Street, Tulsa, Okla.
- GEORGE B. LETTS, '25, is now with the Texas Company, engaged in locating new oil stations throughout the central western states. His mailing address is Box 428, Lincoln Park Station, Chicago, Ill.
- MERTON I. SIGNER, '22, has been appointed to the faculty of the Colorado School of Mines. He served for a time as Engineer for the Illinois State Highway Department and was later Supt. of the Fremont Grant and Original Mine Company, Yosemite, Calif. His new position is that of Asst. Prof. of Mining.

OMICRON CHAPTER

- EDWARD L. ASHTON, '25, Brother and Mrs. Ashton announce the birth of a baby girl.
- GEORGE C. ASHTON, '23, and wife announce the birth of a baby girl.
- JOHN S. BECK, '29, is with the Wagner Electric Company at St. Louis, Mo.
- FRANK W. EDWARDS, '28, has returned to the University to work on his Master's degree.
- EARL J. FLANAGAN, '29, is with the Public Service Corporation of Northern Illinois at Chicago.
- HERBERT E. HOWE, '26, is working on his Master's degree in Hydraulics at the University of Iowa.
- JOSEPH W. HOWE, '24, is Assistant Professor in the Department of Mechanics and Hydraulics at the University of Iowa.
- BYRON G. KUNZMAN, '29, is employed by the Northwestern Bell Telephone Company at Des Moines, Iowa.
- JOHN D. LYKINS, '29, is with the E. I. DuPont de Nemours and Company, at Wilmington, Delaware.
- M. JEROME REID, '28, was married to Mildred Sonbergh at Cedar Rapids, Iowa, on June 15th.

VICTOR J. RICHTER, '29, announced his wedding to Miss Pauline Engle last June. The wedding took place at Charles City during the Xmas Holidays in 1927. Brother Richter has a position with the American Roller Mills at Ashland, Kentucky.

C. MAX STANLEY, '26, is with the Utility Power and Light Company of Chicago.

WILBUR C. TOCK, 'ex 29, was recently married to Ileta McCumber of Centerville. Brother Tock is employed by the State Highway Commission at Centerville, where they will make their home.

WALDO W. TOWNE, '27, has been appointed Chief Sanitary Engineer for the state of South Dakota.

SIGMA CHAPTER

JACOB S. DECKER, '28, is Engineer for the Electric Machinery Mfg. Co., at 812 Fourth St. S. E., Minneapolis, Minnesota.

RAYMOND J. ERNER, '28, was recently married to Miss Thelma Sebring. Brother Ebner is employed by the Ohio Bell Telephone Company at Columbus.

GLENN F. GRAF, '26, was married to Miss Edith Phillips. Brother Graf is with the Ohio Inspection Bureau at Columbus, Ohio.

C. RAMOND HANES, '24,—Brother and Mrs. Hanes are the parents of a daughter, Geraldine Ann.

ERNEST F. KEYSERLEBER, '24, now resides at 286 Elmhurst Avenue, Detroit, Michigan.

CLIFFORD S. LEVARE, '29, is with the American Rolling Mills Company at Middletown, Ohio. He resides at the Y. M. C. A.

ELMER L. MARSHAL, '28, is engaged in consulting work in Sanitary Engineering at Cincinnati, Ohio.

ALVIN M. MOCK, '28, is now employed by the Burnit Construction Company, Sanitary Engineering, Columbus, Ohio. He is at present working on the remodeling of the Sewage Disposal Plant at Willoughby, Ohio.

CHARLES P. SMITH, '29, is employed by the Department of Highways, Bureau of Bridges, State of Ohio, Columbus, Ohio.

THELO J. SWAIN, '28, is with the International Derrick and Equipment Company, Columbus, Ohio. His address is 364 Kelso Road.

LETTERS FROM THE ALUMNI ASSOCIATIONS

EDITORIAL COMMENT: In the Alumni Associations section we have letters from two of the Alumni groups. In our opinion, the writers gave a good review of the activities of their group, and we hope to have a report such as these from all the Associations for the next issue. We realize that the request for news was sent out too late to enable some of the Associations to send in material, but we'll try to start collecting a little earlier next time.

CENTRAL ALUMNI ASSOCIATION

Dear Brothers:

The Fall issue of the GEAR comes at a date when the newly chartered Alumni Association is rather at a loss for news. Our big meeting of the year will occur November 23rd, just too late for this issue. The main object of this article, therefore, will be publicity. We want to announce to the frater-

nity at large that the new alumni group is active in the interest of Theta Tau, and desirous of proving their right to the charter that was issued this year.

The spring meeting was held on University Day, last June. The principal business transacted was the election of a Nominating Committee to handle the election of officers at the Fall meeting. This Committee consisted of Brothers Groeniger, Ullery, and Smith. Further new business was referred to the next meeting when a larger percentage of members should be present.

To date, the Nominating Committee has issued ballots for the election of President, Secretary-Treasurer and Executive Member, together with a news letter pertaining to Homecoming activities.

Alumni members who reside in or near Columbus have been attending bi-monthly luncheon meetings at the Clittenden Hotel. Our attendance at these meetings has been surprisingly good, and we hope that Theta Tau men near here will form the habit of dropping in on them.

Here is some news of the older men:

Brothers Kauer and Bozman have tied the marital knot.

Brother Ebner is the proud father of a boy, and Cecil Covert of a girl.

Sigma chapter letter tells of honors accorded Brothers Ott and Marquis.

Brother E. F. Keyerleber is with the Truscon Corporation at Detroit.

Brother George H. Harding has organized the National Air Surveys, Inc., at Cincinnati, Ohio.

Brother Kauer has just completed his work as Assistant Engineer on the Whitehouse Crossing, a million-dollar re-inforced concrete bridge at Cleveland.

It is our sincere hope that this letter will be the first of a long-continued series of letters to the GEAR from our ambitious Central Alumni Association of Theta Tau.

CHARLES P. SMITH, Sigma '29.

TWIN CITY ALUMNI ASSOCIATION

Activities year 1928 and 1929:

On October 15th, 1928, the annual fall meeting of the Association was combined with the annual banquet that is held in conjunction with the active members of Alpha chapter as an observance of Founders' Day. The meeting was held at the Minneapolis Athletic Club, and there was a good turn-out of alumni as well as of active members and pledges.

The annual spring meeting was held on April 11, 1929, at the active chapter house. A tentative draft of a constitution was presented at this meeting, and a Committee was appointed to revise the constitution and to present it to the Association at a special meeting. In anticipation of the Ninth Biennial Convention being held at Minneapolis, a convention chairman was appointed in order that work might be started early in the fall.

Brother M. W. Hewett gave a financial report of the Theta Tau Association of Minnesota, Inc., a corporation formed for the purpose of procuring a permanent home for Alpha chapter. Brother Hewett has since taken over the duties of Treasurer of that Association and he is to be highly complimented on the splendid work that he is doing. A Committee was appointed to investigate several possible house locations that were reported to be for sale or rent.

On May 9, 1929, at a special meeting held at the Alpha chapter house, the

Association adopted the constitution as presented by the Committee. Brother Ed Young was appointed to work with the active members of the chapter on the arrangement of a Founders' Day observance in 1929. It has since been decided to have this observance in the form of a smoker at the active chapter house where plans for the Convention may be discussed.

The housing committee presented reports on two properties adjacent to the campus, and these were discussed. An option was taken on one of these during the summer, but it has since been abandoned.

Vacancies existing on the Board of Directors of the Theta Tau Association of Minnesota were filled by formal election at this meeting.

JOHN H. MOORE, Alpha '24.

Members of Theta Tau took a prominent part in the Mining Revival Meeting held at Prescott, Arizona, on August 24 and 25, 1929. Among those giving addresses or presenting technical papers were: Charles R. Kuzell, Delta '10, who is Smelter Superintendent for the United Verde Copper Company; Howard S. Field, Beta '14, ex Alpha, who is with the American Smelting and Refining Company at El Paso; Walter V. DeCamp, Gamma '08, Assistant General Manager of the United Verde Copper Company; and J. Jay Jakosky, Zeta '20, Consulting Engineer for the Radiore Company of Los Angeles and an authority on geophysical prospecting for ore-bodies.

Missouri School of Mines and Metallurgy—A demand far in excess of the supply was experienced by those in charge of senior placement at the Missouri School of Mines and Metallurgy this spring, and this has continued since the commencement exercises. The experience of one senior might well illustrate the demand that existed. This senior, one of the outstanding members of the class, wished to go with one of the large copper mining companies in South America. He filed his application, but for some reason action on the application was delayed by the company. Within about two weeks of commencement the senior decided to try other fields. The alumni office furnished him suggestions, and during the two weeks between the time he started writing and the commencement exercises he received eight definite offers of employment, five in the United States and three in foreign countries, including the copper company with which he had first filed application. About a week after the commencement exercises, in one day the school received requests for five geologists, two for Canada and three for the United States.

HONORS

TAU BETA PI

- Alpha—R. S. Anderson, C. A. Kurtz.
Gamma—C. H. Jenkins, M. Marsh, L. Conger, R. T. Wells.
Delta—D. Crawford, C. A. Davies, L. W. Fraser, W. J. Hotkiewicz, A. D. H. Marshall, F. R. Mautz, S. McCuskey, E. F. Morrill, R. S. Shankland, A. D. Siedle, W. E. Slabaugh, W. A. Thomas, S. N. Van Voorhis, R. R. Wilson.
Zeta—R. F. Dent, Jr., E. A. Farmer, M. J. Hood, H. L. Snell.
Eta—L. C. Hamlin, J. H. Booth, H. W. Fairchild, J. E. Bennett, D. T. Houston.
Theta—A. W. Ackerman, C. F. Curran, M. M. Duhig, J. J. Knox, A. H. Wing, H. S. Young.
Iota—J. E. Barton, H. C. Bolon, E. C. Long.
Kappa—T. J. Dolan, J. M. Gifford, D. H. Murphy, R. C. Oeler, A. E. Schubert.
Nu—H. L. Bunker, Jr., R. H. Johnson, C. F. Suesserott, G. M. Wile.
Omicron—E. Arvidson, P. Arvidson, F. W. Ashton, H. A. Embree, W. P. Munro, L. A. Ware.
Pi—R. T. Browning, C. D. Harman, L. F. Joachim, G. G. Quarles, L. R. Quarles.
Rho—J. H. Douthit, D. E. Jones, E. H. Proctor, E. B. Worth.
Sigma—H. E. Ashmead, C. A. Cook, B. F. Gayzer, E. R. Robinson, H. Z. Schofield, E. M. Stanbery.
Phi—J. H. Chesarek, L. S. Divan.

SIGMA XI

- Epsilon—B. Burger, B. Corey, J. C. Hazard, C. Johnson, C. Merriam.
Theta—A. W. Ackerman, G. R. Gohn, Jr., A. H. Wing.
Omicron—J. D. Lykins, W. P. Munro, M. J. Reid, L. A. Ware.
Sigma—H. E. Ashmead, E. R. Robinson.
Phi—L. S. Divan.

PHI BETA KAPPA

- Pi—C. D. Harman.

PHI KAPPA PHI

- Lambda—R. E. Lundquist.
Rho—E. H. Proctor, W. W. Weltmer, E. B. Worth.

WHAT IS PHI KAPPA PHI?

The honor society of Phi Kappa Phi was organized in 1897, for the purpose of promoting scholarship among American college students. It seems to foster learning in competition with the numerous attractive and conflicting interests affecting the modern everyday life of the undergraduate, by offering him membership on an equal basis with members of the faculty. Through meetings of the two factors, it aims to promote good feeling, learning, and high ideals among students in their personal college relationships. These meetings, it is hoped, will help to overcome the decentralizing tendencies of separate school emphasis in the larger institutions. *Banta's Greek Exchange.*

PUBLICATIONS

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- WORTLEY, R. B., Beta '13,
Novel Method of Sublevel Stopping,
Engineering and Mining Journal, Dec. 1, 1928.

Honorary life membership of the American Institute of Mining and Metallurgical Engineers was conferred on Baron Takuma Dan at a meeting held in Tokio on November 3rd. F. W. Bradley, Epsilon Honorary, president of the institute, presided, and Professor Robert H. Richards, emeritus professor at the Massachusetts Institute of Technology, under whom Baron Dan studied, sponsored the presentation.

The Guggenheim Fund for the Promotion of Aeronautics, Inc., as reported in *Science* recently, made a grant of \$30,000 to Syracuse University to establish a course in aerial photo-surveying and mapping in the college of applied science. Five experts have accepted the invitation of the chancellor to act as an advisory board in connection with the planning of the new course. The members of this committee are: Carl S. Bausch, manager of the Bausch and Lomb Optical Company, Rochester, New York; J. B. Beadle, of the Brock and Weymouth Company, Philadelphia, Pennsylvania; Colonel Claude H. Birdseye, Washington, D. C.; Sherman M. Fairchild, president of the Fairchild Camera Company of New York, and Captain E. S. Land, vice-president and treasurer of the Guggenheim Fund, New York.

The trustees of Pennsylvania State College have renamed the School of Mines and Metallurgy as the School of Mineral Industries. Expansion of all divisions of the School of Mineral Industries is expected with the completion next year of a new building for the school.

A petition for a chapter of Sigma Pi Sigma, honorary physics fraternity, has been granted to a group at the University of Oklahoma, and a chapter will be installed there in the near future. The expansion program of the society includes the installation of several other chapters during the present academic year. At present there are ten chapters.

LOST THETA TAU ALUMNI

NOTE: Mail has been returned from the best addresses available for the following:

<i>Alpha Chapter</i>		Vorck, Chas. R., '14	Simpson, Edw. C., '21
Cleary, Harold F., '22		West, John R., '10	Vail, Randolph R., '11
		Young, Guy K., '18	Wilson, Frank L., '12
<i>Beta Chapter</i>		<i>Delta Chapter</i>	
Alsip, Albert A., '08		Arns, Chas. S., '12	Zeta Chapter
Bardill, John D., '27		Bailey, Harold L., '21	Battell, Albert R., '17
Barton, Gerald M., ex '24		Cotton, Cecil W., '11	Beck, Dannie M., '21
Cass, Raymond A., '12		Dauber, Clarence A., '26	Bell, Arnold A., '18
Corbett, James L., '22		Dietrich, Neff T., '21	Bryson, Wm. W., '21
David, Joseph, '11		Ditchman, Jon. P., '27	Brown, Nathan W., '11
Evans, Carl W., '11		Fisher, Leonard C., '28	Davis, Clifford G., '24
Fay, Wm. W., ex '22		Griffin, Boyd, '28	Deaver, Ray E., '17
Fredericks, W. Carleton, '21		Hampton, Donald V., '21	Herndon, Harold D., '21
Hoyge, Edw. J., Jr., '21		Jenks, Karl E., '19	Holt, Hobart C., '18
Kendall, Arthur B., '17		Kaufmann, Vincent A., '24	Keenrady, Mason H., '26
Kirkpatrick, Marlene R., '07		Monley, Edgar T., '24	La Mer, Jos. S., '19
Krumm, Geo. A., '24		Parnelier, Myron G., '26	Madden, J. Edgar, '18
McLachlan, Benj. H., '11		Scott, John C., ex '14	McCune, Malcom L., '11
Moore, Chas. F., '27		Severin, Carl, '10	Nutting, Floyd L., '11
Nicole, Ira P., '21		Sprawl, Norman E., '17	Painter, Chas. J., '11
Riker, Eugene A., '10		Wherry, Harry B., '21	Patterson, Robt. S., '27
Wilkinson, Paul H., '01			Rutledge, Robt. M., '22
			Ward, Richard B., '11
<i>Gamma Chapter</i>		<i>Epsilon Chapter</i>	
Auman, Egbert E., '14		Chamberlin, James R., '24	<i>Eta Chapter</i>
Batney, Arthur Y., ex '28		Clark, Clifton W., '11	Ackerman, Gilbert J., '28
Clothier, Conrad F., '24		Craig, Eric K., '14	Benton, Herbert G., '11
Devin, Thomas, '21		Davis, Sherwin B., '12	Brotherton, Wm. G., '11
Delahanty, Frank E., '21		Duncan, Dan M., '18	Dickson, Benj. A., '22
Fiske, Harry M., '21		Faulke, Ronald E., '18	Farthing, Wm. J., '16
Gohagan, Donald L., '27		Folger, Anthony, '19	Horsford, Rockwell, '24
Gibson, Robt. W., '11		Fraser, Sidney E., '18	O'Donnell, Ottomar, '11
Graham, David J., '21		Letchworth, Pierre E., Jr., '24	Pulley, Ernest E., ex '11
Hoodie, J. Kell, '22		McDonald, Orlando G., '24	Rogers, Robt. W., '24
Hyland, Norbert W., '22		Miller, Wm., B., '16	Stuart, Lyall L., '21
Jones, David L., '22		O'Neil, Frank, E., '20	Swain, Winthrop C., '16
Reichen, Hugo, '27		Rand, Wm., W. B., '26	Wood, Thomas S., '28
Stewart, Charles H., '26		Rhodes, Roy S., '11	
Stewart, Clifford H., '21		Rogers, John M., '21	<i>Theta Chapter</i>
Stanford, Joel G., '21		Salisbury, Ralph T., '21	Crawford, John, '22
		Schneider, Walter H., '11	

Hasbrell, Irving W., '14
 Olstad, Martin H., '27
 Porska, Norman J., '26
 Somerville, Wm. B., Jr., '17

Iota Chapter

Burg, Robert, S., '16
 Ehlers, Louis W., '18
 Fleming, John W., '25
 Gordon, John P., Jr., '25
 Machin, Edwin G., '22
 Machin, Wm. B., '28
 Mann, Walter J., '19
 McElride, Hollis E., '25
 McCausless, Wm. A., '27
 Nolte, Wm. J., '19
 Robertson, Edw. E., '24
 Scott, Guy R., '24
 Stuart, Samuel H., '25
 Valerius, Claude N., '25
 Watkins, Martin W., '25
 Wright, Kenneth M., '29

Kappa Chapter

Arning, Henry U., '24
 Bartlett, Charles H., '25
 Bates, Gardner O., '24
 Blair, James A., '25
 Borgeson, Carl A., '25
 Bowersock, Wm., '19
 Bruderrick, James R., '24
 Buchanan, Donald P., '24
 Hake, Harry G., '20
 Happenny, John C., '25
 Jackel, Herbert A., '25
 Johnson, Ralph B., '20
 McClelland, Ralph L., '22
 McEvers, Ernest M., '29

Peterson, Donald E., '28
 Reichelderfer, Harry, '18
 Robinson, Geo. W., '24
 Welsh, J. R., '24
 Wharton, Russell F., '22

Lambda Chapter

Adams, Thos. C., '22
 Browning, Thos. C., ex '25
 Caulfield, Jos. P., '22
 Christensen, L. A., ex '15
 Farnsworth, Wayne H., '24
 Funk, Alfred M., '27
 Greene, Kenneth S., '27
 Grey, John S., '25
 Hardy, Edw. V., '25
 Hartman, Clarence W., '27
 Haylor, Herbert C., '24
 Hayward, John E., '28
 Jacobson, Wm. B., '25
 Jennings, Brenton W., '24
 Jones, Geo. M., '27
 Maughn, Wm. B., '15
 Mitchell, Thos. F., '24
 Rumph, Lee M., '25
 Shelley, Wayne L., '25
 Smith, Wm. A., '22
 Stephens, Leone R., ex '25
 Wadsworth, Darrell B., '24
 West, Harold B., '25
 Whitney, Hardin A., ex '25

Mu Chapter

Cole, Guy M., '24
 Hamilton, Wm. E., '25
 Mallette, Rose E., '22
 Nason, Geo. H., '25
 Peterson, John W., '24

Shannon, John J., Jr., '25
 Shotts, Claude C., '22

Nu Chapter

Baugh, Elbert A., '25
 Jeffers, Chas. W., Jr., '25
 Johnson, Edw. H., '22
 Loughrey, Thos. F., '24
 Minatti, Albert C., '24
 Mitchell, Walter F., '22
 O'Connor, John M., '26
 Porterfield, David C., '25
 Schweizer, Leslie C., '25

Omicron Chapter

Dethlefs, Robt. W., '25
 Walters, Louis M., ex '25

Pi Chapter

Kuner, Tyler B., '24
 Mayers, Loyd C., ex '27
 Painter, Newton J., '25
 Vought, Harry K., ex '24
 Weir, Paul L., '25
 Wise, Samuel G., '22

Rho Chapter

Biberstein, Richard V., '25
 Jenkin, Donald B., '22
 Smith, Perry M., '25
 Stradlett, Wm. W., '27
 Sutton, Edw. A., '26

Sigma Chapter

Borman, Wm. D., '26
 Covert, Maurice D., '25

THETA TAU PROFESSIONAL CARDS

Don C. Billick

Epsilon '13
Petroleum Engineer
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J. D. Brance

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Specialist to the Petroleum Industry
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Engineer, Mucteruma Copper Co.
Filas De Nacotari
Sonora, Mexico

T. W. Callahan

Gamma '14
Geologist
161 Texas Theatre
San Antonio, Texas

Fred Coffman

Lambda '11
Asst. Chief Engineer
Duke Construction Company
(Builder of New Duke University)
Durham, N. C.

W. V. DeCamp, E. M.

Gamma '38
General Superintendent
United Verde Copper Co.
Jerome, Arizona

George H. Harding

Sigma '26
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Land Developments, Power Investigations,
Surveys—Air, Ground, Topographic or
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U. S. Bureau of Mines
Petroleum Experiment Station
Bartlesville, Oklahoma

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Delta '17
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Kimberly, Nevada

Lynn Wm. Raybould

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Erich J. Schrader

Alpha '01
Engineer of Mines
Reno, Nevada
At present General Superintendent Gold
Circle Consolidated Mines
Midas, Nevada

O. E. Stoner

Iota '20
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H. R. Thornburgh

Epsilon '22
Geophysicist
Seismograph, Turicou Balance, Magnetometer
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Houston, Texas
(Not open for outside engagements)

Thos. Varley

Lambda '07
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Flotation, Ore Dressing and Metallurgical
Tests
Office and Laboratory
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**Walter H. Wheeler,
E. M.**

Alpha '08
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Investigations, Reports, Plans, Specifications, Supervision of Construction, Valuation for Structures, Bridges, Buildings, Dams, Manufacturing Plants, etc.
Metropolitan Life Building
Minneapolis, Minn.

George H. Yeokum

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



TELEMACHUS: I s'pose it seems good to be back at the old school again?

HELEN: Not so good. I can't stand these boys' Spartan badges after wearing Balfour's so long.

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