



# TEXAS PROFESSIONAL ENGINEER

Official Publication of the Texas Society of Professional Engineers

VOLUME 5



NUMBER 2

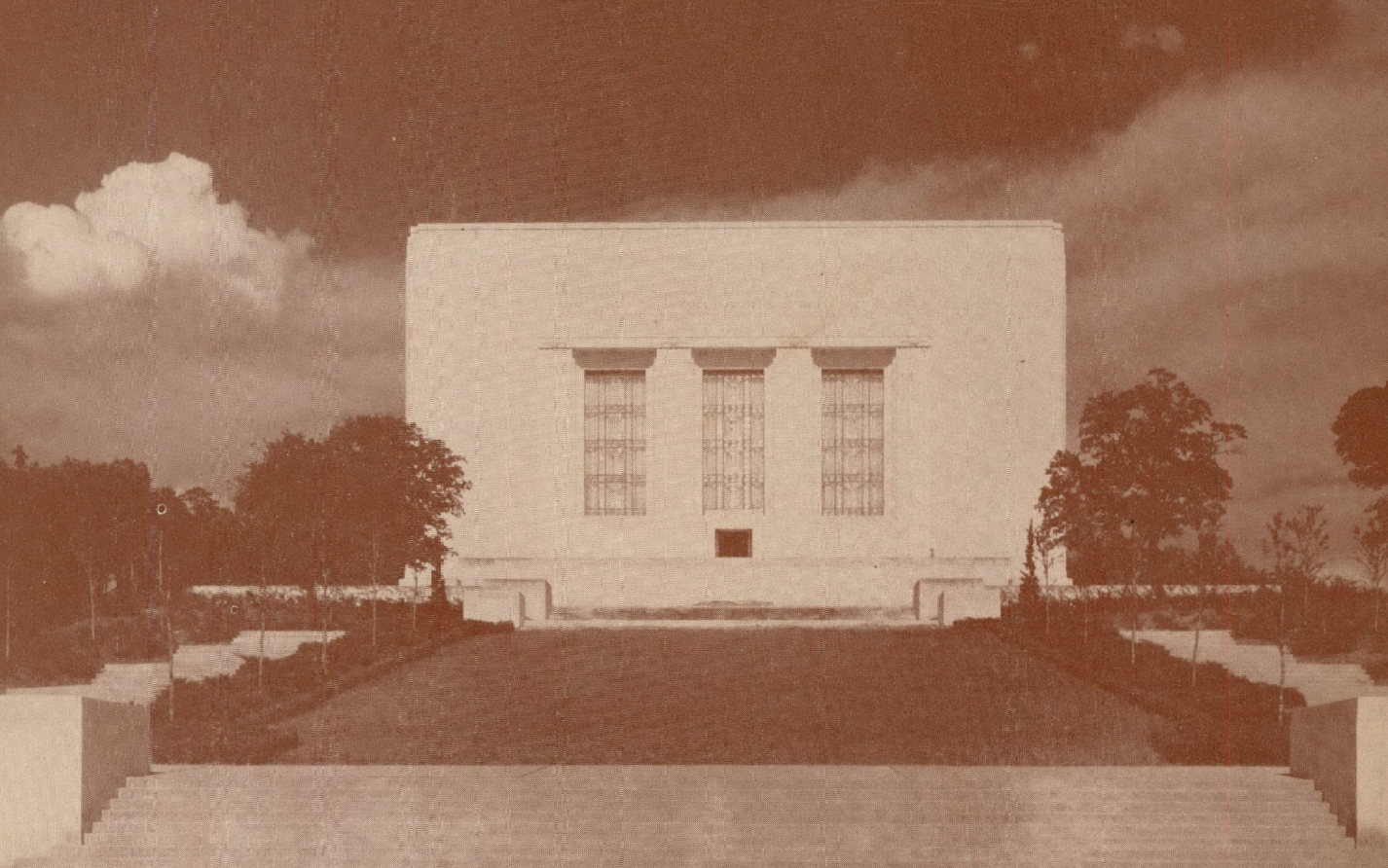


MARCH-APRIL, 1946



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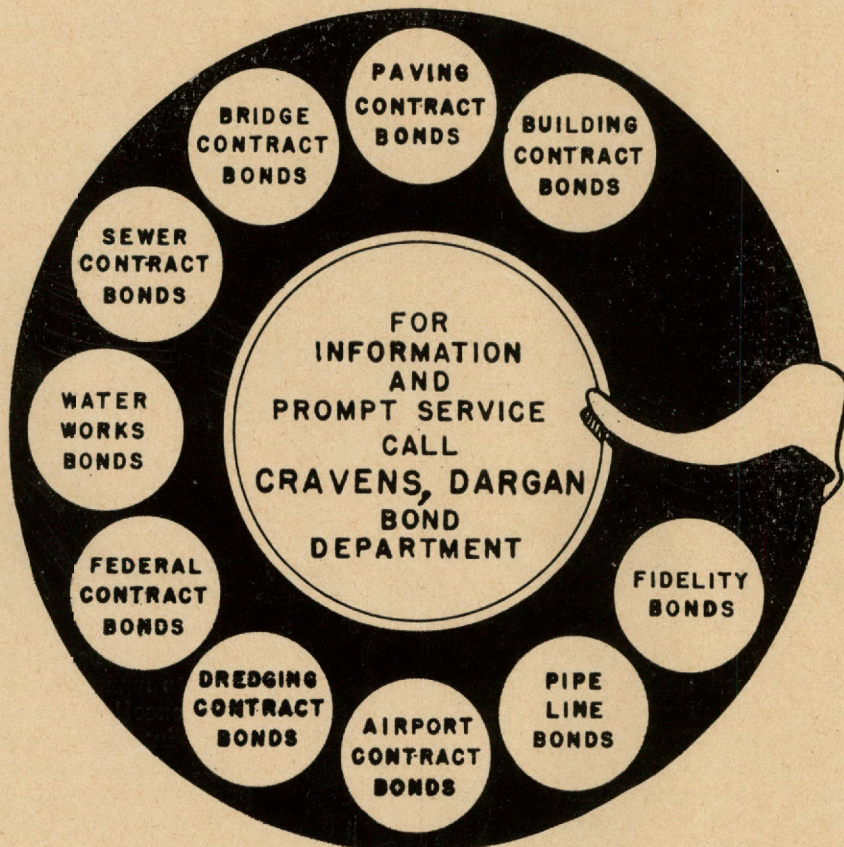
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# Memorial Museum Needs Texana Items

By A. GARLAND ADAIR,  
Texas Memorial Museum Curator

**T**HE following statement is made by way of timely observation and is, in no sense, to be regarded as an indictment of neglect or carelessness. It presents the reason for the emergency in museum activity in Texas which is the basis of this appeal.

States, like individuals, generally speaking, have to begin to grow old before proper attention is given to the preservation of materials which most vividly portray man's life and which are most interesting museum display.

Also before any great progress can be made in the preservation of such materials adequate provisions must be made for proper handling and utilization of these materials.

Although the program for a museum had been in the making at the University of Texas for many years, it took a Centennial campaign sponsored by many influential patriotic and service, as well as educational organizations, to make Texas museum-minded.

Until the central unit of the Texas Memorial Museum was made available through Federal and State of Texas Centennial legislation it has been said that there were in the South and Southwest no state museums of "serious importance." The Texas Memorial Museum is the first state museum, the building of which was financed with Federal appropriations out of a Centennial bill.

On January 15, 1939, the Texas Memorial Museum, located on the campus of the University of Texas, was permanently opened. Monumental and beautiful in architectural design and so built as to constitute a fitting memorial to the builders of Texas, including the heroes of all wars in which Texas has participated, it represents a scientifically arranged fireproof building where rare, interesting and beautiful things may be preserved and displayed for the enlightenment and enjoyment of the public.

Perhaps no movement in recent times in Texas has a larger significance or has aroused more general interest upon the part of the individual citizen than the one which made possible the construction of this new state institution.



An interior view of the Texas Memorial Museum at Austin is shown in the above photograph. Our Front Cover picture is an exterior photograph of the Museum which faces west on Austin's San Jacinto Boulevard where that thoroughfare winds through the campus of the University of Texas.

The Museum, with its many and varied collections, is a "must" on a visitor's list of places to go in Texas's Capital City.

Texas is fortunate in having a unique history replete with deeds of heroism on the battle plain and on the frontier. Texas, whose whole history is saturated with the frontier, has now taken a step to preserve the objects that have featured and which have largely determined the progress of man since the coming of the first Europeans to Texas.

There are many valuable collections of civic history in the hands of private individuals which may be had for the asking, now that the State has a creditable, fireproof building in which to house, catalog and display them. They have been gathered at much expense of time, often of money, and their owners are, in some instances, eager to dispose of them by donating them to a Texas institution rather than to some out-of-state museum. In the Texas Memorial Museum these collections would become even more valuable than in private hands and thereby thus relieve these private citizens of the worry over the possibilities of their collections being lost by fire in their private

homes or being scattered and destroyed by unappreciative heirs. Dr. W. E. Howard of Dallas has rendered lasting services as a collector of Texana.

Interested private citizens must be found, interviewed and their collections recorded; courthouses must be visited; old records and files examined in every place that bears some relation to history. Thereby contacts may be made by which there may be made available for the museum collections that portray the life of the old Spanish days, the days of the Republic of Texas, the westward migrations of the pioneers.

The scheme as a whole will make the museum cost less and serve more ends, gathering of letters, newspapers, manuscripts and other forms of printed matter, articles of Texas made home-craft, such as prairie schooners, stagecoaches, skin clothing, rawhide lariats, traps, handmade cabinets, beds, chairs, broad axes, etc., out of which to construct the history of Texas and establish the museum as a common enterprise of the people.

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## MEMBERSHIP QUALIFICATIONS, TEXAS SOCIETY OF PROFESSIONAL ENGINEERS

A Member shall be a legally registered Professional Engineer in the State of Texas. This classification shall compose the active membership. Every member of the T.S.P.E. is a member of the National Society of Professional Engineers.

A Junior Member shall be a graduate of an engineering school recognized by the Texas State Board of Registration for Professional Engineers.

Membership Application should be mailed to Chapter of applicant's choice.

# Specific Projects for TSPE in 1946

The following program of work was adopted by the Executive Board of TSPE at its February 19 meeting in Austin:

1. To sell the Society to members and to all registered engineers through a concrete definition of an engineer.
2. To inaugurate definite plans which will acquaint our members with the members of the State Legislature.
3. To support actively the constitutional amendment which will make possible a retirement plan for State and County employees.
4. To support vigorously the Registration Act in order to minimize violations.
5. To encourage adequate compensation and recognition of engineers by bringing the Schedule of Minimum Engineering Fees and Salaries up to date and by distributing these schedules to the State, County and City officials employing engineers, and to all consulting engineers.
6. To study the Registration Act to determine what amendments are desirable and to prepare amended sections for submission to the next legislature.
7. To conduct actively a membership campaign having a goal of 1800 members for TSPE in 1946.

## Membership Going Up

Records of our State Headquarters show the following TSPE membership on March 25, 1946:

Chapter	Membership in Good Standing		
	3-25-46	1-30-46	11-23-45
Bexar	110	101	97
Brazos	28	22	21
Central Texas	38*	39	42
El Paso	25	25	24
Fort Worth	136	128	121
North Texas	207	202	176
Nueces	81	74	65
Panhandle	53	50	51
Sabine	109	106	103
San Jacinto	307	267	261
Travis	193	185	183
Lubbock Area	18	17	15
<b>Total</b>	<b>1305</b>	<b>1216</b>	<b>1159</b>

\*Decrease in chapter membership due to transfer of members.

## Status of Secretary Fund

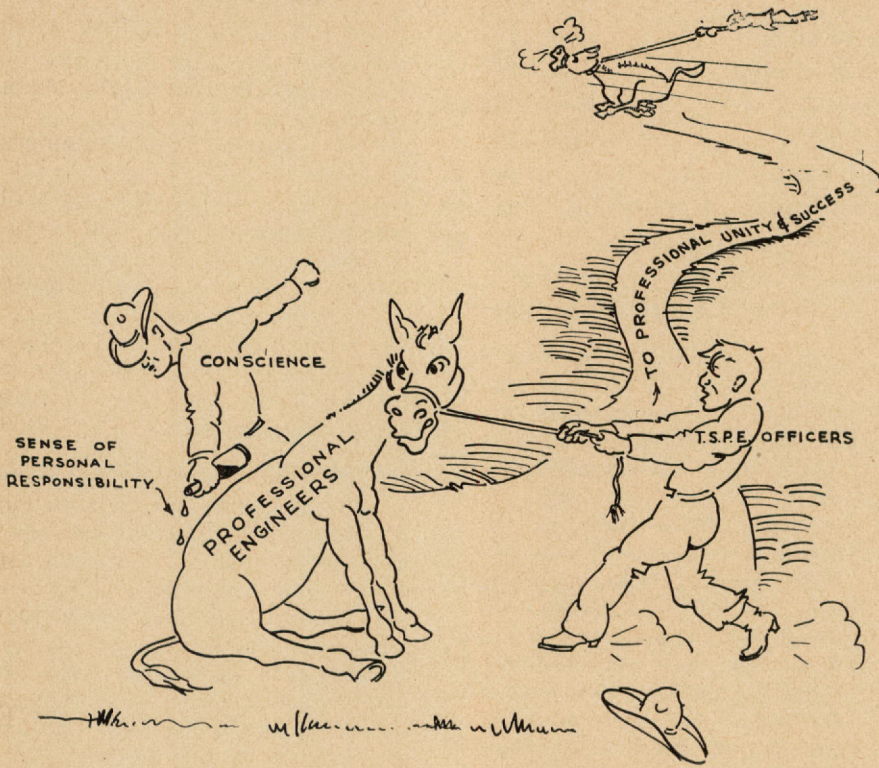
March 30, 1946

Chapter	Quota	Amount Pledged
Bexar	\$ 2,000.00	\$ 1,951.00
*Brazos	..	..
Central Texas	600.00	425.00
El Paso	200.00	200.00
Fort Worth	3,500.00	689.50
Lubbock Area	200.00	..
North Texas	5,000.00	3,055.00
Nueces	1,500.00	525.00
Panhandle	300.00	..
Sabine	1,200.00	400.00
San Jacinto	6,000.00	2,468.50
Travis	2,000.00	5,065.00
<b>Totals</b>	<b>\$22,500.00</b>	<b>\$14,779.00</b>

\*Brazos Chapter organized after drive was initiated.

# Kluge's Karakters . .

By Ocie Kluge



joining TSPE in 1946 to pledge toward the Secretarial Fund, stating that it was not a good policy to "hit" a man for dues and then "hit" him again for a subscription to the Secretarial Fund.

Consideration of the Magnuson Bill brought forth a statement from Dr. Blau, who said he was against the bill because it was taking research out of the proper hands. J. Neils Thompson maintained that educational institutions need aid in research and favored the bill. However, the board went on record against the bill and voted to so notify NSPE of its vote, including the Kilgore Bill in its disapproval.

By unanimous vote the board decided that on January 1, 1947, any exemption of members in the armed forces from paying dues will be discontinued.

The Rules Committee was asked to formulate an amendment to the Constitution and By-Laws on the status of junior members when they become registered professional engineers, with the recommendation that a junior member, when he becomes a registered engineer, be billed for dues.

New board members and officers present for their first meeting were Dr. L. W. Blau, Houston; M. J. Gerhardt, San Antonio; R. L. Faltinson, Corpus Christi; Marvin C. Nichols, Fort Worth; Robert Coltharp, Austin; and Trigg Twichell, Austin. Other officers and board members present were: James P. Exum, president, Austin; W. M. Andrews, national director, Houston; Elgin B. Robertson, past president, Dallas; T. C. Forrest, Jr., director, Dallas; J. Neils Thompson, director, Austin; Llewellyn B. Griffith, director, Waco, and C. W. Mier, director, Dallas.

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## TSPE Board Votes Disapproval Of Magnuson, Kilgore Bills

AT a meeting of the Executive Board of the State Society in Austin February 19, a brief resume of society activities since he became president was given by James P. Exum, who reported he had attended a meeting of the Central Texas Chapter in Waco, January 22nd, appointed all standing committees for 1946 and had conferred with the engineer member of the State Board of Control.

He announced plans to attend a meeting of the State Presidents of NSPE on March 29-30, 1946 and a meeting of Brazos Chapter to present its charter.

The Budget Committee report was read by Chairman Trigg Twichell, and adopted by the Board. This budget was based entirely on income from dues with no provision made for the full-time Executive Secretary's office. Income from dues was estimated at \$6,000.00. Estimated liabilities included \$1,820.00 for the salary of a stenographer and \$1,150.00 for a part-time Executive Secretary. Operation of the state office, printing, traveling

expenses of administrative personnel, retainer fee for the Society's Counsel, bond on the Executive Secretary and the franchise tax were other items included, leaving a surplus of approximately \$400.00.

Mr. Twichell asked an expression from the Board as to whether the Budget Committee could use money from the Executive Secretary Fund if TSPE funds are depleted before the year ends. All present agreed that the Executive Secretary Fund was not to be touched.

Considerable discussion was carried on relative to the Executive Secretary Fund. Dr. L. W. Blau of Houston brought out that the Executive Board of San Jacinto Chapter had voted that they would not ask any member

## Health Research Council Organized

The Sanitary Engineering Council of Texas held a meeting at the University of Texas and set up its permanent organization. The Council was initiated last year by universities and colleges of Texas interested in research in sanitary engineering and public health fields, the objectives being to promote research and to facilitate the transfer of information in these fields, and also to secure funds for such research.

# From Precinct Basis to Unit System

By A. S. WARE,  
Brazos County Judge

**F**OLLOWING an intensive and extended study of all the problems involved in the administration of its road and bridge affairs, the county commissioners' court of Brazos County, Tex., in April, 1944, decided to adopt the county-unit plan of operation. The decision was unanimous, and the plan was actually put into operation on Sept. 1, 1945, coincidentally with the employment of a trained county engineer. The action of the commissioners' court was the final step in the transition, over a period of seven years, from what might have been considered a typical precinct system.

The upgrading of county road and bridge administration in Texas is a large order; but it is something that is very close to the heart of every honest and sincere member of every commissioners' court in the state. Texas county officials are aware that there is considerable room for improvement when we consider the state as a whole, or all its commissioners' courts collectively.

A poll of the 1,016 commissioners and the 254 county judges would undoubtedly produce a unanimous vote in favor of modified and modernized road administration. But when we get on the ground in the various counties and their several precincts, we are inclined to say that the particular situation and the particular problems are individual and special, and that what may have seemed to be a theoretically desirable set-up is actually not applicable.

## What the Law Permits

To understand the problem and the possibilities of improving local road and bridge administration in Texas, it is necessary to examine the constitutional and statutory authority given the commissioners' courts, along with some of the limitations under which we must operate.

The Texas constitution directs that each county shall be divided into four commissioners' precincts, in each of which is elected a county commissioner, to serve a term of two years. The county commissioners, together with the county judge as presiding officer, constitute the county commissioners' court, which is the governing board of the county.

Under Texas law, a commissioners' court exercises general control over all roads, highways, ferries and

## Potter County Modernizes

In addition to this splendid article readers will be interested in the article by County Judge E. O. Northcut on "A Texas County Unifies Its Road Operations" appearing in the November, 1945, Issue of Better Roads Magazine. This article describes the experience of Potter County, Texas, in modernizing its road organization. Pooling of men and machinery was the first step, then consolidation of budgeting facilities, up-to-date cost accounting and county-wide purchasing, all under direct charge of the county engineer, leaving the commissioners free to make policy decisions. It is worth your time, especially if you are interested in similar solutions for your home county.

bridges in the county. It is required to lay out and establish, change and discontinue public roads and highways, and to establish public ferries whenever the public interest may require. It builds bridges and it keeps them in repair.

Another provision of law requires the commissioners' court to see that the county road and bridge fund is "judiciously and equitably expended"; further, "as nearly as the condition and necessity of the roads will permit, it shall be expended in each county commissioner's precinct in proportion to the amount collected in such precinct. Money used in building permanent roads shall first be used only on first or second-class roads, and on those which shall have the right-of-way furnished free of cost to make as straight a road as is practicable, and having the greatest bonus offered by the citizens of money, labor or other property."

In this statute we find the origin of the precinct system of road and bridge administration that is so gen-

erally followed in Texas. In a few instances it is equitable to follow the statute literally, and yet its strict application in the great majority of counties would be highly inequitable and impracticable. The precinct system is strongly condemned by outsiders, though it must be said that it has had its merits and still may not be as bad as some of its critics claim. Enacted 56 years ago, this law has served to prevent concentration, for political or other reasons, of all the road and bridge work in a given area within a county.

## Common-Sense Construction

Although the statute has furnished a safeguard against undue geographical concentration of local road and bridge work, a continued literal construction of its provisions would work a great hardship on the average county, and could easily distort the administration of roads and bridges in such a manner as to defeat the entire concept of equitable service to the county as a whole.

From litigation originating in Van Zandt County and pursued through the higher tribunals of Texas, our courts in 1937 placed a common-sense construction upon this law, and for the past eight years it has been accepted that the commissioners' court is an agency of the whole county. The members of the court, that is, are primarily representatives of the entire county, and not merely of their own precincts.

The commissioners' court, the opinion goes on to say, "must regard the highways of the county as a system to be laid out, changed, repaired, improved and maintained, as far as practical, as a whole, to the best interests of all the people of the county; and must maintain, repair and improve roads and bridges as conditions require, regardless of the precinct in which a road or bridge may be located, so far as funds will equitably justify."

Another provision of our statutes can be of tremendous value to county governments in the construction and maintenance of lateral roads. If a county is without the services of a county engineer, then the commissioners' court "shall have authority to command the services of the division engineer of the state highway



department for the purpose of supervising the construction and surveying of lateral roads."

To be sure, because of this provision of law there is no need for the counties to rely entirely on the division engineer of the state highway department for their own engineering work. That would be like the behavior of the backwoodsman who borrowed meal so consistently that he finally refrained from planting any corn himself.

However, when necessary the counties ought to take advantage of the services of the state highway department's capable engineering staff. I do know that the department's engineers will gladly advise with the counties, and will even carry their assistance to the point of supervising the construction of projects. In Brazos County, for instance, the local division engineer of the highway department made all estimates for and supervised the construction of a major county bridge over the Brazos River.

### Ideal County Plan

How can the operations of a Texas county be carried on most efficiently under the organic and statutory laws already reviewed? At the bottom of good performance will be found a commissioners' court with a proper concept of its legal duties and obligations to the taxpaying citizens. For the highest efficiency and economy of operation, the four commissioners and the county judge must be conversant with the requirements of the entire county. There should also be a competent county engineer, devoting his entire time to the job. And to get the greatest efficiency out of the entire organization, all road and bridge operations should be conducted as nearly as possible according to what is popularly known as the county-unit system, with the details of management fitted to the county's individual needs.

The court should lend all possible assistance and cooperation to the budget officer. Anticipating the program for at least 18 months in advance, it should give conscientious, determined and consistent consideration to tax rates and equalization. Courageous service by the commissioners' court, sitting as a board of equalization, goes a long way toward the stabilization of assessed valuations and the resultant acceptance by the owners of reasonable valuations, which should remain from year to year in

the absence of material changes in the physical properties. This highly important duty should never be relinquished to an appointed board of laymen, which in all probability would undergo a complete change of personnel from year to year, and would therefore have no continuing incentive to stabilize the valuation structure over a long period.

The efficiency of county road and bridge administration will keenly reflect poor practices in the purchasing of materials and supplies. Our Texas laws governing county purchasing are very specific and adequate, and reasonable adherence to their requirements will assure the following of common-sense practices, which should embrace competitive bidding and the stock-piling of adequate materials and supplies.

### Full Control

The county engineer will, of course, render outstanding service in the purchase of highway materials and supplies. He will also improve efficiency through overseeing the county's shop operations.

Every county that presumes to discharge its full responsibility should have a central mechanical shop, where its road equipment can be serviced and maintained, and where practically all the normal repairs can be made. A properly trained and experienced mechanic personnel will pay large dividends to any county performing road work.

There may be instances where precinct bases are necessary, and even where minor repairs may be made advantageously in the outlying sections of the county. On the whole, however, I believe that the better system is to have all this work done at a central shop in the vicinity of the county seat. Certainly all materials and supplies should be checked into the headquarters plant under the supervision of the county engineer.

Engineering skill is indispensable in the construction and maintenance of highways and bridges, whether they are under state or county supervision. In these modern times no sensible person would argue that the state of Texas, with its great system of major highways and farm-to-market roads, should even consider operating without a state highway engineer and an adequate staff of assistants. Likewise, not a single one of the larger counties of the state

(Continued on Page 16)

## Norman Returns From Naval Duty



Commander D. L. (Tex) Norman has recently returned to Austin after an absence of four years.

Norman was chief engineer of the Lower Colorado River Authority during the five-year construction period. In 1941 he was called to Washington as a dollar-a-year man for the War Production Board where he served for a year with the Power Division as Chief Engineer for Regional Power Coordination.

He is a graduate of the United States Naval Academy and in December, 1942, returned to the Naval service and left immediately for the Southwest Pacific where he served for three years in a sea command. For the past two years he was commanding officer of a repair ship operating in the New Guinea and Philippines area.

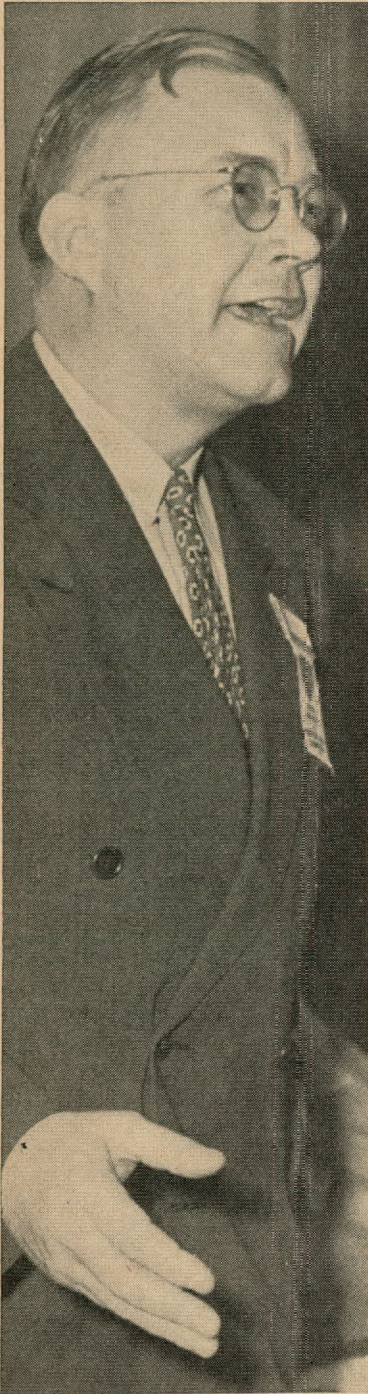
Commander Norman expects to continue his residence in Austin and has entered the engineering and construction field here.

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## Servicemen Return To Austin Posts

Returning servicemen of Travis Chapter who are now back at civilian duties include Edward R. (Hank) Clewis, H. P. Carothers, and A. L. Chollar, with the Texas Highway Department. Clewis is a design engineer, Carothers is assistant engineer of road design, and Chollar is an area engineer with the Road Design division.

## Senator Moore Praises Engineers



Senator Weaver Moore was principal speaker at the March 11th San Jacinto Chapter dinner meeting. In covering the problems confronting the nation today he praised the work of the engineering profession.

A sound-color film "Oil for Tomorrow," was presented through the courtesy of the Humble Oil and Refining Company. Sixty-five members were present.

# Bexar Horizontal Control Precise Survey Proposed

A proposal for a Horizontal Control Precise Survey for San Antonio and Bexar County has been presented to the City-County Planning Board by Harry A. Seran of that city. Sponsored by the Bexar County Chapter, TSPE, the proposal bears the endorsement of the U. S. Coast and Geodetic Survey, which have offered its cooperation in consummating such a program.

The advantages of such a survey are well known to the engineer, but the general public is unaware of the importance and benefits that would be obtained. The value of such a survey is manifold. It would provide proper ground control for existing or future maps of all types; and provide permanent stations, properly marked, whose positions have been accurately determined and computed on the State System of Plane Coordinates.

The Texas Legislature authorized the use of the Plane Coordinate System in the State and permitted a description of a survey tied into such a System to be admitted in evidence as a legal description of the property in question. The adoption of the proposal for San Antonio and Bexar County would permit a more accurate description of property lines or boundaries, and the actual establishment of limits regardless of its location.

Similar surveys have been executed in many cities of the United States, but so far as is known, this is the first proposed in Texas. Such surveys have been executed in the following cities: Atlanta, Ga.; Baltimore, Md.; Boston, Mass.; Cincinnati, Ohio; Cleveland, Ohio; Denver, Colo.; Los Angeles, Calif.; Minneapolis, Minn.; New York, N. Y.; Pittsburgh, Pa.; Richmond, Va.; Rochester, N. Y.; and Toledo, Ohio.

It is estimated that the survey would cost about \$60,000, and would require 12 months for completion. Under the proposal, permanent stations would be established within the city limits, spaced within 500 to 1,000 yards along traverse lines one mile apart. A greater spacing of stations would be used in the County. The traverse lines would be connected to the U. S. Coast and Geodetic Survey Stations North and West of the City, thus insuring the permanency and recoverability of the stations established by the survey.

There is no doubt that such a survey would be of considerable benefit in San Antonio and Bexar County, as well as throughout the entire State. It is unbelievable, but nevertheless the fact exists, that in these United States, it is next to impossible to determine accurately the precise position of any land boundary under the present system of referencing. The proposal should have the unqualified support of TSPE. It should be adopted.

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## Secretary Committee Studies Qualifications

A committee of three, composed of Datus E. Proper, Mason G. Lockwood and A. P. Rollins, has been appointed for the purpose of selecting an executive secretary for the Texas Society of Professional Engineers.

The committee has had two meetings, one at Austin with Mr. Proper and Mr. Rollins present, and one at Houston with Mr. Proper and Mr. Lockwood present. At these two meetings the committee discussed the job and the qualifications of the man to fill the job. The result of these discussions was embodied in a statement which has the unanimous approval of the committee and which has been mailed to all chapter presidents and secretaries, and has in all probability been read at all chapter meetings.

Information relative to a desirable applicant for the position should be mailed to the committee chairman, A. P. Rollins, Praetorian Building, Dallas 1, Texas.

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## Gilchrist to Speak

Gibb Gilchrist, president of A. & M. College, will address the San Jacinto Chapter at a dinner meeting May 13, 1946, at 6:30 p. m., at the Texas State Hotel at Houston. Out of town engineers are invited.

# UT Carries on National Research

**T**HE BUREAU OF ENGINEERING RESEARCH at the University of Texas during the war engaged in closely-guarded scientific studies that aided materially in our victory. With victory won, these and additional research projects pertaining to national security still are being carried on, and remain surrounded by secrecy.

Happily, however, much of the post-war engineering research is directed toward the ways of peace and happiness—toward making the lot of mortals a little easier in this atom-jittery age. Some of the engineers who work under the auspices of the Bureau, for instance, are trying to solve such pleasantly mundane problems as improving the taste of frozen corn-on-the-cob, how to dispose of salt water from oil wells and how to preserve fresh, succulent gulf shrimp so they may be enjoyed by the epicures of Lubbock and Amarillo, as well as Houston and Galveston.

Founded in 1924, the Bureau of Engineering Research has the following major objectives:

(1) To assist in the development of the natural resources of Texas.

(2) To cooperate with engineers, architects and manufacturers throughout the state in the solution of technical problems.

(3) To aid members of the faculty of the College of Engineering at the University in conducting research.

(4) To stimulate and develop the interest of engineering students in research.

The work of this Bureau, under the direction of W. R. Woolrich, dean of the College of Engineering, with Raymond F. Dawson as associate director, is in the realm of practicality, rather than theory. Some of the problems engaging the attention of its research staff at the opening of the year 1946 are these:

(2) **Disposal of Oil Well Salt Waters.** It is a practice in many oil fields to pump salt water back into the ground to prevent pollution of rivers and streams and also to increase the flow of oil. Certain formations in the water have clogged the wells and prevented the pumping of large quantities of water back into the sands from these wells. This

project is an investigation, by H. H. Power, professor of petroleum engineering, and F. B. Plummer, geologist, of the formation of materials that clog the sands and treatment of the water to prevent the formation of these materials.

(2) **Tests of Pre-cast Concrete Beams Made with Structural Clay Tile Units.** Builders have been using a method of construction involving the use of pre-cast concrete beams, using structural clay tile units to strengthen the beams. A series of tests is being made, by J. Neils Thompson, associate professor of engineering and W. D. Ramey, special instructor in civil engineering, in order to gain sufficient information on the strengths of these clay tile units so that a scientific design can be worked out for this type building.

(3) **Food Processing.** Special quick freezing methods are being developed, largely by Dr. L. H. Bartlett, mechanical research engineer, in order that Texas fruits and vegetables in fresh ripened condition may be had the year round, locally and throughout the nation. Thus the rich nutritive value and vitamin content may be indefinitely preserved. By expansion of markets, this one development alone will be worth many times the entire cost of the whole University research program for many years.

(4) **Quick Freezing of Shrimp and Other Seafoods.** Methods and processes are being developed for the quick freezing of shrimp and other seafoods in order to preserve and distribute this vast food resource to the people of Texas. This work is being done in Galveston, using machines developed and built at the University.

(5) **Building Stone.** One of Texas' greatest undeveloped natural resources is building stone. Despite the fact that today much granite, marble and limestone are imported, Texas is destined to become one of the leading producers of these stones in the United States. The Bureau of Engineering Research, with the cooperation of the Bureau of Economic Geology, has pointed the way to the discovery and use of these stones. Already the engineering research bureau has tested more than 150 sam-

ples from Central Texas alone, and sturdy, attractive buildings are being constructed of native stone as a result of this work.

(6) **Lignite.** A great potential source of inexpensive heat and power, when oil and gas are exhausted, is lignite. The Bureau estimates there are more than 23 billion tons of lignite in Texas. It is testing lignite in small power and home furnaces and will report on its effectiveness when the tests are completed. Carl J. Eckhardt Jr., professor of mechanical engineering and superintendent of University utilities, is instrumental in carrying on this work.

(7) **Blanching of Sweet Corn for Quick Freezing.** Sweet corn, to be quick frozen on the cob, is left in a water-logged, tasteless condition if blanched by ordinary methods. A. J. McCrocklin, special instructor in electrical engineering, is trying to find a method of blanching the corn by electrical means, thereby retaining its natural, fresh condition.

(8) **Building Foundations.** Texas clays, because of certain unusual characteristics, frequently present real problems in the design and construction of foundations upon them. Enormous losses in depreciation and repairs of structures already have resulted, especially to small residences and to public schools. The Bureau already has saved investors considerable by its advice, and Associate Director Raymond F. Dawson is giving further study to the problem.

(9) **Soil Mechanics.** A study is being made by Mr. Dawson of the use of soils in the construction of dams and embankments, bases for highways and airport runways and foundations for structures.

(10) **Settlement Studies on San Jacinto Monument.** The towering San Jacinto monument, located on San Jacinto battleground, near Houston, is an isolated structure built on a deep bed of clay, making an ideal arrangement for settlement studies. Before the erection of the monument, laboratory tests were made by the Bureau and settlement observations were started on the monument and have been continued since that time. There is a remarkably close check between the predicted settlement and the actual settlement of the structure.

## Engineer Registration Means---

# Protection to Public and Profession

THE meaning of engineering registration is expressed in Section 1 of the Engineering Registration Act as here quoted:

"That in order to safeguard life, health, and property, any person practicing or offering to practice the profession of engineering as hereinafter defined shall hereafter be required to submit evidence that he is qualified so to practice and shall be registered as hereinafter provided and it shall be unlawful for any person to practice or offer to practice the profession of engineering in this State, or to use in connection with his name or otherwise assume, use, or advertise any title or description tending to convey the impression that he is a professional engineer unless such person has been duly registered or exempted under the provisions of this Act."

This Act was passed by the 45th Texas Legislature in 1927. A copy may be obtained from the Office of the State Board of Registration for Professional Engineers, 511 Ewell Nalle Bldg., Austin 22, Texas.

### Know the Law

To obtain the full value of a protective law it is necessary to know the meaning of the law and to cooperate in its observance. Most cases of violation come about from lack of knowledge of the law or lack of understanding of its provisions.

Protective insurance is provided when plans, specifications, and supervision are by a registered professional engineer as required by the provisions of the law. The importance and value of this protection can be easily understood especially in connection with county or municipal work. City and county engineers are, of course, required to be registered professional engineers and they have a personal seal to use in connection with their work. They also have a roster of all registered engineers in Texas and can identify persons who propose to do engineering work of any kind.

Need for the law and knowledge of its meaning by public officials and by the general public are the two things necessary for the effective operation of the law and for obtaining the full advantage of the law. Realization of the protection afforded is slow. This is natural as the public cannot be expected to know or to keep up with

new materials, new methods, new equipment, and new designs, for economy of materials and money, for efficiency and safety. These matters must come from those who have the responsibility for safe, efficient, and economic engineering work. When the seriousness and danger of improper engineering, planning, design, and supervision begins to be realized, only qualified engineers will be employed. The engineer's seal protects all, the practitioner, the public, the employing agency, and the public official.

### Public Insurance

The use of registered engineers as required by law places the responsibility upon those who are legally entitled to practice engineering. Public health, public safety and economy in the use of public money are insured.

Water supply, sanitation, roads and pavements, school buildings, and other engineering projects are being made the responsibility of registered engineers in conformity with the law, thus obtaining the protection to which the public is entitled.

Texas ranks third in the number of registered professional engineers.

The law requires all who practice engineering to be registered. It is a violation of the law to practice the profession of engineering, to use, assume or advertise any title that will imply that one is a professional engineer without complying with the provisions of the law.

### TSPE Lends Aid

The Texas Society of Professional Engineers seeks to aid compliance with the Engineering Registration Act as a matter of public interest by making known the ways in which the practice of engineering affects the life, health, and property of the public. Implied violations of the law are being eliminated as the real values are becoming known. City and county officials require an engineer's seal to protect the community and to insure responsibility for both efficiency and economy. The title of "engineer" is being eliminated from positions which are not held by registered professional engineers. Advertising as engineers or engineering companies is being discontinued when the provi-

sions of the law are called to attention.

Any professional engineer can identify himself by presenting a pocket card from the State Board of Registration for Professional Engineers.

County and city officials should ascertain if a man is registered before considering him for a position as city or county engineer and before entrusting engineering work to anyone. This, of course, applies to firms representing themselves as engineers, and to all who use any word or words implying that they are engineers. Registration labels the engineer as a member of a legalized profession and identifies him just as doctors and lawyers are identified for the protection of the public. The practice of medicine without a medical license would not be tolerated today.

Registration has a very important meaning as a preventive measure by setting out the qualifications for practice and thus protecting public officials and private employers from the unqualified who are not registered.

There is the element of insurance involved in court actions. The registered engineer can qualify. Registered engineers protect the employer—the responsibility is on the registered engineer where it belongs.

Registration is 38 years old and is in effect in all but one state.

Registration provides insurance against "would-be" or "near" engineers from posing upon public officials or private employers in the engineering work of this post-war period. It provides insurance against inefficient engineering work, unknown or inexperienced persons, wasteful extravagance in the use of public funds.

Why is there this insurance? Because a registered professional engineer will not risk the revocation of his license by attempting to do work for which he is not qualified. Because he is known to his fellow engineers. Because the professional engineer has a consciousness of his responsibility to his profession and the public.

The engineering registration law means that a man must not represent himself as an engineer unless regis-

## Hartsfield Enters Consulting Practice



James M. Hartsfield has established consulting engineering offices in the Professional Engineers Building at Houston, where he will specialize in electrical systems for commercial buildings and industrial plants, with service including design, layout and specifications.

Mr. Hartsfield was born in Dallas in 1904 and received an electrical engineering degree from Rice Institute in 1926, then became an employe of Southwestern Bell Telephone Company at Dallas. In 1929, he entered the engineering department of the Houston Lighting and Power company, where he acquired extensive experience both in design and installation work.

## Ashworth, War Vet, In Brooke Hospital



Lt. Col. D. B. Ashworth is currently confined to Brooke General Hospital, following his return last December from two years of service with the Corps of Engineers in the European theatre.

Serving 11 months in England and 11 months in Antwerp, Belgium, his work was mainly connected with building parts.

Ashworth is well known in Texas as a bridge engineer, having been with the Bridge Division of the Texas Highway Department and with the Austin Bridge Company before being commissioned a captain in the Corps of Engineers in November, 1942.

His present mailing address is Brooke General Hospital, Ward 38, Annex 4, Ft. Sam Houston, Texas.

In the near future he is scheduled to be moved to Fitzsimmons General Hospital, Denver, Colo., where he is expected to remain about six months.

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## Killmer Shifted To Beaumont

R. E. Killmer, Fort Worth Chapter member until his transfer to Beaumont, is now district engineer for the State Highway Department at Beaumont, succeeding T. J. Kelly with whom he exchanged districts. He previously had been district engineer at Pecos, resident engineer at Marfa, and at Refugio. He has received the A.A.S.H.O. award for 25 years of meritorious service.

tered. It means that a man must not practice professional engineering unless he is registered. It means that advertisements should not imply engineering except for registered engineers. It means that only registered engineers should be employed as county engineers or city engineers. It means that all engineering work, either public or private, should be carried on by registered engineers. It means that all plans and specifications should have the seal of a registered engineer.

Newspapers, magazines, and directories can cooperate in promoting compliance with the law by naming or listing as engineers, only those who are legally registered as professional engineers.

City and county officials can cooperate and protect their communities by requiring engineers to present their identifying pocket cards.

Everyone can cooperate by using the same care with regard to the selection of Registered Professional Engineers that they do in the selection of Licensed Medical Doctors.

Finally, the Engineering Registration Act means:

**Protection of life, protection of health, protection of property, efficiency, economy, and responsibility.**

## Spence Awarded Legion of Merit

Col. E. V. Spence, member of the State Board of Water Engineers, until recently Post Engineer at Camp Swift, Texas, has been awarded the Legion of Merit for outstanding work in the conduct of affairs at that Post. Presentation of the award was made by Gen. Jonathan Wainwright.

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## Nickolas Rose Joins Houston Firm

Lockwood and Andrews, Engineers of Houston, announce the association of Nickolas A. Rose with the firm as engineering geologist, specializing in the handling of water supply problems, particularly underground water.

A 1933 graduate of Vanderbilt University, he served with the Tennessee Valley Authority from 1934 to 1939 as assistant geologist of Wheeler Dam and resident geologist of Pickwick Landing Dam. He was geologist in charge of the Houston district and the state of Arkansas for the United States Geological Survey, underground water division, 1939 to 1946.

## Exum Presents Brazos Charter

James P. Exum, president of TSPE, presented Brazos Chapter with its charter at a meeting Feb. 21. J. Neils Thompson, chairman of the State Membership committee, and Trigg Twichell, second vice-president of the State society, gave short talks on membership and the society's function as a medium for the professional engineer.

Six were accepted by Brazos Chapter as members: T. R. Newton, Bryan, city engineer; R. E. (Bob) Farquhar, engineer for Armco drainage and metal products; J. D. Lindsay, head of the chemical engineering department of Texas A. & M. College; A. A. Jakkula, vice director of the engineering experiment station of A. & M.; C. W. Crawford, head of the mechanical engineering department of A. & M., and R. M. Wingren of the mechanical engineering department. This brings the Brazos Chapter to 47.4% of the registered engineers in Area 14.



## Bexar Condemns Unethical Practices

Unethical practices of certain registered engineers in the Bexar County area were condemned by a resolution unanimously adopted by the Bexar TSPE Chapter at its regular meeting March 8.

Meeting in the Pan-American Room of San Antonio's Gunter Hotel, 44 chapter members heard F. T. Drought, Ethics and Practices Committee chairman, give a discussion of the subject and introduce the resolution which was sent to all registered engineers in the area.

Speaker of the evening was Dr. Fred M. Bullard, Professor of Geology at the University of Texas. Introduced by Program Chairman F. S. Maddox, Dr. Bullard gave a lecture on his personal observations of famed Paricutin Volcano in Mexico, illustrating his talk with color slides and motion pictures.

A report of the Executive Secretary Fund Drive revealed the Chapter had raised \$1,951.00, with only 21% of the members contributing to date.

A proposal for the chapter to sponsor a precise survey for the City of

San Antonio was discussed by Harry A. Seran.

A 30 minute social gathering preceded a dinner which was followed by the program.



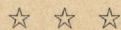
## E. L. Martin Speaks To North Texans

E. L. Martin of Martin and Grace, construction contractors, spoke on the "Contractor's View of the Engineer" at the March 11 North Texas Chapter meeting. He is a graduate of Texas A. & M. College (1899) and was formerly chief engineer for the Missouri-Kansas-Texas Railroad.

Elgin Robertson gave a report on the last state board meeting, outlining the aims of the TSPE for the coming year. He also read a report taken from the "Electrical Engineer" in regard to the need for an engineering society that would serve all engineers.

Plans for the next meeting include a traffic forum led by O. H. Koch at which the Dallas City officials and Dallas traffic committees will be invited.

The May meeting is scheduled to have Harry Withers of the Dallas Morning News to talk and have the press make the acquaintance of the TSPE.



## Travis Streamlines Chapter Meetings

At a meeting of the Travis Chapter Executive Board on February 11th the subject of unnecessarily long Chapter meetings came up for considerable discussion and it was the opinion of the board that the time for meetings should be limited. As a result of this discussion, President C. L. Dowell announced at the regular monthly Chapter meeting February 21 that the time for business at future monthly meetings will be limited to 30 minutes, except in cases where the business at hand is of unusual importance. Subjects for discussion will be cleared through the chairman of the committee involved in each case and only topics of major importance will come to the floor, while the minor topics will be referred to the Executive Board. The speaker of the evening will be requested to limit his talk to approximately one hour.

It is believed that this procedure will result in an increase in attendance.

## Express Highway Given Endorsement

Thirty-seven members of Fort Worth Chapter of TSPE heard E. C. Woodward, Texas Highway Department official in charge of the proposed traffic "expressway" in that area discuss the project at the Chapter's February meeting.

The membership ordered a resolution prepared endorsing the express highway as explained by Mr. Woodward.

Seven new members were admitted, standing committees were approved and a general outline of work for the year was decided upon. Special emphasis will be given to the State Secretary Fund drive and to obtaining advertising for the Society magazine. Joe Rady is general chairman of the secretarial fund committee.

Jefferson Davis Goulette, engineer examiner in the regional office of the Federal Works Agency, has been granted a six-month leave because of battle injuries he received as a Marine Corps captain in the Pacific.



## Central Texans Visit Tire Plant

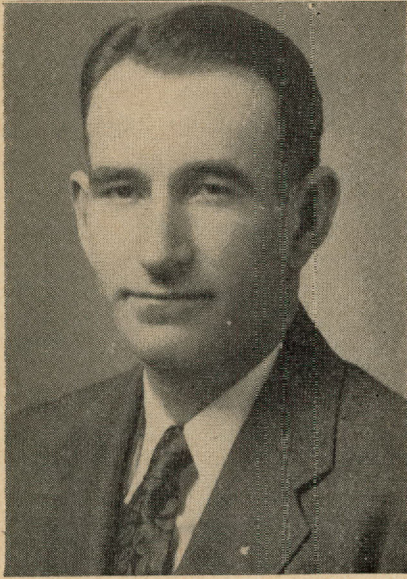
Although the number of registered engineers available to the Central Texas Chapter is small compared to other chapters, the membership roll shows that better than 50 per cent of the registered engineers in this district are members of the Society. According to recent statistics this record is just about tops in the state.

Chapter meetings are held on the third Monday night each month and in order to make the meetings more attractive the program committee has planned a number of variations from the usual procedure for 1946. Prominent in this program will be visits to a number of new industrial plants in this area.

The first of these visits was made March 18 when the Chapter was entertained at dinner at the new five-million-dollar General Tire and Rubber Company plant at Waco. Joe Sloate, general manager, conducted a tour through the new and modern plant. Harry Phillips of Central Texas Chapter and also with the tire company, assisted in the program.

Since the first of the year four new members have been added to the Chapter rolls.

## Wheelhorse



O. O. ELLETT

ONE of the most active and valuable members of the Fort Worth chapter is O. O. Ellett. Mr. Ellett started with the State Highway Department in 1938 and served on construction work in the field until 1943, at which time he came in the district office as district right-of-way engineer for District No. 2. Mr. Ellett is a graduate of the University of Texas, and lives at 3208 Merida Street with his wife and two year old son.

Mr. Ellett is a strong man in a strong group inasmuch as the Highway Department, District 2, is practically 100% in their membership and support of the Texas Society of Professional Engineers.

Mr. Ellett has served as chairman of committee after committee that had a job to perform and has always come through with the job well done. He is the leading "obtainer" of advertising for the magazine in his area.

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## Panhandle Hears Aerial Photo Talks

Use and interpretation of aerial photographs were discussed by President G. K. Reading and G. W. Thompson at the March meeting of Panhandle Chapter of TSPE in Amarillo.

A. P. Hancock, Amarillo city manager, was unanimously elected a director, replacing W. G. Edwards who recently moved to Kerrville.

The Chapter now has a membership of more than 50 per cent of the en-

gineers residing in its area and is aiming at 100 per cent before the year's end.

One application for full membership and three for junior membership were accepted at the March meeting.

The Chapter's next meeting was scheduled for April 1 in Pampa.

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## Combat Engineer Operations Described

C. T. Schaumburg was the guest speaker at the February 27th meeting of Sabine Chapter, discussing "The operations of Engineers in Combat." He served as Executive Officer of the 19th Corps, and has a large collection of pictures taken at various points from the beaches of Normandy to the Elbe River.

Forney W. Flemming, who was a charter member of the Sabine Chapter, was present for his first meeting since returning from the African Theatre.

The Sabine Chapter regrets the transfer of Tom Kelly, Division Engineer of the Texas Highway Department to Pecos, but welcomes R. E. Killmer who succeeds him.

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## Aptitude Tests Given Students

In far too many cases, students are entering into engineering training who do not have the necessary qualifications to become successful engineers, according to Prof. Carl Eckhardt of Texas University who was guest speaker at the regular monthly meeting of the Travis Chapter Feb. 21.

Professor Eckhardt is National Chairman of the Student Selection and Guidance Committee of the Engineers Council for Professional Development. That organization has developed an examination designed to measure the prospective student's aptitude for engineering. The exam is now being given to engineering students upon entering school in many of the major colleges and universities. Through use of these examinations, many misfit students, who may show good aptitude in some other field are able to avoid the blunder of entering engineering school.

## National Meeting Attended by Exum

TSPE President James P. Exum attended a conference of State Presidents of NSPE at Columbus, Ohio March 29 and 30. Twenty-two state societies were represented with 13 presidents present. In addition three non-member states, in which societies are being organized, were represented. NSPE President Richard Lawrie, Vice-Presidents James F. Fairman, Alex Van Praag, Jr., and Stephen C. Hale, and Treasurer Leo H. Cleary also attended. President Exum brought back a report that the total NSPE membership is 11,911, but a membership drive to double that figure is planned. The New Jersey Society has challenged TSPE to a membership contest and has been accepted.

Much time was devoted to discussion of unions, bargaining agencies, etc. A committee will continue study and observation of the situation at the National level.

Ritchie Lawrie's letter of Feb. 7 requesting voluntary contributions to NSPE brought 703 contributions totaling \$6,009.00, far short of the \$50,000 needed to effectuate the whole National organization program. Texas made only 45 contributions totaling \$330, about the average amount per contributor but below average for the number of contributors.

The proposed increase in National dues to \$10, effective January, 1947 received favorable support from the State Societies in general.

However, New Jersey and Ohio favored an increase to \$7.

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## Pacific Malaria Control Described

At the Travis Chapter meeting March 21, Richard King of the University of Texas, who was in charge of a malarial control unit in the South Pacific, told about the fight against an enemy as deadly as the Jap—bacteria.

Working largely with improvised equipment and under trying conditions, the control units achieved remarkable results, and are credited with saving thousands of American lives. At Milne Bay, the malarial rate was reduced from 3,000 per 1,000 per year to 50 per 1,000, at Dobodura from 800 per 1,000 to 25 per 1,000, and at Oro Bay from 800 per 1,000 to 50 per 1,000.

# New Members Of TSPÉ

## BEXAR CHAPTER:

- ROBERT D. DEEGAN, Junior design engineer, San Antonio Expressway Project, 914 W. Summit, San Antonio  
JOHN J. LEDBETTER, JR., Southern Methodist Univ. Law School, Dallas  
A. M. McNEEL, Contractor, 315 Rivas St., San Antonio  
GEORGE S. MEYER, Design Engineer, San Antonio Expressway Project, 1018 Frost Natl. Bank Bldg., San Antonio  
L. S. PAWKETT, L. S. Pawkett Company, 810 Insurance Bldg., San Antonio  
MARTIN E. STALEY, Consulting Mechanical Engineer, Chandler Bldg., San Antonio  
EARL J. WENTWORTH, Private Practice, 844 Stonewall, San Antonio.

## BRAZOS CHAPTER:

- C. W. CRAWFORD, Head, M. E. Dept., Texas A. & M. College, College Station  
ROBERT E. FARQUHAR, Sales Engr., Armco Drainage & Metal Prod., 202 Foster, College Station  
A. A. JAKKULA, Actg. Vice-Dir., Tex. Eng. Exp. Sta., College Station  
J. D. LINDSAY, Head, Ch. E. Dept., Texas A. & M. College, College Station  
THOMAS R. NEWTON, Engr. Dept., City of Bryan, 515 E. 31st, Bryan  
R. M. WINGREN, Prof., Texas A. & M. College, College Station.

## CENTRAL TEXAS CHAPTER:

- NORMAN H. ABRAMS, P. O. Box 996, Waco  
GEORGE J. ROHAN, P. O. Box 887, Waco.

## FORT WORTH CHAPTER:

- H. S. BERLIN, Private Practice, Majestic Bldg., Fort Worth  
J. M. BINGHAM, Field Engr., Texas Hwy Dept., 2925 Ryan Ave., Ft. Worth 4  
B. B. HAMNER, Structures Engr., Globe Aircraft Corp., 724 Mation, Ft. Worth 3  
JOSEPH C. HANDSHOE, Val. Engr., E. Basco Engr. Services, No. 2 Rector St., N. Y., P. O. Box 951, Ft. Worth  
W. R. HARDY, San. Engr., Dept. of Pub. Health, Fort Worth  
J. P. KEARBY, Jr., Res. Engr., Texas Hwy Dept., Decatur  
PAUL E. LOVE, Partner, Yandell, Cowan & Love, Majestic Bldg., Ft. Worth  
OLEN W. YANDELL, Partner, Yandell, Cowan & Love, Majestic Bldg., Ft. Worth.

## NORTH TEXAS CHAPTER

- H. FRED MARTIN, Sales Engr., Inflico, Inc., 325 W. 25th Pl., Chicago, Ill., 1710 Jackson St., Dallas.  
F. W. SCHAEDEL, Elec. Engr., Dallas Power & Light Co., 1506 Commerce, Dallas  
NOLAND VARLEY, 139 Georgia Ave., Oak Ridge, Tenn.

## NUECES CHAPTER:

- JAMES M. GOLDSTON, Terminal Leave, U. S. Army, 406 Beverly Dr., Corpus Christi  
HARRY J. HOPKINS, Draftsman, Surveyor & Engr., Sinclair Refg. Co., Pipe Lines Engr. Div., and Private Practice, 1721 Brownlee, Corpus Christi  
PHILLIP G. YOUNG, Civ. Engr. & Land Surveyor, Private Practice, Courthouse, Refugio

## PANHANDLE CHAPTER:

- BERTON DOUCETTE, Mech. Engr., Cabot Shops, Inc., Pampa  
JOHN R. GIBSON, Jr. Engr., Southwestern Public Service Co., 1309 Francis, Borger  
J. M. HARRIS, Dist. Maint. Engr., Texas Hwy Dept., 2221 Taylor, Amarillo  
FRANK J. KASTL, Elec. Engr., Southwestern Public Service Co., Box 631, Borger  
FRED C. NEUHART, Chem. Engr., Phillips Pet. Co., Research Dept., P. O. Box 1054, Phillips  
R. P. WATTS, Asst. Supt. of Prod., Panhandle Div., Southwestern Public Service Co., Box 750, Borger

## SABINE CHAPTER:

- W. C. CAMPBELL, Office Engr., Chas. P. Smith, Orange, 321 Claxton Court, Orange  
R. H. HAMILTON, Engr., The Texas Co., Port Neches  
JOHN W. KEITH, JR., Engr., The Texas Co., Port Arthur  
M. E. WALMER, Cons. Struct. Engr., 1765 Bolivar, Beaumont  
WILLIAM M. CHOATE, Maint. Elec. Engr., Consolidated Steel Corp., Ship Bldg. Div., 2565 Goliad, Beaumont  
JOSEPH A. SALE, Field Engr., Jefferson Chemical Co., Port Neches, 2216 Liberty Ave., Beaumont

## SAN JACINTO CHAPTER:

- FRANK ADAMS, Elec. Engr., Dist. Engr. & Serv., Westinghouse Elec. Corp., 612 Pet. Bldg., Houston  
R. B. ALLEN, City Engr., City of West Univ. Pl., 3806 Case, Houston  
JOHN T. ASHFORD, Pet. Engr., Associated Engrs., 1912 W. Gray, Houston 6  
DEAN D. AULT, Field Engr., Acme Engrs., 8219 Joplin St., Houston 12  
JACK BARNES, Asst. Gen. Sales Engr., Trinity Portland Cement Co., 1515 Commerce Bldg., Houston  
G. M. BRADY, Elec. Engr., Pan

- American Refg. Corp., Box 401, Texas City  
D'ARCY M. CASHIN, Cons. Geologist & Pet. Engr., 705 Natl. Standard Bldg., Houston  
D. LOCKE DEL'HOMME, Chief Designer, Reed Roller Bit Co., Box 2119, Houston  
J. H. DUNAWAY, 258 Humble Bldg., Houston  
W. H. GOINES, Asst. Hydraulic Engr., U. S. G. S., Box 4089, Houston 14  
D. M. GREER, Pvt. Prac., 707 Ave. of Oaks, Houston  
M. T. HALBOUTY, Pvt. Prac., Shell Bldg., Houston 2  
ROBERT D. HARRISON, Pvt. Prac., 911 Union Natl. Bank Bldg., Houston  
J. M. HARTSFIELD, Ind. Cons., 7512 Tipps, Houston 12  
M. G. HIBBERT, Design. Engr., City of Houston, 711 City Hall, Houston  
REID HODGSON, Research Engr., Cameron Iron Works, 6720 Rutgers St., Houston 5  
HARRY G. HRIVNATZ, Elec. Engr., Commercial Dept., Houston Lighting & Power Co., P. O. Box 1700, Houston 1  
ROBERT M. HUTCHISON, Dir. of Research, Houston Natural Gas Corp., Houston  
E. C. JANCIK, Sales Engr., Texas Construction Material Co., 2905 Milam, Houston  
JOHN S. JOHN, Mech. Engr., Schlumberger Well Surveying Corp., 2358 Camden Rd., Houston  
E. F. KINZER, Ind. Engr., Houston Lighting & Power Co., Houston  
J. H. MCGUIRE, Sr. Engr., Reed Roller Bit Co., 2204 Fannin-lg, Houston 3  
R. R. MANATT, Civ. Engr., Atlantic, Gulf & Pacific Co., 905 Citizens State Bank Bldg., Houston  
FRANK H. NEWNAM, JR., Engr. in Charge of Gravel Research & Development Divn., Texas Construction Materials Co. & Thorstenberg & Tamborello, 2419 Sunset Blvd., Houston 5  
DOUGLAS RAGLAND, Asst. Chief Pet. Engr., Humble Oil & Refg. Co., Box 2180, Houston 1  
F. T. REAVES, Jr. Res. Engr., Texas Hwy. Dept., P. O. Box 1286, Houston 1  
NICHOLAS A. ROSE, Lockwood & Andrews, 904 Union Natl. Bank Bldg., Houston  
JAY A. ROSSITER, Pvt. Prac., 2216 Wentworth, Houston  
PETER J. RUSCH, Seismologist, Leonard J. Neuman, P. O. Box 1832, Houston 1  
R. M. SCALES, Design Engr., City of Houston, 2116 Albans, Houston  
HERBERT M. SHILSTONE, JR., Pres., Shilstone Testing Lab., Inc., 301 M. & M. Bldg., Houston  
L. D. SNOW, Asst. Ch. Engr., Gulf Oil Corp., P. O. Box 2100, Houston  
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# Shortage of Trained Personnel Hampers Texas Highway Work

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By J. W. COURTER

THE Federal-aid Highway Act of 1944 authorized the appropriation of \$1,500,000,000 for highway construction to become available at the rate of \$500,000,000 a year for each of the three successive post-war fiscal years.

Faced with the largest highway construction program in its history, the Texas Highway department is rapidly developing plans for projects to the construction stage. In order successfully to prosecute the construction of these projects, a greatly increased field personnel will be required. Many department employes left for service with the military and civilian war activities, and field functions have been carried on with a skeleton force, this being possible due to curtailed construction activities during the war period. A number of these men have been released and have already returned to their former positions with the department. There is every reason to believe, however, that many will not return, having obtained more lucrative employment elsewhere.

The critical shortage of personnel exists primarily in the grades of inspector, field engineer and junior engineer. Many of those formerly employed in these capacities, having had four or more years of experience in military construction, will not readily accept post-war employment in these same grades which are, perhaps, the most overworked and underpaid in engineering organizations. Younger men will have to be trained for these jobs. Realizing this, the Texas Highway department has already put into operation an apprentice program for training World War II veterans under provisions of the G. I. Bill of Rights.

Equally as important as the training program is consideration of the current salary scale which has not been materially augmented to keep pace with rising costs of living and salaries offered in private industry.

The following paragraphs, which are quoted from a recent issue of Highway Highlights from the Texas Good Roads Association, clearly indicate the seriousness of the situation and point out what should and

must be done.

"A serious shortage has developed in personnel available for plan and preliminary field work. These include junior engineers, rod men, instrument men, etc., which are essential to obtaining the detailed data on which the plans are made. The war is the readily apparent reason for the shortage, but the cause is even more deeply seated and will require remedial action before it can be improved on any permanent or semi-permanent basis. Of course, hundreds of the Department's young engineers and skilled craftsmen have gone to the armed forces and are serving, and have served, in all theaters of action. Too, the draining of young men for the war has caused a four-year gap in their training and the number of men who normally would be available for replacements has been sharply reduced.

"However, there is another basic cause. This is the low salaries paid by the State to its professional employees in the Highway Department. This applies to all classifications of professional men employed by the Department. District Engineers for the Department, charged with the responsibility for developing plans and specifications for many millions of dollars of road work and spending the State's money in big chunks, receive the niggardly salary of \$400 per month. They are the highest paid employees of the Department. Other salaries are in proportion. Caught in the severe squeeze between static income and rising prices, it is small wonder that private industry is attracting more and more of the personnel so badly needed to carry on the State's road business.

"Provision should be made at the next session of the Legislature for a realistic adjustment in salaries, else the condition will worsen, rather than improve."

The past five years have emphasized as never before the extreme importance of science and engineering in supplying the needs of the country in times of crisis. Thinking people will also realize their equal importance in the normal development of civilization. Yet in spite of the demands made on the engineering profession, many salaried civil service employees found themselves in charge of extensive work on which the wages of many of the laborers was greater than theirs. Such a condition, of course, should not exist. Private industry is offering sufficient salaries to obtain and retain valuable engineering personnel, and it is high time equal consideration is given to civil servants.

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## From Precinct Basis To Unit System

(Continued from Page 7)  
could be imagined as attempting to carry on its road and bridge program without competent engineering services.

These facts are so potent that they need no elaboration. And yet many of us in the smaller counties have consistently failed or refused to utilize engineering skill, with the result that some of our roads have been poorly located, and very generally our ditches and drainage structures have been inadequate. Our improvements have often been many times more expensive than they would have been if we had employed a competent county engineer.

There is no set formula that can be applied to all counties alike; yet it is my sincere belief, and I think I can back it up, that any county with a road and bridge fund aggregating as little as \$30,000 a year should have a full-time county engineer.

In Brazos County we have moved gradually from the precinct system to county-unit operation completely under the direction of a county engineer. During the transitional years, by gradual evolution we developed a fairly adequate central shop, with a good staff of mechanics and a centralized system of purchasing and stocking materials and supplies.

We have bought only the highest types of standard road machinery and equipment, and we have found by experience that this policy has been by far the most economical in the long run. Within 5 years we reduced our county tax rate, including payments on county-wide road bonds, from \$1.25 to 90c, or a net reduction of 35c on \$100 valuation. Excluding debt service, the rate for actual operating expenses for the year 1945 was 47c.

We have consistently adhered to the principle that tax relief should be extended to all taxpayers, and that the best way to accomplish this is by reduction in rates that flow equitably to all alike.

To show that our tax-reduction program is benefiting Brazos County people, I can cite the statement that our tax assessor and collector compiled a few days ago for one of our citizens who was attempting to settle an estate. He found that the property involved had for 22 years paid an average of \$123.45 a year, but that

for the past 6 years the average annual tax had been \$73.22, or a net reduction of \$50.23 a year.

The time is coming in Texas—indeed, it is already here—when the counties must develop and maintain better systems of lateral or farm-to-market roads. Returning servicemen and war workers are not going back to farms and ranches that have no outlets.

The counties should not ask the state, even with the currently increased federal highway appropriations, to build all the lateral roads. With county programs in the hands of wide-awake commissioners' courts, assisted by competent county engineers, local officials must meet the increasing demand for roads to serve rural communities and the farm and ranch population.

In the past we have heard many charges of incompetency and indifference in the administration of the counties' road and bridge operations, although specific cases are becoming fewer and fewer, and may now actually be considered nominal in number. It is my honest belief and strict observation as a citizen that the people of a county get exactly the kind of local self-government they want. I mean by this that periodically they have the opportunity of discarding the unfit officials, if there are any, and selecting men who are competent and qualified to properly represent them. I believe that when our officials do a good job and discharge their duties in a fitting manner, the people are the first to observe and appreciate it. Conversely, the people should and will observe deficiencies in government, whether they be of men or of systems.

We think that we have set our sails on a proper course in bringing our local road and bridge administration up to date in Brazos County, and that our records will consistently show gains benefiting all our citizens.

Members of the commissioners' court responsible, along with the writer, for the adoption of the county-unit system are Norton R. Burkhalter, John A. Rychlik, Frank Krc and Roy Danforth. County engineer of Brazos County is John Solon Griffith, a native of the county, who had served in engineering capacities with the state highway department for approximately 16 years.—Reprinted from Better Roads Magazine.

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## Consulting Engineer To South America

S. H. Fagadau, consulting engineer of Wichita Falls, has arrived in South America to study possible oil development in Peru and Bolivia.

Mr. Fagadau will negotiate with agencies of the governments for oil concessions on behalf of Panhandle Producing & Refining Company of New York. He will meet Dr. Victor Oppenheim, South American geologist, in Bogota, Colombia, and V. E. Eckholm, geologist for Bolivia, in Lima, Peru. Later, he will go to La Paz, Bolivia, to study oil legislation, labor conditions, and availability of drilling equipment. He will examine several areas of Peru and Bolivia, particularly the Vera Cruz section and the Chaco region.

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## With Pen In Hand

### About National Defense

Sirs:

Is the Engineering profession interested in National Defense? Is the Texas Engineer interested in plans for the future of himself, his friends and their sons?

Reorganization of the armed forces of the United States, universal military training, or reserve components of the Army and Navy and the reactivation of the National Guard are current topics and are vitally important to the welfare of the individual engineer and the Engineering profession.

Your attention is invited to an article in the February 14 edition of the Austin American, which I quote in part:

"National Guard of 622,500 Set by Army x x Tentative allotment Texas: 27,082 ground, 2,239 air comprising the 36th Div. elements of the 49th Armored 58th Wing Hq. xx."

The above does not mean too much to us at the present time and one would say perhaps, "Why are the engineers interested?"

To get down to the meat of the situation, we should be interested a great deal. Why? Because we want to know how many of the 622,500 will be allotted for engineers, what the plans are for training, who will command, train, advise and perform research? And what will be the status of the profession in the new national defense and military structure?

The writer is not too familiar with the organized reserve or what it was before this past war. It is of no consequence now other than to improve it, the same as it is hoped will be done to all other elements of the armed forces. The writer is familiar with the National Guard and its status before this last war, and it was none too good, but we hasten to say though that it was as good as the **State of the Nation** on the same subject—military.

Insofar as the allotment to Texas is concerned, we should find out what portion will be engineers and allied work. Is Texas to furnish any special, corps, army, communication and zone of interior troops and organized units and if so what are they, where are

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they to be located, who will train them, what is their status and many other things engineers should know. We may have to serve in them or our sons may have to serve in them, so what effect do they have on the profession?

Furthermore, how interested is the Engineer in the Regular Military Establishment, The Office of the Chief Engineer, U. S. Army? Are we interested in this office?

The writer says with modest reservations that his past experience in the Army afforded him the opportunity of close contact with many units of the Corps of Engineers. He discussed many problems with men in those units and, to borrow a phrase from the military—"It left much to be desired."

Personal fortunes and misfortunes are of no consequence. It is the welfare of the profession that is the crux of this discourse.

The following facts should be borne in mind in thinking of engineers and the military. Civilian railroad companies and corporations furnished personnel and organized certain units of the armed forces; dental, medical and many other organizations sponsored and furnished certain units in this past war and will do likewise in the next.

Are we planning to keep pace with other professions and promote the welfare of the profession of Engineering?

Sincerely,  
H. R. (Hank) Clewis,  
Travis Chapter.

☆☆☆

### For Better Pay

Sirs:

"For the Laborer Is Worthy of His Hire."—St. Luke X-7.

John Hays Hammond once told a friend of mine, over a bottle of Scotch, that he was the first engineer who demanded and received fees commensurate with the value of the services he had rendered. He was talking of his work in South Africa, where, in addition to following his profession as a mining engineer, he was tangled up in the political revolutions taking place in the 90's and managed to have a price set on his head. He was lucky to keep his head on his shoulders until the situation cleared up and South Africa became a peaceful part of the British Empire.

Hammond's example was followed by such noted engineers as Herbert

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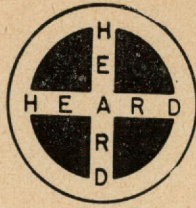


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# HOLLAND PAGE

## General Contractor

### Austin, Texas

Hoover, William Barclay Parsons, Ralph Modjeski—to name three of those who became wealthy through the fees received by them, augmented by their stock transactions usually in the companies which they were serving.

Today, with all the talk of collective bargaining, adequate fees and salaries for engineers, etc., it seems decidedly in order to look over the other professions and compare the fees and salaries received by them. If there is one thing that makes the writer see red it is to read or hear of the enormous fees demanded and received by lawyers for their opinion or, for that matter, for presenting a case before a court. It is related of Mr. Levy of Levy and Stenchfield, New York City, that, when approached by a representative of the Shell Oil Company, a Dutch and English concern, in regard to acting as their representative under a retainer fee, he told the Oil Company representative his firm could not consider it for less than half a million. The Oil representative asked "dollars or pounds?" and quick as a flash Levy answered "pounds". The Shell man agreed to the terms. Levy and Stenchfield made their reputation not so much in defending their clients before the courts as they did in keeping them out of trouble. A laudable work, to be sure, but one hardly worth the fees they demanded and got, if the fees received by an engineer for designing a bridge upon which the safety of many human lives depends is taken as a criterion.

One of our Presidents, in an automobile accident, damaged his dentures to such an extent that a new set was necessary. Upon the completion of the work the dentist, a Washington, D. C. one, sent in a bill for Twenty-five Hundred Dollars. The bill was returned with the protest that it was considered unreasonable. The dentist stood his ground and explained he was charging not only for his services in making the dentures but also for his expenses of collegiate training, years of experience and expenses of providing his office equipment. The bill was paid and that dentist presented the colleague who recommended his services with a Ford coupe. At that time the Ford coupe sold for around Eight Hundred Dollars. If the dentist could afford to give away almost one-third of his fee it would appear to the



man on the street that possibly his fee was a little high.

We all know of the fees demanded by noted surgeons for their work and the acceptance of the same by the suffering public because there is no way out if the patient is to survive. Success of work apparently has no bearing on the fees expected and for which a surgeon will sue if not paid. He expects to be paid for a successful operation, although the patient died, as well as for a successful operation which saved the patient's life.

All of which leads me to ask you to reflect a little on the state of affairs whereby we see top-notch and brilliant engineers doing work of the highest caliber and receiving only moderate fees or salaries. Why is it that the engineering profession is the poorest paid profession? I suppose for one thing an engineer's work usually is away in the wilds where he has few of his calling with him and he becomes so interested in his work that he does not think overly much of his recompense. Another reason is that a great many engineers are employed in governmental work, federal, state or municipal, with salaries set by somebody else who was more interested in keeping the expense of the bureau or agency down than in seeing that the engineer received a pay somewhat in keeping with his valuable services.

What is the answer? The engineering societies are struggling with that question trying to reach a solution but so long as the ranks of government engineers are filled with few vacancies by death and fewer by resignation, so long as engineers are willing to buck the jungle or desert for moderate or inadequate salaries, so long as unscrupulous men will undercut recommended fees, so long can we expect things to remain at "status quo".

It will take time and education to raise the engineer to the status where he belongs by reason of education, training and work but it can be done by a concerted effort and a determination to bring to the attention of the public that as professional men we are not subordinate to any other profession or calling.

HARRY A. SERAN,  
Consulting Geodesist,  
San Antonio, Texas.

**Paul C. Whitley**

ASSOCIATES

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## New Gulf Coast Firm Established

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Resident partner will be Turner, whose new association culminates 20 years of diversified engineering and construction experience in the Southwest, and two years in the Corps of Engineers, U. S. Army. During his tour of duty with the armed forces, Mr. Turner spent ten months in Military Construction with the Galveston Engineer District, and a year in China as Chief of the General Engineering Division, Services of Supply, for the China theater, with the rank of Lieutenant Colonel.

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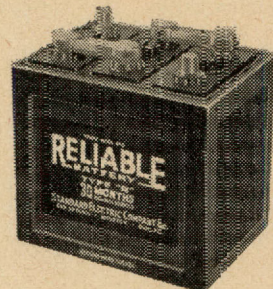


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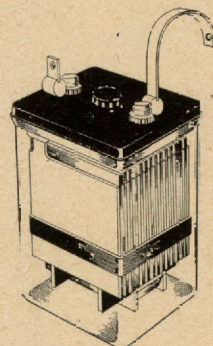
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