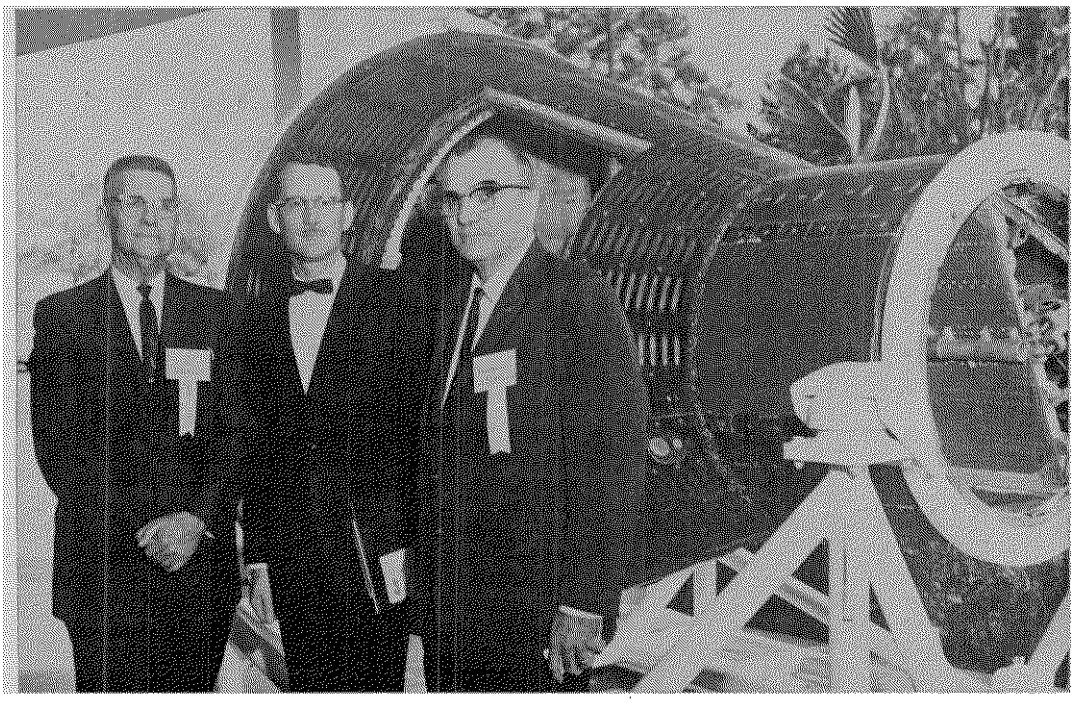
the LOUISIANA ENGINEER



STATE PLANNING IN ALEX. MARCH 6-7

Vol. 50 No. 1
February, 1964

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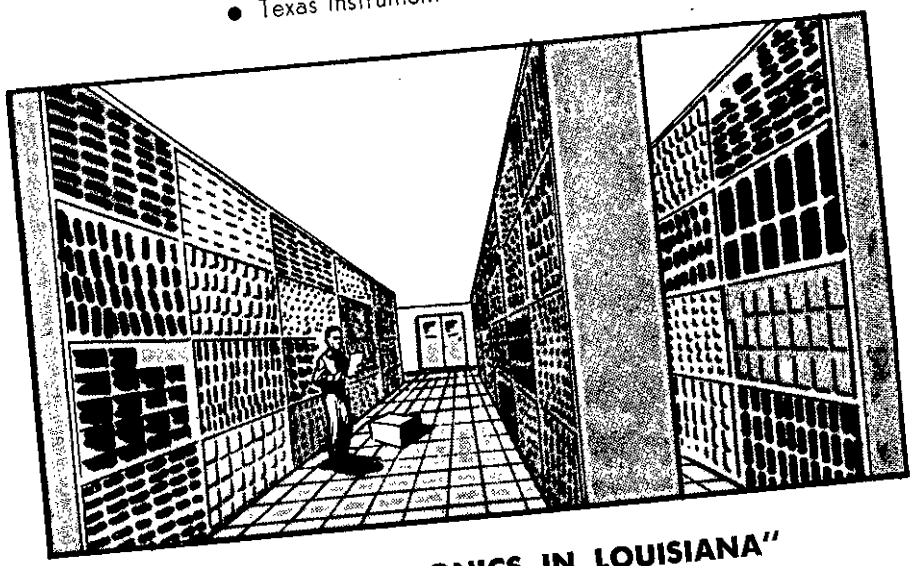

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THE LOUISIANA ENGINEER

Vol. 50 FEBRUARY, 1964 No. 1

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The LOUISIANA ENGINEER is the official publication of the Louisiana Engineering Society and of the Louisiana State Board of Registration for Professional Engineers and Land Surveyors and is published in February, April, June, August, October and December. Subscription $2.00 per annum; single copy 50 cents.

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STATEMENT OF OWNERSHIP

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The average number of copies of each issue of this publication sold or distributed through the mails or otherwise to paid subscribers during the 12 months preceding the date shown was 7,533.

Signed,

Oct. 31, 1963 — W. K. Bankston, Editor

OUR COVER—Space capsule that carried "Ham" the Chimpanzee forms backdrop for J. E. Jarman, general chairman, 66th L.E.S. Annual Meeting at Lafayette; James L. Stamy, NASA Michoud operations, and R. A. LeBlanc, Sr., Franklin, president, St. Mary Iron Works, convention participants.

Warren K. Bankston ..... ***Editor***

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Minutes Of The Board, LES

LOUISIANA ENGINEERING SOCIETY
Minutes of Meeting of the Board of Direction
Held at the Charleston Hotel, Lake Charles
on Friday, December 14, 1963

The meeting was called to order by President Watts with Messrs. Carville, Irland, Janssen, Knight, Lockett, Repscha, Stokes, Vogt, Walther and Fernandez present. Messrs. Frank H. Walk and Allen M. Johnson of the Public Relations Committee, J. D. Strong, NSPE Field Representative, and officers of several state sections also were in attendance.

Mr. Lockett moved that the minutes of the Board meeting of November 11 be accepted as forwarded to board members by mail, seconded by Mr. Vogt and carried. The secretary then read minutes of a special meeting of the Board held on December 9, which were accepted upon motion by Mr. Janssen, seconded by Mr. Stokes.

President Watts announced that Mr. William J. Rountree of Alexandria had been appointed to the Public Relations Committee as a representative of Engineers in Government.

The secretary read a letter in which a prospective donor offered to defray the initial cost of design, preparation of the mold, and casting of the first award medal to be known as the "A. B. Paterson Engineer in Management Award," provided that payment can be made in the month of December, 1963. Mr. Walther moved that the offer be accepted, that the secretary bill the donor for $1,500.00 (the estimated cost) and that the society defray any cost in excess of that amount. The motion was seconded by Mr. Lockett and carried.

A letter from Brother Elbert, Moderator of the Cor Jesu High School JETS Club, was read in which he solicited financial assistance to carry on the club's ambitious program. The secretary reported that Dr. Macdonald, Board Sponsor for the Vocational Guidance Committee, had discussed the matter with Mr. Lawrence R. Daniel, Chairman of the Vocational Guidance Committee under which the JETS Clubs are assisted, and both had recommended that the society contribute $50 to this worthwhile project. Upon motion by Mr. Carville, seconded by Mr. Stokes, the Board voted to do so, with the understanding that no precedent would be established by this action.

A letter from Mr. William A. Baker, Employment Committee Chairman, was read in which he suggested the listing of engineering employment opportunities in the LOUISIANA ENGINEER. It was the consensus of opinion among those present that this should be undertaken on a trial basis and that the column should be limited to positions available in the state of Louisiana.

Upon motion by Mr. Knight, seconded by Mr. Vogt, Mr. Jack W. White, Jr. was dropped from the rolls in accordance with his request.

Upon motion by Mr. Lockett, seconded by Mr. Stokes, Mr. Ted H. Kalencki was reinstated to the grade of Member (NSPE).

The secretary announced that, due to a conflict with semester examinations, Dr. Macdonald would not be able to attend the NSPE Winter Meeting in Phoenix, Arizona. Mr. Knight moved that Mr. George M. Baccich, Jr., General Chairman of the 1965 Annual Meeting, be appointed Alternate Director to attend in his stead. Motion seconded by Mr. Vogt and carried.

In accordance with Article II, Section 4 of the constitution, Mr. Carville moved that the following Junior Members who are now over-age be transferred to affiliate grade, seconded by Mr. Stokes and carried:

Wm. Magee Babington, Jr.
Clyde M. Badon, Jr.
Richard L. Bennett
Earl G. Bond
Benjamin F. Bouser
Benjamin R. Farmer, Jr.
Jacob C. Fritz
Walter T. Herrmann
Albert C. Lege
James C. Lorio
Kenneth M. Raspberry
Richard E. Ruckstuhl
Wm. G. Veltrop
John E. Vidrine

Discussion followed on the contents of a memorandum on the subject of Government Competition with Consulting Engineers and Architects. Mr. Janssen moved that the matter be tabled until copies of House Resolution 4926 and Senate Bill 1093 can be obtained and studied. Motion seconded by Mr. Stokes and carried.

The secretary reported the recent deaths of members Henry G. Favret and Fay N. Hansen.

Mr. Walk reported on his Public Relations Committee and announced that its next meeting would be held in Lafayette.

Mr. Carville discussed a proposed bill designed to limit the liability of engineers on construction projects and distributed copies to those present.

Mr. Repscha discussed the Annual Meeting program, and the meeting adjourned.

JOHN P. FERNANDEZ
Secretary-Treasurer

—o—

Minutes of Meeting of the Board of Direction
LOUISIANA ENGINEERING SOCIETY
Held at the Engineers' Club, New Orleans
Wednesday, January 22, 1964

The meeting was called to order by President Knight with Messrs. Affolter, Duclos, Eustis, Ewing, Roy Johnson, Odom, Repscha, Stokes, Vogt, Walk, Watts and Fernandez in attendance. Mr. Allen Johnson, Public Relations Counsel, also was present. Minutes of the board meeting of January 17 were read and accepted upon motion by Mr. Vogt, seconded by Mr. Ewing.

President Knight announced that the Public Relations Contract for 1964 had been consummated with Allen Johnson & Associates.

The resignation of William G. Veltrop (Aff.), Baton Rouge, was accepted with regret upon motion by Mr. Watts, seconded by Mr. Affolter.

A letter from Mr. Wilbur Lee, President of the LES Student Chapter at USL, was read in which he requested assistance in obtaining exhibits or displays for Engineers' Day at the university. The secretary was instructed to ask the local Engineers' Week Committee for suggestions.

Discussion followed on the draft of a proposed bill to place a time limitation on the liability of engineers and architects arising out of the performance or furnishing of the design, planning and/or supervision of construction. Mr. Duclos moved that the draft be accepted provided that liability be limited to three years after substantial completion of the project, or five years after the service was rendered, whichever occurs first. The motion was seconded by Mr. Ewing and carried.

Mr. Vogt moved that the state sections receive rebates equal to fifty per cent of the state dues collected from their respective members during 1964. The motion was seconded by Mr. Repscha and carried.

On the advice and recommendation of the Board, President Knight appointed committee personnel for 1964. (See attached list).

The program for the State Planning Conference to be held at Alexandria March 6 and 7 was reviewed and the committee was commended for its good judgment in scheduling the program so that functional section conferences would not conflict with state committee sessions.

The meeting then adjourned.

JOHN P. FERNANDEZ
Secretary-Treasurer

—o—

NEW MEMBERS

Oscar W. Albritton, Baton Rouge; Hjalmar E. Breit, New Orleans; Amon Lewis Colley, New Orleans; John L. Cotton, Baton Rouge; Jonas S. deBarros, Baton Rouge; Lanier H. Devine, New Orleans; Wilbur T. Edwards, New Orleans; Judah S. Fink, Baton Rouge; A. D. Kaufman, Baton Rouge; Carl R. Larpenter, Baton Rouge; Thomas M. Mixon, Baton Rouge; Edward G. Saal, Sr., Gueydan, La.; John L. Scopetta, Coral Gables, Fla.; Glenn R. Snyder, New Orleans; Franklin Ray Wright, Lafayette.

TRANSFER FROM JUNIOR TO MEMBER

Alvin M. Bridges, Baton Rouge.

AFFILIATE MEMBERS

Charles W. Bosworth, New Orleans; George L. Heller, Monroe; Klacs C. Karde, New Orleans; William Gordon

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JUNIOR MEMBERS

Blaise M. Carriere, Baton Rouge; Leslie M. Dunn, New Orleans; Jacob A. Giardina, Thibodaux; Gary R. Jacob, New Orleans; Hugo A. Marrero, New Orleans; Howell L. Pearson, Baton Rouge.

STATEMENT OF INCOME AND EXPENSE

For the Year 1963

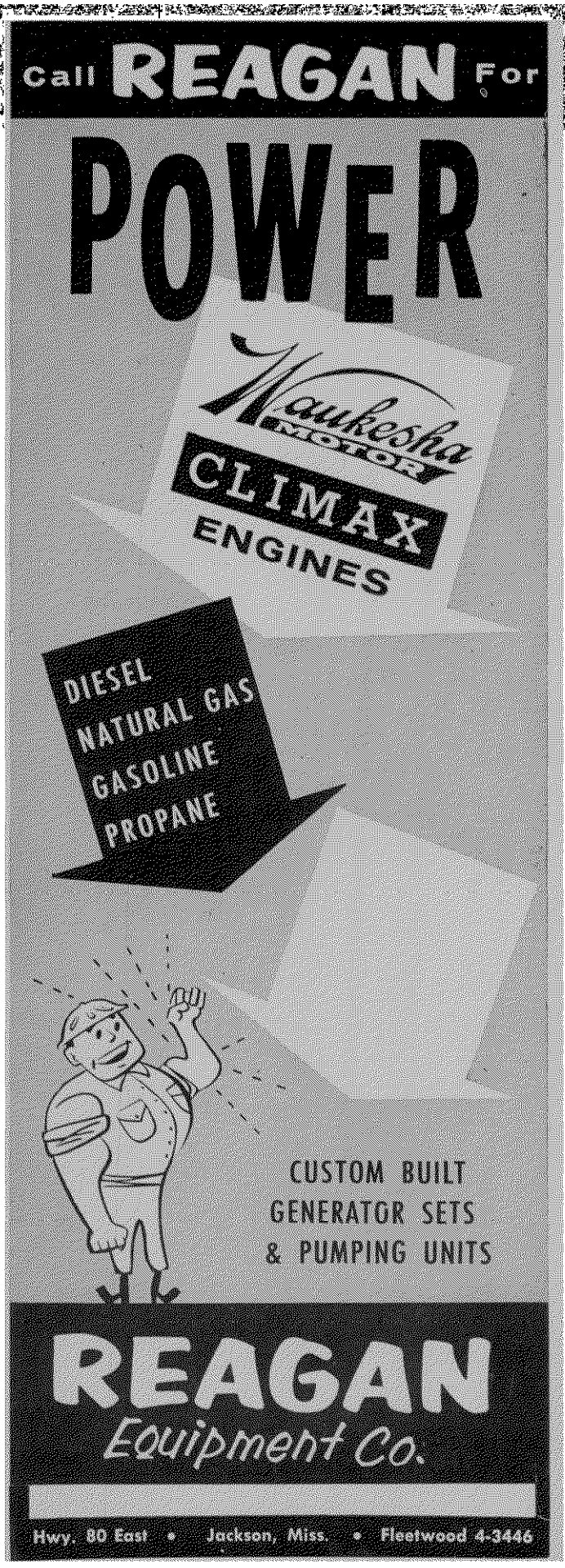
INCOME:	
Advertising	$11,049.20
Annual Meetings	2,664.00
Annual Outing	1,315.40
Dividends & Interest	382.50
Dues	24,281.75
State Board Contribution	6,000.00
	$45,797.20
EXPENSE:	
Annual Meeting	$ 3,420.24
Annual Outing	1,372.36
Awards, Medals, etc.	442.15
Dues & Rebates	11,330.86
Miscellaneous	637.28
Monthly Meetings & Headquarters Rental	555.94
Publication & Public Relations	17,473.93
Salaries	6,600.00
Statewide Programs	704.95
Stationery, Printing & Postage	1,934.95
Unbudgeted (Printing Fee Schedule)	814.70
	$45,287.18
Increase in Cash Assets	$ 510.02
RECONCILIATION:	
Bank Balance December 31, 1963	$ 8,018.78
Bank Balance January 1, 1963	7,508.76
	$ 510.02
Net Increase in Book Value of Assets	164.44
	$ 674.46

STATEMENT OF LIQUID ASSETS

December 31, 1963

Cash in Bank	$ 6,547.72*
U. S. Savings Bond, Series J, March 1955	892.00
U. S. Savings Bond, Series J, April 1955	892.00
Columbia Homestead Association	2,000.00
Commonwealth Savings & Loan Association	2,000.00
Greater N. O. Homestead Association	2,953.16
Security Building & Loan Association	1,500.00
State Savings & Loan Association	1,500.00
Union Savings & Loan Association	1,500.00
Lapel Emblems on Hand, Value of	125.00
Total Liquid Assets January 1, 1964	$19,909.88
Total Liquid Assets January 1, 1963	19,235.42
Net Increase	$ 674.46

*Note:



December Financial Report shows Bank Balance	$ 8,018.78
Which includes Registration Law Fund Contributions	1,471.06
L.E.S. Cash Balance	$ 6,547.72

MEMBERSHIP REPORT

December 31, 1963

GAINS:				
Elected:	Members		68	
	Affiliates		20	
	Juniors		27	
	Students		60	175
LOSSES:				
Deceased:	Honorary	2		
	Life	2		
	Members	10		
	Junior	1	15	
Resigned:	Members	30		
	Affiliates	6		
	Juniors	13	49	
Dropped:	Members	39		
	Affiliates	27		
	Juniors	45	111	175
	No Gain or Loss			—0—

TRANSFERS:	
Member to Life Member	15
Junior to Member	6
Junior to Affiliate	16
Student to Junior	18
SUMMARY:	
Honorary Members	13
Life Members	93
Members	1,286
Affiliate Members	307
Junior Members	307
Student Members	95

SHREVEPORT—The Veterans Administration accepted from the contractor, Shreveport Plumbing Co., an air conditioning system for the existing 450-bed Veterans Administration Hospital here.

The air conditioning system which was designed by Design Engineers, Consulting Engineers, of New Orleans, has a rated capacity of 1,179 tons of refrigeration, and serves 563 individual room fan coil units and 10 large central air conditioning systems. It is controlled from a graphic control panel, located in the main equipment room some 300 feet from the main hospital building. This panel allows remote monitoring and adjustment of temperatures throughout the building.

Work on the project was done in phases, carefully planned by Design Engineers so that the installation could take place with the least possible inconvenience to patients and hospital personnel.

Cost of the project was approximately $1,200,000.00.

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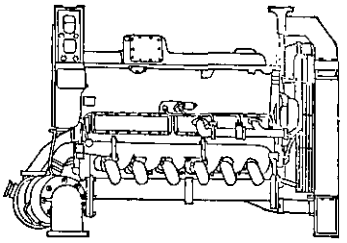

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Planning Meet Set For March 6 - 7

A voice in the operations and policies of the Louisiana Engineering Society is given to ALL members attending the Eighth Annual State Planning Conference in Alexandria Friday and Saturday, March 6 and 7, 1964.

"This is a most important function of the Society," said Marshall B. Ewing, president of the Alexandria State Section. "It is an opportunity for anyone to advise, criticize or assist in improving the organization. Everybody is welcome." Assisting with plans for the meeting are K. V. Stewart, T. Allen Bonnet, Daniel D. Sandefur, Dallas Roberts and Jack Moffett.

All sessions will be in the Hotel Bentley.

The conference will open with registration from 4 to 6 p. m. Friday, March 6.

A Board of Direction meeting will be held from 4 to 6 p. m. Friday in Room 208, followed by a cocktail hour in the Continental Room from 6:30 to 7:30 p. m.

Dutch treat dinner meetings, an innovation, will follow at 8 to 10 p. m., with four separate tables in the Louisiana Room.

Chairman at the table for Engineers in Private Practice will be Frank H. Walk, New Orleans consulting engineer; chairman for Engineers in Industry will be DeWitt L. Morris, New Orleans, Freeport Sulphur Co.; chairman, Engineers in Education, Ben T. Bogard, Dean, School of Engineering, Louisiana Polytechnic Institute, Ruston; and chairman, State Board of Registration for Professional Engineers & Land Surveyors; chairman of Engineers in Government Hu B. Myers, Baton Rouge, State Department of Public Works.

Registration will continue from 8:30 to noon Saturday.

The general meeting will be conducted from 8:45 to 9:15 a. m. in Room 208, with John T. Knight, Jr., L.E.S. president presiding. All Society members are requested to attend.

Committee workshops will be held from 9:30 to 11:30 a. m. as follows:

Public Relations	Room 237
Engineers Week	Room 235
Legislative	Room 204
Annual Meeting	Room 242
Ethics and Professional Conduct	Room 218
Honors and Awards	Room 244
Membership Room	Room 208
State Planning	Room 246
Vocational Guidance	Room 403

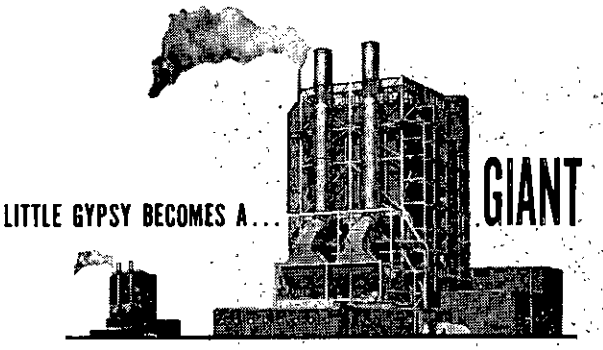
The Women's Auxiliary will attend an art show at the Weathersby Fine Arts Building at Louisiana College from 9:30 a. m. to noon Saturday. Coffee will be served. Mrs. Louis J. Daigre is Alexandria president of the Auxiliary and Mrs. Leonard H. Bossier is special affairs chairman.

Marshall B. Ewing will preside at a luncheon meeting at 12:30 to 2 p. m. in the Louisiana Room of the Hotel Bentley. Members and wives are invited to be present. Luncheon speaker is to be announced.

Committee chairmen will report to President Knight at Room 208, as follows:

Engineers Week, Hoyt W. Brown, Jr.; Public Relations, Frank H. Walk; Legislative, Henry L. Landry; Annual Meeting, G. M. Baccich, Jr.; Ethics and Professional Conduct, Marion D. Garrison; Honors and Awards, James S. Janssen; Membership, T. J. Hogue, Jr.; State Planning, K. V. Stewart, Jr., and Vocational Guidance, Albert G. McKee.

WORKING on plans for 8th Annual State Planning Conference in Alexandria March 6-7, 1964, are Marshall B. Ewing (left), and K. V. Stewart.



LP&L made news at Little Gypsy with the world's first steam-electric generating unit capable of completely automatic operation. Now Little Gypsy will have a giant new 400,000-kilowatt unit also designed for computer control. When completed in 1965, the new unit will raise Little Gypsy's capability to 647,000 KW and that of the company to 1,338,700 KW. Investor-owned taxpaying LP&L works constantly to assure plenty of low-cost electricity for any need.

Louisiana Power & Light Company

"Helping Build Louisiana"

Memorials

FAY NELSON HANSEN
Died November 20, 1963

Fay Nelson Hansen, the son of John M. and Mabel (Nall) Hansen, was born in Denver, Colorado, on June 26, 1906. He was graduated from Colorado State University (Fort Collins) with the degree of Bachelor of Science in civil and irrigation engineering in 1929. He attended graduate law school at the University of Michigan in 1933-34 and did part-time graduate work at the University of Louisville in 1939 and at Louisiana State University (Baton Rouge) in 1954.

Mr. Hansen had short periods of employment with Gates Rubber Company in Denver, with the Denver Municipal Water Company, and with the Interstate Commerce Commission in Washington, D. C., before accepting a position as junior engineer with the U.S. Geological Survey at Green River, Utah, in May 1930.

From that time until his untimely death, Mr. Hansen's career was spent in stream gaging and hydrologic work with the Surface Water Branch, Water Resources Division, U. S. Geological Survey, except for the school year of 1933-34. At Green River, Utah, he had a resident assignment in the Salt Lake City district measuring stream flow and making suit studies on the Colorado, Green, and San Juan Rivers.

In 1934, he accepted a resident assignment in the Rolla district, with headquarters at Pierre, South Dakota, doing field and maintenance work at gaging stations in North and South Dakota. In 1935, he was transferred to district headquarters at Rolla, Missouri, for additional experience. In 1937, he was transferred to assist the engineer-in-charge of the St. Louis, Mo. subdistrict in the operations of that office and related work in the area.

Mr. Hansen moved to Louisville, Kentucky, in 1938 to assist in establishing the Kentucky district with headquarters at Louisville. He had the direct responsibility of directing all field operations including the design and construction of gaging stations and related structures, as well as the supervision of technical office computations.

In 1941, he was promoted to engineer-in-charge of the Pittsburgh, Pennsylvania, subdistrict office and assumed responsible charge for all field and office operations in the collection and compilation of stream gaging data for the Ohio River basin in Pennsylvania.

Mr. Hansen was appointed District Engineer of the Louisiana district in 1948 with headquarters at Baton Rouge to assume responsibility for the determination of the surface water resources of the State. He gave general supervision to the technical and administrative functions of the district and was directly concerned with cooperative relations with other agencies.

On Sept. 9, 1933, he married Wanda Storrs in Salt Lake City, Utah. He is survived by his widow and two children, Mrs. Thomas L. (Susan) Wulff, of New Orleans and John Steven, a senior at Louisiana State University.

Mr. Hansen was a registered civil engineer in Pennsylvania and Louisiana. He was a fellow in the American Society of Civil Engineers and was active in affairs of the local section. He was also a member of the National Society of Professional Engineers, the Louisiana Engineering Society, the American Geophysical Union, and the American Water Works Association. He joined Toastmasters International in Pittsburgh and was a charter member of the Baton Rouge chapter. He was also a member of several local social organizations.

CECIL K. OAKES
ERNEST J. TAYLOR
ALCEE N. TURCAN, JR.

—o—

LEAL CAREY HENRY McLEAN

On Thursday, December 26, 1963, the Louisiana Engineering Society, the engineering profession and the community lost a respected citizen and Southern gentleman in the death of Leal Carey Henry McLean.

Mr. McLean was born May 30, 1904, in New Orleans and is survived by his wife, the former Carla Saracco, a daughter, Mrs. Joseph Watters and a sister, Miss Helen McLean.

He received his academic education in local elementary schools and a Bachelor of Engineering degree in Mechanical and Electrical Engineering at Tulane University followed by two years of extension work at Chicago Technical College.

As one of Tulane University's football greats of his time, his love and knowledge of the game carried him on to head football coach and athletic instructor for the Orleans Parish School Board in 1926 and 1927.

In 1927 he entered what was destined to be a long period of service to Lukens Steel Company and its local successor, Jones & Laughlin Steel Corporation, in their New Orleans fabricating plant and warehousing facilities.

Mr. McLean held various professional assignments involving general design, estimating and sales on the staff of Jones & Laughlin Steel Corp., and in February of 1941 he became chief engineer charged with responsibility for shop operations, engineering, drafting and field erection of buildings and bridges, which position he held until his retirement, June 30, 1962, when he became associated with Shilstone Testing Laboratory in the capacity of chief engineer in charge of sales.

In his participation in the Louisiana Engineering Society he became a Student Member while registered as a senior at Tulane, a Junior Member in 1934 and transferred to Member in 1937. During his many years in the Society he served on numerous committees including Chairman of the Finance Committee in 1947 and Chairman of the Annual Banquet Committee in 1949. He was selected to become a Life Member of the Louisiana Engineering Society (having completed 30 years of active membership), and Certificate of Life Membership was to have been presented to him at the Annual Meeting in Lafayette, Louisiana, on January 17-18, 1964.

He was a Fellow in the American Society of Civil Engineers, a registered Professional Engineer in the State of Louisiana in Mechanical, Electrical and Civil Engineering, a member of the Boston Club, International House, Chamber of Commerce, the Engineers' Club and various Carnival organizations.

JAMES K. HESS
CECIL M. SHILLSTONE
JOHN H. F. WEBERT
A. R. WINGATE, JR.

REPORT OF PRESIDENT
LOUISIANA ENGINEERING SOCIETY
1963

As my term of office as your President concludes, I must confess that I am not entirely satisfied with the results attained during the past year. I think all outgoing Presidents have this feeling. Although favorable results have not been apparent in a few areas of activity, problems in these fields have been pinpointed and action initiated to correct them. On the other hand, I am most grateful for the dedicated service to our Society which has been expended by so many of our members. It has been a most gratifying experience to have had the opportunity to work along side those who have given so freely of their time and effort. Obviously, credit for any success during my term as President should go to the officers, board and committee members.

It is regrettable that we did not do so well as we had hoped in some areas of activity, especially in membership. However, the Membership Committee is to be commended for its program this past year and it is believed that groundwork has been laid for better results in this field during the coming year. I am convinced that implementation of recommendations contained in an interim report of the Organization Study Committee will be a step in the right direction in bettering the operations of our Society and enabling it to provide better service to the membership.

Generally, recommendations contained in the report advocate (1) the formation of a New Orleans Section similar to existing sections and that the statewide organizations be reshaped with officers separate from the New Orleans Section; (2) that L.E.S. should be professional in character and activity, leaving technical activities to the various technical societies; and (3) that necessary changes should be made in L.E.S. so that operations and activities of the State Society and its sections will more nearly coincide with N.S.P.E. The committee has not completed its assignment and it should be continued until a final report is rendered.

Efforts have been made to pinpoint problems in connection with our public relations program and steps taken to correct them. Acting on recommendations of the Public Relations Committee Chairman, the Committee has been enlarged from a two-man committee to include representatives from private industry, private utilities, government, education, private practice, and our Public Relations Counsel. Activities of the Board have been directed toward improved liaison between L.E.S and other groups such as the State Board of Registration for Professional Engineers and Land Surveyors, the Louisiana Land Surveyors Association, the American Institute of Aeronautics and Astronautics and N.S.P.E.

A departure from former practice was made this year by the publishing of a Membership Roster as a supplement to the Louisiana Engineer. The Functional Section for Engineers in Private Practice prepared a Manual of Professional Practice for the use of Engineers and clients which was published and made available for distribution. Two committees were appointed to investigate the need for establishing functional sections for Engineers in Government and Engineers in Industry. A report has been received from the committee for Engineers in Government. The committee for Engineers in Industry has not reported. The Datum Plane Committee completed its assignment for working out a cooperative project between local interests and the Coast and Geodetic Survey for a re-survey of bench marks in the New Orleans area. The survey is now under way at an initial cost of $60,000 with requests for additional work under consideration. A notable accomplishment during the year, on recommendation of the Honors and Awards Committee, has been establishment of the A. B. Paterson Engineer in Management Award. Plans are to make the initial presentation of this award to an outstanding Louisiana Engineer in the field of management at the 1965 Annual Meeting.

Another achievement was setting up an annual L.E.S. award to the staff writer of a member of the Louisiana Press Assn. for "the best engineering story."

An L.E.S. Louisiana Industry-Engineering Education Advisory Committee was appointed at the request of the Louisiana Industries-Engineering Council to work with that group as representatives of the Society in promoting its objectives in the field of higher education. The Ethics and Professional Conduct Committee has handled cases referred to it in an expeditious manner. This past session of the Legislature being a fiscal session, the Legislative Committee had no problems, however, it has been active in preparation for the coming session in May. The Engineer's Week Committee has made preparations for Engineer's Week, February 16-22, 1965, and the Vocational Guidance Committee has functioned well, taking care of its responsibilities ith our prospective young engineers.

I had the opportunity of visiting each section at least once during the year and successful meetings of the State Planning Conference and Section Officers Conference were held in Alexandria and Lake Charles. Reports of the various committees at the Planning Conference were reproduced and bound into one volume for distribution to committee chairmen for better coordination of committee plans and objectives for the year.

It has been a real pleasure to have served as President of the Louisiana Engineering Society. This experience has more firmly established in my mind the fact that the Society enjoys a leading role in the development of our profession in the State. Our ability to fulfill the responsibility of this position depends upon the concerted efforts of all our members. As a parting remonstrance, let me urge each of you to cooperate with our new President, Jack Knight, in the discharge of this responsibility. Jack will not be able to do the job alone. A dedicated team effort is required. Our Society is on the brink of a great development. The coming year's activities will result in enjoyable progress if each of us does his part.

CALVIN T. WATTS.

U. S. ARMY ENGINEER DISTRICT,
NEW ORLEANS CORPS OF ENGINEERS

Foot of Prytania Street
New Orleans, Louisiana

SUBJECT: Registration of Engineers

26 September, 1963

TO: All Engineers
USA Engr. Dist., New Orleans.

1. Attached is a copy of a letter from General Wilson, Chief of Engineers, expressing his views and desires on subject matter. I have a further letter from General Davis concurring in those views and desires.

2. A large percentage of the engineers in this district have recognized the value of and have acquired professional registration. Unfortunately, others have not. I would ask those in the latter group to consider that registration as a professional man is essential to full recognition and acceptance as a professional. Those not registered owe it to themselves and to the organization which they represent to seek this recognition and acceptance.

3. Application forms and instructions for acquiring professional registration can be obtained in the Employee Utilization Branch of the Personnel Office, Fort Belvoir, Va., as preparation for professional engineer examinations where such examinations are required. Information on this course can be obtained from the Employee Development Officer in the Personnel Office.

4. You will some day appreciate your own cooperation in this matter.

EDWARD B. JENNINGS
Colonel, CE
District Engineer

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HEADQUARTERS
DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS

Washington 25, D. C.

ENGCE

29 August 1963

SUBJECT: Registration of Engineers.

TO: Commanders, All Corps of Engineers Installation and Activities.

1. As you know, I am deeply interested in encouraging our engineer and architectural workforce to attain registration as an indication of their professional qualifications and interest in maintaining the high standards of their profession.

2. In July 1962 a check was made of the extent of registration of engineers and architects within the Corps of Engineers, the results of which are furnished herewith as inclosure 1. This tabulation reflects an increase in registration over the situation existing in 1957, from 30% to 36.1%. This indication of interest on the part of our engineers and architects to achieve registration is appreciated.

3. I have noted many actions on the part of addresses to encourage registration. I am pleased to see the interest being taken in this area, and urge all such actions be continued and, if possible, reemphasized. I desire that you continue to keep this office informed of actions you are taking in this regard, and in turn we will continue to keep all elements of the Corps advised of the different types of actions which are being taken in order to insure that all possible encouragement and recognition are given to those engineers and architects achieving the distinction of registration. I intend to follow up on an annual basis to measure the effectiveness of our efforts to encourage registration. I will keep you informed of the results of this follow-up in order that you can compare the results of your actions with that of other Corps activities.

4. While I want to encourage registration to the maximum extent possible, there are some restraining considerations which I feel compelled to apply in the interest of the entire engineering workforce of the Corps. These are in the areas of requirements for mandatory registration for high-grade jobs, use of professional suffix on official papers, and the granting of promotions or quality increases as rewards for registration. These are discussed below:

a. Should a mandatory requirement for registration be established?

The registration of all engineers occupying senior level positions is considered to be a highly desirable long-range goal. However a mandatory requirement of this sort is considered inappropriate at this time because of existing variations in registration requirements throughout the country and because such a requirement would unnecessarily exclude well-qualified personnel from appointment and promotion consideration.

b. Use of professional suffix PE or RA in signing official correspondence.

While there are split opinions on this matter, I am reaffirming my policy that the professional suffix not be used on any official correspondence or on official action papers of any sort for the following reasons: the present wide variation in requirements for registration; such a practice would tend to cast unwarranted reflection on competent unregistered engineers; the fact that official papers in the Corps are nearly always the product of multiple efforts of the organization rather than the individual; and because the official organizational title of the signer properly reflects his status in the Corps, which is universally recognized as a professional organization. However, I urge and encourage those engineers who are registered to use the professional suffix in private or semi-official correspondence with individuals or professional organizations where it would be considered of significance.

c. Recognition of registration through additional quality step increases and/or promotion consideration.

The basic problems of lack of standardized requirements for registration, and the fact that personnel may attain registration who do not warrant promotion or quality step increases, and vice versa, appear to make such a practice unwise. Accordingly, it is my policy that, while achievement of registration may be considered as one factor in determining eligibility for quality step increases and selection for promotion, it will not be a mandatory requirement.

5. I desire that you call this letter to the attention of all engineers and architects in your organization to apprise them of my interest in, and appreciation of, their efforts to enhance their professional status.

W. K. WILSON, JR.
Lieutenant General, USA
Chief of Engineers

Wanted: Professional Engineers

By J. T. KNIGHT, JR.

1964 President, Louisiana Engineering Society

The Louisiana Engineering Society is the Louisiana State Chapter of the National Society of Professional Engineers, and as such it can be expected that every registered engineer within the State of Louisiana is a member or should be interested in becoming a member.

It is to those members of L.E.S. who are not members of N.S.P.E. and those registered engineers who are not members of either L.E.S. or N.S.P.E. that I particularly address these words.

Our objectives for 1964 can be clearly stated: We expect to take every opportunity to acquaint the public and users of engineering services with the value of engineering as a profession; we shall establish liaison with the legislature and other state agencies, and study practices followed in employing engineers; we shall concern ourselves with the economic status of the professional engineer in Louisiana; and we shall make an effort to assimilate young men entering the profession as well as orientating those who receive their registration to practice within this state; we hope that we may be able to find new and important ways and means by which the engineering profession may better and more fully serve this state and the communities within the state. These are ambitious goals, but each represents an activity that all engineers may benefit from, each of us has a stake in this Society and the accomplishments of L.E.S. will reflect the degree of help received from each engineer registered within this state.

The first step towards these goals is a consideration of membership in our Society. Are you a member? If not, why not? Your presence and help are vital to our success, even to your success. Your certificate of registration to practice in this state is your invitation to join L.E.S.-N.S.P.E. The receipt by each registered engineer of the "Louisiana Engineer" is proof positive that we count you as one of us.

In 1952 we celebrated the Centennial of organized engineering activity in the United States. During the first hundred years most of the organization was by groups in the same area of engineering interest, and their purpose was the advancement of the technology, and the dissemination of technical information by publications and meetings.

However, this is not enough, and as engineers must be a part of Society, and move in an economy, principally of people, there has grown a great and urgent need for professional representation, and recognition as a learned profession. We all must concede that there is a broad area of common interest among engineers, and most of these areas of common interest are of a non-technical nature, they are basic and common problems of all engineers rather than the interest of a single group or branch. The professional Society as represented by L.E.S.-N.S.P.E. is an attempt to do something about these common problems.

I remind you that there is a very definite need for technical branch organizations, and no engineer should fail in joining the Society of his branch.' Over and above this branch Society we must have the professional Society, a Society that is devoted to the professional interest of all engineers, those in private practice, in government, in industry and in education. Such is L.E.S.-N.S.P.E.

The results of the programs and the efforts of a professional Society will be in direct proportion to the support from each registered engineer, by his activity and financial help provided by his membership.

If you agree that there is a community of interest among engineers at the Community, and the state level, then you owe it to yourself to let us have your membership application.

Actually the policies, the ideas and the "go" to move forward must stem from the individual engineers and the best that we, your officers, can promise is coordination, implementation, and democratic representation of all sections of the society at State level.

Registration is accepted as the hallmark of the professional engineer, therefore, if you are registered you are qualified for membership in L.E.S.-N.S.P.E.

Let me remind you we are devoting our entire efforts to the professional, social, economic and ethical problems of the profession. Your support is important. It means not only your membership, but your active membership, your willingness to work on committees, accept offices, and study the profession's problems in order that we may mobilize the brain power of Louisiana's richly deserving engineering profession.

JOHN T. KNIGHT, JR.

John T. Knight, Jr. was born the son and the grandson of regular Army Officers and after a boyhood typical for all "Army Brats", he entered the United States Military Academy in June of 1914.

His contemporaries at the Military Academy included President Eisenhower, Generals Omar Bradley, Mark Clark, Mat Ridgway, Al Gruenther, Leslie Groves, Jim Van Fleet, Joe Collins, and many others well known for their services during World War II and Korea.

While at the Academy, Colonel Knight played football, boxed, wrestled and took part in track events. During his senior year, he was the Senior Cadet in the Corps, and was the first man to actually be rated "Cadet Major." He was graduated 30 in a class that started out almost 250 strong of which 150 were graduated.

Colonel Knight's class was graduated in August 1917 because of the outbreak of World War I. He was assigned to the 20th Field Artillery, 5th Division, and went overseas. He commanded a battery of Field Artillery in combat in the Vosge Mountains, the St. Mihiel, the Meuse Argonne and the Defensive Section of the 2nd Army. He was wounded twice in combat. He received the "Distinguished Service Cross" and the "Purple Heart."

Because of deafness resulting from head wounds,

Colonel Knight resigned from the Army in 1920.

For twenty-two years, from 1920 to 1942, Colonel Knight was engaged in civilian pursuits, ranking from apprentice moulder in the shops of the Northwestern Malleable Iron Company in Milwaukee, Wisconsin; Superintendent of Construction for the Joliet Railway Supply Company in Chicago, Illinois, and Works Manager for the same company. He joined the staff of Balaban & Katz and became Manager of the Chicago Theatre, one of the very early "palatial" motion picture theatres. He stayed in the theatre business for eight years. He rose rapidly and finally was supervisor of operation and management for more than 130 theatres.

He left the Balaban-Katz group, which had in the interim become affiliated with Paramount Pictures, and became a Vice President in charge of construction, of the Buildings Development Company with headquarters in Chicago. In this capacity he directed the construction of several large multi-storied commercial buildings and apartment buildings in Chicago, and two large commercial buildings in Milwaukee.

(To be continued)

"One of the distinguishing marks of the professional engineer is the extent to which he participates in the activities of the engineering profession," in the opinion of Western Electric Company. "Although 'participation' can be considered as virtually any activity which contributes to the growth of engineering and the development of engineers, professionalism is often manifested in a tangible way by membership and participation in engineering societies, by attempts to improve or maintain professional standards or to upgrade the calibre of professional education, by professional registration, technical article authorship, symposia participation, by efforts to disseminate technical information," and other means, the company claims.

Related to Promotion

"An individual's professional activity is one of the factors which help to identify engineers for advancement" in Western Electric because it "indicates a measure of professional maturity, leadership ability, interest and initiative which corresponds to the qualifications needed for assignments of increasing responsibility."

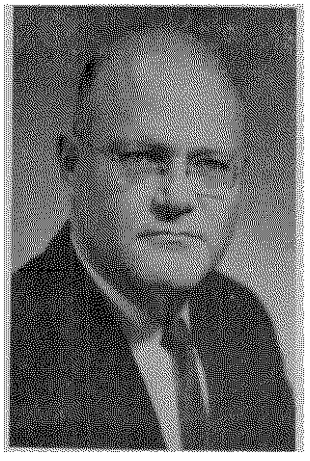
Value to Company

"As far as the Company is concerned, the importance of professional responsibility and the need for each engineer to assume this responsibility cannot be overemphasized. The more professional WE engineers become, the more valuable an asset they are to the Company," it is claimed in the firm's December issue of Engineering Personnel Relations NOTES.

Company policies designed to assist engineers participate in professional activities include: Reimbursement of refresher course tuition leading to a professional license; reimbursement of licensing examination costs upon registration; reimbursement for the initiaon costs of joining selected societies and organizations; and time off from work and/or payment of expenses associated with participation in society meetings and other professional activities.

Named L.E.S. Life Members

LIFE MEMBERS named at Lafayette Annual Meeting included Lawrence C. Brune and John S. Gentilich, U. S. Corps of Engineers. They are congratulated by Col. E. B. Jennings, District Engineer, New Orleans District. Photos of others will be in next issue.



James S. Janssen

Frank W. Macdonald

Edmund F. Hughes

William Drowe

Lafayette Has First Annual Meeting

LAFAYETTE—Louisiana engineers in industry, education, government and private practice attended the 66th Annual Meeting of the Louisiana Engineering Society in Lafayette Jan. 17-18.

Theme of the meeting was "The Engineer—A Vital Factor in the Development of our State", according to J. E. Jarman, general chairman. Some 240 delegates attended the sessions in the Municipal Auditorium.

A special exhibit provided by the National Aeronautics & Space Administration's Manned Spacecraft Center in Houston, Tex.—the space capsule of "Ham" the chimpanzee" and other displays— served to emphasize the contribution of professional engineering to the nation's future. Other exhibits showed engineering tools and services in the petrochemical field; civil, mechanical and electrical and agricultural engineering, said J. H. Huffman, United Gas Pipeline Co., Lafayette.

Sessions started Friday, Jan. 17 with a Consulting Engineers Section meeting, Leo M. Odom, Baton Rouge, chairman, presiding. A technical session was presented by students from the state's engineering schools and colleges, with James H. Gabler, New Orleans, Tulane University, presiding. Participants were James A. Petrus, La. Tech, Russell J. Gaspard, Tulane, and Lester E. Burleigh, USL.

A Board of Direction meeting and luncheon followed with Calvin T. Watts, Baton Rouge, president of the society and assistant director of the State Department of Public Works, presiding.

Later, Mr. Watts conducted the general meeting of the society. Rev. Perry Sanders, First Baptist Church Lafayette, gave the invocation.

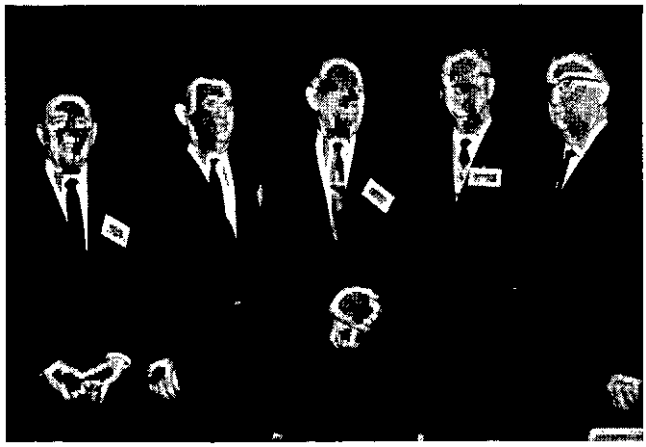
Presidents of state sections were introduced. They are Jerry W. Affolter, Baton Rouge; Marshall B. Ewing, Alexandria; Albert H. Repscha, Lafayette; Ernest Levingston, Lake Charles; Fred Brownlee, Monroe; B. M. Ferguson, Shreveport.

Keynote speaker was Robert J. Angers, Jr., Editor and Publisher, Banner-Tribune, Franklin, La. His subject was "Louisiana Needs an Engineer".

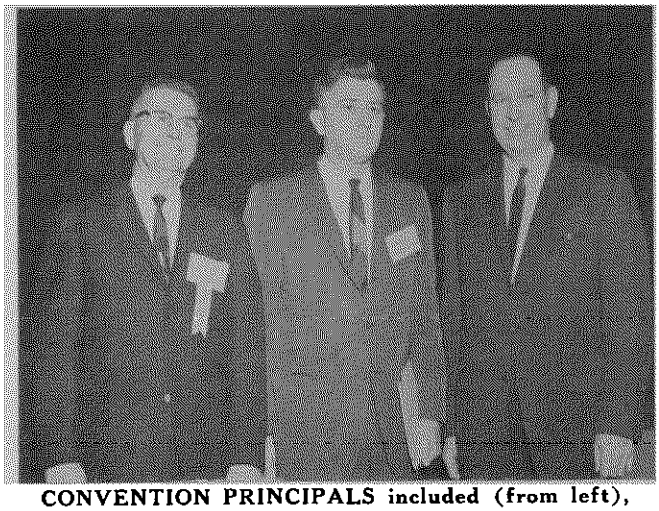
John P. Fernandez, New Orleans, secretary-treasurer, gave his annual report. Mr. Watts gave the President's report.

Certificates of merits were presented the student speakers.

Life membership in the society was accorded: Lawrence C. Brune, William J. Drawe, Jr., John S. Gentilich, Edward H. Gessner, J. Mason Guillory, William T. Hess, Edmund F. Hughes, James S. Janssen, Louis I. Korn, Stanley H. Lecourt, Frank W. Macdonald, John K. Mayer, David Moodie, Herbert S. Swan, Richard E. Wagner.

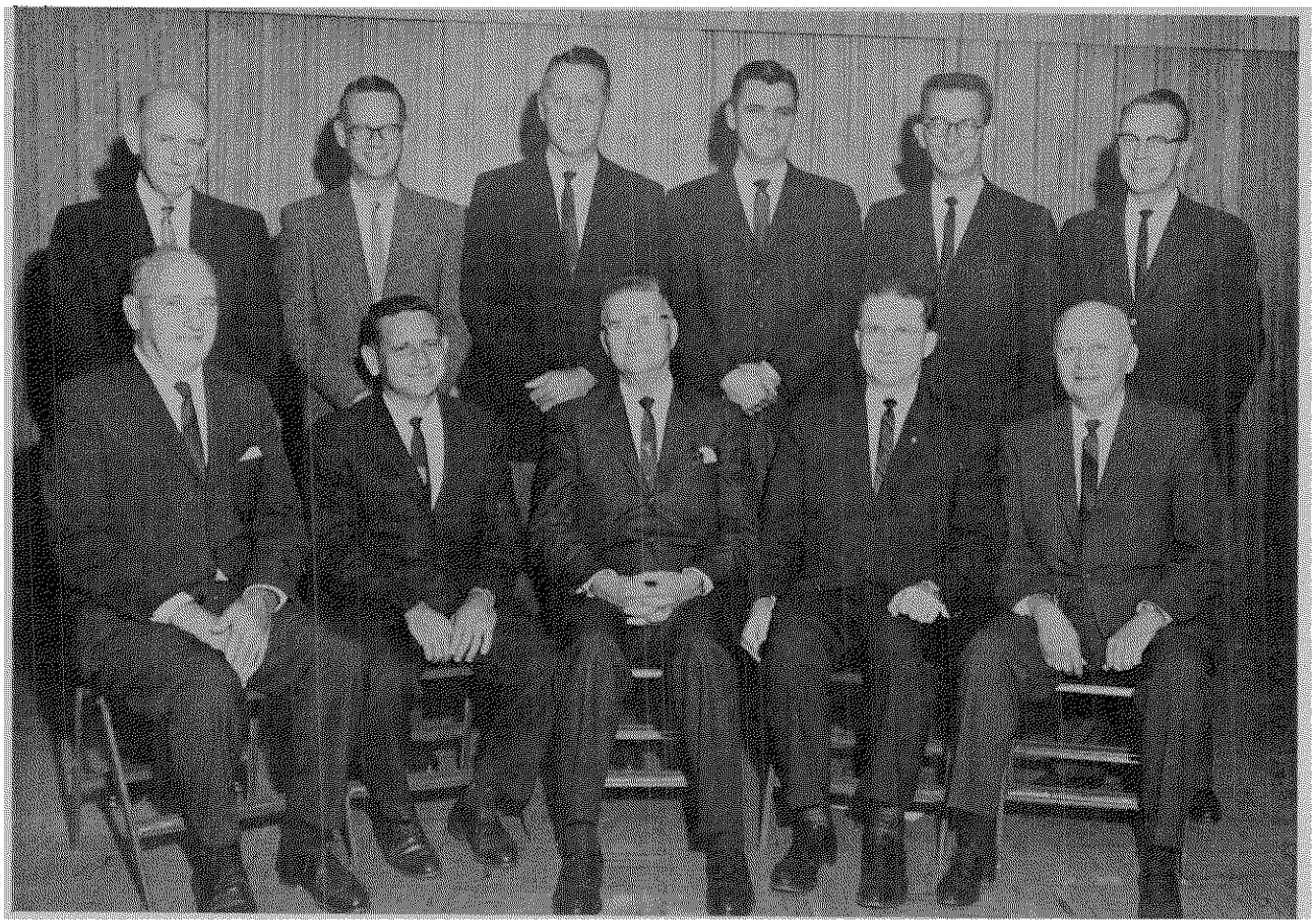


L.E.S. Officers for 1964 installed at Lafayette Annual Meeting are (from left), John P. Fernandez, re-elected secretary-treasurer; Louis Duclos, second vice-president; C. W. Stokes, president-elect; Col. J. T. Knight, president, and 1963 president Calvin Watts.



CONVENTION PRINCIPALS included (from left), J. E. Jarman, Lafayette, general chairman; Robert J. Angers, Jr., publisher, Franklin Banner-Tribune, a speaker, and Mayor J. Rayburn Bertrand of Lafayette who welcomed the delegates.

ACTIVE LADIES' PROGRAM found as participants (from left), Mmes. George Walther, Lake Charles chapter president, Woman's Auxiliary; Mrs. Charles W. Hair, Jr., Baton Rouge chapter president; Mr. Roy Cappel, New Orleans, state president, Woman's Auxiliary; Mrs. Albert H. Repscha, Lafayette, and Mrs. Louis Daigre, Alexandria chapter president.



LAFAYETTE ANNUAL Meeting committee included (tom, from left), James Reed, R. M. Hetherwick, John Huffman, August W. Endris, R. E. Jenkins, F. L. Larue; (bottom, from left), A. H. Repscha, Walter Vincent, J. E. Jarman, general chairman; Wayne P. Wallace, John Gaugler.

The L.E.S. Civic Activitites Medal, Andrew M. Lockett Award was presented to W. J. "Red" Evans, Baton Rouge, by Baton Rouge and East Baton Rouge Mayor-President "Jack" Christian.

Joseph H. Barnwell, Ruston, received the L.E.S. Technological Accomplishment Medal; Dr. Virgil Orr, Dean

Waldemar S. Nelson
. . . speakers

Dr. B. H. Amstead
. . . at 66th

Dr. James S. Oliver
. . . Annual Meeting

of College, La. Tech., made the presentation.

James S. Janssen, chairman of the nominating committee, gave the Teller's report.

New officers installed included:

J. T. Knight, New Orleans, president; Charles W. Stokes, Lake Charles, president-elect; Louis Duclos, Baton Rouge, second vice-president, and John P. Fernandez, New Orleans, re-elected secretary-treasurer. Elected national NSPE director for two years was Waldemar S. Nelson, New Orleans.

State directors elected included Leo M. Odom, Baton Rouge, two years; Roy E. Johnson, New Orleans, two years; J. Bres Eustis, New Orleans, one year.

Saturday sessions started at 8 a.m. with a public relations committee meeting, Frank H. Walk, New Orleans, chairman, presiding.

Emery Domingue, Lafayette, consulting engineer, Domingue, Szabo & Associates, presided at a technical session.

Waldemar S. Nelson, New Orleans, president, Waldemar S. Nelson & Co., Inc., consulting engineers on "The Louisiana Intracoastal Seaway".

F. L. Larue, Jr., assistant professor of chemical engineering at USL presided at a technical session.

Dr. B. H. Amstead, Austin, Tex., assistant dean of engineering, University of Texas, discussed "Present Trends in Engineering Education".

Forney Fuller, New Orleans consulting engineer presided at an American Society of Mechanical Engineers (ASME) luncheon.

R. A. LeBlanc, Sr., president, St. Mary Iron Works, presided at an afternoon technical session on the Space Program.

Speaker was James L. Stamy, Deputy Manager, NASA Michoud Operations.

Frank Love, transmission engineer, Southern Bell Telephone & Telegraph Co., presided at a session on "Use of Computers in Engineering". Speaker was Dr. James R. Oliver, dean of graduate school and director of computer center, USL.

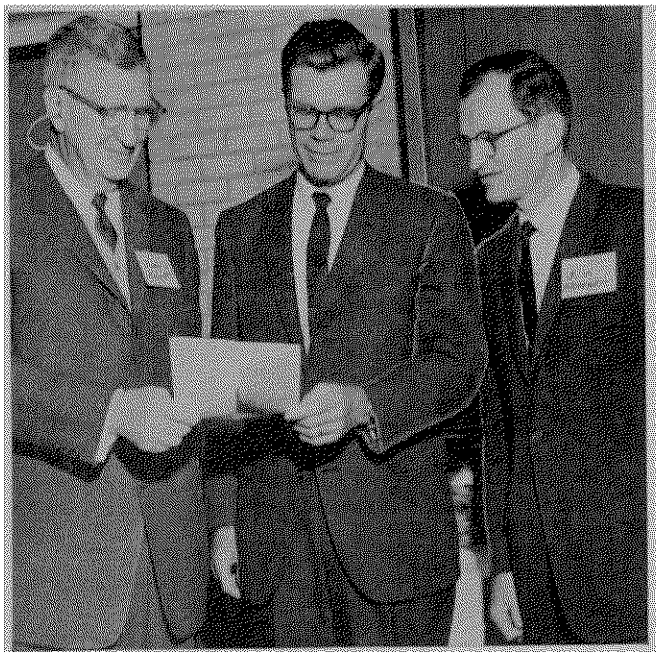
President-elect Col. John T. Knight, New Orleans, presided at the annual banquet. Rt. Rev. Msgr. Alexander O. Sigur, Our Lady of Wisdom Chapel, USL, gave the invocation.

Banquet speaker was Chester Lauck, executive assistant, Continental Oil Co. (Lum of Lum 'n Abner). Dancing followed.

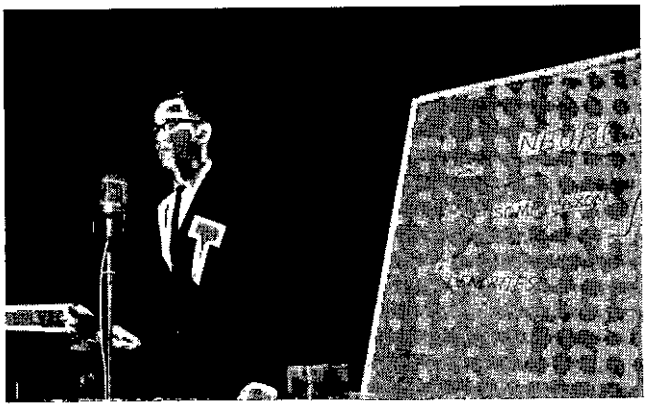
Dr. T. J. Arceneaux, dean of the College of Agriculture, USL, addressed a ladies luncheon Friday at the Oakbourne Country Club.

Luncheon sponsors included Central Louisiana Electric Co., Inc., Gulf States Utilities Co., Southwest Louisiana Electric Membership Corp. and United Gas Corp.

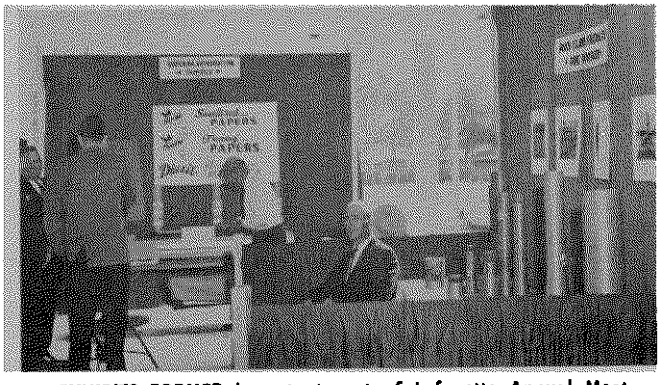
On Friday there was a coffee party at La Maison Acadienne Francaise on the USL campus. A business meeting of the Women's Auxiliary to the L.E.S. followed at the College of Engineering Auditorium, Madison Hall, USL.



COL. J. T. KNIGHT, newly-elected president of the Louisiana Engineering Society, congratulates W. J. (Red) Evans, (left) Baton Rouge, winner of the L.E.S. Civic Activities Medal—A. M. Lockett Award, and Joseph H. Barnwell (right), Ruston, La., winner of the L.E.S. Technological Accomplishment Medal.



STUDENT CONFERENCE participant Will Lee is shown at microphone as session starting the Annual Meeting got underway. Outstanding papers were read and applauded.



EXHIBITS FORMED important part of Lafayette Annual Meeting, attracting attention of delegates from all sectors of Louisiana. Members, above, inspect exhibit between sessions.

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Tells Trends in Engineering Education

By B. H. Amstead
Ass't Dean of Engineering
University of Texas
Before L.E.S. Annual Meeting Jan. 17, 1964

"The old gray mare ain't what she used to be, she ain't what she used to be, many long years ago." Engineering isn't what it used to be, even a few years ago; and a few years from now it'll be quite different from what it is today. It's not only because the concepts of engineering change, but also because everything an engineer works with changes. I'll give you one dramatic example.

In the 1941 Webster's dictionary, I am told that uranium was defined as "an element of little commercial value, sometimes found in pitch or tar, and often used to color tile." Today, every engineering degree plan has been profoundly affected by increased technology due to the atom. Engineering isn't what it used to be!

A colleague of mine, an outstanding engineer, professor, author, and immediate past President of the Texas Society of Professional Engineers, Phil Ferguson, recently stated:

"Forty years ago I earned a B.S. in C.E. degree without soil mechanics, fluid mechanics, environmental health, moment distribution, or plastic design. Nevertheless, I remember a complete design, complete details and engineering drawings for a sizeable railroad truss span. Today's four-year student simply cannot get this far into present structural theory or practices, or this far into any other field. His broader and better rounded background has not only cost him at the design level, but he also enters a field enormously expanded."

The technical competence of graduates of technical institutes today compares very favorably with the technical competence of a B.S. graduate in the early 1900's. He does not, of course, have as many of the liberal arts and humanities courses, nor as much Latin or Greek as did his predecessor. And even though the 1900 B. S. graduate might have taken sixteen credits of mathematics, graduates of the leading technical institutes today go just as far into the calculus and, even more important, they know how to use it. Engineering isn't what it used to be!

The engineering student who is in school today will be practicing the engineering profession until the year 2000. Teaching the engineer about road construction today and failing to equip him to construct the roads of tomorrow is sheer folly. No college of engineering of stature can afford to do this. This does not mean that an engineering graduates should not be capable of designing the roads of today because he must be, if he's to be capable of building the roads of tomorrow. But being capable of doing it and being able to do it on graduation day are two different things.

Many people think that engineering is simply two things; the learning of scientific facts and the application of these facts in analysis, synthesis, and design. Neither nor both represent engineering adequately. My favorite definition of an engineer is "one who is primarily a creator of technical things and services useful to man." Many try to judge a young engineer on what he remembers about freshmen and sophomore problem courses. Registration exams are based on such things, and the best engineer alive who has been out of school five years will fail any comprehensive exam on these subjects. Memory is not the strongest characteristic of an engineer, but rather it is an inquiring and intuitive mind, sharpened by scientific experience and whetted by the pleasures of creativeness—that is the characteristic that makes an engineer great. In this regard, and in this regard alone, engineering is just what it used to be.

Most of you have heard the statement that over 75% of the engineers and scientists who ever lived are practicing their fields today. I submit to you that the percentage of engineers living today is about 90% of those who have ever lived on this earth. As a matter of fact, the number of engineers in this country practicing their profession has almost doubled every decade since the year 1900. In 1900 the **Statistical Abstract of the U.S.** informs us that there were 43,239 practicing engineers in the U.S. at a time when our population was about 70 million. And in 1959, the last year for which figures are available, this same source informs us that there were 720,000 practicing engineers out of a population of more than 178 million. Now the number in the profession cannot double in the decade of the 60's as it has every decade since 1900; since at 30,000 to 40,000 B.S. graduates per year, hardly more than 400,000 can be added.

There are over 1,000 patents granted per week in the U.S. alone; over 3,000 technical journals printed each month; and at least 25 technical books and from 1,000 to 5,000 technical articles published in the world each day. I submit to you that not only is the engineering profession the most active one in creating better products and services for mankind, but also is setting the tempo for the world's written word. This age may well be known in literaturistic circles as the age of technical literature. For years engineers were known as those who couldn't write, and yet they are fast becoming recognized as the most prolific writers of our century.

In 1900 starting salaries averaged about $100 per month; by the mid-1920's they had risen to about $150 a month; in the early 1940's, $200 a month; and by 1948 the average starting salary for a college man with a B.S. degree was about $250 a month; in the mid's 50's it had risen to $400; in 1960 to over $500. And this year it will be over $600. Next year it is predicted that it will be $640 to $650. Engineering isn't what it used to be!

In 1900 there were approximately two Ph.D.'s earned in the engineering field, and by 1930 only 30 were granted per year. In 1952, there was an order of magnitude change over the 30's when over 600 Ph.D.'s were granted. In 1962 there were over 1200. This same story applies to the Master's degree. Their growth was from about ten granted in 1900 to almost 9,000 in 1962. A curious thing is happening, though, in that there are more Ph.D. candidates in some schools than there are Master's can-

didates. And many students are skipping the Master's degree. Of all engineering degrees granted last year, about one-fourth of them were at the graduate level. Engineering isn't what it used to be!

From 1900 until 1940 the goal that a young graduating engineer saw the clearest was his first five to ten years out of school. He expected to work for at least three companies during this time in order to gain the experience necessary for securing and retaining the best engineering position. In the 1960's, companies are recruiting students, and young graduates are seeking the company for permanent positions. And it is surprising to many oldtimers that young engineers do not change jobs as often as they used to. As a matter of fact, it is not only engineers who have stuck with companies more permanently but, all in all, four out of ten presidents of America's largest industrial companies have worked just for that organization. Engineering isn't what it used to be!

In the 1900's the engineering profession was characterized by men who liked the rugged life, either the out-of-doors or the factory, men who liked travel and adventure. Today the position of an engineer is characterized by the man in the suit, the man who creates, and the man who, with shrewd judgment, makes decisions affecting profit and loss or savings over indebtedness. His ability is respected so much that, of the 500 largest industrials, 42% of the presidents have had manufacturing, scientific, and/or engineering experience. Engineering isn't what it used to be!

In 1900 the engineer used drawings and speech to communicate with other people and with machines. It wasn't until about World War II that the engineer first learned that machines do not understand speech and that they cannot understand drawings. It was in the mid-1940's when we realized that machines do understand numbers. In fact, they understand binary arithmetic better than people and can even understand it when it is represented by holes punched in a tape. Looking back now, it appears that we were trying to communicate with people and machines in the same manner that the Homosapiens used 50,000 years ago—just talk and hieroglyphics or drawings—when all the time even the first machines were more sophisticated than man in some respects. Engineering isn't what it used to be!

With regard to binomial numbers, punched tape and computers, there is a good computer story circulating:

It seems that two machines were assembled; one to translate from English to Russian and then, to test the program, the material was sent immediately into the next machine and translated back from Russian into English. On the initial day when thousands of scientists were gathered before closed-circuit TV to see the results of this automated translation, a simple phrase was put into the machine. It was, 'The spirit is willing, but the flesh is weak.' A bit of rumbling and two millionths of a second later, the words had been translated from English to Russian and from Russian back to English, and this was the result: "The Vodka is OK, but the meat is raw."

Freshmen engineering students in many of our leading engineering colleges today learn about computers before they learn about the slide rule. This has had a cause they, too, had to learn to program problems on a computer. Engineering isn't what it used to be!

Someone has compressed the estimated 50,000 years of the history of Homosapiens into 50 years and come up with the following chronology:

For nearly 40 years man lived by hunting and slept in a cave.

12 years ago he built the first city.

7 years ago writing was developed.

2 years ago Christianity appeared.

6 months ago Gutenberg invented the printing press.

33 days ago the first engineering school was founded in France and was fostered by Napoleon.

32 days ago the United States formed its first engineering school, Rensselaer Polytechnic Institute.

30 days ago Edison demonstrated the light bulb.

20 days ago the Wright brothers flew.

7 days ago the atomic bomb and the first jet appeared, followed closely by commercial television.

Day before yesterday, Sputnik I was lofted.

Last night, the first manned space capsule circled the earth. Engineering isn't what it used to be!

In recent years, and I am thinking of 1930 on, there have been overriding characteristics in engineering curriculum development. According to decades from 1930 to now, one can state the 1930's were characterized by, because of the depression, an increased emphasis on economics, government and history, and the training of graduates to put complex designs on paper. In the 1940's we saw emphasis on analysis of data, on the ability to present facts vividly and in attempts to formulate theories instead of empirical relationships. In the 1950's we saw every emphasis on the mathematical and scientific approach. Many new analytical methods were instituted, and in a large measure communication of ideas by drawings were deemphasized. In the 1960's we see a slight regression, which won't last long, to an increased emphasis on analysis, synthesis and design, mathematics of probability and structure of materials. In many design classes the drafting board practically disappeared in the last 10 years. Now it's coming back but with a laboratory adjacent to it. The extensive engineering report as a laboratory exercise is fast disappearing. Engineering isn't what it used to be!

In 1900 several dozen text books, handbooks and a slide rule enabled the engineer of good judgment to practice his profession successfully. Today the young engineer must have a vast library at his fingertips and spend at least an hour a day keeping up with the current progress in his field. Dr. J. A. Straton, President of M.I.T., noted the immense problems engineers and scientists now face, not only in the problems they are obligated to work on, but also the background of material they need. He said, "The simple fact is that progress in science and engineering has 'gone critical' in almost every field. So rapid is the rate of advance that the magnitude of change in industrial processes as well as the progress of academic research is difficult to grasp. These discoveries and innovations in turn claim a place in already crowded curricula. What once was a steady flow of knowledge has become a flood threatening to

engulf teacher and student alike. Nowhere has this crisis in education become more acute than in engineering."

Engineering isn't what it used to be!

All our concepts are changing. Chemistry teachers used to astound us by telling us that the chemicals in our body were worth about 98 cents. Today we are told that the atoms in our body give us a potential energy worth about 15 million dollars. Today we don't learn that we have 72 chemical elements in our body, but that we have on the average of about an octillion or 10^{27} atoms. Do you know how many this this? You don't probably, and I don't either, so I'll go back to the caveman type of description, one that I picked up from a book by Andres and Coke called **Fundamental Chemistry**. Here is what an octillion is:

"The student is asked to consider one pea as equalling one atom. If you count out a hundred (ten to the second power) peas, you will find they occupy the volume of a cubic inch. A million peas (ten to the sixth power) are just about enough to fill an ordinary refrigerator, and a billion peas will fill an average house from cellar to attic; thus a trillion peas will fill a thousand homes in a medium size town; and a quadrillion peas will fill all the houses in one of our larger cities like Philadelphia or Baltimore.

The student is then asked to imagine there is a blizzard over Pennsylvania and that instead of snowing snow it is snowing peas. The blizzard increases and forms a blanket of peas four feet deep all the way from New Jersey out to Ohio and from Maryland up to northern New York. This blanket is about quintillion (ten to the 18th power) peas. This global blanket contains sextillion peas. Finally, go out to the farthest reaches of the Milky Way into space and find two hundred and fifty thousand planets, each the size of our earth; blanket them with peas four feet deep and you have octillion (ten to the 27th power) peas . . . the number corresponding to the number of atoms in your body."

Engineering isn't what it used to be!

In 1900 approximately 5% of the engineering practicing in the United States worked for the federal government, and in 1960 over 13%. This figure includes only those directly employed by the government and does not include, as some have estimated, the 50% of the non-government employed engineers working on government-supported research and development or designing and manufacturing products purchased exclusively by the government. To quote from an article by Dr. W. R. Marshall, Jr., Associate Dean of Engineering at the University of Wisconsin, concerning the large number of engineers that are not working in positions that will contribute to our economic growth:

"It is significant to note that in some foreign countries such as Germany, Holland, Scandinavia, and Japan, a higher percentage of engineers and scientists than in the U.S. are engaged in research efforts directed toward the economic growth of their countries. This imbalance cannot long continue without unfavorable consequences to our world economic position."

Engineering isn't what it used to be!

You see, I haven't said much about the trends in engineering education for they are difficult to recognize.

Many engineers are numerologists of a sort, and I am reminded of an article in the **Scientific American** for January, 1964, by Martin Gardner. He speaks, as he does once a year, of the renowned numerologist, a fictitious Dr. Matrix. This little story can illustrate how significant 1964 might be and how difficult it might be to predict trends from this year's vantage point. He points out that the Boer War ended in 1902 and if you add each of the four digits in 1902 to 1902, that is the 1, the 9, and 0, and the 2, you obtain 1914, the year World War I began. Certainly, the engineering curriculum changed as a result of World War I. World War I ended in 1919 and if you add the digits 1, 9, 1, 9 to 1919, the result is 1939 and that is thought by most to be the start of World War II. And no one can deny that World War II had a great influence on engineering education. World War II ended in 1945 and if you add the 1, 9, 4, and 5 to 1945, result is 1964. If you are a numerologist and think like Dr. Matrix does, then 1964 can be a significant year in engineering education.

Now let me point out a few of the trends taking place in engineering education that I believe are significant enough and certain enough for them to leave their mark on education for a good many years to come.

1. Engineers will communicate with men and machines in a more sophisticated manner by a combination of drawings and mathematics, with a greater emphasis on mathemation.

2. An increasing percentage of students will complete graduate work in engineering, perhaps as high as 50% of all BS graduates within 20 years.

3. It is quite likely, because of a higher percentage of students going into graduate work, that engineering degrees will be characterized by bifurcation; that is, there will likely develop top programs at the Bachelor's level —one for those who wish to proceed to graduate work and one for those who expect to go into the profession at the Bachelor's level.

4. There will be a renewed interest in the economic and professional aspects of engineering.

5. Laboratory experiments will be miniaturized as opposed to those using large machines or testing equipment.

6. There will be improved advising and tutorial programs for engineering students and earlier attempts to motivate students in a career.

7. There will be a gradually diminishing difference between traditional engineering disciplines at the undergraduate level, and a trend toward a common 4 or 5-year bachelor's program, particularly for those students who expect to do graduate work.

8. There will be increased emphasis by engineering educators to insist on professionalism and engineering experience either before or during the early years of a teaching career.

9. You can be sure that there will be a shortage of capable engineering students due, among other things, to the increased entrance requirements of engineering colleges, to the reputation that engineering is a difficult field of study, and to the fact that the present professional engineers, you and I, are the poorest salesmen imaginable for our profession

Engineering is not going to be what it is today!

Perhaps engineering administrators and professors are to blame for either graduating a better or a poorer student this year than they did before Perhaps they will be to blame for giving to the profession either a better or a poorer engineer in the future. In either case, there is a study going on that should give you encouragement. At least it will give you a good idea of what to do with old engineering professors. This study concerns molecular chemistry and it was made by Dr. James McConnell.

He was studying flatworms, "planaria," which are regarded as some of the most primitive creatures capable of true learning. After these flatworms had taken about 150 to 250 lessons, they learned that a flashing light meant that they should contract themselves and brace themselves for electric shock. After they had learned, then about 23 times out of every 25, the flatworms were ready for shock when it came. Some very interesting developments came out of this study, for they found when they chopped the flatworm in two, both halves were just as educated as the other. In fact, the tail half was sometimes more educated than the front. But the most interesting study of all was when they got ready to feed the offspring. They came upon the idea that they should feed them the mother and father flatworms that had already been educated. So they fed them to the offspring, and surprising enough, the cannibals learned by eating. When they went to the light and shock school, they proved to be flatworm prodigies. As a matter of fact, they learned twice as fast as cannibal worms fed on uneducated meat. There are, of course, some very interesting implications of this and some bright students have come up with the idea that they finally found something to do with old teachers. Just grind them up and feed them to their students.

Engineering isn't what it used to be!

—o—

Olin Chemical To Build Huge Complex

Plans for the world's largest ammonia plant, capable of 1,400 tons a day, to be built in the Olin Corporation's Lake Charles Chemical Complex, were annunced.

Completion of this construction work, a part of a $40,000,000 expansion program program announced by Olin, is expected by late 1965, according to John O. Logan, corporate vice-president and general manager of the chemicals division of the company.

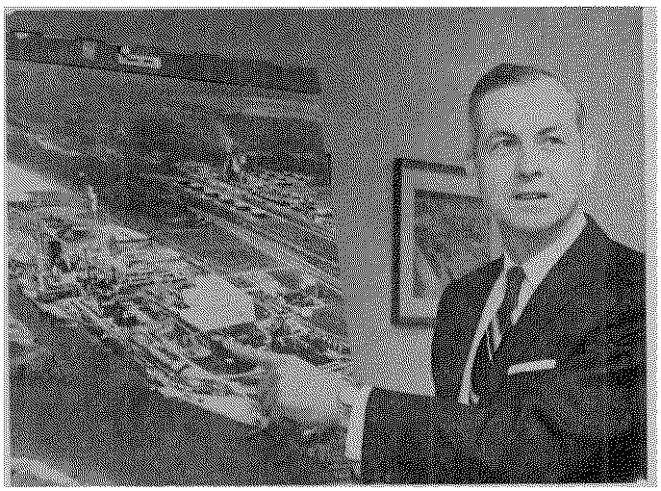
In addition to the Louisiana work the expansion program calls for a new high analysis fertilizer plant and bulk Ammonia storage terminal at Joliet, Ill., and additional capacity and modernization of the company's Pasadena, Texas, installations.

The new urea plant at Lake Charles will have a capacity of more than 140,000 tons a year. Olin now operates a urea plant in joint ownership with Sun Oil Company at Claymont, Del. The SunOlin plant has a rated capacity of 73,000 tons a year and is operating beyond that capacity.

At Joliet the new plant will have a capacity of approximately 200,000 tons a year. That will make it about one-third the size of the corporation's fertilizer plant at Pasadena, Tex.

The Pasadena plant, with production capacity of more than half a million tons a year, is believed to be the world's largest high analysis fertilizer plant. Olin pioneered high analysis fertilizer in that plant, and has had continuous production there since 1945.

At Pasadena, the expansion program will include modernization of the phosphoric acid facilities, and additional rock grinding capacity. Added fertilizer capacity will bring the total to about 600,000 tons at the facility. Total combined capacity will come to about 800,000 tons a year.



O-M's John Logan, Lake Charles plan.

Another part of the $40,000,000 program will be the construction and expansion of terminals, warehouses and distribution facilities at various strategic points throughout the United States. Plans call for an additional 215 ammonia stations, 150 bulk warehouses, 20 blending plants for mixed fertilizers and 100 solution stations.

Plans call for construction to start at the Lake Charles site in the third quarter of 1964 for ammonia and urea; at Joliet in the latter part of 1964 for Ammo-Phos and the bulk ammonia storage terminal, and at Pasadena in the third quarter of 1964.

The port of Lake Charles is located on a deep water channel to the gulf as well as on the Intracoastal waterway. Much of the ammonia will be barged via the Intracoastal Waterway to the Mississippi.

Ammonia is composed of nitrogen and hydrogen, and its chief use is in fertilizer, either by direct application to the soil or as an ingredient of mixed fertilizer.

High analysis ammonium phosphrate fertilizer is made principally from ammonia, sulfur, phosphate and potash. Its chief advantage is that it contains more plant nutrients than ordinary fertilizer, thereby giving farmers higher yields with less work and reducing transportation costs.

Urea also is used as a fertilizer because of its high nitrogen content (45 per cent). In addition, it can be used as a source of protein in animal feed, and it has a wide pariety of industrial uses. Raw materials for urea are ammonia and carbon dioxide.

La. Intracoastal Seaway Benefits Told

By Waldemar S. Nelson
Waldemar S. Nelson & Co., Inc.
(Before L.E.S. Annual Meeting, Jan. 17, 1964

The Louisiana Intracoastal Seaway is an imaginative but realistic project for the construction of a deep draft navigation and fresh water supply channel across south Louisiana from the Sabine River to Bayou Lafourche.

This project, first proposed about nine years ago, is being actively supported by the Louisiana Intracoastal Seaway Association. This organization, formed in 1958, is composed of the police juries of Calcasieu, Cameron, Jefferson Davis, Acadia, Vermilion, Lafayette, Iberia, St. Mary, Terrebonne, Lafourche, and St. Landry Parishes.

At the request of this organization, the Louisiana Department of Public Works, Mr. Claude Kirkpatrick, Director, is having an economic and engineering study made of the feasibility of this project. Waldemar S. Nelson and Company of New Orleans is conducting the initial phases of this study. Inasmuch as the Seaway will be of benefit to the entire State of Louisiana, it seemed appropriate to discuss the project at this statewide annual meeting of the Louisiana Engineering Society attended by engineers from throughout the State.

The precise location of the Seaway has not been determined and will require a detailed engineering study before an exact route can be selected. In general, the location under consideration follows the existing course of the Intracoastal Waterway across southern Louisiana. Local conditions may necessitate deviations from this route where studies and conferences with interested parties determine this to be advisable.

The Old River Lock—Atchafalaya River channel and the Port Allen Lock and Waterway, which provide excellent barge navigation to and from the entire Mississippi Valley, will connect with the Seaway to Morgan City. The Sabine River and Lake Charles ship channels near the western end of the Seaway provide deep draft access from the Gulf to the Seaway. The existing Atchafalaya River channel and the new Houma Navigation Canal provide medium draft access to the Gulf near the eastern end of the Seaway, and local interests there are actively pushing plans for the progressive deepening of these channels to accommodate ocean shipping. Fresh Water Bayou, now under construction, will provide access at the midpoint of the route.

The Seaway would be operated as a fresh water channel, receiving fresh water from the Sabine, Calcasieu, Vermillion, Mermentau and Atchafalaya Rivers. Control structures would prevent intrusion of salt water from the Gulf into and north of the Seaway. The Seaway would thus supply fresh water to industries located along its banks, provide a source of municipal water supplies, furnish irrigation water for agricultural use in the area, and make available a substantial supply of fresh water for improving the ecology of the coastal fisheries and wild life areas adjoining the Seaway.

Engineering studies indicate that the project would provide five major benefits to the Seaway area. These are:

1. Deep water navigation.
2. Fresh water supply.
3. Hurricane protection.
4. Drainage improvement.
5. Pollution control.

Provision of these features will stimulate industrial development, provide fresh water for the needs of new industry and attract shipping all in close proximity to the raw materials essential to industry's operation.

Despite rich natural resources, industrial growth in Louisiana has not taken place at a satisfactory rate. Industries which use the raw materials available in southern Louisiana also need deep water shipping facilities and an abundant supply of fresh water. Since these elements are presently lacking, Louisiana's raw materials for the most part have been shipped elsewhere for manufacturing and processing, to the detriment of this state's economy. The Seaway would provide a deep water channel with easy access to both the Gulf of Mexico and the Mississippi River Valley. Once the Seaway provides such facilities, then a petrochemical complex is expected to develop along the Seaway and its deep water outlets, a complex which in turn will act as a magnet to attract other industries. Thus it can be seen that the provision of deep water navigation in this area will insure a basis for solid industrial growth, a growth which is essential to the continued development of the area.

In addition to providing a powerful stimulus for purely industrial growth, the Seaway will also stimulate traffic at existing ports, such as Morgan City and Lake Charles. Their hinterland, a basic growth factor in port development, will be greatly extended with this additional stretch of waterway suitable for ocean going vessels.

These dual benefits have been amply demonstrated in other areas where deep water channels have been provided. Our own Lake Charles is one. Also close to home is the Beaumont-Orange industrial complex, a complex which depended on deep water access for its growth. Houston, of course, is another. Since we have such examples, and since our raw materials are comparable to those found in the above named examples, the predicted benefits are clear, demonstrable facts, facts which speak for themselves and should spur us to action.

Residents of southern Louisiana have been aware for quite some time that the problem of an adequate fresh water supply is steadily becoming more acute. There is evidence that as industrial and municipal use of water increases the quantity available for irrigation is correspondingly decreasing. The problem is further complicated by the intrusion of salt water from the Gulf into the bodies of water used for rice irrigation and into some municipal fresh water sources. Increased use of well water for irrigation is also causing an increase in the salt content of underground water strata.

The Seaway will solve southern Louisiana's fresh water problem. It is obvious that a solution must be found since the consumption of fresh water is expected to double in the next fifty years. Ground water sources will not increase in the future and the water table will remain constant or lower as time goes by. The Seaway, however, fed by six major streams will provide a vir-

tually inexhaustible supply. In addition, it is planned to raise the level of the Seaway to +2.0 MGL at the approach of the irrigation season. This will be done through the use of lock structures and salt water barriers. Then, during the critical five-month "dry" period, industries, municipalities, as well as agriculture, can draw heavily on the water supply in the Seaway until it reaches a low level of –0.5 MGL. The quantity of water that would thus be made available in the Seaway area extending from Lakes Charles to Morgan City is estimated at 6,760 million gallons per day.

This abundance of fresh water will not only solve the current problem but will also, in itself, serve as a powerful attraction to industry. Virtually all industries use water, and they use plenty of it. Consequently this abundant fresh water supply will be a valuable addition to the team of assets which Louisiana now offers industry.

Hurricane protection is an integral part of the Seaway plan. Hurricanes have frequently devastated large parts of the Seaway area, resulting in heavy damage and loss of life. The heaviest damage and loss of life is inevitably caused by the hurricane surge, which results in tidal overflow and severe flooding. Also contributing to this flooding is the torrential rainfall which usually accompanies hurricanes.

There is obviously no protection against wind damage, other than building structures strong enough to withstand such winds. But there is protection against flooding, and the Seaway plan provides that protection. A levee will be built with the dredge spoil along the entire length of the Seaway on the south side. This levee will be 12' high MSL and should provide protection against the most severe hurricanes. In addition, salt water control locks and gates will be provided, both to prevent tidal inflow into the Seaway and to allow floodwaters, if any, to recede from the Seaway once tidal conditions return to normal. This protection is now, and will become, extremely important as the Seaway area develops. This work will be coordinated with the local hurricane protection systems now under study for certain areas by the Army Corps of Engineers.

The Seaway will generally follow the present route of the Gulf Intracoastal Waterway and the routing of flood waters into the Gulf of Mexico will be virtually unchanged. The major improvement to drainage will result from the Seaway channel acting as a giant interceptor drainage channel. This channel will distribute major storm runoff east and west to several outlets instead of having the flood overtax the single area outlet as is presently the case in some areas. Flood waters in the Calcasieu River and Atchafalaya River basins will continue to flow through the presently existing channels and will not be in any way affected by the Seaway.

Salt water control structures in the Vermilion and Mermentau Basins will be designed to pass the maximum floods in these areas and flood heights in these areas will be very materially reduced by the dispersal action of the Seaway channel as previously stated.

The Seaway will be planned with an interceptor waste water canal parallel to the fresh water channel on the Gulf side of the hurricane protection levee. This canal will be designed to function as an oxidation lagoon for the treatment of organic pollution and will serve as a reservoir for waste waters requiring treatment before they are released to the streams and bayous south of the Seaway. Waste waters contaminated with chemicals or other materials not responsive to oxidation will require special treatment before they are received in this waste water canal system. It is proposed that the control and operation of the waste water canal system be under the direction of the Louisiana State Board of Health and the Louisiana Stream Control Commission. In this manner the streams and marshes south of the Seaway will be protected from waste waters which may pollute oyster beds or be injurious to wild life of the area.

The provision of deep water navigation, adequate fresh water supply and means of waste disposal will provide the elements now lacking in the industrial growth of the Seaway area. The State is amply endowed with natural resources, fuel, power, railroad and highway transportation, community facilities, educational institutions and an intelligent and willing labor supply. New industrial plants will begin locating in the area as soon as usable sections of the Seaway channel are completed.

The construction of the Seaway is the key to the future progress of Louisiana. Agriculture, the traditional employer for large numbers of young people in this area, is rapidly being mechanized such that fewer workers at higher salaries are producing more agricultural products from the acreage under cultivation. The result has been a loss in agricultural employment opportunities which must be replaced by increased industrial employment opportunities if Louisiana is to continue to grow. Economic studies have shown that if the Seaway is constructed and industry moves into the area about five and one-half billion dollars is estimated to be invested in an industrial complex employing 140,000 people. Another 140,000 new jobs will be created in service industries supporting this complex, making a total increase in new employment of 280,000 positions. Assuming that each worker will have an average of three dependents (a standard assumption) the area's population will increase by 1,120,000 persons due to industrial development, over and above normal growth.

The oil industry has provided a considerable boost to the area's economy, but the benefits from this industry have been far from fully realized, due to the export of oil to other areas for manufacturing. The area resources are providing the basis for industrial expansion in other areas, rather than in south Louisiana. The Seaway will give petro-chemical and other industries the fresh water supply and deep water shipping facilities they need to process Louisiana's raw materials in Louisiana, thus resulting in major economic benefits to the area.

The benefits of a deep water channel such as the Louisiana Intracoastal Seaway have been amply demonstrated elsewhere. Fifteen years ago, Pascagoula, Mississippi, conducted an industrial survey showing the potential of the area if adequate ocean navigation was available. When a deep water channel and adequate industrial sites were provided, a healthy industrial growth followed, with chemical plants and manufacturing facilities using local labor to convert raw materials into finished products. A $125,000,000 oil refinery is now under construction there.

The petro-chemical industrial complex along the Mis-

sissippi River from New Orleans to Baton Rouge is a dramatic demonstration closer to home.

Fifteen years ago the Mississippi River Gulf Outlet east of New Orleans was considered a visionary dream. Today this ship channel, 75 miles long is approaching completion. The first industrial plant and ocean vessel dock have already been completed and cargoes of gypsum, iron ore, manganese ore, barites, and sugar are now being unloaded there for processing.

An analysis of the 2½ billion dollars of industrial capital investments in Louisiana between 1946-1960 shows that the 13 parishes with deep water transportation received 72.2%, while the 51 parishes without deep water received only 21.8%. Out of the top 12 parishes, only the tenth does not have direct access to deep water. The capital investment in parishes with deep water average 1310% more than those without deep water.

The engineers of Louisiana will be looking to the future progress of their State in supporting the Louisiana Intracoastal Seaway. A project of this magnitude will not be built overnight, nor can its full benefits be realized all at one time. With careful planning and construction by phases, the Seaway can be made a reality, with each step in its development generating sufficient industrial and economic growth to justify its construction and operating expense. The progress of the Seaway will stimulate the prosperity of Louisiana over the next 50 years as the oil industry has over the past half century. It is the key to the solution of industrial expansion, the provision of an agricultural water supply, municipal water supply and hurricane protection for south Louisiana.

—o—

NSPE Legislative Reports

CONGRESS NEEDS ENGINEERING STAFF

"The time has come when Congress should have its own methods and personnel to obtain technical background, data and specific recommendations on policy questions" involving engineering and science, according to NSPE Executive Director Paul H. Robbins.

In setting forth this proposal to the House Administration Committee, *Mr. Robbins declared that it was "no reflection on the integrity of the engineering and scientific advisers of the executive agencies and department* of the Federal Government." Robbins noted that while their advice "has doubtless been given in full candor and fairness, it is obvious that spokesmen of interested agencies, or of the Executive Branch as a whole, must reflect their own background and loyalties to the programs advanced by their agencies or the Administration they represent."

Robbins proposed that Congress establish a Joint Congressional Committee on Engineering and Science, composed of the chairmen of a number of House and Senate Committee concerned with Federal research and development activities. The committee's technical staff should be headed by a director "of eminence and high repute in engineering or science, appointed without regard to political affiliation or partisan political beliefs," according to Mr. Robbins. He suggested the staff be organized along the principles of the Legislative Reference Service so the staff's function "would be related to the whole of Congress, rather than a particular committee or particular members of the Congress."

Backing up the technical staff would be a board of consultants, composed of members *"specifically selected and appointed in cooperation with the recommendations of the principal engineering and scientific societies."* In concluding his testimony, Mr. Robbins said the "National Society of Professional Engineers will welcome the opportunity to provide assistance in the development of an engineering and scientific advisory service, which we are convinced, will further carry out the purpose of providing Congress with the best possible information, in order that it may formulate the wisest and most effective methods of helping the Nation achieve economic strength and national security."

ENGINEERING EDUCATION TO RECEIVE AID

Congressional concern about the Nation's engineering and scientific manpower needs, including engineering technicians, has led to enactment of the largest program to aid engineering and science education in more than a century. The higher education bill provides grants for the construction of facilities designed for instruction in engineering, mathematics, the physical sciences, modern foreign languages, and libraries. In addition, *the bill makes provision for the construction of technical institutes and graduate facilities, long advocated by NSPE.*

The vocational education bill, which was also enacted, makes a number of changes in the National Defense Education Act. In addition to extending the student loan and fellowship programs for one year, *the bill makes permanent the Title VIII programs for engineering and scientific technicians* with the provision that institutions offering such programs must accept both high school graduates and dropouts. The $250,000 institutional limitation on Federal funds was increased to $800,000 for student loans. Because of the 1-year extension, the NDEA will undoubtedly be the subject of additional intensive congressional study this year.

—o—

EJC Notes

Engineers Joint Council honored Dr. Jerome B. Wiesner, Special Assistant to the President for Science and Technology by presenting him with a previously unannounced and special Citation of Merit.

The honor was bestowed following a dinner talk given by Dr. Wiesner at a two-day EJC conference on Engineering in National Affairs, January 12-14, in Washington, D.C.

The presentation was made by Dr. Eric A. Walker, retiring President of EJC, on behalf of the EJC Board of Directors.

Dr. Wiesner was Science Advisor to President Kennedy from 1961 until the President's death last November. By then, he had announced his intentions to return to MIT early in 1964 where he is Professor of Electrical Engineering and Director of the Electronics Research Laboratory. Meanwhile, he continues to serve under President Johnson.

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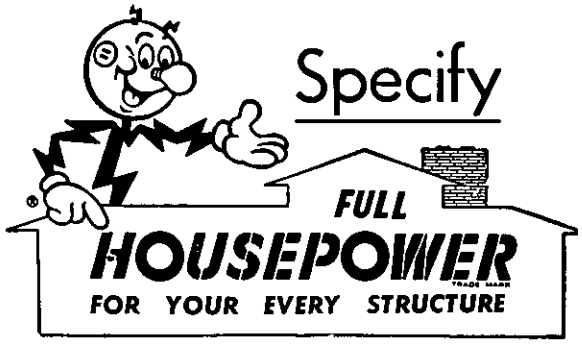

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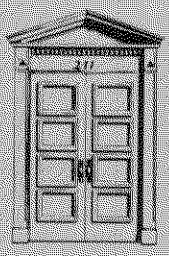

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Public Relations Report Given

By FRANK H. WALK
Chairman, Public Relations

Comments to the General Assembly at the Louisiana Engineering Society 66th Annual Meeting, Lafayette, La., January 17-18, 1964.

Good public relations is good performance publicly appreciated.

As professional engineers we must not only render a public service in our normal professional practice and through active participation in the life of the community, but we must also see that the public service which we render is appropriately publicized—that it is made known by word of mouth, by mention in the press and on radio and TV, and by other available means of public communication.

One of the best opportunities which we have in the Louisiana Engineer Society to achieve publicity for our profession is to see that meetings like this one, our 66th Annual Meeting, are publicized to the greatest extent possible. With this meeting not yet over, I think that I am well justified in saying that it has already received more publicity by all media—newspapers, radio, TV—than any other such meeting. The success in this regard can be attributed to the intelligent and coordinated efforts of the Lafayette Section's Publicity Committee headed by Bill Endris, working in complete harmony with your statewide LES Public Relations Committee, and in particular, to the expert guidance and real efforts contributed by our Public Relations Counsel, Allen Johnson.

In closing let me give you a thought to keep in mind throughout this coming year:

Remember that there is nothing so contagious as, ENTHUSIASM.

Do not hestiate to express, at every opportunity, your own personal enthusiasm for our profession and for the principles on which our profession and its practice are based.

—o—

PROFESSIONAL ENGINEERS GRANTED REGISTRATION BY THE LOUISIANA STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS

January 14, 1964—Oscar W. Albritton, Baton Rouge; Melvin W. Anderson, Baton Rouge; Robert C. Anderson, Houston; George W. Atchley, Lafayette; William F. Barnes, New Orleans; Kirby J. Chatelain Jr., Metairie; Harry P. Clause, Metairie; Robert W. Cline, Lafayette; Gregory E. Coco, Victoria, Tex.; Robert K. Eisenbeck, Midland, Tex.; James R. Fister, New Orleans; Robert V. Fleming, Lafayette; Thomas D. Gildersleeve, Alexandria; Leonard M. Glass, Baltimore; James R. Graves, Houston; George B. Gray, New York; Charles A. Herstrom, Portland; Neil H. Illian, Houston; Jack C. King, Lubbock, Tex.; Otto G. Maganos, Jackson, Miss.; James F. Murnane, Baton Rouge; Paul W. Murrill, Baton Rouge; Timothy A. Pixley, Ft. Polk, La.; James H. Rives, Baton Rouge; Martin L. Roberts, New Orleans; Joseph Schutz, Metairie; Leon A. Shockley III, Metairie; Howard J. Snyder, Tuscaloosa, Ala.; Jim S. Tomlinson, New Orleans; Niyazi Turkmen, Baton Rouge; Donald E. Watkins, St. Louis; Harry C. C. Wilson, Tulsa.

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WHAT IS AN ENGINEER?

In order to improve the image of the professional engineer in Louisiana, we would like to see that a proper definition of the professional engineer is conveyed to everyone you may contact in the next few months.

Let's do all we can to educate the doctor, the lawyer, the businessman, your next-door neighbor on: What is a professional engineer?

Clip this and keep it in your wallet. Discuss it with as many people as you can.

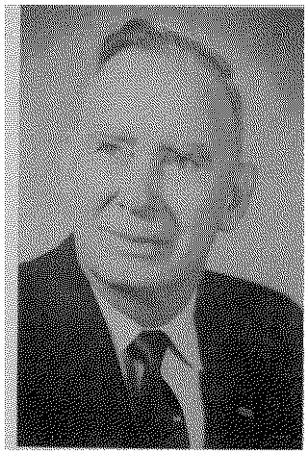
The term "engineer" is certainly a much over-worked one in these days of modern science. We frequently hear the term used in newspaper articles, in conversations in business circles, in the home, on radio or television. It is used by the journalists and by the general public in a variety of ways applying to a great variety of occupations ranging from the head janitor of a large building to construction contractors. But to get right down to brass tacks, what should we really mean when we refer to a man as an engineer? A Past President of the National Society of Professional Engineers, S. L. Stolte, once gave this definition: "An engineer is a person educated in the principles of mathematics and the physical sciences who applies this knowledge to direct and control the materials and forces of nature for the safe, economical use and convenience of man." Rather broad, isn't it?

Perhaps it is easier to educate the general public on what a professional engineer is by first having it understand what a professional engineer is not. He is *not* a janitor, *not* a mechanic, *not* a plumber, *not* a bulldozer operator, *not* a railroad engine operator, *nor* a construction contractor!

Let us work to correct the misunderstanding that others have about us and our profession, and let's start now!

Adams Field Notes
By Allen Johnson

F. R. Adams, Gentilly District Engineer for Southern Bell Telephone and Telegraph Company, recently retired after almost 42 years of service. He is a most active member of the Louisiana Engineering Society.



MR. ADAMS

He began his career with Southern Bell in 1922 at Atlanta, Georgia as a student. Since that time he has served in the Engineering and Construction Departments in Lake Charles, Baton Rouge and New Orleans.

Mr. Adams is a graduate of the Engineering School of Mississippi A. & M. He is a Lt. Col. in the U.S. Army Reserve, Retired, and also a member of the American Institute of Electrical Engineers and The Telephone Pioneers of America.

A reception was held in his honor. Many friends and associates were present.

Overlooked in our listing of the prizes donated at the L.E.S. Annual Outing were the following, along with the names of the prize winners:

Arvin transistor radio, donated by Pittsburgh Testing Laboratory, won by Martin Ripp; Motorola radio, Perilliat & Rickey Construction Co.; R. J. Drueding; Motorola radio, Lone Star Cement Corp., S. L. Mayo; Motorola radio, T. L. James & Co., M. H. Finger; Motorola radio, Eustis Engineering Co., David Moynan; Arvin transistor radio, Freeport Sulphur Co., R. F. Fleming; Sauce pan, Woodward Wight, Roy Cappel; ice cream freezer, Walk-Haydel Associates, won by Mike Baccich.

Thanks to Outing Chairman Henry H. St. Paul, Jr. for calling these to our attention . . . We might also note that R. D. Morgan, project engineer for the Toledo Bend Dam is not named "Rex" which we inadvertently called him in the December issue.

G. Elmer May was elected a vice-president of New Orleans Public Service Inc. at a meeting of the board of directors recently.

Clayton L. Nairne, president of the company, made the announcement. May, who has served as manager of the personnel department since 1961, joined the company in 1928 as a sales engineer. He has held the positions of principal utilization engineer and assistant chief engineer.

A graduate of Tulane University, he is a member of the Lousiana Engineering Society, the Personnel Management Association and the Southern College Placement Association. He was charter president of the Delta chapter of the American Society of Heating, Refrigeration and Air Conditioning Engineers.

(Continued on Page 33)

Auxiliary Gives Student Grants

By SALLY BIRDSONG
January, 1964

News from New Orleans is that their organization awarded the Selina Bres Gregory annual scholarship in the amount of $500.00 to Mr. Terry W. Riemer again this year while Mr. John G. Murray, Jr. was the recipient of the Fellowship grant in the amount of $900.00 for the second semester of the academic year 1963-1964.

The New Orleans organization will hold a reception at the Engineers' Club for engineers and their wives during Engineers' Week. This gathering will take place on Monday, February 17th following the February Louisiana Engineering Society program at which Dr. Robert T. Nieset, Vice-President of Kalvar, Inc., will be guest speaker.

Engineers' Week will be observed by the Shreveport Chapter with a tea to be held for the ladies, especially for the out-of-town ladies to meet the local ladies. This tea will take place on February 22 while technical sessions for the men are being held. Both will take place in the Washington Youree side of the Petroleum Club. At 6:30 p.m. a cocktail party will precede dinner at which the speaker will be Justin Wilson, Safety Consultant for the Highway Department. The incumbent senators and representatives as well as both mayors have been invited to attend these functions.

The Lake Charles chapter has increased 50% in membership, its scholarship fund has increased 65% with the major fund raising project still to be held sometime in May. These two categories now indicate 33 active members and a scholarship fund of over $500.00. The ladies of Lake Charles will observe Engineers' Week by decorating the Country Club for the Engineering Week banquet and also by holding an awards tea at McNeese State College at which a scholarship award of $50.00 will be presented to the outstanding third-year student in engineering.

The Lake Charles chapter, only six years in existence, may be justly proud of its achievements.

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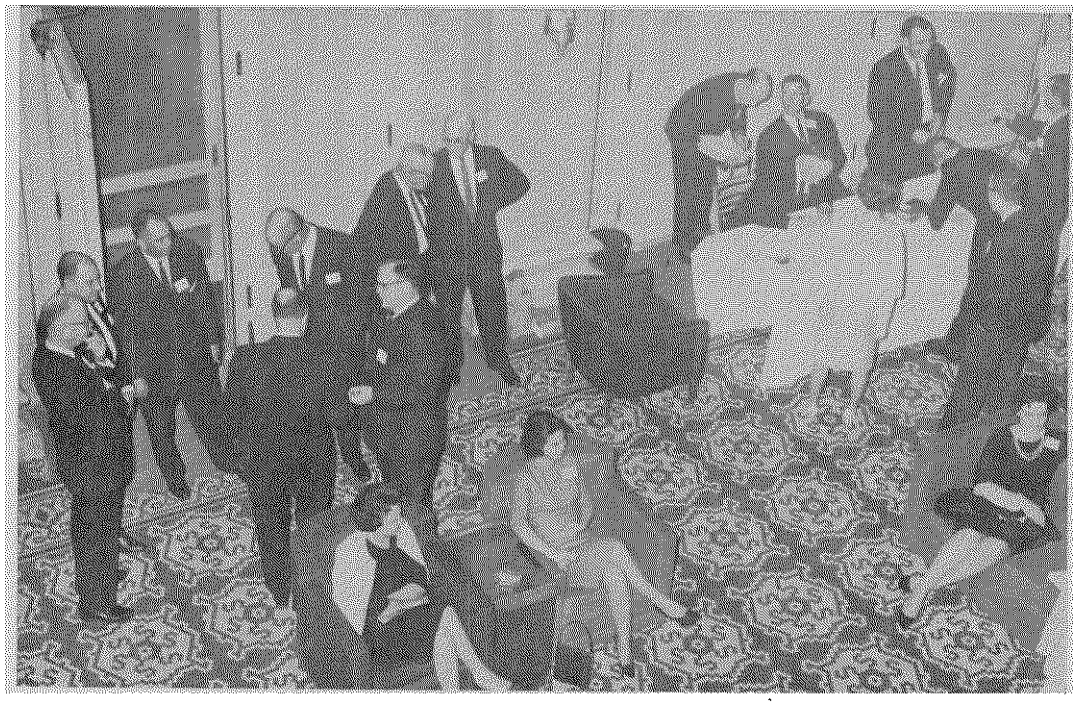

SPECIAL REPORT
on NCSBEE
(See Pages 10 & 11)

Vol. 50 No. 2
April, 1964

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THE LOUISIANA ENGINEER

Vol. 50 APRIL, 1964 No. 2

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The LOUISIANA ENGINEER is the official publication of the Louisiana Engineering Society and of the Louisiana State Board of Registration for Professional Engineers and Land Surveyors and is published in February, April, June, August, October and December. Subscription $2.00 per annum; single copy 50 cents.

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Signed,

Oct. 31, 1963

W. K. Bankston, Editor

OUR COVER: Bird's eye view of pre-meeting activities in lobby of Hotel Bentley in Alexandria is shown as delegates and their ladies prepare for Eighth Annual State Planning Conference March 7-8, 1964. Conference was attended by large group of engineers from over the state.

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Minutes Of The Board, LES

LOUISIANA ENGINEERING SOCIETY

Minutes of Meeting of the Board of Direction and State Section Officers Held at the Poor Boy Restaurant, Lafayette January 17, 1964

The meeting was called to order by President Watts with Messrs. L. V. Bankston, T. A. Bonnett, F. C. Brownlee, L. J. Capozzoli, D. J. Carville, L. J. Daigre, Louis Duclos, A. W. Endris, Jr., J. B. Eustis, M. B. Ewing, L. N. Hunsinger, Jr., J. S. Janssen, J. E. Jarman, Allen M. Johnson, Roy E. Johnson, Ernest Levingston, R. P. Lockett, Jr., W. S. Nelson, L. M. Odom, A. H. Repscha, S. J. Richard, E. M. Sellers, K. V. Stewart, C. W. Stokes, J. J. Tnigpen, J. F. Vogt, Jr., F. H. Walk, G. B. Walther, Jr., and J. P. Fernandez in attendance.

Minutes of Board meeting held on Friday, December 13, 1963 were accepted as distributed to the board members by mail, with the correction of the date.

President Watts briefly summarized an interim report of the Reorganization Study Committee.

The secretary reported that 446 membership ballots had been returned and that all applicants appearing thereon had been elected to the grades indicated. He also announced that 469 officers' ballots had been cast and that all officers and directors had been elected. Copies of these ballots are attached to these minutes.

The secretary presented his annual Financial and Membership reports, with a plea that the newly elected officers make a drive to increase the society's membership.

The secretary reported the death of members Harold M. Sylvester, Washington, D. C., and Leal C. H. McLean, New Orleans. A committee consisting of Messrs. John H. F. Webert, Chairman, Cecil M. Shilstone, A. R. Wingate, Jr. and James K. Hess was appointed to prepare a memorial resolution honoring the late Mr. McLean.

Upon motion by Mr. Vogt, seconded by Mr. Johnson, the resignations of the following were accepted with regret:

Berton A. Bordelon (A), Baton Rouge
Geo. S. Cannon (M), Texas
M. L. Cotten, Jr. (NSPE), Lake Charles
Edw. M. DeBlanc, Jr. (J), Lafayette
Ronald C. Fontenot (J), Baton Rouge
Allen T. Given (M), Monroe
Harold Gorman, Jr. (J), New Orleans
Edmond F. Hinds, Jr. (NSPE), Baton Rouge
O. D. Jackson (M), Shreveport
F. P. McNamara (NSPE), Lake Charles
Otto Prochaska (J), Baton Rouge
Hugh B. Rawl (J), Baton Rouge
Newton L. Roy (NSPE), Alabama
Thos. F. Ruffin (NSPE), Shreveport
Leo J. Strole (M), Texas
Walter R. Taber, Jr. (NSPE,) New Orleans
Carl H. Thomas (M), Baton Rouge
Jos. J. Voelker, Jr. (A), New Orleans
John E. Watson, Jr. (NSPE) New Orleans

Upon motion by Mr. Carville, seconded by Mr. Vogt, President-Elect Knight and Mr. Frank Walk, Chairman of the Public Relations Committee, were authorized to consummate a contract with the Public Relations Counsel for the year 1964 in accordance with the general principles outlined by Colonel Knight.

Messrs. C. W. Stokes, Chairman, C. T. Watts and J. P. Fernandez were appointed to the Finance Committee for 1964. The committee was instructed to prepare a budget for the year to be presented within one month.

Upon motion by Mr. Lockett, seconded by Mr. Brownlee, President J. T. Knight and Secretary-Treasurer J. P. Fernandez were authorized to sign checks drawn on the society's Whitney National Bank account.

Upon motion by Mr. Janssen, seconded by Mr. Repscha, the proposed new constitution of the U.S.L. Student Chapter of L.E.S. was approved.

Mr. K. V. Stewart, State Planning Conference Chairman, was introduced. Officers and Directors were requested to make plans to attend the Planning Conference to be held at Alexandria on March 6 and 7.

The Board meeting then adjourned so that the society's Annual Meeting could begin on schedule.

JOHN P. FERNANDEZ,
Secretary-Treasurer

LOUISIANA ENGINEERING SOCIETY

Minutes of Meeting of the Board of Direction Held at Maylie's Restaurant, New Orleans on Monday, February 17, 1964

The meeting was called to order by President Knight with Messrs. Affolter, Brownlee, Duclos, Nelson, Odom, Vogt, Walk and Fernandez present. Mr. Allen Johnson, Public Relations Counsel, also was in attendance. Mr. Vogt moved that the reading of minutes be dispensed with and that minutes of the preceding meeting be accepted as forwarded to board members by mail with the deletion of committee personnel reported by the secretary as unable to accept their appointments. Motion seconded by Mr. Nelson and carried.

President Knight announced that, upon the recommendation of immediate Past President Watts, Mr. Frank H. Walk had been designated to receive the society's Certificate of Appreciation for his work with the Publication & Public Relations Committee.

President Knight reported that he had met with the Annual Meeting Committee Chairman and, after studying the finances of the NSPE 1964 Winter Meeting, requested Mr. Baccich to prepare a budget for the 1965 NSPE meeting with a deficit not to exceed $1,500.00. Mr. Baccich was also instructed that there should be no registration fee for the meeting in keeping with the custom of LES.

Discussion followed on the proposed bill to limit liability for engineering services. It was decided that Messrs. Odom and Duclos would iron out the wording where clarification was needed.

President Knight read a resolution by the Georgia Society of Professional Engineers against deficit financing for NSPE. It was decided that, when requested, we should inform the National Society that the Board of Direction of LES believes that an increase in the dues of NSPE is not advisable.

Discussion followed on a brief prepared by the Gulf Institute of Consulting Engineers concerning Government competition with consulting engineers and architects and the secretary was instructed to reproduce Senate Bill 1093 and distribute copies to all board members.

A resolution endorsing the New Orleans' 1964 Bond Issue was discussed. No action was taken on this resolution because LES' constitutional requirements for the adoption of "Resolutions expressing the society's views" would not permit its passage before the March 3 election.

The Interim Report of the Organization Study Committee was discussed. Mr. Odom moved that a committee of Board members be appointed to submit, by March 6, definite financial recommendations to permit the implementation of Recommendation No. 1 of the Interim Report. That recommendation states that the LES should be reorganized to the extent that a New Orleans Section be formed similar to the existing sections. Motion seconded by Mr. Walk and carried, whereupon President Knight appointed Messrs. Nelson, Chairman, Odom, Stokes, Vogt and Fernandez to serve on this committee.

The secretary presented the following budget for 1964, which was approved upon motion by Mr. Odom, seconded by Mr. Vogt:

INCOME:		
Advertising	$11,100.00	
Dues	24,600.00	
Miscellaneous	700.00	
State Board Contribution	6,000.00	$42,400.00
EXPENDITURES:		
Annual Meeting	$ 1,400.00	
Annual Outing	200.00	
Awards	700.00	
Dues & Rebates	12,000.00	
Miscellaneous	900.00	
Monthly Meetings	600.00	
Public Relations & Publication	16,500.00	
Salaries	6,600.00	
Statewide Programs	1,100.00	
Stationery & Printing	2,400.00	$42,400.00

After discussing the Louisiana Industries-Engineering College Council report, Mr. Walk moved that it be endorsed by the LES Board of Direction. The motion was seconded by Mr. Affolter and

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carried with one dissenting vote.

Mr. Vogt moved that the resignations of the following be accepted with regret, effective January 1, 1964:

Albert M. Alexander, Jr. (Mbr.), California
Russell S. Clark (Mbr.), Lake Charles
Henry A. Kallsen (NSPE), Ruston
James L. Meyer (NSPE), Ruston
Corley P. Senyard (Aff.), Baton Rouge

Mr. Vogt also moved that the following resignation be accepted with regret, effective December 31, 1964:

R. F. A. Benson (Mbr.), Covington

Both motions were seconded by Mr. Affolter and carried.

Mr. Vogt moved that correspondence from the National Electric Manufacturer's Association and from the Minnesota Society of Professional Engineers be referred to the Legislative Committee. Motion seconded by Mr. Affolter and carried.

A letter soliciting funds for the Ninth Regional Science Fair was read, and Mr. Odom moved that the L.E.S. contribute $50 to this worthwhile enterprise. Motion seconded by Mr. Vogt and carried. In keeping with the practice of past years, it was decided that an effort should be made to get award winners at the Fair to present their papers and exhibits at the society's May meeting.

President Knight appointed Messrs. Landry Murphy, Chairman, Wm. J. Drawe III, Vice-Chairman, and Ronald R. Santos to the New Orleans Vocational Guidance Committee. These gentlemen, together with Mr. J. I. Hebert, Jr. who was appointed in January, constitute the personnel of the above mentioned committee.

The president also appointed Messrs. T. A. Bonnet, Chairman, and O. Barron, Vice-Chairman, for the 1965 State Planning Conference.

President Knight then appointed the following board members to serve as Sponsors for the various standing committees:

Annual Meeting	J. T. Knight, Jr.
Engineers' Week (1965) and Publication & Public Relations	C. W. Stokes
Ethics & Professional Conduct	Roy E. Johnson
Legislative & PEPP	Leo M. Odom
Honors & Awards	Waldemar S. Nelson
Membership	Louis Duclos
Vocational Guidance	Jerry W. Affolter, Jr.
PEG	Calvin T. Watts
PEI & Annual Outing	John F. Vogt, Jr.
Technical Papers (N.O.)	J. Bres Eustis

The secretary read a memorial honoring the late Leal C. H. McLean and was instructed to have it published in the Louisiana Engineer and to forward copies to the family of the deceased.

The secretary also reported the recent death of George O. Huet (Mbr.), New Orleans, after which the meeting adjourned.

JOHN P. FERNANDEZ,
Secretary-Treasurer

LOUISIANA ENGINEERING SOCIETY
Minutes of Meeting of the Board of Direction
Held at the Bentley Hotel, Alexandria
March 6, 1964

The meeting was called to order by President Knight with Messrs. Affolter, Duclos, Ewing, Roy Johnson, Nelson, Odom, Repscha, Walk and Fernandez in attendance. Messrs. Allen Johnson, Public Relations Counsel; W. K. Bankston, O. E. Barron, F. C. Culpepper, Jr., Ben T. Bogard, O. T. Ice, Jr., J. S. Janssen, DeWitt Morris, W. H. Scales and other members also were present by invitation. Mr. Duclos moved that reading of the minutes of the February meeting be dispensed with. Mr. Nelson seconded the motion and also moved that the minutes be accepted as distributed to board members by mail. This was seconded by Mr. Affolter and both motions carried.

The secretary read minutes of the February meeting of the Louisiana State Board of Registration for Professional Engineers & Land Surveyors, and a letter received from that body on February 28. The secretary was instructed to thank the State Board for its generous contribution.

President Knight announced the appointment of Mr. Charles A. Wilcam to the state-wide Engineers' Week Committee and of Mr. Allen Betz as Chairman of the New Orleans Engineers' Week Committee.

Mr. Nelson, Chairman of the Organization Study Committee, read a report of his committee dated March 2, 1964. After much discussion it was decided to postpone action until the board's next meeting so that board members could have adequate time to study the report.

Mr. Duclos moved that the resignation of James A. Box, Jr. (Member), Bogalusa, Louisiana, be accepted with regret. The motion was seconded by Mr. Affolter and carried, after which the meeting adjourned.

JOHN P. FERNANDEZ
Secretary-Treasurer

• **Fallout Shelters.** While the House approved a $175 million authorization bill for fallout shelters, the House Appropriations Committee has declined to appropriate one dollar for this purpose. Representative Clarence Cannon, in denouncing the proposal on the House floor, noted not one Member of Congress had such a shelter in his home.

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ENGINEERING AFFORDS CAREER OPPORTUNITIES

Prepared by Colonel Jefferson E. Kidd, Executive Secretary, Louisiana Tech Engineering Foundation, Inc.

The heartening news that undergraduate engineering enrollments have at least started to improve is fully documented in the February issue of the American Society of Engineering Education's Journal. To quote from the news release issued jointly by ASEE and the U.S. Office of Education: "Although there has been a decline in bachelor's degrees in engineering, there is an indication that this trend may now have been reversed; the total engineering freshman enrollment increased 1.5 per cent and the total undergraduate enrollment increased 0.9 per cent." Even so, the Engineering Manpower Commission has estimated that the nation will need 48,000 new engineers every year through and probably beyond 1971. In 1963 our schools of engineering graduated only 29,426, which is far below requirements.

The freshman enrollment increase at Louisiana Tech's School of Engineering in Ruston is 3.3 times the national increase and the total undergraduate enrollment increase is 6 times that of the national.

Although money isn't everything and doesn't always measure success, yet it does provide a yardstick and a nationwide survey of job offers to this year's engineer seniors shows pay offers higher than a year ago in all fields: $614 per month. During the 1962-63 school year there were approximately 17 potential job opportunities for each graduating engineer at Louisiana Tech and the pay offers equaled the national monthly averages for technical graduates. "Nothing succeeds like success" and many more engineers are so obviously needed by the nation.

Some of the largest institutions of higher learning, it is true, occupy small towns, and some of the smallest operate in large towns; but all together they are in a position to reach millions of people with the vital story of engineering.

Louisiana Tech's School of Engineering is fully accredited by the Engineers Council for Professional Development and offers courses leading to the degree of **Bachelor of Science** in Chemical Engineering, Civil Engineering, Electrical Engineering, Geological Engineering, Industrial Engineering, Mechanical Engineering, and Petroleum Engineering.

Courses and Curricula are offered leading to the degree of **Master of Science** in Chemical Engineering, Civil Engineering, Electrical Engineering, Geological Engineering, Mechanical Engineering, and Petroleum Engineering. Tech's School of Engineering enrollment this year includes students from 17 states and 10 foreign countries. Its graduates hold positions of responsibility in industry, government, education, and the military, second to none.

Recently Tech has acquired a 70-acre tract of land on Interstate 20 for the establishment of a research park. The possibilities afforded here are unlimited and long-range plans for this area envision means for technological developments, new products and, toward attracting additional industry to North Louisiana.

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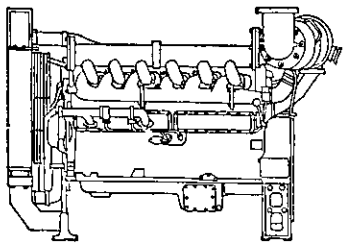

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Engineering Examiners Meet In New Orleans

MEMBERS OF the National Council of State Boards of Engineering Examiners (NCSBEE) met in New Orleans April 8-11. Board members from 12 Southern states were represented. Louisiana State Board of Registration was host.

MAJOR GENERAL Ellsworth I. Davis (left), President of the Mississippi River Commission, chats with Colonel John T. Knight, Jr. (Ret.), LES President. General Davis delivered the keynote address at the meeting.

PAUSING DURING the four-day regional meeting for an informal discussion are (left to right) M. D. Moxley, Birmingham, Ala., M. E. Cox, Atlanta, Ga., J. W. Beretta, San Antonio, Tex., incoming president, and Harold Hunter, Rome, Ga.

ARNOLD HENNY, of Portland, Ore. (left), past NCSBEE president, discusses views with W. M. Spann, Kansas City, Mo., outgoing president.

REPRESENTING THE distaff side at the meeting were (from left) Mrs. M. E. Cox, Mrs. F. W. zurBurg, Mrs. L. M. Odom and Mrs. F. W. Macdonald. Dr. Macdonald, executive secretary of the Louisiana Board, devoted many hours to preparation and handling of meeting.

G. E. BRANIGAN (far right), Dean of Engineering at University of Arkansas, at Fayetteville, Ark., received Southern Zone award for his work on Engineers in Training examinations. Leo M. Odom (second from right), won award for distinguished service to the National Council. They are shown with Joseph Weil (left), Florida, and N. W. Dougherty, engineering dean emeritus of University of Tennessee, who was given a NCSBEE past president pin.

NCSBEE Meeting

The day of mandatory registration of Corps of Engineers officers and all civilian engineers under civil service "is not too far off," according to Maj. Gen. Ellsworth I. Davis, president of the Mississippi River Commission.

Gen. Davis, also division engineer for the Lower Mississippi River Valley Division, Corps of Engineers, spoke at a banquet of the Southern Zone of National Council of State Boards of Engineering Examiners held in New Orleans April 8-11.

"To have an engineering degree, but no professional license, is like having a law degree but not being admitted to practice before the bar," Gen. Davis said.

Speaking on the subject of engineers in general, he noted that, "not only must engineers keep abreast of—and sometimes ahead of—the discoveries coming from the laboratories, but we must always be ready to exploit them in the fullest."

A pin was presented to N. W. Dougherty, dean emeritus of engineering at the University of Tennessee, as a past president of the National Council of State Boards of Engineering.

Also, Leo M. Odom, a Baton Rouge consulting engineer, received an award for distinguished service to the National Council.

And the Southern Zone Award was presented to Dr. George F. Branigan, dean of engineering at the University of Arkansas.

Dr. Branigan told the group that the South's growing industry should provide a wonderful future for engineering graduates.

He discussed engineering employment opportunities and stated that he believes engineering jobs in the South are increasing. The dean pointed out that 30 per cent of Arkansas' engineering graduates obtain jobs within the state, compared to 20 per cent five years ago.

Branigan believes industry moved South because of cheaper labor costs. He emphasized that engineers in the South are not paid lower wages. The engineer's average starting salary in this section of the country is the same as the national average, he added.

He said the number of engineering students in the United States increased during 1963 for the first time since 1957, one per cent for freshmen and 1.6 per cent for the three higher classes. The best information tells us that we are going to be 11,000 or 12,000 engineering graduates short in the next five years, he added.

The four-day regional meeting opened Wednesday, Apr. 8 with a cocktail party hosted by the Louisiana State Board of Registration for Professional Engineers & Land Surveyors.

Chairman of the Louisiana board is Dean Ben T. Bogard of the Louisiana Tech School of Engineering at Ruston. Executive secretary of the board is Dr. F. W. Macdonald of Tulane.

Arrangements for the meeting which formally opened Thursday, Apr. 9 with registration was handled by board member Roy T. Sessums, New Orleans.

Program chairman was F. W. zurBurg, board member from Lafayette.

RELAXING DURING a lull in activities are (from left) Leo M. Odom, Baton Rouge; David Fields, Mrs. C. C. Cobb, C. C. Cobb and Maj. Gen. Roy T. Sessums, New Orleans, arrangements chairman for the meeting.

NEWLY-ELECTED Council Southern Zone President Tom Green (left), Austin, Tex., discusses future plans with Mrs. W. C. McKenzie, Mex Priest and W. C. McKenzie.

MISS JANE FRY, six, pays a visit to the meeting. She is shown with Mrs. Roy T. Sessums, New Orleans, F. W. zurBurg, Lafayette, program chairman, and Miss Fry's grandfather.

Just How Professional Are We?

By COL. J. T. KNIGHT, JR.
President, L. E. S.

Having spent a lifetime in and out of "Engineering," reading, listening and observing, I of course have heard many speak on the "professional status" of the engineer. The consensus seems to be that the technical societies have not contributed too much to the upgrading of the "professional status," and actually, the "professional status" is rather disappointing.

If one will give time and study to this problem, it will soon be apparent that "professional status" is a term describing a rather nebulous state that concerns the great majority of engineers very little. Please compare the engineer with the doctor or the lawyer, and I believe you will agree that those two groups have attained a standing all over the country that is quite different from the standing of the engineer. You might rationalize this condition by saying that the medical and legal professions are older by far than the profession of engineering, and say "give us time and we will arrive."

I share with you that hope and belief, but to save me I can't understand why engineers persist in believing that "nature," given time to right this condition, is the best that we can expect. We don't accept this concept in anything else that we do. This lack of vision is of real concern. Isn't it crystal clear that the very practical problems of remuneration and continuity of employment are directly related to the degree of esteem that we are held in the minds of the public? I know we hate to believe that it is what others think of us that really measures our "professional status" but it definitely is. Therefore, it is our choice to establish ourselves in our minds, and in the minds of the public as professional engineers or else the parade will pass us by, and by some other quirk of this society in which we live, we will be identified as something else, such as scientist.

Let **us** decide whether or not we are professional men. If we are not positively in the affirmative about this, you may be assured that there are smart, aggressive, and well-financed individuals in the wide world of business who will be ready to convert us to "hired hands"—technical labor or technicians. A very prominent business man of this state once told me: "You engineers are all alike, you are satisfied to take a large share of your compensation in a satisfactory job, well done." At the time, I felt that this was a compliment, but as the years went on, I became aware of the sad truth: actually I had been told that I, the engineer, was an easy mark for the forceful business man.

It becomes incumbent upon each of us to establish in our own minds that we are professionals. Only then can we begin our campaign to achieve "professional status" in the minds of the public, business leaders, politcians, employers and particularly, non-professional employers. Final recognition can only be obtained when we have developed a keen consciousness of the prerogatives and responsibilities that professional standing brings with it.

When you are convinced of the urgency of this problem, you will turn immediately to **organization.** This is the Engineer's approach to all problems, **organization:** you organize data, your manpower for design, for procurement, for construction or production, you organize the flow of materials to be where it is needed when it is needed, the fact is you organize all the requirements to gain the desired end results. We all know and have experienced the frustrating feeling of "wheel-spinning" that results from any badly organized effort.

We all have been indoctrinated with the principles of specialization, and to meet the demands in our various areas of activity today, we require different approaches through organization, to obtain different end results. When you start to organize your mind, your personal habits in your own interest, you will discover that regardless of your specialty, you have much, much in common with every other engineer. Such organizational efforts cannot successfully be a sideline of a technical society, which is preoccupied in keeping you abreast of new and improved techniques, new concepts in design, and new ways of construction with new materials and new production.

There is no doubt but that we are well organized for technical purposes; sometimes it seems as if we may have splintered our technical organizations to such a degree that we might be over-organized.

It is obvious that we need **one organization** for all engineers when we think in terms of **organizing to firmly establish engineering as a profession.** Some 60,000 American engineers have awakened to this fact, and it in this group, known as the National Society of Professional Engineeers, who have established guidelines ready for our use right now.

I hope that by now, you will agree, that there should be an organization devoted to the professional interests of all engineers, and all engineers should support and promote its activities. Such is N.S.P.E. The professional items of the engineering profession can only be as effective as their support, both by personal activity, and by the finances of the individual members. This being clear, it follows that N.S.P.E. must be an organization of **individual, dues-paying,** registered engineers.

Appreciating that there is a community of professional interest among engineers at the municipal, state and national levels, N.S.P.E. is a three-level organization. **Ideas and policies are expected to stem from the indvidiual engineers,** and be coordinated and implemented by democratic representation at the state and national levels of the organization. The three-level type of organization has the advantage of paralleling governmental structure, hence the society can be most effective in this very vital area of professional activity.

N.S.P.E. must concern itself with **professional matters only** affecting engineers, therefore it is proper that only engineers govern its policies. This concept triggered the big question, who or what is an engineer? This resolved itself rather simply. Consider for a moment, who is a doctor? Who is a lawyer? Well, a doctor is one who the state has licensed or registered as a doctor, a lawyer is one whom the state has licensed or registered as a lawyer.

It follows a professional engineer is one who the state has licensed or registered as a professional engineer. Since registration laws have established Boards of competent engineers to evaluate the qualifications of all those desiring to practice engineering, it is unnecessary for the professional organization to establish other criteria or additional review, for this purpose of membership. It follows that registration is accepted as the qualification for membership in the N.S.P.E.

N.S.P.E. recognizes the fine effort of all the engineering technical societies, while it devotes its own effort to the professional, social, economic, and ethical problems of the engineering profession.

How does this affect you? As a professional engineer, in private practice, in industry, in government or in education your membership in N.S.P.E.:

* Makes you a part of the only active, established organization of **individuals** devoted entirely to the professional, ethical, economic, and social aspects of engineering.

* Affiliates you with the only national society composed **exclusively of registered engineers** of all branches of engineering.

* Gives you a powerful voice which speaks for a cross-section of the engineering profession, at these levels, local, state and national.

* Gives you personal participation in programs for the advancement of professional ideals and concepts.

* Permits your participation in a **continuing campaign** for public recognition of the profession's contribution to the national progress and public welfare.

* Provides you with a **constructive program designed to upgrade** the economic and social status of all professional engineers.

* Provides you with an organization that works continuously **to improve registration laws** and their administration.

*Provides you with **canons of ethics** and continuous interpretation of this code in terms of current practices within the profession.

* Protects you and the public **against misrepresentation** in engineering practices by those who are not qualified.

* Provides you the **opportunity to contribute** suggestions and exchange ideas with members of all branches of the profession.

* Provides **a program to offer the student engineer** more adequate preparation for professional life.

* Assures **constant effort with the military** to insure maximum utilization of the engineer in time of national emergency.

* Affords you an opportunity to assist younger engineers in meeting professional problems.

* And last but certainly not least in this changing world in which we live, work and have our being, gives you **on-the-spot representation** in national, state and local matters affecting the welfare of engineers.

JOHN T. KNIGHT, JR.

The following is the completion of a biography of L.E.S. President Col. John T. Knight, Jr. (Ret.) which began in the February issue of THE LOUISIANA ENGINEER.

In 1930 he returned to the theatre business as Manager in Charge of Construction, Maintenance and Purchasing for all the theatres in the New England States that were affiliated with Publix Theatres Corporation, a Paramount subsidiary. Later he was promoted and moved to New York where he headed up theatre construction, remodeling and air-conditioning for the Publix Theatres Corporation at the national level.

It was during this time that Colonel Knight made his first visits to New Orleans, as the theatres later to become Paramount Richards Theatres were part of the Public Theatres Corporation.

During 1938 and 1939, he spent about 40% of his time in and around New Orleans and in the deep southland. It was during these years when he formed his great liking for New Orleans and Louisiana.

In 1939, he became President of the Safety Service Milk Bottle Corporation with headquarters in New York. Due to patent difficulties, this association was of short duration, and in 1940 he came to New Orleans and opened a consulting engineering office with two partners; the company was known as Knight, Barrow & Lentz.

This very satisfactory association was short lived, because Jack Knight was asked to return to Military Service. Uncle Sam waived his defective hearing which resulted from his World War I service, and he returned to active duty in 1942 as a Major of the Corps of Engineers, and was assigned as Executive Officer of the Wilmington (N.C.) Engineer District.

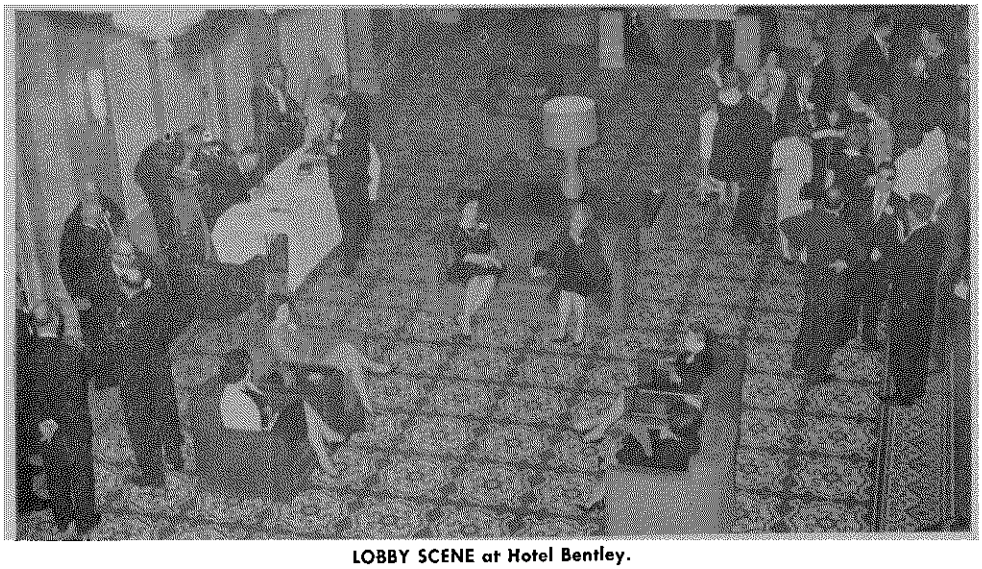
In less than a year Jack was District Engineer, and completed the program of military construction by early 1944. This program encompassed a total expenditure of many millions of dollars and involved problems of design, organization and contract administration of several hundred projects. He was then transferred to Recife, Brazil, and was the Engineer, United States Army Forces, South Atlantic. Construction was planned and accomplished in Brazil, Uruguay, Paraguay and Ascension Island. The construction planned and accomplished in South America ran into millions of dollars. This involved relatively few contract jobs, most of it was accomplished with only a skeleton force of American officers, civilians and native Brazilian engineers, field forces and laborers.

He was promoted to Colonel, Corps of Engineers on 1 July 1944. Upon the completion of the large construction program he assisted in the negotiations with the Brazilian Government for the purchase of all the worn-out and broken down construction equipment. This was accomplished on the basis that at the expense of the Brazilian Government, the U.S. Government would establish a shop in Rio de Janeiro and teach a Brazilian Staff how to repair and rebuild construction equipment. This Jack accomplished to the complete satisfaction of both Governments. It involved careful planning, detailed "on the job" training programs and the maintaining of production schedules in the actual repairing of the equipment. Later Jack was designated Engineer-Air Section, Joint Brazil-United States Military Commission, and Chief Foreign Claims Commission, Brazil.

Colonel Knight was recommended for the "Distin-

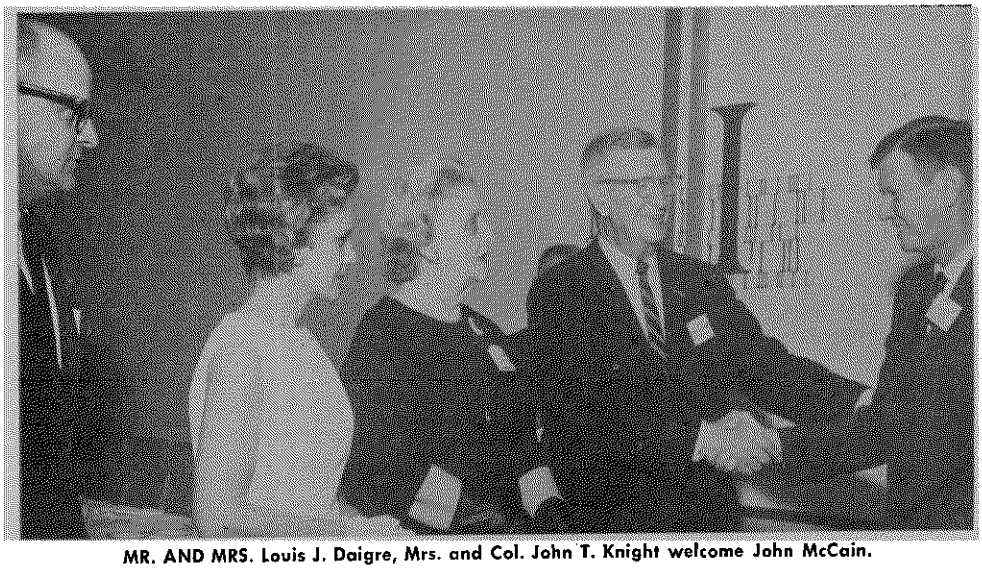
(Continued on Page 29)

PICTORIAL HIGHLIGHTS OF THE ANN



LOBBY SCENE at Hotel Bentley.

Tom Colbert and Philip Angier, both of Alexandria, enjoy a leisure moment at the Conference.



MR. AND MRS. Louis J. Daigre, Mrs. and Col. John T. Knight welcome John McCain.

SIDELIGHTS IN REVIEW

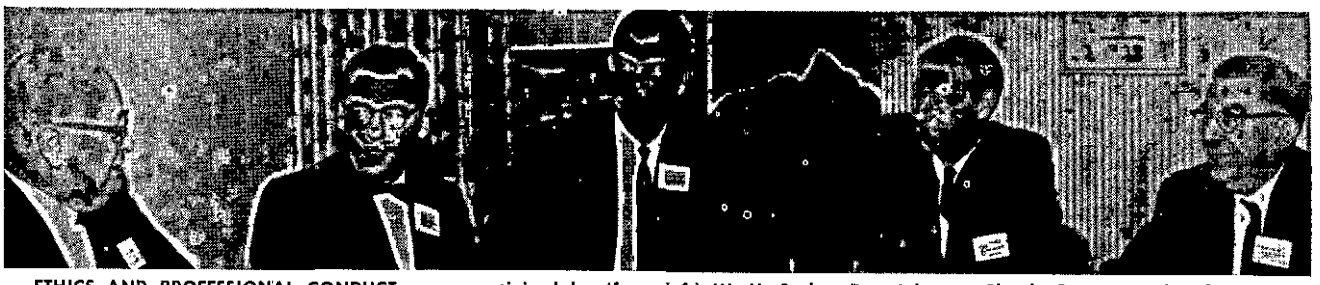
REGISTRATION SCENE

MAKING PREPARATIONS for next year's State Planning Conference are (from left) K. V. Stewart, T. Allen Bonnet, Daniel D. Sandefar.

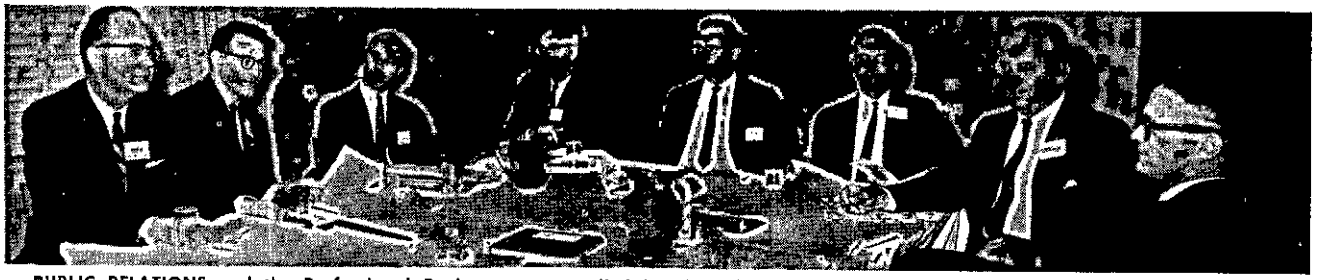
UAL STATE PLANNING CONFERENCE

INCREASED MEMBERSHIP was the concern of (from left, clockwise around table), T. J. Hogue, David Fried, Ben Louviere, Bob Hetherwick, O. E. Barron, Col. John T. Knight, Louis Duclos and Wayne Randall.

VOCATIONAL GUIDANCE was topic of interest for (from left) Jerry Affolter, Albert G. McKee, Dewitt Morris, F. L. Larue, Joseph T. Simms, Mark E. Howard.



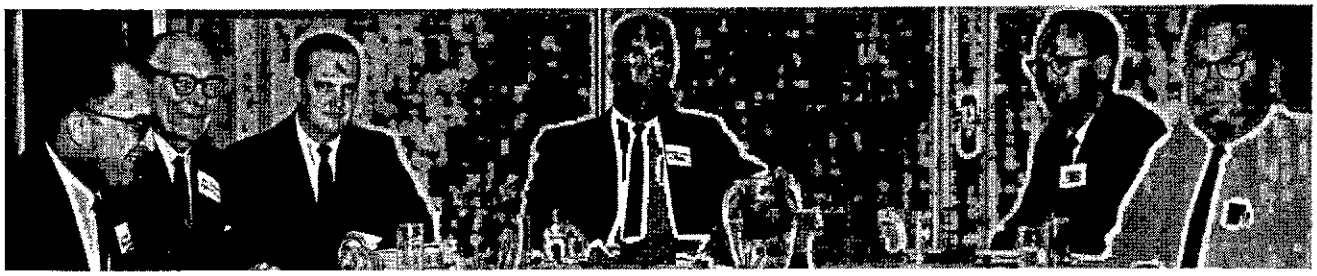
ETHICS AND PROFESSIONAL CONDUCT were scrutinized by (from left) W. H. Scales, Roy Johnson, Claude Boutte, Fred Culpepper and Marion Garrison.



PUBLIC RELATIONS and the Professional Engineer were studied by (from left) Frank H. Walk, chairman; Gene Sellers, Allen Johnson, public relations counsel; Jack Thigpen, Warren Bankston, W. J. Rountree, Albert Repscha and J. R. Whipple.

ENGINEERS WEEK planning was reviewed by (from left) Larry Hunsinger, Richard Johnson, Dick Primeaux, Farrell Adams, Charles Kilgore, Billy Thevenot, Hoyt Brown, chairman; Ashby Stevens, Jim Gillis, John Broussard and John Fridge.

ANNUAL STATE PLANNING CONFERENCE



LEGISLATIVE PROBLEMS were attacked by (from left) Emery Domingue, Leo Odom, Charles Barnard, Henry Landry, Richard Smith and Orville T. Ice.

ALEXANDRIA—Concentration of money and high-level talent into a single great engineering institution is necessary if Louisiana is to match any one of a score of engineering centers in the Middle West, East or West Coasts, a Louisiana college president said here March 8.

Speaking before the Eighth Annual State Planning Conference of the Louisiana Engineering Society at the Hotel Bentley, President John S. Kyser, PhD., of Northwestern State College of Louisiana at Natchitoches, said "There is room and need for institutions with less ambitious programs in advanced engineering as such, and even for a third level of support in non-engineering institutions for the education of technicians with a mature mixture of limited theory and strong practitioner abilities."

He said that NSC is attempting to develop programs to fill this third need, based on the conviction that for each formal graduate of an engineering school, scores of accessory and follow-up or translation people are required.

He noted criticism from outside firms doing business in the space program at Michoud that Louisiana schools are "poor," and said that while much of this criticism is based on misunderstanding, it is nonetheless important that Louisiana education constantly improve.

Dr. Kyser said that the four-year program at NSC is based on the recognition of need for a broad understanding of scientific theory and principles; it assumes mathematics up to calculus—if desired, this may be taken as an elective.

It demands more than trade school English, said Dr. Kyser, because it is held that articulate use of the mother tongue, especially in writing reports, is palpably more necessary with each passing year.

Col. John T. Knight, Jr., outlined twin objectives of the society for the coming year in the field of membership and public relations. Knight, vice-president of Equitable Equipment Co., Inc., of New Orleans, is state president of the Society.

Dr. Kyser was introduced at the closing luncheon of the two-day state meeting by Marshall B. Ewing, Alexandria section president. K. V. Stewart, Alexandria, was convention chairman. Mrs. Louis J. Daigre, Alexandria, conducted an active auxiliary program. Rev. Moreland Byrl, pastor of Trinity Methodist Church, gave the invocation and benediction.

Leo M. Odom, board member from Baton Rouge, read a list of CABL, Council for a Better Louisiana—legislative proposals. A consulting engineer, Odom is also a member of the State Board of Registration for Professional Engineers and Land Surveyors.

Dinner discussions were conducted by Frank H. Walk, New Orleans, on private practice; Dewitt L. Morris, New Orleans, engineers in Industry; Dean Ben T. Bogard, Ruston, La. Tech School of Engineering, Engineers in Education; Hu B. Myers, chief engineer, State Department of Public Works, Baton Rouge, engineers in government.

Committee chairmen participating in the sessions included Henry L. Landry, Baton Rouge, Legislative; Hoyt W. Brown, Jr., New Orleans, Engineers Week; Marion D. Garrison, Lake Charles, Ethics and Professional Conduct; T. J. Hogue, Jr., Baton Rouge, Membership; K. V. Stewart, Alexandria, State Planning, and Albert G. McKee, Vocational Guidance.

Society Officers present included Louis Duclos, Baton Rouge, vice-president; John P. Fernandez, secretary-treasurer, New Orleans, and Waldemar S. Nelson, New Orleans, national director. Directors attending included Roy Johnson, New Orleans. State section presidents on hand included Jerry W. Affolter, Jr., Baton Rouge; Albert H. Repscha, Lafayette; O. T. Ice represented Shreveport.

Mrs. Leonard H. Bossier of Alexandria was special affairs chairman.

———o———

NSPE Notes

Spurred by the "tremendous buildup" of Federal research and development, concentration of specialized manpower in Government has reached the point where two out of every five of the nation's engineers and scientists are either employed directly by the Government or are working on projects financed by Government funds.

In his first manpower report to Congress, required under the 1962 Manpower Development and Training Act, President Johnson noted that the trend was increasing rapidly enough to require special attention. He announced he would appoint a special committee to appraise the effects of government policies and programs on the nation's manpower needs and resources.

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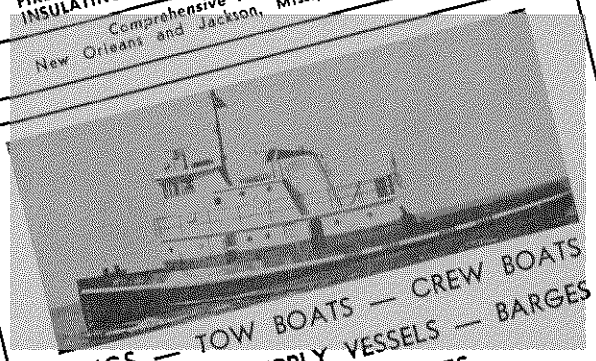

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THE KALVAR SYSTEM OF PHOTOGRAPHY

By ROBERT T. NIESET
Vice-President of Research and Development
Kalvar Corporation

(Before L. E. S. Feb. 17, 1964)

In the Kalvar* system, unlike the more conventional photographic media, photographic density is obtained primarily by scattering of the incident illumination and only secondarily by absorption. In any practical photographic use, the photographic image is viewed through some finite, usually rather small aperture. Portions of the Kalvar photographic record which scatter light away from this aperture are photographically as dense as regions of conventional films which absorb light. Scattering is defined in a general sense to include all the processes of reflection and refraction which occur when inhomogeneities of refractive index are present in the medium in which light is propagated.

The photosensitive layer of the Kalvar film—or the "emulsion" by analogy to silver films—is a resin cast from organic solvents. A diazonium salt is incorporated as the photo-sensitizer. The basic resin is a copolymer of vinylidenechloride and acrylonitrile. This polymer has three dimensional stability because of minute crystallites formed between adjacent matching portions of the polymer chains. This polymer has the characteristic that the temperature and pressure at which the initial crystallites can be melted out and new ones reformed are determined by the initial conditions of fabrication of the resin. The non-crystalline regions of the polymer are amorphous. The organic solution of the diazonium salt added to the mixture before coating is deposited within the amorphous regions of the polymer as minute crystals as the solvent is removed. The unexposed Kalvar emulsion may thus be described as a random distribution of crystalline and amorphous regions of the copolymer with crystals of diazonium salt enmeshed in the amorphous polymer regions.

By appropriate mixing techniques, a chemically incompatible polymer, called the modifier, is distributed throughout the structure. This polymer can be cross-linked by heat in the presence of an incorporated catalyst and forms a physical support to provide strength for the basic resin or vehicle.

Upon exposure, the diazonium sensitizer is decomposed by light in the spectral region from 350 to 430 millimicrons. The decomposition fragments, of the original diazonium molecule, are released with the submicroscopic amorphous regions of the vehicle. The average fragment yield per molecule is about 3. In the total absence of diffusion or solution, the local pressure within small elements of volume of the exposed Kalvar emultion would be three times that of the corresponding regions of the unexposed emulsion. The distribution of this pressure pattern, resulting from the photo-decomposition of the diazonium sensitizer, constitutes the latent image. The lifetime of this latent image is primarly diffusion-limited. It can be controlled by control of the diffusion characteristics of the Kalvar polymer at the time of coating and curing. This makes possible a direct image film processed by a simple reversal technique, as well as films with the conventional sign reversal characteristics.

After exposure, the film is heated to a temperature of 120°C. The original crystallites are relaxed. Under the expansive forces of the decomposed sensitizer fragments, the amorphous polymer strands are pushed closer together into a honey-comb like, vesicular structure. Conditions, then, are favorable for strong recrystallization along the interstices or walls of the honey-comb. In this manner, a rigid cellular structure is reconstituted. Cross linkage of the modifier occurs to give additional mechanical support.

Since the crystalline walls of the vesicles have a different index of refraction than the amorphous regions of the polymer, the required conditions for strong light scattering are obtained. A Kalvar type photographic image results. The average size of the scattering vesicles is from 0.5 to 2.0 microns, hence the dependence of the angular distribution of the scattered light upon the wavelength of the incident illumination as described in the Rayleigh equations does not apply. The image is of neutral density for direct viewing or for any angle of optical projection or enlargement.

For certain conditions of use, such as second generation printing to Kalvar or diazo materials, it is necessary to clear out the residual diazonium sensitizer from the unexposed regions of the Kalvar material. This is done by overall exposure to ultra violet without the subsequent application of heat. The decomposition products are thus allowed to diffuse, losing their image forming capability.

The effective Kalvar density depends upon the optical mode in which it is used. Figure I illustrates this dependence. The diffuse density represents the total light transmitted within the hemisphere on the collection side of the film. The values of density vs. log E presented here as a function of f/No. could equally well be obtained by adjustment of the cone of illumination only.

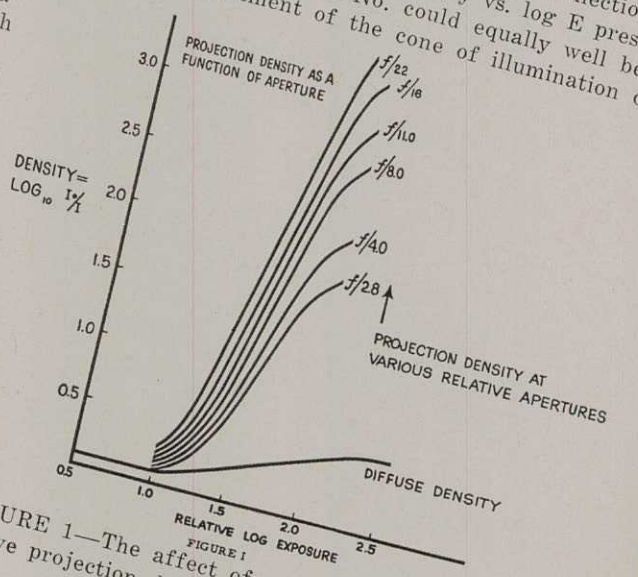

FIGURE 1—The affect of projector aperture on the effective projection density of Kalvar film.

*Registered Trademark.

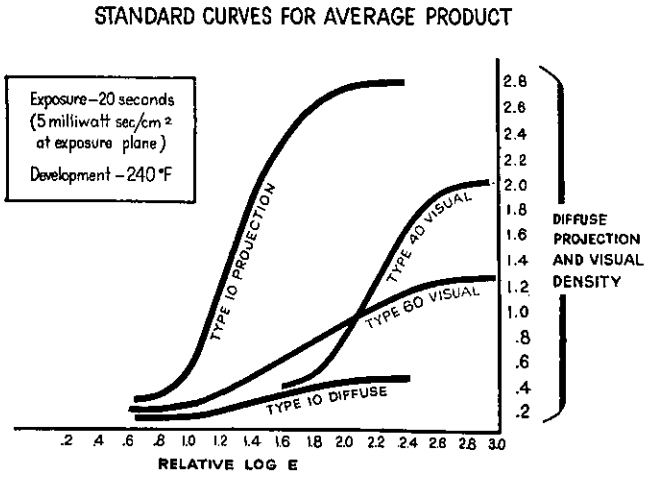

FIGURE 2

FIGURE 2—Modification of characteristic curve obtained by addition of inert pigment; Type 10, a medium contrast projection film; Type 60, a medium contrast contact copy intermediate; Type 40, a high contrast contact copy intermediate.

Hence, a single finished piece of Kalvar film offers a considerable range of gamma control by simple optical adjustment of a printer or viewer. It is apparent that the conventional measurement of diffuse density may offer but little help in a prediction of the performance of Kalvar film in a particular practical optical use.

Diffuse densities, for direct viewing and contact printing, greater than the theoretical 0.3 can be obtained in Kalvar. This is accomplished by a combination of scattering and absorption.

The attenuation of a normally incident beam of light as it passes through an absorbing layer is an exponential function of the product of an absorption coefficient and the optical path length. In a purely absorbing medium the path length is equal to the thickness of the medium. In a Kalvar material, the path length for a photon that encounters a multiplicity of scattering events in traversing the emulsion is much greater than the thickness of the emulsion. In fully exposed film, the number of scattering encounters is approximately ten, and for unexposed film it is zero. The exponential factor of absorption therefore is exposure dependent even though the absorption coefficient is not. By the addition of small amounts of a photochemically inert pigment or dye to the Kalvar emulsion at manufacture, significant alteration in the characteristic curve is obtained. There is little effect on minimum density, where no scattering vesicles are present, but pronounced increase in manimum density where the number of scattering vesicles is large. The greater the amount of pigment added, the steeper the gamma. This is illustrated in Figure 2.

The spectral sensitivity of the present commercial Kalvar products has been adjusted for the use of Mercury arc exposure sources under normal conditions of visible room illumination.

The absolute actinic energy required for the exposure of the different Kalvar products falls within a threshold log E range of less than 1.0. The reference value used by Kalvar is that for complete exposure of Type 10 microfilm. It is 0.2 watt-seconds or 2×10^6 ergs per square centimeter.

Commercial medium and high pressure Mercury arcs have actinic efficiencies of 14 to 20% dependent upon arc pressure and envelope constitution.

The energy required for the development of Kalvar depends upon the mode of heat application and thickness of the Kalvar base stock. The essential requirement is that the Kalvar emulsion reach a temperature of 120° ± 2°C. For the entire film, coating and base, to come to temperature equilibrium, the energy requirement is 2.2×10^5 ergs per cm^2 area per micron total thickness and film bases are 2, 3, 4, 5, and 7 mils in inches which is a range of 50 to 175 microns in thickness.

Resolution of various microfilm products ranges from 144 to 200 lines/mm. Because the image has an overlapping or 3 dimensional vesicular structure, the graininess upon projection is much less than that seen in conventional materials of similar resolution or analagous grain size.

Stability of final image toward prolonged exposure to high temperatures and high humidities is excellent. All products show less than 5% density loss under storage for four hours at 65°C.

SUMMARY OF PHYSICAL CHARACTERISTICS

1) ENERGY, FOR EXPOSURE TO MAXIMUM DENSITY—200 milliwatt-sec./cm^2 at 3850A° or 2×10^6 ergs/cm^2
2) DEVELOPMENT ENERGY— $\dfrac{5.2 \times 10^{-3} \text{ cal}}{\text{cm}^2(\text{A}) \times \text{cm}^{-4}(\text{T})}$ or $\dfrac{2.2 \times 10^5 \text{ ergs}}{\text{cm}^2(\text{A}) \times \text{cm}^{-4}(\text{T})}$
3) RESOLUTION—144 to 22 lines/mm
4) LIGHT SCATTERING ELEMENT SIZE—0.5 - 2.0 microns.
5) HG. ARC EFFICIENCY 14 to 20% OF POWER INPUT.
6) SPECTRAL SENSITIVITY, 300 to 430 millimicrons.

EJC Notes

EJC announces publication of a summary report on its conference on National Engineering Problems held in Washington, D. C. from January 12 to 14, 1964.

The conference dealt with such diverse subjects as: the government's role in R&D support, the need for—and dangers in — planning national R&D allocations, the need for engineers to participate in national affairs, the effect of modern science on engineering practice, the technical information explosion, the character of engineering education, the supply of engineering and scientific manpower, permissible legislative activities of professional societies, the funding policies of the National Science Foundation, the functions of the National Research Council of the National Academy of Sciences and the role and status of the forthcoming National Academy of Engineering.

To order the 42-page report, write Reports, c/o EJC, 345 E. 47 St., N.Y.C. 10017. Each copy is $1.00.

Engineers: Community Builders

Mr. Angers was a featured speaker at the 66th Annual Meeting of L.E.S. in Lafayette, Jan. 17-18, 1964.

By ROBERT J. ANGERS, JR.
Publisher, Banner-Tribune, Franklin, Louisiana

It has been my privilege as a newspaper reporter down through the years to help record in a very modest way some of the great achievements of the engineers of Louisiana.

Your convention program itself calls to mind some of these gentlemen of your profession and what they have contributed to the general welfare.

Certainly your president, Calvin Watts, is symbolic of the great job that has been done by the state department of public works in projects as varied as Toledo Bend Dam and the Harry P. Williams Memorial Airport. In and out of season during the shifting tide of governmental affairs Mr. Watts and his associates have addressed themselves to the complex problems of public works for the betterment of all Louisianians.

And my attention is called to the fact that later on in this program you will honor a young man and an old friend with your Andrew M. Lockett award. Red Evans of Baton Rouge is known and respected throughout Louisiana and his efforts in behalf of building better communities has won him a reputation that certainly is a credit to your profession.

"Community Builder." That's the description I like to apply to the engineer in Louisiana. Emery Domingue, who will preside at your technical session Saturday morning, mirrors the work of the consulting engineer in the field of municipal development with all of its problems and headaches, but with the deep down satisfaction that comes with the completion of a street paving program or improvement of the city drinking water supply.

And your main speaker in the first half of tomorrow morning's session will unfold details of the greatest industrial development program that has come along in the state in this generation, the Louisiana Intracoastal Seaway plan. He is Waldemar S. Nelson, who has directed the economic and engineering feasibility studies of the LISA (Louisiana Intracoastal Seaway) program. Don't miss this session because the LISA story will dramatically remind you that "prosperity flows where the water goes" and the engineering opportunities will stagger your imagination.

F. L. Larue, Jr., assistant professor of chemical engineering at the University of Southwestern Louisiana, will preside at your second morning session. It would take volumes and years to spell out the contribution this Southwest Louisiana university has made to this part of the state, that some of us call "America's Last Industrial Frontier." Your principal speaker at the second session will be the assistant dean of engineering at the University of Texas.

Professor Larue's department reminds us of the great opportunities that we have for the development of a much broader chemical industry; and the appearance of our distinguished guest from Texas brings back memories of the compact we have with Texas on the Sabine River.

Dr. Amstead's topic, "Present Trends in Engineering Education," calls to mind a story reported just this week about the acute shortage of petroleum engineering students in the wonderful USL college of engineering at the very time when the experts say we are on the verge of perhaps the greatest South Louisiana oil boom in our history. Recruiting of students is perhaps a challenge that the L.E.S. might see fit to accept.

That's what you engineers do to many of us laymen. When we see you in ones and twos, we are reminded of what you have done, and right away we start thinking of what remains undone in so many fields of human endeavor. Expose any of us to a convention of engineers and we are tempted to recite the never-ending list of dreams and aspirations that will warm the heart of anyone who really loves this grand state of ours. Louisiana needs an engineer for every community-building crusade that must be undertaken, but certainly you must help keep your own ranks filled with a perpetual student recruiting effort.

I see by your program that you have my fellow townsman, Randolph LeBlanc, on the Saturday afternoon program. His company, St. Mary Iron Works, is the largest industry in our community and here again is another illustration of what the professional engineer can do for the economy of a small city. The men on Randolph's payroll have, at various times, helped in construction of Navy craft during World War II, built equipment for the domestic and foreign sugar industries and fabricated essential gear for the mushrooming petro-chemical complex of coastal Texas and Louisiana.

Dr. James Olivier, dean of the USL graduate school and director of the computer center, will speak to you on the "Use of Computers in Engineering." Dr. Olivier is a man of many interests and, among other things, writes a regular newspaper column on the world of science.

Please don't misconstrue my little summation of "The Engineers I've Known" as a reflection against the rest of you. However, after the recent political campaign when so many said so much about so little they knew anything about I find myself gun shy. But in using my own kind of slide rule to measure the professional engineers of Louisiana I've come up with the conclusion that within your ranks are the answers to many of the great problems that confront us. This is not due only to your individual competence but to your unselfish participation in civic affairs in the finest American tradition.

I wanted further proof of that little theory documented in terms of people, so I wrote to your program chairman, John Gaugler and he in turn asked Secretary-Treasurer John Fernandez to supply me with more names and achievements.

While there are many others equally worthy of recognition he did submit a list of persons nominated by their fellow engineers to receive your society's medal awards over a period of recent years.

And from this list I learned something about Dr. Jesse Coates, head of the LSU chemical engineering department, who has been an outstanding leader in research in his field;

And of Hugh Coughlin, whose inspired leadership has guaranteed us that state government will improve because of the Council for a Better Louisiana.

A Baton Rouge engineer, Edwin Dennis, conceived and developed apparatus for the improvement of sugar refining and enjoys an international reputation in the sugar industry.

Homer Fritchie served as mayor of Slidell without salary for years and worked to bring industrial and economic growth to that city.

There is the success story of William Gurney of Beaumont, formerly of Baton Rouge, who successfully solved many problems involved in the removal of scale formation from the ever-changing Mississippi River water.

A. D. Hargroder of Lake Charles has been an outstanding leader in many civic organizations and projects, and I learn that F. G. Hornsby and Harold Leonard of Baton Rouge have similar records in their communities.

Robert Kuhn of New Orleans is a nationally recognized expert on corrosion. There are four other distinguished engineers from the state's largest city among your society's medal award winners. They include Arthur Naquin, who rendered great service in the field of safety engineering; Neville Levy with many civic achievements who rendered service as chairman of the Mississippi River Bridge Authority; and William Turner, who served as vice-chairman of the authority and has been active in many community development organizations.

New Orleans is our gateway to world trade and it is noteworthy that one of the prize-winning members of your society has done much to promote good will between engineers of the western hemisphere. He is James K. Todd.

Two recipients of your LES award from Baton Rouge are Wiley D. Poole and Alexis Voorhies. Mr. Poole has recorded outstanding technical accomplishments in the field of agricultural engineering, while Mr. Voorhies has made his reputation in hydrocarbon research projects.

And finally, perhaps indicative of the spirit that moves so many of you, is the story of Richard Ward of Lake Charles. Your secretary-treasurer has written that Mr. Ward's tremendous civic effort was instrumental in establishment and operation of the Lions Club Summer Camp for underprivileged children.

In reading about the earliest engineers I was reminded that history gives pages and chapters to kings, philosophers and artists but very little space to men who built the stages on which these others performed. Yet, the story of civilization belongs equally to the tiny group whose genius lay on building the ship canal connecting the Mediterranean and the Red Sea; and building the roads and the dams and the bridges and the pyramids and the palaces and the fortifications and the irrigation systems.

This particular bit of research uncovered the observation that:

"Great men have built great empires, but these have declined. Tastes and styles constantly soar—and sink—in the arts, in philosophy, in politics. But through all history the technology of building has plodded ahead. While empires blossomed and fell, forms of government went through erratic cycles, science flared up and fizzled out, the engineers went ahead."

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Two New Awards Announced

By ALBERT H. REPSCHA

The Honors and Awards Committee announces the establishment of two new awards. The A. B. Paterson Engineer-in-Management Award, in honor of Mr. Albert Baldwin Paterson, is to recognize those who have risen through the ranks of engineering to important positions in management and the Charles M. Kerr Public Relations Award.

The Louisiana Engineering Society recognizes that the promotion of good public relations for professional engineering is most important to our Society and has established the Charles M. Kerr Public Relations Plaque to honor the Louisiana Engineering Society member who has contributed most in this activity. The officers and members of the Public Relations Committee are not eligible for this award.

Established awards include: Andrew M. Lockett, Civic Activities Medal, the Technological Accomplishment Medal, Honorary Membership and the Certificate of Appreciation.

The Andrew M. Lockett, Civic Activities Medal is presented for distinguished civic service without compensation for such. The character and scope, rather than its scientific or professional nature are the predominant criteria for this award. This award was established to honor the memory of Mr. Andrew M. Lockett, who, in his lifetime, was not only a top-flight engineer and very active in Engineering Society affairs but also found time and energy to engage in many civic enterprizes.

The Technological Achievement Award honors the engineer for his achievements and discoveries contributing to the advancement of engineering.

Nominations of the candidates for these medals must be made to the officers of the local sections by August 1, 1964. If approved, these nominations must be submitted to James S. Janssen, Chairman, Honors and Awards Committee by September 1, 1964. It is necessary that complete biographical data, reasons and beliefs of the candidate's eligibility be submitted initially.

The highest honor that the society can bestow upon any member is that of Honorary Membership. This requires endorsement by at least ten members in good standing, affirmative action by at least 80% of the Honorary Membership Committee which consists of all living past presidents and finally confirmation by the affirmative votes of 75% of the members of the Board of Direction. Section recommendations are not necessary but may influence the Honorary Membership Committee and Board.

Certificates of Appreciation are given for outstanding work by members in their particular section. These are awarded by the local Sections and are presented at some appropriate time, usually during Engineers Week. Again, each section may give one of these annually but only if it feels that there is a suitable candidate. These certificates may be secured from the State Secretary by Section Presidents.

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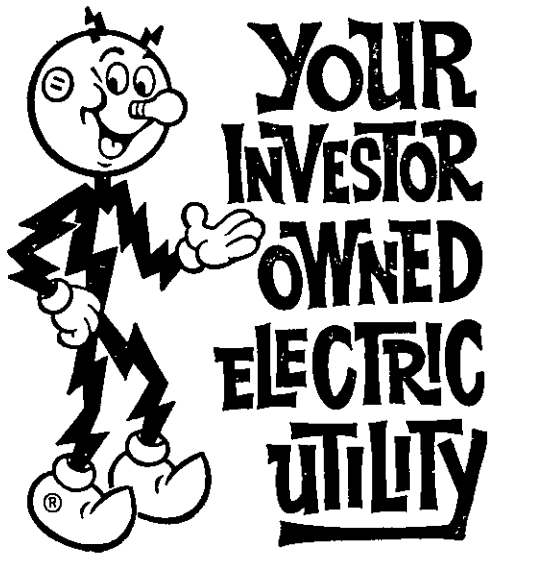

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March 17, 1964—Manuel P. Arca, Coral Gables, Fla.; George W. Bretz, Bethlehem, Pa.; George L. Brockway, E. Point, Ga.; George L. Brooks, Jr., Slidell, La.; E. George Cassis, Kirkwood, Mo.; James B. Craddock, Lakewood, Colo.; Daniel E. Cross, Metairie, La.; Herschel R. Fitts, Shreveport, La.; Robert K. Ginsberg, New York, N. Y.; Joseph O. Herpin, Jr., Monroe, La.; Richard Lee Hess, New Orleans, La.; Richard E. Hughes, Metairie, La.; Kenneth R. Kuellmer, St. Louis, Mo.; Robert H. Marmado, Houma, La.; Gabriel E. Masson, Jr., New Orleans, La.; Robert A. Moncure, Phoenix, Md.; Charles E. Pierce, Ft. Worth, Tex.; Charles I. Poole, Lubbock, Tex.; Paul E. Purser, Houston, Tex.; James D. Quinn, New Orleans, La.; Charles A. Rowe, Corte Madera, Calif.; Claude A. Sellars, Jr., Metairie, La.; Frank E. Tutzauer, Jr., New Orleans, La.; Charles Te-Shao Wang, Baton Rouge, La.; Thomas L. Ward, Baton Rouge, La.; Myron Hwai-Hsi Yang, Baton Rouge, La.

LAND SURVEYORS

Wilson E. Campbell, New Orleans, La.; Ralph L. Gagnard, Marksville, La.; Field B. Gremillion, Ball, La.; Donald E. Lawrence, Jackson, Miss.; Douglas O. Sheehan, Slidell, La.; Raymond K. Welch, Beaumont, Tex.

PROFESSIONAL ENGINEERS GRANTED REGISTRATION FEBRUARY 20, 1964 BY THE LOUISIANA STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS

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Public Relations Recognized

Frank H. Walk, left, chairman of the Public Relations Committee, is presented a certificate of appreciation by LES President J. T. Knight, Jr. for outstanding work with his committee.

What Is An Engineer?

To The Editor:

The item entitled "What is an Engineer?", which appeared in the February issue of the Louisiana Engineer, proved very interesting and is certainly a "must" for use in improving the image of the professional engineer among the uninitiated.

In connection with the definition of a *professional* engineer, perhaps your LES members and the Louisiana Engineer readership may be interested in the attached article entitled "What is an Engineer?", which appeared in Mechanical Engineering (Vol. 60, No. 10, Oct. 1938).

"An engineer is one who, through application of his knowledge of mathematics, the physical and biological sciences, and economics, and with aid, further, from results obtained through observation, experiences, scientific discovery, and invention, so utilizes the materials and directs the forces of nature that they are made to operate to the benefit of society. An engineer differs from the technologist in that he must concern himself with the organizational, economic, and managerial aspects as well as the technical aspects of his work."

In our constant efforts to project the proper perspective of our profession to the layman, we should keep in mind the words of Henry Bett (Some Secrets of Style):

"Care is taken, not that the hearer *may* understand, if he will, but that he *must* understand, whether *he will or not.*"

Joseph T. Hogan, P.E.
Chemical Engineer.

(Send us YOUR definition of a professional engineer. In the meantime, remember ours is the job of reminding the general public who we are and what we stand for—Editor's Note.)

NCSBEE Field Notes
By Allen Johnson

It was an eminent gathering.

Engineers prominent in private practice, government, industry and education—with a host of deans, present and emeritus—from all over the South.

They came to Louisiana for the Southern Zone meeting of the National Council of State Boards of Engineering Examiners (NCSBEE). Their mission: Continued study of the criteria for examining the South's engineers. It's a role that gains importance in proportion to the industrialization of the South, and the increasing demands for engineers in a host of "normal" needs, to say nothing of the space program.

J. W. Beretta, San Antonio, Tex., the president-elect of the national council, spoke in high terms of the abilities and energies of Louisiana's state board of registration. Perhaps his most eloquent reference: "dedicated." Also heard at the conference: "Louisiana can be proud that its representatives match the high caliber of this meeting" . . . W. M. Spann, Kansas City, Mo., council president.

La. Tech Engineering Dean Ben T. Bogard, Louisiana board chairman and a past president of L.E.S., serves also as the council's representative to Engineers Council for Professional Development (ECPD) . . . Maj. Gen. Roy Sessums (USAFR), an LES past president, introduced Maj. Gen. Ellsworth Davis, Vicksburg District chief of engineers and president of the Mississippi Commission as the banquet speaker.

F. W. zurBurg, whose 6-year-old granddaughter Jane brightened the social events, served as program chairman for the session in New Orleans Hotel Monteleone . . . Dr. F. W. Macdonald, executive secretary of the Louisiana board, attended to many details of the meeting. He too is an L.E.S past president . . . And Col. John T. Knight, Jr., L.E.S. president, welcomed NCSBEE members at a cocktail party sponsored by the society . . . Leo M. Odom, Baton Rouge, was presented an award for distinguished service to the Council by Southern Zone president Tom Green; a notable climax to a noteworthy event.

President-elect C. W. Stokes of Lake Charles reported the emphasis was on professional activities at the recent Purdue N.S.P.E. president-elect conference . . . N.S.P.E. membership has gone over the 60,000 mark, he reported, saying that sustained membership drives bring best results. World's Fair opened in New York on April 22, and Brig. Gen. Williams Whipple is chief engineer . . . His brother, J. R. Whipple, is a Baton Rouge consulting engineer and active L.E.S. member.

———o———

Motorists in 1963 raced down the nation's highways to a new, all-time auto death record which for the first time exceeded 42,000 fatalities. This tragic toll topped the figuer of nearly 40,000 persons killed in 1941—a record high which stood for twenty years—and even surpassed the new record of 40,500 deaths established in 1962.

Auxiliary President Is A Jewel

WOMAN'S AUXILIARY President Jewel Cappel and her husband Roy proudly display the two newest gems in their collection. The twin boys, Lance Arlen (held by Mr. Cappel) and David Bryan, were born on March 11.

By SALLY BIRDSONG

As you know and as you can see by the above picture Jewel and Roy Cappel have added two gems to their collection! . . . but more about that later.

During the past year you have read of the activities and achievements of our organization and chapters throughout Louisiana. In June we will have more big news for you. For this issue we are presenting a vignette of our president.

Jewel, wife of Roy G. Cappel, a civil engineer and vice-president of Williams-McWilliams Industries, is a native New Orleanian having been educated in public and parochial schools here. She obtained a degree in business administration before attending LSU in Baton Rouge. During her twelve-year membership in the Woman's Auxiliary to the Louisiana Engineering Society she has been chairman of publicity, membership, program; then recording secretary, corresponding secretary, president-elect and now this year, president.

Jewel and Roy both take great pleasure in gardening. She has pursued this hobby further by taking courses in horticulture, flower arranging, corsage making, plaque making and at present is studying to be a nationally accredited flower show judge. Add to this, membership in the New Orleans Garden Society; Orleans Club, Woman's Auxiliary to the New Orleans Chamber of Commerce, Parents League of McGehee School; Metairie Woman's Club; Delgado Museum of Art and Friends of the Cabildo.

Jewel and Roy will celebrate their 24th wedding anniversary on June 8. However, this will be second only to another occasion which took place on March 11 during Jewel's busy year as president of the Woman's Auxiliary to the Louisiana Engineering Society. On that date Jewel and Roy became parents of twin boys—Da-

vid Bryan, 5 lbs. 11 ozs.; and Lance Arlen, 5 lbs. 7 ozs. So the family home on Mulberry Drive is busy with activities of seven children—Carol Anne, 19, a sophomore at the University of Southern Mississippi, Hattiesburg; Carl Glenn, 17, in his junior year at St. Martin's; Christie Lea, 12, a sixth grader at Louise S. McGehee School for Girls; Richard Yost, 10, who is in fourth grade at Sam Barthe School for Boys; Cynthia Gayle, 2; and the twins.

Jewel has left nothing undone in her capacity as president of our organization. She has been undaunted during her term in office no matter what was requested of her. How does she do it? And always with a smile on her lips, a gleam in her eyes and ring in her voice. William Wordsworth said of her (or a likeness to her) in his "She Was a Phantom of Delight":

'And now I see with eye serene
The very pulse of the machine.
The reason firm, the temperate will,
Endurance, foresight, strength, and skill,
A perfect woman, nobly planned,
To warn, to comfort, and command.'

That is our president—a jewel.

—o—

Named L.E.S. Life Members

HESS

MAYER

Following are biographical sketches of two Louisiana Engineers who were recently honored as life members in the LOUISIANA ENGINEERING SOCIETY.

W. T. HESS. Born in New Orleans, Mr. Hess graduated from Tulane University in 1922 with a degree of Bachelor of Engineering in Mechanical and Electrical Engineering.

He worked as a Student Engineer with General Electric Co. from 1922 to 1924 and served as a Distribution Engineer and an Industrial Engineer with New Orleans Public Service Inc. He also worked as a Distribution Engineer with Havana Electric in Cuba and as an Industrial Engineer with Louisiana Power and Light Co.

He has been Chief Engineer of Louisiana Power and Light Co. since 1938 and Vice-President and Chief Engineer since 1940.

His other business and civic associations include membership on the Board of Directors of Louisiana Power and Light Co. and the National Bank of Commerce in Jefferson Parish, a Fellowship in the American Institute of Electrical Engineers and membership in the Engineers Club of New Orleans and the Colonial Golf and Country Club.

He is married to the former Alice Carol Root and they have two sons, Kendal William and Robert Talman.

JOHN KING MAYER. Born in Amite, Dr. Mayer received a Bachelor of Engineering degree from Tulane in 1930 and a Master of Engineering degree from Tulane in 1937. He also attended the Massachusetts Institute of Technology during the summer of 1940.

He taught as a student instructor at Tulane from 1928 to 1930, served as a Junior Engineer with the testing division of Standard Oil Co., Bayway, N. J.; worked as a Mechanical Engineer with Smith and Kansler, Linden, N. J.; and as a Field Engineer with Macantaca Logging Corp., Prinzapolka, Nicaragua.

Mr. Mayer has been associated with Tulane University since Sept., 1932 and has served as an Instructor, Assistant Professor, Associate Professor, Professor and Head, Experimental Engineering; Professor of Mechanical Engineering. He has taught as a Professor of Civil Engineering from 1960 to the present and has conducted his own part-time private practice as a Consulting Engineer since 1938.

He is a member of the American Society of Mechanical Engineers, the American Society of Engineering Education, the American Society for Testing Materials, the Society for Experimental Stress Analysis, the New Orleans Academy of Science, the National Council of Soil Mechanics and Foundation Engineering and the Tulane Society of Engineers.

He is married to the former Dixie Tharp and they have one son, John Tharp Mayer.

—o—

(Continued from Page 13)

guished Service Medal," was awarded the "Legion of Merit," and the "Army Commendation Medal" by our Government, and the "Cruziero do Sul in the order of Commander" by the Brazilian Government.

Colonel Knight is the father of four sons. It is interesting to note that each son chose a separate branch of the Armed Services. His Marine Corps son was killed in action. Presently, one son is a Lieutenant-Colonel in the Army, one a Commander in the Navy, and one after his Air Force Service, finished up in Business Administration at Tulane. Colonel Knight has two daughters, one the wife of Major General Sanborn, U.S. Air Force, Chief of the Military Aid and Assistance Group (MAAG) Nationalist China, and the other the wife of Captain A. E. Parker, U.S. Navy (Air) on duty in the Pentagon.

Upon returning to New Orleans in 1947, Colonel Knight joined Captain Neville Levy's Equitable Equipment Company where he now is, as Manager of Marketing for that Company.

With 46 years of married life together, Colonel and Mrs. Knight are planning to spend the rest of the time allotted to them right here in New Orleans, and Louisiana.

Jack Knight is a member of:

The Society of American Military Engineers.

American Society of Mechanical Engineers.

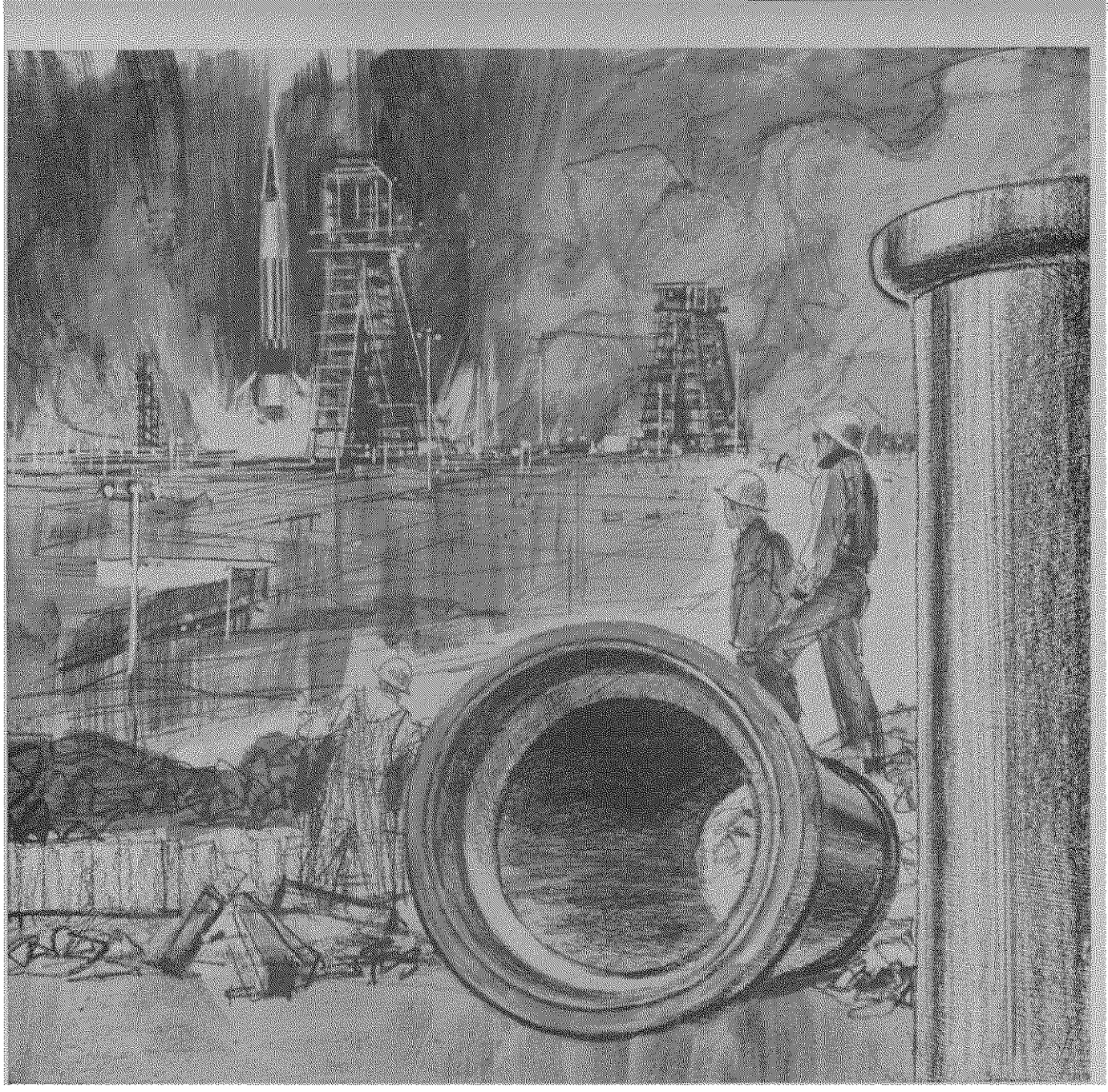
American Society of Heating, Refrigeration Air-Conditioning Engineers.

National Society of Professional Engineers.

and now is

President of the Louisiana Engineering Society.

Jack is registered in three states.



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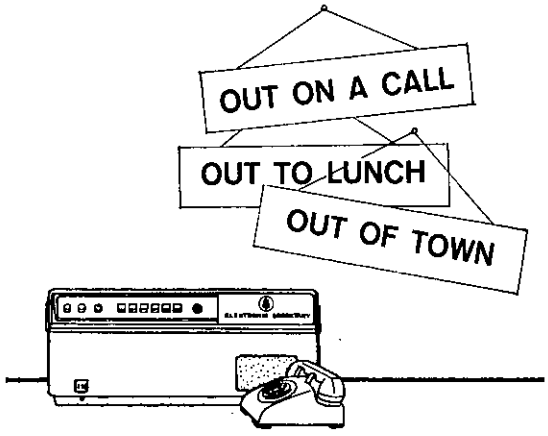

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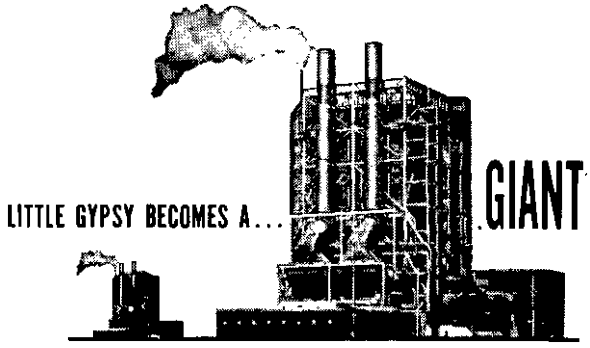

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Memorials

GEORGE OLIVER HUET

On Sunday, February 16, 1964, the community, Louisiana Engineering Society, Marine Architect and Engineering Profession lost a highly esteemed member, respected citizen, and a Southern gentleman in the death of George Oliver Huet.

Mr. Huet was born in New Orleans on March 8, 1894, and is survived by his widow, Mrs. Alice Escoffier Huet, three daughters, Mrs. Terese H. Roussel, Mrs. Curtis G. Bonin, and Miss Orris Huet, one son, Robert G. Huet, and nine grandchildren.

He received his academic education in local private and public schools and his mechanical engineering knowledge through the International Correspondence School (ICS). From 1913 to 1915 while working with a local architectural firm and from 1918 to 1920 while working with the U. S. Naval Station, Algiers, Louisiana, he studied and completed courses in Naval Architecture by Charles Desmond, New York.

From 1920 to 1928 he was with the New Orleans Boat Manufacturing Company as General Manager in charge of designing, estimating and construction of yachts and commercial vessels up to 75′ in length.

From 1928 to 1934 Mr. Huet was self-employed—owner of the Huet Boat Works and as designer and estimator for local boat builders.

From 1934 to 1961 he was Naval Architect and Engineer in charge of designing, estimating, and supervising construction of boats, vessels and ships for the Higgins Industries, Inc. of New Orleans, La.

At the time of his death he was resident engineer for the firm of Levingston Shipbuilding Company, Orange, Texas.

He was a native of New Orleans and a member of the Society of Naval Architects and Marine Engineers, the American Welding Society, the Bay-Waveland Yacht Club, the Louisiana Engineering Society, the St. Anthony of Padua Catholic Church, and several local social organizations.

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LES Members Urged To Support Liability Limitation

At the present time there is no limitation with respect to time on the liability of Engineers and Architects for work they have done. The Professional Engineer needs protection against a rash of third-party suits that subjects him to needless expense, wasted time and misunderstood publicity.

LES members are urged to talk to their Senators and Representatives to get their support for a proposed bill in the Legislature which would limit their liability to five years.

It should be emphasized that Engineers in industry, government and private practice are presently subjected to unlimited liability.

Therefore, this is a matter in which most all of us should be interested.

Text of the bill follows:

AN ACT

To amend Title 9 of the Louisiana Revised Statutes of 1950 by adding to it a new section to be designated as Section 2772, for the purpose of establishing a liberative prescriptive period limiting the time within which actions may be brought for deficiencies in design, planning, inspection, supervision or construction of improvements to immovable property or for property damage, personal injury or wrongful death arising from any such deficiency, and matters relating thereto.

Be it enacted by the Legislature of Louisiana:

Section 1. Title 9 of the Louisiana Revised Statutes of 1950 is hereby amended to add a new section to read as follows:

S2772. Prescriptive Period for Actions Involving Deficiencies in Design, Supervision or Construction of Improvements to Immovables.

No action, whether ex contractu, ex delicto, or otherwise to recover on a contract or to recover damages shall be brought against any person performing or furnishing the design, planning, supervision, inspection or observation of construction or construction of an improvement to immovable property:

(a) More than five years after the date of registry in the mortgage office of acceptance of the work by owner; or

(b) If no such acceptance is recorded within six months from the date the owner has occupied or taken possession of the improvement, in whole or in part for the use for which it was intended, more than five years after the improvement has been thus occupied by the owner; or

(c) If the person furnishing the design and planning does not perform any inspection of the work, more than five years after he has completed the design and planning with regard to actions against that person.

Section 2. The causes which prescribe within the time described above include any action:

(a) For any deficiency in the design, planning, inspection, supervision or observation of construction or in the construction of an improveprovement to immovable property.

(b) For damage to property, movable or immovable, arising out of any such deficiency;

(c) For injury to the person or for wrongful death arising out of any such deficiency; and

(d) Any action brought against a person for the action or failure to act of his employees.

This prescriptive period shall extend to every demand whether brought by direct action or for contribution or indemnity or by third-party practice, and whether brought by the owner or by a third person.

Section 3. If such an injury to the property or to the person or if such a wrongful death occurs during the fourth year after the date set forth in Section 1, an action to recover the damages thereby suffered may be brought within one year after the date of the injury, but in no event more than six years after the date set forth in Section 1 (even if the wrongful death results thereafter).

Section 4. Nothing in this act shall be construed as extending the periods prescribed by Articles 3536 and 3537 of the Louisiana Civil Code, or the period prescribed by Louisiana Revised Statutes 38:2189, or any other liberative prescriptive period provided by the laws of this State.

Section 5. The prescriptive period provided by this Act shall not be asserted by way of defense by a person in possession or control, as owner, lessor, tenant, or otherwise, of such an improvement at the time any deficiency in such an improvement constitutes the proximate cause of the injury, damage, or death sued upon with regard to any cause of action arising out of the alleged delict, quasi delict, or obligation of any such person arising out of his possession or control of the property.

Section 6. All laws or parts of laws in conflict herewith are hereby repealed.

———o———

Mining salt from a South Louisiana "iceberg" that is expected to yield a million tons per year for 30 years was described before the Louisiana Engineering Society.

Nicholas Nicola, manager of Cargill, Inc's Belle Isle mine some 13 miles west of Morgan City, told how a shaft was successfully sunk into a salt dome after three other attempts dating back to 1896 had failed.

"We froze the ground, and mined into an iceberg of salt," he said. "It took six months of circulating brine into the ground to reach a temperature of 35 degrees below zero."

What Is The L. E. S.?

The Louisiana Engineering Society is a state-wide organization devoted to the common interests of ALL ENGINEERS.

The aim of L. E. S. is to foster registration, professional pride and honor, and the practice of the established code of ethics for engineers.

The L. E. S. is an organization for Engineers in ALL branches of the profession, ALL fields of endeavor (private practice, government, industry, education, etc.), ALL ranks, ALL ages, in ALL sections of Louisiana. The society's Public Relations Program is directed toward the advancement of all branches of the profession in public recognition and esteem.

The L. E. S. is devoted to the professional, social and economic welfare of the individual engineer and in his behalf promulgates the profession's policy in legislative, civic and labor-industry matters pertaining to engineering.

Through its affiliation with the NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS and ENGINEERS' JOINT COUNCIL, the L. E. S. cooperates with professional organizations in all of the other states in striving for these goals at a national level.

The Louisiana Engineering Society is working for YOUR profession. Won't you help by joining?

For application details contact

J. P. Fernandez, Secretary-Treasurer

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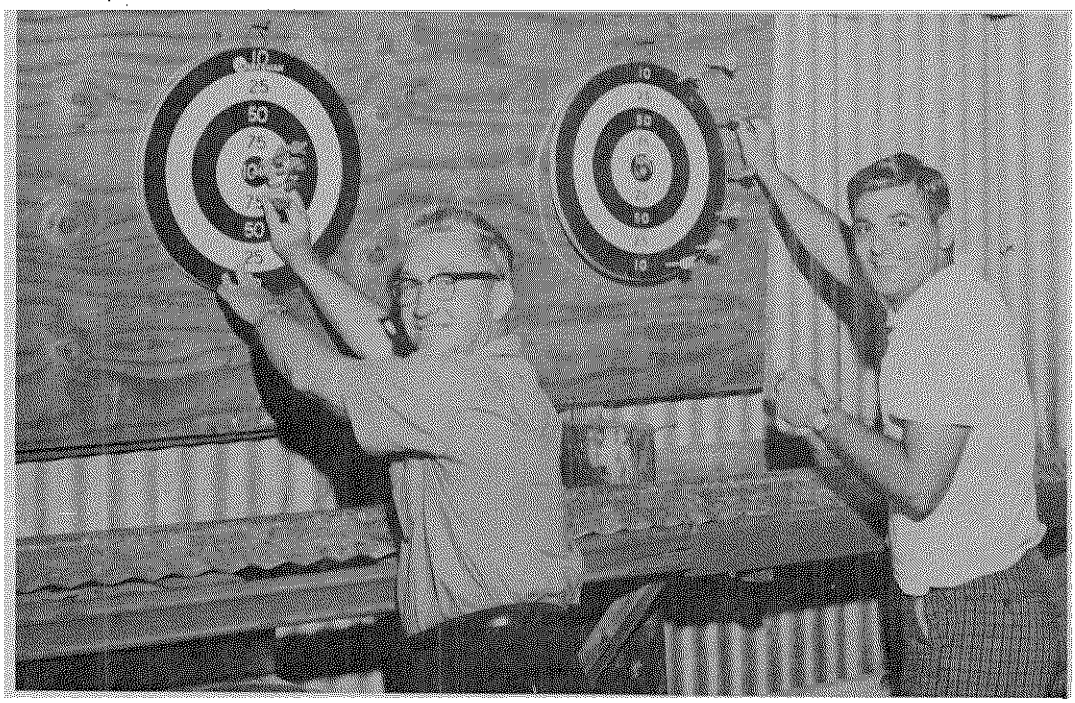

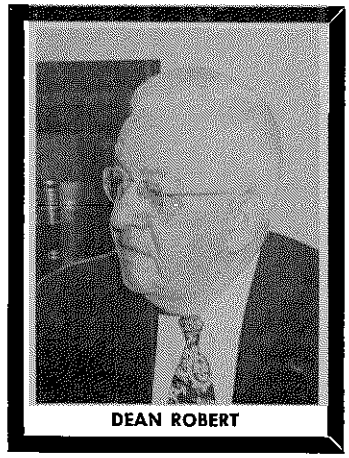

DEAN ROBERT

Vol. 50 No. 3
June, 1964

Why total cost is so important to tiny tots... and taxpayers

Total cost of what? Sanitary sewers. It makes no difference if they're municipal sewers or house sewers. There's still an initial cost . . . and a total cost. It's the total cost that's important. It includes building the sewers initially, plus the cost of repairs and maintenance . . . even replacement if the pipe disintegrates.

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THE LOUISIANA ENGINEER

Vol. 50 JUNE, 1964 No. 3

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Signed,

Oct. 31, 1963

W. K. Bankston, Editor

OUR COVER: Leo Bankston (left) seems to have a decided lead over Jack Perrault during a dart-throwing contest at the recent Baton Rouge Annual Outing. For a picture-story of the day's activities see pg. 10.

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Minutes Of The Board, LES

LOUISIANA ENGINEERING SOCIETY

Minutes of Meeting of the Board of Direction
Held at the Engineers' Club, New Orleans
April 13, 1964

The meeting was called to order by President Knight with Messrs. Affolter, Eustis, Ewing, Duclos, Nelson, Odom, Stokes, Vogt and Fernandez present. Messrs Frank Walk, Public Relations and Publication Chairman, and Allen Johnson, Public Relations Counsel, also were in attendance. Mr. Vogt moved to dispense with the reading of minutes of the board's March meeting and to approve them as distributed to board members by mail. Motion seconded by Mr. Nelson and carried. The secretary then read minutes of a meeting of the Louisiana State Board of Registration for Professional Engineers & Land Surveyors held on March 17.

President Knight reported on the Southern Zone Conference of the National Council of State Boards of Engineering Examiners recently held in New Orleans, and President-elect Stokes reported on the NSPE Purdue Conference held on April 9-10.

The Secretary reported that 422 votes were counted in the March membership ballot and all 39 applicants appearing in the ballot were elected to their respective grades. Distribution of newly elected members is as follows:

Section	Member	Affiliate	Junior	Total
New Orleans	9	2	--	11
Baton Rouge	7	--	2	9
Lafayette	4	--	3	7
Alexandria	3	1	--	4
Lake Charles	2	--	1	3
Shreveport	2	--	1	3
Monroe	1	--	--	1
	29	3	7	39

The Secretary presented a financial report for the first quarter of 1964 and then announced that the following members had passed away:

Lee L. Denny (Affiliate), Monroe
C. K. Dunbar (NSPE), Baton Rouge
Charles M. Kerr (H.M.), New Orleans

Mr. Odom moved that a Public Relations Award be established, to be known as the Charles M. Kerr Award and to consist of a plaque to be presented annually to a member of LES who has made an outstanding contribution to engineering public relations during the preceding year. The motion was seconded by Mr. Nelson and carried, and the Public Relations and Publications Committee was instructed to implement this motion.

Mr. Walk reported that his committee was preparing a draft of a manual to be attached to and to supplement the NSPE Public Relations Manual. He also advised that the Baton Rouge Section is making arrangements to have newly registered engineers receive their registration certificates at a meeting of the LES Section.

Upon motion by Mr. Nelson, seconded by Mr. Stokes, the resignations of the following were accepted with regret:

Arthur G. Albertson (NSPE), New Orleans
Donald J. Bateman (Junior), Texas
Glenn E. Bell (Affiliate), New Orleans
Fred N. Fister (NSPE), Georgia
Marvin G. Tullis (Affiliate), Shreveport
Walter D. Williams, Jr. (Junior), S. C.

In the same motion, the following were dropped from the rolls in accordance with their requests:

Augustus Elmer III (Junior), N. J.
Dennis E. Mitchell, Jr. (Affiliate), Winnsboro
Morton D. Rau (Junior), New York FPO

The secretary reported a $1,500 contribution for the Engineer-in-Management Medal award. President Knight announced that a committee consisting of Mr. Lionel J. Cucullu, Chairman, Mr. James M. Todd and himself had been appointed to arrange for the design and striking of the medal.

The secretary read letters received from Messrs. John R. Whipple and F. C. Culpepper, Jr., concerning the Public Relations Award and the publication of State Section activity news in the Louisiana Engineer, respectively. It was the concensus of those present that both suggestions merit consideration and they were referred to the Public Relations and Publication Committee.

A letter from Fromherz Engineers was read in which was given their attorney's summation of the outcome of recent litigation involving their firm. The Board instructed the Public Relations & Publication Committee to give proper publicity to this matter and to advise NSPE of the successful defense of this liability case.

The secretary read an obituary of the late George O. Huet and was instructed to have it published in The Louisiana Engineer and forward copies to the family of the deceased member.

Upon motion by Mr. Vogt, seconded by Mr. Ewing, the election of Carl R. Larpenter of Baton Rouge was declared void, since he has not accepted membership by payment of dues.

Upon motion by Mr. Odom, seconded by Mr. Affolter, the following were dropped from the rolls for non-payment of dues:

Edwin M. Antici (J), Shreveport; F. A. Araguelles (J), Reserve; Melvyn J. Backes (J), New Orleans; James R. Barfield (A), Baton Rouge; W. A. Barnwell, Jr. (A), Texas; D. A. Bernard (J), St. Martinville; R. L. Bienvenu (NSPE), St. Martinville; Alan T. Blackwood (A), Baton Rouge; Lawrence G. Bodet (NSPE), New Orleans; Benjamin F. Bouser (A), Baton Rouge; James W. Brown (M), California; Richard P. Cahuviere (J), New Orleans; Miller B. Clarkson (M), Chicago; Jas T. Counts (A), Shreveport; J. P. de la Vergne (J), New Orleans.

R. J. Ehrlicher (J), Metairie; John J. Finegan (M), Missouri; Edw. J. Fousch (J), New Orleans; B. E. Galloway, Jr. (M), Harahan; E. M. Gillen, Jr. (A), Shreveport; Houshang Golsaz (J), Lafayette; Jerome C. Gordy (J), Colorado; Richard N. Graham, Jr. (J), Mississippi; A. P. Guillory (M), Ville Platte; Leicester Hannibal, Jr. (A), Metairie; Floyd C. Hebert (J), Lafayette; Norman Heyd (J), New Orleans; Geo. Wm. Hill (M), Baton Rouge; Chas. H. Hundemer (M), Bogalusa; Elton F. Jones (J), Alabama.

Hilry J. Lantz (J) (NSPE), Baton Rouge; J. Harvey LeBlanc (J), Arnaudville; Geo. P. Lemoine (M), Bunkie; Wm. Lee Lewis (M), Baton Rouge; Henry Lomasney (J), New Orleans; Merritt E. McDonald (J), Baton Rouge; Warren F. McDonald (J), New Orleans; Marc McKinley (A), Lake Charles; Robert Mack (J), Lake Charles; Floyd E. Milford, Jr. (J), Lake Charles; Geo. W. Miller (NSPE), New Orleans; Carl T. Morris (M), New Orleans; Carlos L. Nunez (J), Florida; Louis Palermo (J), New Orleans; Robt. A. Philibert (M), New Orleans.

Harry E. Reed (A), Lake Charles; Thos. C. Robert (J), North Carolina; Chas. R. Rostron (NSPE), Ruston; Elmore G. Russell (M), New Orleans; Jerry Saacks (J), New Orleans; Robert H. Schroeder, Jr. (J), Kenner; Harvey J. Sims, Jr. (A), Lake Charles; Wm. S. Spann (M), Baton Rouge; Lee N. Spinks (M), Houston, Tex.; James E. St. Germain (NSPE), Illinois; John H. Stinson, Jr. (M), Shreveport; Sunny Tsai (J), New Orleans; John E. Vidrine (A), Baton Rouge; Troy L. Wilson, Jr. (NSPE), Baton Rouge; Harper M. Young, Jr. (NSPE) Shreveport.

Mr. Nelson moved that the objectives of the L.E.S., i.e., "The objects of this Society are the professional improvement of its members, the encouragement of social intercourse among Engineers and men of practical science, and the advancement of Engineering" not be changed. Motion seconded by Mr. Eustis and carried.

Mr. Nelson moved that the L.E.S. administrative year be changed to correspond with that of the National Society of Professional Engineers and that the necessary constitutional changes be prepared and submitted to the membership-at-large to effect this change. Motion seconded by Mr. Stokes and carried.

Discussion followed on the first recommendation of last year's interim report on organization, i.e., that a New Orleans Section be formed similar to the existing sections. It was decided that a special meeting would be held on Tuesday, April 28 so that this matter could be resolved. The board meeting then adjourned so that the society's regular meeting could begin on schedule.

JOHN P. FERNANDEZ,
Secretary-Treasurer

—o—

LOUISIANA ENGINEERING SOCIETY

Minutes of Special Meeting of the Board of Direction
Held at Oak Manor Motel, Baton Rouge
April 28, 1964

The meeting was called to order by President Knight at 7:00 p. m. with Messrs. Affolter, Brownlee, Eustis, Johnson, Nelson, Odom, Stokes, Vogt and Fernandez in attendance. Mr. Frank Walk, Public Relations and Publication Chairman, and Mr. Joseph T. Montgomery, President of the Louisiana Section, American Society of Civil Engineers, also were present by invitation.

The Board then proceeded to discuss the proposed revisions to the Society's constitution. The constitution was read and corrections, additions or deletions were discussed a section at a time, and each proposed revision was accepted or rejected by majority vote.

Work on the amendments was suspended so that Mr. Montgom-

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ery could address this board. Mr. Montgomery stated that he had been instructed by his Board to explain their objections to the proposed Architects Bill. He brought out that in 1962 the LES, Gulf Institute of Consulting Engineers, and the Louisiana Section, ASCE had adopted a joint resolution requesting that the draft of the architects registration bill contain these three items:

(1) That the definition of Architecture in the present law should remain unchanged, reading: "Architecture" means the designing and overseeing of the construction of buildings.

(2) That the present exemption of civil engineers should remain in effect reading: "The provisions of this Chapter shall not apply to (2) Civil Engineers licensed in accordance with the terms of R.S. 37:681 - 37:704 (Act 73 of 1950, State of Louisiana) or acts amendatory thereto, if such engineers do not use the designation "Architect" or "Architecture."

(3) That a saving clause shall be added to the Architects Registration Act, reading: "provided however that no section of this act shall, in any manner affect, modify or repeal Act 73 of the Louisiana Legislature of 1950 (R.S. 37:681 thru 37:704 inclusive)."

Mr. Montgomery explained that the draft was revised to include these items and when introduced in the 1962 State Legislature the bill was supported by the above named engineering organizations. He added, however, that the 1964 version of the proposed draft of the bill contains the latter two provisions but that the definition of "Architecture" has been greatly expanded. The Louisiana Section, ASCE objects to the new definition and asks that the L.E.S., as the professional engineering society of the state, express its views.

President Knight read minutes of a meeting of the LES Board of Direction, held on April 9, 1962, at which representatives of AIA, GICE, and ASCE were present. The minutes confirmed Mr. Montgomery's statement, whereupon Mr. Vogt moved that the position of the Board of Direction of the Louisiana Engineering Society remain the same as its position taken in 1962. The motion was seconded by Mr. Johnson and carried.

The board then resumed its work of reviewing the constitution. When the hour grew late it was decided to continue the preparation of revisions at a meeting to be held during the Baton Rouge Outing. The meeting then adjourned at 11:00 p. m.

JOHN P. FERNANDEZ,
Secretary-Treasurer

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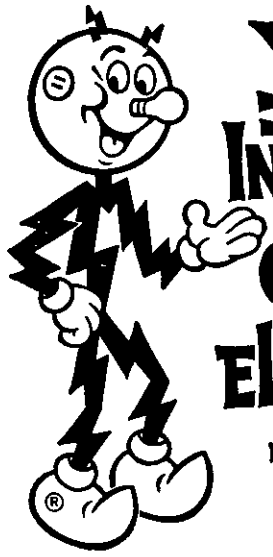

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Letters:

To The Editor:

I could not close my files for the year without letting you know how very much we appreciate the wonderful publicity you have given the Woman's Auxiliary to the Louisiana Engineering Society. You have been most generous with articles and pictures in the "Louisiana Engineer" and we have so enjoyed reading all of the issues.

It has been such a pleasure to be associated with you. Thank you so very much for your cooperation.

Most sincerely,
JEWEL YOST CAPPEL
(Mrs. Roy G. Cappel)
Past President

TO THE EDITOR:

On behalf of the Board I would like to express our great appreciation to you for your wonderful coverage on publicity during the recent meeting of the Southern Zone of the National Council of State Boards of Engineering Examiners.

Many favorable comments were received concerning the wide coverage of our meeting in the newspapers and other news media.

Very truly yours,
F. W. Macdonald
Executive Secretary

To The Editor:

American engineers have often been chided for their use—or misuse—of the English language, whether it be in technical reports or oral presentations. And ironically enough, it is in the field of language, or more specifically in etymology, that we can trace the very beginning of the true meaning of the word "engineer."

Without fear of contradiction, most Americans—when questioned — associate the word "engineer" with the word "engine." Invariably, in their minds, an "engineer" is the operator of an "engine."

Perhaps no greater pitfall exists for the unwary than that which is provided by these two words alike in form (engineer, engine). Unfortunately, most Americans are unaware of the origin of these two words and their original meaning.

It is interesting that among our engineering colleagues in Europe—especially in the technical and engineering schools—emphasis is placed on the **true** meaning of an "engineer" in the orientation classes at the very beginning of an engineering education.

They—the Europeans—go back to fundamentals in the origin of the words "engineer" and "engine." "Engineer" and "engine" stem from the same Latin word **ingenium**, which meant "natural capacity, cleverness, an invention." The word ingenious also comes from the Latin **ingenium**. The word "engine" — among other things—when used as a noun, originally meant "innate or natural ability, ingenuity." Thus, an "engineer" was one "who by i n n a t e or natural ability, contrived, planned, designed, invented."

This original meaning of "engineer" on the basis of etymology is quite different from the present-day mun-

(Continued on Page 34)

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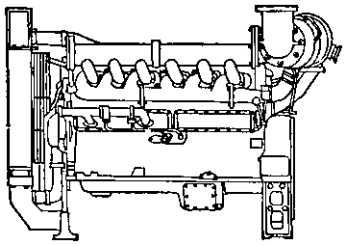

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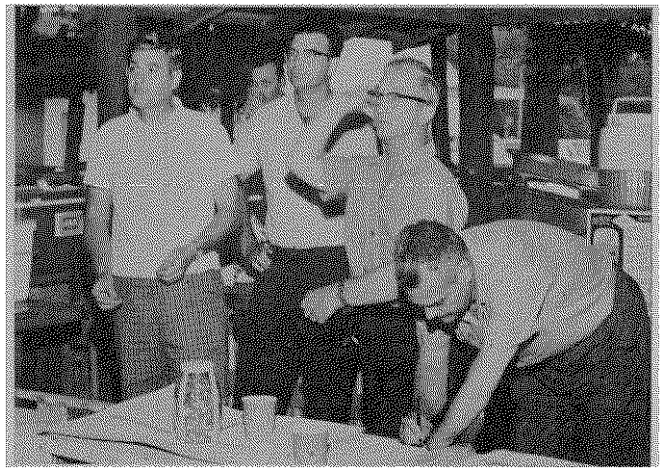
Engineers Attend Baton Rouge Outing

The Baton Rouge Annual Outing again drew an enthusiastic crowd to UCT Park on the New Hammond Highway, where LES members were eager to prove their skill at dart throwing, horseshoe pitching and nail driving. Though skies were overcast and a few raindrops fell, it failed to dampen spirits and the outing was a success, as these pictures indicate.

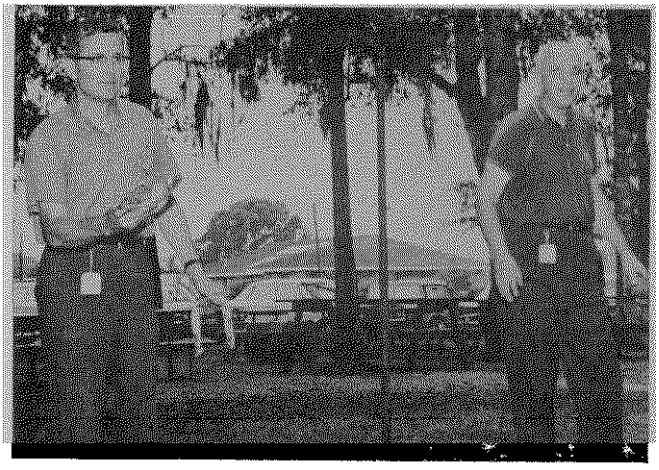
Chicken, duck and wild rice once more headlined the menu by popular demand, and, despite a few stiff muscles on the part of some of the more avid sports enthusiasts, it was agreed that a good time was had by all.

Engineers from throughout the state participated in the gala day long activities, which were proceeded by a Board of Direction meeting at the Oak Manor Motel.

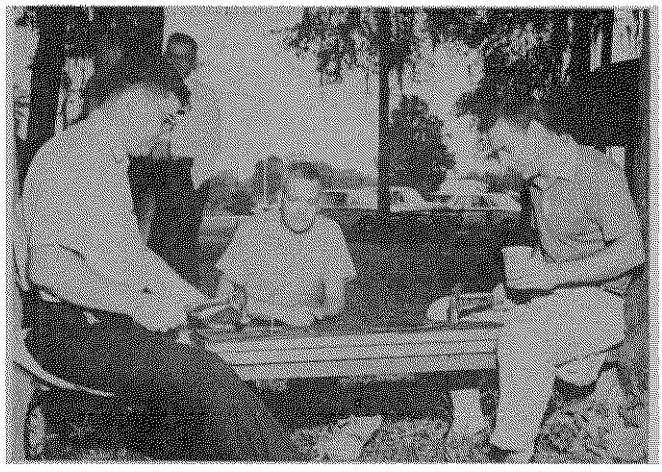
The Outing has been a favorite LES function for many years, allowing members to get together for a day of relaxation and socializing.



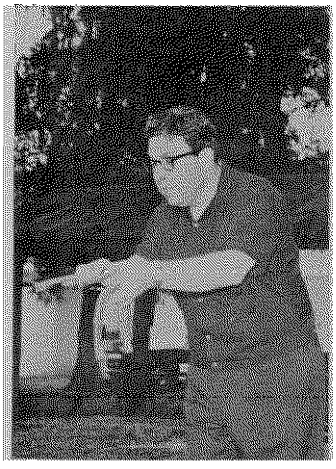
FACING THE firing line with grim determination at the dart-throwing contest are (left to right) Jack Perrault, Herman Schluter, Clyde M. Badon and Leo Bankston while W.A. Wintz keeps score.



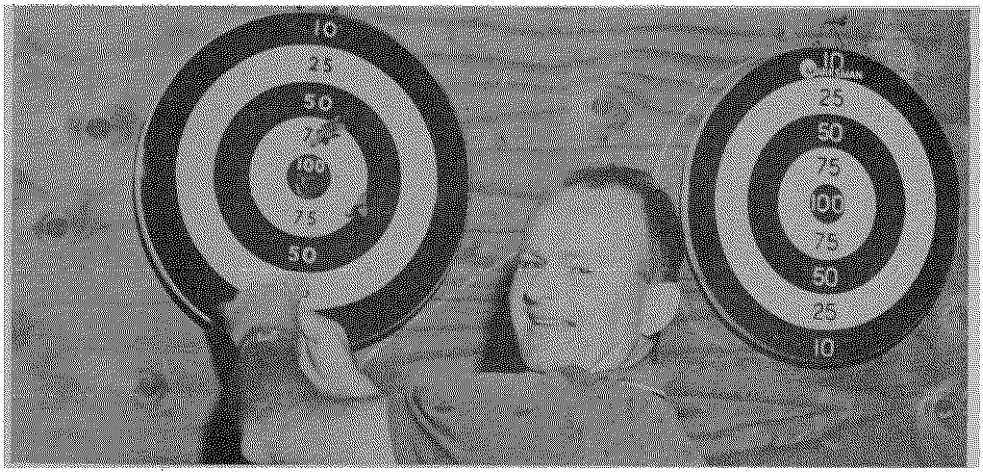
CHARLES HAIS lines up his sites on the horseshoe pitching range while T. J. Hougue patiently awaits his turn.



THE NAIL driving contest drew many enthusiastic participants, all waiting their turn to drive the subject home.



EASY DOES it, K. Thomas seems to be saying as he concentrates on a ringer in the horseshoe pitching contest.



PAUL WANSLEY, JR. checks his score at the dart target and seems pleased with the result. Not quite bullseyes, but they were mightyclose.

Two NOPSI Executives Elected To Board

CUCULLU

GUILLORY

Two veteran New Orleans Public Service executives, Lionel J. Cucullu and J. Mason Guillory, both vice-presidents, were elected members of the company's board of directors at the annual meeting of stockholders May 25.

The two newly-elected directors have both been with Public Service for more than 30 years. Both are Life Members of the Louisiana Engineering Society, Guillory having been so honored at the 1964 Annual Meeting in Lafayette.

Mr. Cucullu, a native of New Orleans, joined the company in 1930, three years after he graduated from Louisiana State University. His first assignment was sales engineer and he continued in sales engineering work until 1934, when he was named power engineer. He became assistant to chief engineer in 1941, chief engineer in 1951, and was elected vice-president in 1953. He has executive responsibility for the operations of the Electric Power, Electric Distribution, Gas and Engineering Departments.

He is a trustee of Southwest Atomic Energy Associates and of High Temperature Reactor Development Associates, utility groups active in the nuclear power field. He is also a member of the Atomic Industrial Forum.

Active in engineering groups, he has served the American Society of Mechanical Engineers as chairman of the New Orleans Section and national director-at-large. He was elected a Fellow of ASME in 1963. He is a past-president of LES and was awarded its certificate of distinguished service in 1954. He is also a member of the Instiute of Electrical and Electronic Engineers, Tau Beta Pi honorary engineering society, the Rotary Club, and several other organizations.

Mr. Guillory has been with New Orleans Public Service Inc. since 1931, was educated in the public schools of New Orleans and at Tulane University, where he received a degree in mechanical and electrical engineering in 1928.

His work with New Orleans Public Service Inc. has included assignments in all phases of its commercial and industrial sales operations. He was manager of the Industrial and Commercial Sales Division from 1942 until

(Continued on Page 17)

Dickey Clay Holds Annual Meeting

The W. S. Dickey Clay Manufacturing Company recently held its annual engineering meeting in Pittsburg, Kansas, location of the company's laboratory and one of its plants. Nine field engineers from six Dickey plants, management personnel, members of the Research Department, and executives from the company's Kansas City office attended the two-day meeting.

During the meeting, Paul Friley, president, Joe Mason, vice-president and general sales manager, and Elmer Ligon, vice-president and director of research, and other management and engineering personnel lead discussions and reviews of the entire engineering program. Planning sessions were also held to make the program more effective during the coming year.

Dickey's field engineering program started in 1953 with one man who worked in the Texarkana, San Antonio and Kansas City territories. The program has grown to include eight field engineers in general work and one engineer who devotes full time to the coupling program.

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ENGINEERING USES OF COMPUTERS

By DR. JAMES R. OLIVER
Dean, Graduate School &
Director, Computing Center
University of Southwestern Louisiana

In primitive days man had only one of everything—one horse, one cow, one wife—and there was no need for mathematics. But then man became greedy and acquired more horses, more cows, and more wives. The only way he could tell how many of them he had was to get them all together in the same room and count them on his fingers. This was alright with the horses and cows, but when he got all of his wives together in one room he ran into trouble! So he drew some crude symbols on the wall to represent them instead, and that is how arithmetic was born.

Gradually man acquired so many horses and cows and wives that he could not count them on his fingers, so he invented addition. Then when he decided he had better get rid of some of his wives (he kept his horses and cows) it became necessary for him to invent subtraction. Meanwhile, his family was multiplying, which led to multiplication. Sooner or later his wife's mother, and her brother's folks from the cave on the other side of the hill, a couple of cousins from across the river, and a couple of sons-in-laws, who weren't working, all moved in with him and divided up his possessions, so he invented division. Thus did man begin our modern system of mathematics and life hasn't been the same since!

Actually there are two systems of mathematics used today: the system man uses and the one his wife uses. Woman's mathematics differs from man's in that there are no round numbers and everything is expressed in terms of $4.49 or $9.98. In addition, any amount over two figures is automatically charged to her husband. What makes this system obscure, at least to man, is the fact that it is based on feminine logic. For instance, if a woman sees something in a store that is on sale at half price she always buys a second one because that way she gets the first one for nothing. To cite another example of female reasoning: a husband gives his wife $20 to buy a new hat and she sees the hat she wants for $17.00, so she saves him $3.00 right there. Now please follow this reasoning carefully. While she is buying the hat, she sees a coat to go with it, which is marked down from $40 to $23, a reduction of $17. Thus with the $3 she saved him on the hat, plus the $17 she saved him on the coat, her husband still owes her $20! To keep up with such high-powered calculations as these, man's mind has come up with a machine to do his thinking for him. The invention of the high speed computer has relieved man of routine mental chores and given him free time to think of other things.

Within the past 20 years, mankind has witnessed three really important breakthroughs in science and technology. These breakthroughs are considered to be of major importance because they alter the living habits of man and, directly or indirectly influence the lives of each of us. These three major breakthroughs are space travel, nuclear energy and computers. I have purposely listed them in the order given because the order indicates a dependence on each other. The first listed is space travel, which certainly depends upon computers and probably will require nuclear energy to negotiate the vast distances between even the nearest heavenly bodies. Without computers and nuclear energy, space travel would today be doomed to very small and ineffective experiments. Next is listed nuclear energy, which could be developed without space travel, but not without computers. In fact, the use of computers in the study of nuclear structures, as well as in the construction of nuclear devices is extremely important. Finally, I have listed computers as the most independent of the three major breakthroughs. That is to say, although computer development has been influenced by the other two, computers could have developed without any dependence on them.

I indicated that my reason for selecting these three major contributions of science and technology was the effect it would have on our lives. The order which I presented also indicates the number of individuals who are or will be connected with each of the three. First, space travel will probably be of direct concern to a limited number of individuals. It is true, of course, that a great many people are connected with *construction* of devices for use in space travel, but those actually concerned with the actions of space travel are somewhat limited in number. The second breakthrough listed involves a greater number of individuals than did the first. It is already true that quite a number of individuals have been influenced in some way through the use of one or another of the various nuclear phenomena. Finally, however, by far the greatest number of individuals will be influenced by the use of computers. Not only are individuals actually concerned with operating computers involved; already practically every person in this country has had some contract, direct or indirect, with the computer.

There are probably several other ways to emphasize the importance of computers, but we will not dwell on that subject an unreasonable length of time.

Use of the terms "computing" and "computers" is probably not entirely appropriate. Instead, I feel we should use "information processing" and "information processors". For it is quite true that at the present time, computers are being used for many operations which do not involve computation in the ordinary sense of the word.

However, for the sake of indicating the speeds of operation of computers, it is desirable to refer to numerical calculations. In this way we are considering well known processes with which all individuals are familiar to some extent. Let us consider for a moment the increase in speed of numerical computations which has come about within the past few years. Consider the time just before 1940 when computers were merely a dream in the minds of a few individuals. At that time two ten-digit numbers could be multiplied together in a time somewhat in excess of one second. At the present time, however, it is not too difficult to find a computer which can perform the same

operation in less than 10 microseconds—ten millionths of a second. Note that this reflects an increase in speed of approximately one-hundred-thousandfold. Now just exactly what does this sort of speed increase mean?

If we relate the increase in speed of computation to the increase in speed of transportation, we will be somewhat surprised at the comparison. For we have become accustomed to citing the tremendous difference when comparing speed between the walking individual and today's jet plane or space satellite. This evolution in the speed of transportation occurred over a period of several hundred years. Nevertheless, the increase in speed of a jet plane which can travel at 600 miles per hour over a human who can walk at perhaps 5 miles per hour is merely a 120-fold increase in speed. Even today's space satellites, which orbit the earth at nearly 20,000 miles per hour are travelling only about four thousand times as fast as man can walk. In other words, for the speed of transportation to increase as much as speed of computation, man would have to travel at 500,000 miles per hour! This speed would allow him to travel completely around the earth in three minutes. Another way of illustrating the same thing is to think in terms of a compression of time. In our example, a one-hundred-thousandfold compression of time would mean that the events of an entire year would last approximately five minutes. And as you have probably surmised, far greater speeds of operation will be possible in the not too distant future.

Along with the tremendous increase in speed of computation, there has occurred a corresponding decrease in cost per computation. It is far cheaper for each computer operation at the present time than when computers were first constructed approximately 20 years ago. To put definite figuers into the discussion, it is estimated that the cost of operation is down nearly two-thousandfold; that is, it now costs approximately 1/2,000th as much to perform a given piece of computation as it did 20 years ago. Again, what does this mean in practical examples? Suppose the cost of automobiles were reduced in the same proporation as the cost of computing. That would mean that when driving downtown, you would probably not bother seeking a parking place, but instead you would junk your car and purchase a new one when ready to return home.

I will be talking with you today concerning three important aspects of computers. These are: (1) computer design and construction; (2) communicating with the computer; and (3) applications to fields of engineering. I will restrict my remarks to digital computers, since they are used more for general purposes than are analog computers. However, some indications are that hybrid digital-analog systems will be of great significance in the future.

This portion will deal with computer design. While it is true that electrical engineers and others concerned with the development of new hardware in computers have generally been able to produce machines to meet any specifications requested by users, it is quite likely that for some time to come many individuals will be needed to continue the development of computing machines. That is, it is unlikely that we are anywhere near the ultimate in computer capabilities. On the contrary, we see signs that computers of tomorrow will make the devices being used today appear obsolete. As is the case with most scientific and technical discoveries, the rate of increase of computer developments is itself increasing.

These statements are true in spite of the fact that we are at the present time not *beginning* to use the full capabilities of computers. I think the latter is partly true because those of us who are presently in the computer field have become educated in this new discipline after first receiving our education in another field. I am of the opinion that those who "grow up" with computers will have a much better opportunity to contribute to the art than we have had because they will be able to tackle this field without any preconceived notions about how computers should be operated. As Dr. George Forsyth of Stanford University says, "The future of computer science will depend on people who have not yet made their contributions." A favorite statement of mine is that the utilization of computers is limited only by the imagination and ingenuity of the users.

As you are probably all aware, the computer is a very fast, very accurate, very powerful, but very stupid machine. It possesses absolutely no basic intelligence and its I.Q. would be rated at zero, according to our standards. As a consequence, it is necessary that instructions be given to the computer for every step in the solution of a problem. You can, therefore, see how important the subject of communicating with the computer is.

At one level we encounter the need for computer programmers. Every computer installation has need for programmers—those persons who actually produce the instructions which the computer utilizes in the solution of its problems. Such persons can be trained by industry, but this training is generally quite narrow. Many individuals who are trained by companies are able to program rather well the routine type of problems which that particular company uses, but are quite lost when faced with different types of problems.

Generally, the programmer knows how to prepare instructions but he may not know much about techniques to be used in the selection of a particular program. Quite a number of programs cannot be solved—at least not effectively—through the use of the commonly known and used techniques. Furthermore, the solution of problems frequently involves restrictions which are not immediately evident. Numerical analysts are individuals who take a problem from its very conception by the person desiring its solution and break it down into its various parts, thus allowing the programmer to prepare instructions for the machine. Generally, few of these persons are, or can be, trained by industry, but must instead receive a rather high degree of formal education at the college or university level.

For computers to be able to solve any problem at all, instructions must be given specifying the steps involved in solving the problem. As mentioned earlier, it is absolutely necessary that some form of communication be established between computers and men. This form of communication utilizes what is called a computer language. Computer languages may be of several types, but they are generally classified in three ways: machine, symbolic, and automatic programming languages. The first named

is a computer oriented language and it is generally a function of the circuitry involved in computer design. The last named is a human oriented language— the other is a hybrid with characteristics between those of the two. In these cases it is necessary that the languages be constructed by individuals specializing in these fields. At the present time there are several excellent computer languages in use. FORTRAN is presently the most popular automatic programming language and most scientific users (and some business users) utilize it in writing computer programs. However, because of a proliferation of such scientific automatic programming languages an attempt was made a few years ago to design a new universal language—ALGOL. At the present time ALGOL is not used extensively (at least not in this country) but there are indications that it will be used more in the future.

Throughout my travels and speaking engagements I am made constantly aware of the need for such language specialists and the extreme shortage of training programs at colleges and universities. For that reason we at the University of Southwestern Louisiana have just instituted a master's program in this area of interest—few exist anywhere in this country.

As the use of computers expands greatly (and we certainly expect that to happen), it becomes quite obvious that new computing center directors must be educated. Many of us who at the present time are directing university computing centers have undertaken these jobs mainly by default because of our interest in computers and a desire to get computing centers operating on our campuses. We have been willing to undertake the task of establishing and operating them without any significant previous experience in the field. As a result nearly all of us have run into pitfalls which should be avoided by future computing center directors. It appears to me that an important obligation of colleges and universities is to produce such computing center directors as may be needed in the near future.

In that connection we at the University of Southwestern Louisiana have had on our campus during August, 1962, and August, 1963, conferences on digital computers sponsored by the National Science Foundation, having the specific purpose of educating future computing center directors. As far as we are able to determine, such conferences were extremely successful since I already know of approximately a dozen conference participants who now have computers on their own campuses.

For the next few moments I would like to proceed to a discussion of a few computer applications in the fields of engineering. Please keep in mind that these are a limited number of applications and that the list is not intended to be exhaustive or even representative. As you observe some of these uses of computers I hope you will be impressed with the wide variety of operations which can be performed by a computer.

A computer system is used for recording temperature and pressure for meteorological purposes on a 1400-foot television antenna tower. The antenna is located near Dallas, Texas. The system is desgined for automatic data sampling, averaging and recording. Data are ordinarily taken and averaged over approximately ten minutes spans. The reduced temperature and pressure readings are available to government agencies through the National Records Center.

The use of general purpose computers for simulation increases daily. An IBM 7090 was programmed to study many of the implications of specific automatic routing policies and relative load variations in model communication networks. The cost function is assigned to the model and a performance measure is derived which satisfies several of the design criteria an engineer might place on a network. The study included that of small networks which might form basic building blocks of larger structures.

In another case early reports of defects during the assembly of a complex product like an electric typewriter are obtained through the use of an on-line computer. Defect data are entered directly into the computer from the assembly area, alarm messages are issued by the computer according to pre-determined quality control limits. Daily and weekly reports are easily obtained as a by-product. An up to the minute report can be obtained summarizing overall quality performance upon an inquiry to the computer.

A computer analysis, in another example, is made of effects produced through the loss of coolant accident in the primary system of a multicircuit core nuclear power plant in the event of a complete severance of a pressure loop or non-nuclear explosion. The analysis is divided into two main parts—steady state and transient. In this case the computer was used for a time expansion. In this example, the computation time on an IBM 7090 required to analyze the problem for a duration of 25 seconds real time is approximately 16 minutes.

One of the difficulties in analyzing explosive reactions is the inability to halt them once they begin. Using the computer as a control device, however, we may have such a rapid control device so as to be able to make changes quickly enough to operate on the threshold of an explosion.

The simulation technique is used for many different kinds of systems. In some cases computers have been simulated by other computers. Recently it has been determined that a better design for computers can be effected by means of computer operation.

Since I do not have sufficient time, I will merely indicate the titles of a number of different engineering applications of computers. The titles should suggest the problem to be solved to those who are knowledgeable in those fields.

Numerical control of machine tools.
Scheduling operations involving people and/or equipment.
Analysis of aerial surveys and exploration.
Distillation tower design.
Equilibrium flash calculations.
Heat exchange calculations.
Pipe stress analysis.
Electric, gas and water distribution networks.
Pipeline design.
Power plant control.
Transmission line design and losses.
Airframe stress analysis.
Flight simulation.
Satellite tracking.

Process simulation and control.
Bridge design.
Highway profiles.
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Reactor design and evaluation.
Power plant monitoring.

I could go on and on illustrating many different applications. What is important to us today, however, is how this will affect each one of us—educator, student, practicing engineer.

All of us must face the fact that here is a new revolutionary way of doing things. Our concepts and techniques must be changed when the classical ones fail to serve the purpose. We must use the computer for things it can do best—processing information.

To illustrate these new techniques we need only remember that we have been accustomed to emphasizing manipulations and reducing computations. An example of how things are done differently today involves the use of trigonometric functions in computer operations. Our classical way of obtaining a numerical value for a trigonometric function has been to thumb through tables looking for the proper numerical value, without doing any computations. The computer, however, does not store the trigonometric tables, but instead actually computes the numerical values each time it needs them.

At the present time we would generally decide upon the usefulness of an audio amplifier by designing the amplifier, then constructing it and testing it. However, at Bell Telephone Labs a computer has been used to simulate amplifiers. Very briefly, the sound to be amplified is placed on magnetic tape in the analog form. An analog-to-digital converter is then used to digitize the sound and convert it into numerical values. A computer program operates on the digital information according to the characteristics of the various components to be used in the amplifier. The computer output is then converted to the analog form with a digital-to-analog converter. Finally, the result is played back to determine the effect of using those particular components and that special amplifier design.

In summary, we might say that the student of today must be exposed to computers. This means, of course, that educators must learn to use them, too. Students must be trained to accept and even try new approaches in the solution of problems.

The parcticing engineer must know how to design experiments to make use of computers. He must know what data are needed and how to obtain the data more rapidly than formerly. He must be somewhat aware of the reliability of the data which he has obtained. He must be able to evaluate his results and determine when new procedures must be investigated. He must be interested in more imaginative procedures. He must recognize that he will receive faster feedback because the answers are more rapidly produced.

All of this points to the fact that a revolution is upon us—are we ready for it? Or will we let it pass us by?

A few years from now a much better talk than I can give will be produced by a properly programmed computer. The program will read, "Our program for today will be 'The Role of Computers in Engineering Education' by Multivac 70809010. . . ."

The computer speech will be really interesting. It will have unity, coherence and emphasis. It will meet all the requirements of public speaking as listeners like it. The humor and jokes contained in this speech will have a mathematical probability of at least 99% of not falling flat. Such a speech will not have any terms in it that are strange to most of the audience, so the audience will not get lost. The talk will conform to all of Parkinson's Laws and Murphy's Laws. At the same time it will take into account what the audience already knows and it will not be guilty of unnecessary repetition or stupid cliches.

In fact, instead of a single speech to a whole audience, the computer will provide multiple simultaneous speeches for various segments of the audience. In front of each member of the audience will be several small dial switches. One will be marked "Speed Control" with positions labeled "You're going too fast" and "You are going too slow." Another switch will be marked "Understanding control" saying, "Yes, yes, I know all that. Please come to the point," and "You're way over my head. Please start over and explain." A third switch will be marked "Boredom Control" with positions marked "You are being mildly interesting—keep it up," and "You are boring me to extinction—please become lively."

I look forward to the time when a computer will be making speeches at meetings. I think of the poor speeches produced by human beings that I have listened to and realize that in the future, if I live long enough, I will listen to uniformly good speeches produced by computers. But until that time, you will be forced to listen to speakers like me. I am able to recognize, however, that those of you who are still awake are reaching for the switch marked "You've talked too long—please shut up." So I will pretend that you have pulled the power cord and shut me off completely.

The above address was delivered by Dr. Oliver before the 1964 LES Annual Meeting in Lafayette.

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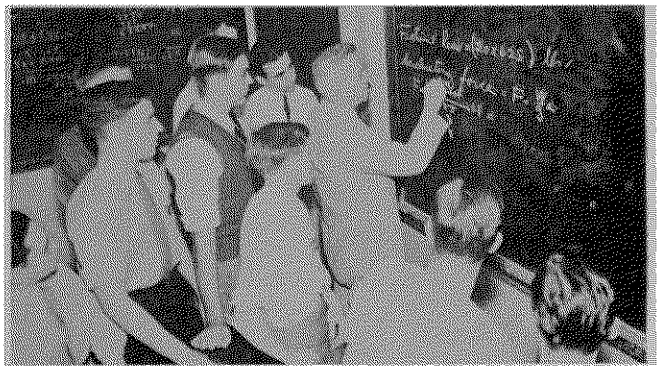
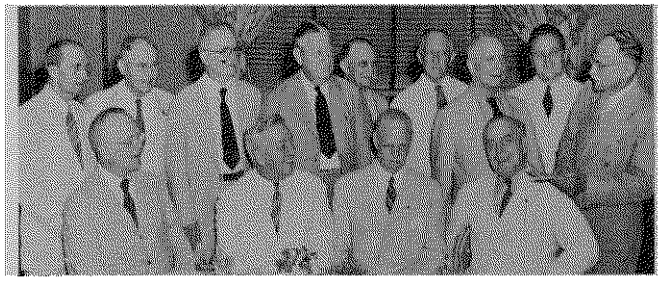
A proposal to make the metric system official in the United States would be studied under a bill currently under consideration by the Senate Commerce Committee. (S. 1278). The measure, introduced by Senator Pell of Rhode Island, would authorize the Bureau of Standards to make a three-year study of the plan's feasibility. At a cost of $750,000, the Bureau would head up a broad survey to determine the cost of a switch to the metric system, and its potential benefits.

LES, ASME, ASHRAE, Former Students Mourn Death Of Dean Robert

THROUGHOUT HIS life Dean Robert played an active role in professional societies. A past president of LES (1924), he was also a mem- of the American Society of Mechanical Engineers. Above, he addresses an ASME meeting in 1948.

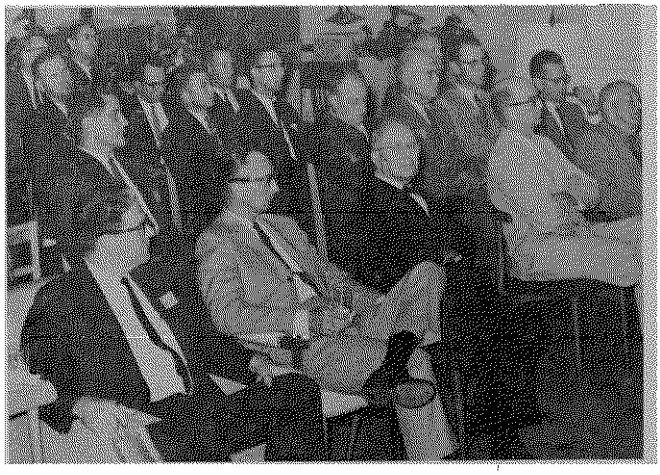


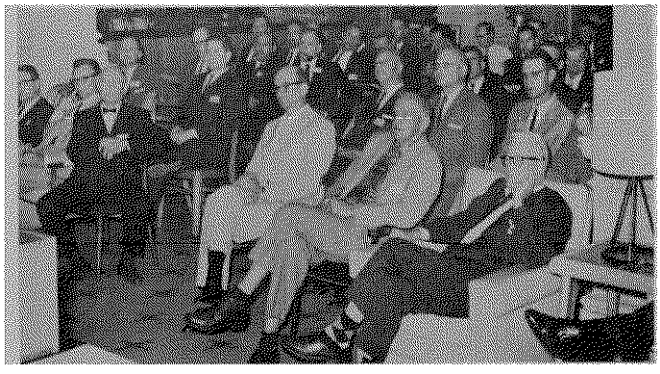
THIS EARLY photograph shows Dean Robert in a familiar pose, explaining a basic engineering problem to a group of Tulane engineering freshmen.



DEAN ROBERT attended the 50th anniversary luncheon of the Tulane class of 1891 held at the Roosevelt Hotel in New Orleans in June, 1941. Standing (left to right) are: Unidentified, Gervais Lombard, A. S. Hero, Dr. E. A. Jurgelwiez, W. B. Reed, unidentified, Dr. Hermann Gessner, Kendall Cram and H. J. Malochee; Seated (left to right), C. Robert Churchill, Dean Robert, William von Phul and Dr. Erasmus Fenner.

DEAN ROBERT presents a "diploma" to Mrs. Ed Reed while her husband and small son look on. The "diploma" was one presented to wives of engineering graduates proclaiming them "Masters of Patience in Husband Engineering" at an engineer's dance in 1949.





MEMBERS OF LES, ASME AND ASHRAE, many of them former students of Dean Robert, were present at a recent meeting of LES when secretary-treasurer John P. Fernandez announced the dean's death. The meeting paused to observe one minute of silence.

Gen. Whipple, Lorson Address LES

"Total Energy Concept" was described at a recent meeting of the Louisiana Engineering Society at the Engineers Club in New Orleans by Gen. William Whipple, Jr., chief engineer of the New York World's Fair and Richard H. Lorson, president, Energy Corporation of America.

Gen. Whipple, a West Point graduate, received a Rhodes scholarship and studied economics and politics for three years at the University of Oxford. During World War II he was chief of logistical plans at Supreme Headquarters Allied European Forces (SHAEF). He subsequently served as secretary general in the U. S. occupation headquarters in Germany under General Lucius Clay.

He served as chief for the Army Corps of Engineers, Southwestern Division, from 1958 through 1960, where he contributed largely to an engineering re-analysis of the complex problems of the Arkansas River.

During his Army career he received the Legion of Merit, two oak leaf clusters, the Officer of the British Empire (OBE) and the French Legion of Honor. He is an author of numerous articles in engineering and military journals.

Prior to the formation of the Energy Corporation of America in 1964, Lorson was executive vice-president of the New York Supply and Inspection Co. In this position he obtained and served such clients as Rockefeller Center, Inc., the Pan American Building, the New York Daily News Building and the New York World's Fair 1964-1965 Corporation. His efforts in utility cost control resulted in extensive analytical studies of projected electrical operations for these and many other companies.

As chief executive officer of the Energy Corporation of America Lorson directs all phases of operation from preparation of customer analyses to arranging financing for total energy projects.

Many members of ASME and ASHRAE attended the meeting by invitation.

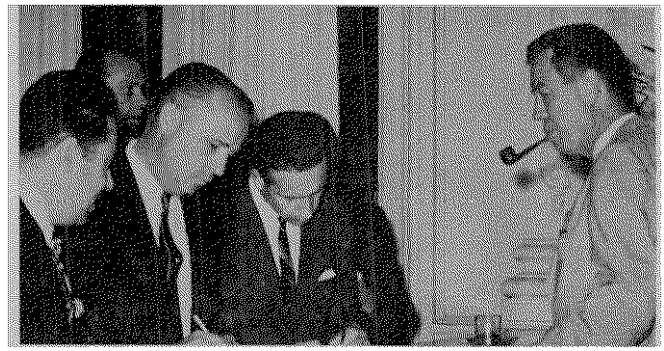
Announce Dean's Passing

LES President John T. Knight, Jr., presided. John P. Fernandez, secretary-treasurer, interrupted the meeting to announce the death of James R. Robert, dean emeritus of Tulane University's College of Engineering and a faculty member of the university for 44 years. Many members of LES, ASME and ASHRAE present at the meeting had been students of Dean Robert. One minute of silence was observed.

Dean Robert, a resident of Waveland, Miss., since his retirement in 1950, expired after a brief illness. A native of St. Paul, Minn., he received his bachelor's degree in mechanical and electrical engineering from Tulane in 1906.

He served as secretary of LES for 11 years, becoming vice-president in 1923 and president in 1924. For many years he served as editor of the Proceedings of LES.

A member of ASME since 1920, Dean Robert served as chairman of the New Orleans Section in 1923-1924, and was one of the managers of the national chapter from 1943 to 1946.



RON SANTOS (far left), sales manager for Louisiana Gas Service Co., escorted guest speakers Maj. Gen. William Whipple, Jr. and Richard H. Lorson to a recent meeting of LES.

Dean Robert was a member of the American Society for Engineering Education, vice-chairman of its Southeastern Section in 1937 and 1938 and chairman from 1938 to 1939.

In 1935 he was appointed acting dean of the College of Engineering at Tulane and from 1936 to 1950 served as dean.

At the time of his death he was a member of the Port Commission of Hancock County, Miss., and a trustee of the Christ Episcopal Day School.

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(Continued from Page 11)

1952 when he became Director of Advertising. In 1955 he was elected a vice-president, in which position he has executive responsibility for the Transit and Community Relations Departments.

He is a past chairman of the New Orleans Chapter of the Illuminating Engineering Society and was a regional vice-president of the national organization. He was chairman of the Sales Executives Council of the Chamber of Commerce in 1952, and chairman of Members' Council, Chamber of Commerce of the New Orleans Area and Second Vice-President of the Chamber in 1956 and 1957. He is past president of the New Orleans Chapter of the Public Relations Society of America, Inc.; a past member of the Executive Committee, Tulane Alumni Association; and past-president of the Better Business Bureau of the Greater New Orleans Area, Inc. He is General Chairman of the 1964 campaign of the United Fund for the Greater New Orleans Area, and a member of the board of directors of International House and of the board of trustees of the Crippled Children's Hospital. He is on the executive committee of the Greater New Orleans Tourist and Convention Committees. He is also a member of a number of New Orleans civic, trade and professional organizations.

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Hurley Named G E Manager

John F. Hurley has been named Manager - Technical Marketing Program for General Electric, according to an announcement by Robert A. Cliff, Manager - Industrial Sales Administration Operation. Hurley replaces Earl G. Abbott.

PREPARING TOMORROW'S ENGINEERS

By T. J. FUSON, Area Manager
New Orleans Area
Southeast Esso Region
Humble Oil & Refining Company

This paper was read by Mr. Fuson before the Louisiana Branch of the American Society for Engineering Education at Northwestern State College, Natchitoches, La. on March 6 1964.

As an engineer who has spent the last 30 years in the petroleum industry, it is somewhat startling to me to view in retrospect the dramatic changes that have occurred in the engineering field. Technological advances have occurred at such a rapid rate that the engineering profession has become extremely diverse, highly complex, and increasingly more specialized. In the petroleum industry technological advances have fostered new and improved engineering applications involving reservoir engineering, refining processes, systems engineering, and many other areas of engineering.

In conducting our business, we depend on our engineering staffs to provide the technical support that translates these changes into more effective operating procedures; improved tools for the drillers, refiners, explorers, and transporters; and finally, new fuels, lubricants and other products.

The engineer's contribution is important to the growth of our organization and his training and education are of vital interest to us. Let us attempt to identify what is needed if we are adequately to prepare tomorrow's engineer.

QUANTITY—THE SHORTAGE OF ENGINEERS

In some respects, the future number of engineers is the most immediate problem. There are alarming statistics that reveal a significant downward trend in engineering enrollments. According to the Engineers' Joint Council, the percentage of freshman enrollments in engineering, as a percent of total college freshmen, dropped from 10.8% in 1957 to a little less than 6% for the fall of 1962. While college enrollment is skyrocketing, there is a severe downward trend in the number of engineering graduates. According to the U. S. Department of Education, from 1950 total college enrollment increased from a little more than two million students to approximately four million in 1962. However, during the same period engineering baccalaureates fell from approximately 53,000 to 35,000—a 33% decrease. Enrollments should reach seven million by 1970. The trend seems to continue.

How many engineers in the future? Prospects for the future do not appear to be bright. The Engineering Manpower Commission estimates that an average of approximately 37,000 engineers will be graduating each year for the next decade. The Commission also predicts that 48,000 engineers will be needed by industry each year.

One of the challenges facing colleges and universities is to determine if more of the increasing number of college students are qualified and have the aptitude to pursue careers in engineering. Unless positive, constructive action is taken by the schools and industry, we will continue to experience a critical shortage in engineering manpower in the United States.

EFFORTS BY THE SCHOOLS

The career-guidance program in colleges have often been valuable to new freshmen. These programs at the secondary school level and college level are an essential part of our educational system.

A recent report by the Engineering Manpower Commission suggests that high attrition rates in the engineering schools cause students to become disillusioned about engineering.[1] This disillusionment is one of the principal causes of declining freshman enrollments. A special subcommittee headed by Dr. Arthur B. Bronwell, Dean of Engineering, University of Connecticut, reviewed the problem and submitted proposed remedies which warrant consideration.

The subcommittee's recommendations basically involve the areas of pre-selection and guidance, assistance during the first year, and identification with the profession.

In the first area, it was suggested that more effective pre-selection and guidance programs be developed to reduce the number of weaker students, and that new experimentation be carried out on more effective counseling methods.

Greater curricular flexibility during the freshman year was proposed to take into consideration variations in the student's academic background. This would aid the conscientious student who might have difficulty in adjusting to course study. The report also indicated a need for a positive program of tutorial assistance to help students over the initial hurdles.

The Committee also concluded that additional work needs to be done with engineering freshmen and sophomores to develop a sense of identification with the profession and a feeling of pride in being an engineer.

EFFORTS BY THE INDUSTRIAL COMMUNITY

In our company's college recruiting program, we find evidence that substantiates a need for some of the suggested remedies outlined in the Committee's report. Our interviewers are often surprised at the student's concept of how an engineer functions in an industrial organization. During the last college recruiting year, our company's interviewers talked with over 9,000 college applicants. Of this total, more than 5,000 were to be engineering graduates. Many of these students frankly admit a real lack of understanding of how the engineer functions in a company—or what he will be expected to do as an engineer.

We, like many other companies, have tried to remedy this shortcoming through programs that help portray the scope of the engineering function to college faculty members, placement offices, and the student body.

Our company welcomes opportunities to have company representatives meet with student engineering societies, seminars, and other student groups in an effort to provide information on the engineering profession. Such meetings provide an effective medium for the exchange

of ideas between students and company representatives. At the high school level, company representatives are available to explain the various career opportunities that the petroleum industry has to offer.

Our efforts are also directed toward informing university faculties and placement offices of the responsibilities placed on our engineers. Through such efforts we try to bring the basic characteristics of the engineer's role in industry closer to the educators. We think these activities serve a useful purpose by helping define the role of the engineer in industry so that the educators can then determine what should be emphasized in the classroom.

QUALITY—EDUCATING THE ENGINEER

What kind of education will be required to prepare tomorrow's engineer?

Any review of present day engineering education must take cognizance of certain controversial issues facing today's engineering educators. The real impact of these issues was recently brought sharply into focus by Dr. Maurice Biot, when he received an award from the American Society of Mechanical Engineers in New York for 'distinguished service or achievement in science or engineering."[2]. In his acceptance speech, he reminded the group of the doubt that has been expressed about the engineer's function in our increasingly complex technological culture. This doubt he said has prompted rather blunt questions: "Is the engineer obsolete?" "Should he be replaced by the scientist?" According to Dr. Biot, these questions find "a respectable echo" in this country.

Further echoes of this position are reflected in a trend toward emphasis on science and math at some of our outstanding engineering schools with a concurrent de-emphasis on traditional engineering courses. For example, the Electrical Engineering Department at a well-known engineering institution recently discontinued its power plant design courses and abandoned its DC machinery. This university now requires the electrical engineering student to master more of the basic science courses in his early college training. This curriculum change represented one of the first major shifts in engineering education—and only a major engineering school could have successfully made such a transition. Other schools have adopted the approach in their chemical, civil and mechanical engineering courses. Other colleges have established both "Science-Engineering Degrees" and "Engineering-Science Degrees," and the trend toward science and math appears to have gained substantial impetus in our schools.

However, this change to more emphasis on science courses did not appear to meet with widespread agreement in the engineering schools. Educators from schools of equal stature regarded the trend toward engineering science as "unfortunate" or even "dangerous." These educators pronounced the mastery of science secondary to the engineer's role. The June, 1963 issue of INTERNATIONAL SCIENCE AND TECHNOLOGY in an article entitled "Educating the Engineer," by David Allison, Associate Editor, quotes one dean of engineering as wanting his engineer candidate

> "to demonstrate his ability to synthesize optimally, to use his resources economically. Once he has learned this, once he appreciates that this is the nature of his contribution, then we think he will master all the science he needs. But if he wants only to master the science and contribute to it—but not use it—then we think he ought not call himself an engineer."[3]

In addition to the controversy over the emphasis on science in engineering, another rather fundamental change in the engineering schools involves placing more stress on design courses. Some engineering schools have taken the position that design is the real core of engineering and should be taught at all levels. As a result, there has been more emphasis on design; and new design courses are now in evidence at many schools as well as research programs in design techniques.

The real question is not whether the scientist will replace the engineer or whether the engineer will become a designer but rather how can we better prepare tomorrow's engineer to interpret scientific findings and apply them to the needs of man? The educators must weigh the need for more science or design work and strike the optimum balance. Industry will continue to need the engineering talent that will synthesize new and better products from scientific findings for the needs and prosperity of mankind.

PROFESSIONALISM, OBSOLESCENCE, AND SPECIALIZATION

There are other areas of controversy that bear on the problem of preparing tomorrow's engineer. One area involves specialization—how specialized should engineering be? The question seems never to have been resolved. Several colleges have recently abandoned their distinction on engineering degrees and have established a Bachelor of General Engineering. Some schools have moved in the other direction and the Engineers' Council for Professional Development has approved approximately 50 different kinds of engineering disciplines, including welding, textile, and environmental health engineering.

Should the graduate be a generalist or a specialist? Perhaps the answer lies in between, as some experts suggest. This solution, of course, would deprive us of both specialists and generalists. A valid answer, then, may be a function of curriculum design and of the individual student's inclination. In our company, and many others, there is a market for generalists, for specialists, and there is also a market for the engineer who functions between these two extremes. However, the question of specialization must be answered because it too will influence the preparation of tomorrow's engineers.

The question of engineering obsolescence should be identified as a controversy of some importance. Some observers suggest that obsolescence often begins in undergraduate school. Others estimate that technological advances occur at the rate of 10% a year, while engineers "decay" or forget 10% a year. This would, they say, amount to an obsolescence rate of 20% per year. Whatever the true rate is, we are interested in insuring two things: first, that obsolescence does not begin before graduation; second, that the graduate leaves the campus with a desire to continue his own training.

Despite the progress being made, there still seems to be an aura of controversy around the concept of professionalism. How professional should an engineer be? How valid is the idea, "Once an engineer, always an en-

gineer, only an engineer." It seems reasonable to suppose that the proper amount of professionalization may not be at either extreme. Here again, this is a controversy of some significance since each engineer may have his own plan to which he very likely became committed while still in school.

EFFORTS BY THE SCHOOLS

The academic community can greatly assist in resolving some of these controversies if they will apply their best efforts to answering the following questions about their engineering graduates:

1.) Are they really creative? 2.) Are they able to communicate—talk, persuade, explain, write reports, etc.? 3.) Do they understand how corporations function? Do they have any organizational savvy?" Do they have a realistic idea of what a staff man is and how he operates? 4.) Are they professionalized to the optimum degree? 5.) Are they specialized to the optimum degree, each according to his own talents? 6.) Are they really up to date on the latest developments? 7.) Are they prepared seriously to continue their own self-development? 8.) Are they psychologically equipped to identify with the company and reconcile their goals with those of the corporation? 9.) Are they willing to work? 10.) Have they developed the optimum kind and amount of knowledge, understanding, attitudes, and skills that will insure the behavior or performance which will be most mutually beneficial to them and their employers?

EFFORTS BY THE INDUSTRIAL COMMUNITY

In the area of training, industry is making important in-company efforts to develop engineers. Many companies train individuals and groups in diverse technical and non-technical subjects ranging from chemistry to creativity to management to rapid reading to economics to what's-new-in-science.

Many companies have job rotation programs which, to a greater or lesser degree, are planned and systematic. Job rotation sometimes is more of a trial-by-fire period than a training effort, but does represent another attempt by the industrial community to broaden engineering skills.

Performance appraisal and review programs are often carried on routinely. Some of these are formal systems and others involve informal on-the-job coaching. In either case these programs require evaluation of the engineers' skills and some of the newer appraisal programs entail goal-setting sessions with periodic reviews.

Grants made by company education foundations provide significant contributions to accredited colleges and universities throughout the country. They provide some of the private support that the schools need in their endeavor to achieve excellence in their respective fields.

Educational aid to employees is another effort by companies to assist engineers. Many firms offer assistance to employees taking part-time school work, correspondence courses, or sabbaticals. Many companies provide educational leaves of absence without pay.

Industry, however, needs to consider educational aid to employees on a much broader scale. Some companies have programs that pay a portion of an employee's salary while on educational leave. Perhaps programs could be adopted that would provide paid educational leaves of absence for employees who are considered to have a high potentional for development within the company.

Companies are now placing increased emphasis on proper selection and placement of new engineers. Scientific methods such as selection tests, personal background measurements and questionnaires that can be scored, are all new and improved tools for employers to use.

Finally, one of the most important influences industry can exert is through liaison with educators. The importance of this item has already been stressed in terms of effective communication to help define the role of the engineer in industry. Close association by industrial representatives with the schools facilitates effective communication, and we sincerely want to communicate with those educators who are seeking answers to what industry needs in tomorrow's engineer.

INDUSTRIES' VIEWS ON ENGINEERING EDUCATION

Let us then turn to some of the views expressed by industrial corporations on the question of how industry evaluates the engineer's training and education.

Recently an affiliate of Standard Oil Company of New Jersey conducted a rather comprehensive survey of the views and ideas of 20 companies, including corporations like Dupont, United States Steel, and General Electric, on the current education of engineers.[4] The respondents were a representative group of experienced engineering supervisors and specialists from these industrial organizations. Although the graduate training of chemical engineers was of primary interest in the survey, the request for responses was not restricted. Comments on both undergraduate and graduate training of engineers in all disciplines were reported.

As might be suspected, the total responses were varied and represented a divergence of opinion on some points. However, there were areas where the comments reflected a pattern of general agreement.

One pattern of responses that clearly emerged was a plea from industry for more engineering and less science. As one respondent stated it, "Industry does not expect a scientist when it hires an engineer."

Another industry representative says that "Science can deal in the abstract; for example, mathematics is purely abstract knowledge. Work and effort is not engineering unless it is directed at the creation of a device, system, or product which proves itself to be technically sound and economically justified. When the engineer ceases to be concerned primarily with the tangible and material and economics, by definition, he ceases to be an engineer."

Another viewpoint which emerges from the survey is that industry recognizes that the scientist and the engineer are concerned with separate and distinct fields of endeavor. This position is illustrated by a respondent who stated, "The scientist and the engineer, each with mutual respect for the other's interest and capabilities, must work jointly at solving the impossible problem. Both are needed for us to go forward. The scientist is discovering facts; the engineer groups these discovered facts and applies them to the economical solution of a problem."

Another major thread running through the survey concerns industry's position that we may be overly concerned

with changes in curricula when we should be more concerned with changes in teaching methods. Perhaps this point was best illustrated by an educator commenting on this particular survey when he suggested that "emphasis on subject matter and curriculum carpentering is not really a major problem." This point of view was shared by a number of respondents who were more concerned with the professor's approach to the course than the course content.

Another area in which a general pattern of agreement emerges concerns a need for developing judgment, creativity, and analytical ability in the engineering graduate. Suggestions for improvement included problem solving sessions where solutions requiring engineering judgment could be evaluated by the professors from a viewpoint of practical application. Although developing creativity is a difficult project, respondents felt it could be acquired by students through more seminar-type programs and applications that stress creative thinking.

The ability to communicate orally and in writing was also mentioned by many respondents. This includes the ability to sell or communicate ideas and concepts to people. It appears to be of concern that many new employees are not aware that good writing and speaking are very important requirements vital to their success and professional careers.

RECENT GRADUATES' VIEWS

The foregoing represents some industry viewpoints on engineering education. It is also interesting to examine what recent engineering graduates who are presently employed with our company have to say about their engineering education. They were asked to suggest improvements, offer criticisms, or generally evaluate how they felt about their engineering education.

One of our recent graduates commenting on the objective of engineering education stated:

> "The overall objective of engineering education must be the development of individuals who understand how to approach a problem and work it through to a feasible solution. Almost any engineer is capable of analyzing a conclusion or method, but too few are able to synthesize a better method. In many areas of industry today, existing methods are approaching the limit of their efficiency. Engineers are challenged as never before."

Another young engineer in our company keenly feels the demands made upon an engineer and reflects that:

> "The engineer has one of the most difficult jobs in industry; he must join the links between theoretical science and management. Thus, he must be able to answer why, as well as how, when, and where. An engineering education should stress fundamentals, individuality, understanding—technical as well as sociological—and stimulate ingenuity. Intensive specialization should not be sought, except at the graduate level. The engineer should be versatile, possessing a general knowledge of economics, sociology, and psychology."

Another recent graduate stresses the importance of practical training in our colleges:

> "Engineers should be exposed more to the practical aspects during their college training than they are at present. This is especially true of the need for more training in economic fundamentals. Engineering could be combined into a general engineering category that provides training in engineering fundamentals. This training could be offered for four years, with a fifth year added to branch the engineer to the phase of industry that he would like to enter. The fifth year could be as practical as possible without making the individual feel that his technical training was useless."

These comments suggest that this group of engineers feel the need for sound fundamental training, characterized by practical application that will give them the background necessary to devise the new methods that industry requires.

In summary, we have approached the subject of preparing tomorrow's engineer by reviewing two major problem areas—the engineer shortage and the quality of engineers. Efforts by the schools and the industrial community in solving these problems have been reviewed and approaches suggested that might be helpful.

To those who feel the engineer is obsolete, our answer is that the need continues. There has been a substantial increase in the need for technical people in our operations. The Standard Oil Company of New Jersey, with which my company is affiliated, has experienced a 30% increase in technical, professional and management positions in a 10-year period. Jersey estimates indicate that it added more than 3,000 jobs of this type in the 10 year period—45% of these with engineering disciplines.

One of our major challenges is to promote a better understanding of the professional nature of the engineer's contribution. The classical professions—doctors, lawyers, and teachers—do not suffer from this problem. Perhaps it is because the public has long known and understood the function and role of these groups and generally appreciate their objectives and purpose. We must do more to publicize engineering achievements. There is certainly enough "glamour" in our engineering accomplishments to stir the imagination of students who may be on the threshold of deciding whether engineering would be a satisfying career for them.

A recent edition of JOURNAL OF PETROLEUM TECHNOLOGY featured an article by former President of the United States, Herbert C. Hoover, on the engineering profession.:[5]

> "It is a great profession. There is the fascination of watching a figment of the imagination emerge through the aid of science to a plan on paper. Then it moves to realization in stone or metal or energy. Then it brings jobs and homes to men. Then it elevates the standards of living and adds to the comforts of life. This is the engineer's high privilege.
>
> "The great liability of the engineer compared to men of other professions is that his works are out in the open where all can see them. His acts, step by step, are in hard substance. He cannot bury his mistakes in the grave like the doctors. He cannot argue them into thin air or blame the judge like the lawyers. He cannot, like the architects, cover his failure with trees and vines. He cannot, like the politicians, screen his shortcomings by blaming his opponents and hope the people will forget. The engineer simply cannot deny he did it. If his works

do not work, he is damned."

In our modern day of life this rule is paramount—the profession that does not value adaptations to change and reality is doomed. Hopefully, we technically maintain ourselves today. Tomorrow, we will have moved forward another step. Then there is no reverting to pass judgment on **what** should have been done—for by that time other groups will have shown us **how** it can be done.

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[2]Biot, M. A. Dr., Private Consultant in Physics, Mathematics and Engineering in New York, New York. "Science and the Engineer," **Engineering and Science.** January, 1963.

[3]Allison, David, "Educating the Engineer," **International Science and Technology.** June, 1963.

[4]Mayer, Maurice W., Manager Administrative Office—Engineering, Esso Research and Engineering Company. **Industries Views of Current Chemical Engineering Education.**

[5]Hoover, Herbert C., "The Engineering Profession," **Journal of Petroleum Techology.**

NSPE Notes

"The Internal Revenue Service has failed completely to understand the relationship between professional people and the public in arriving at proposed changes in the tax classification of professional service organizations," said John H. Stufflebean, NSPE president, during testimony before the I. R. S. This testimony was presented in connection with the proposed regulations of the I. R. S. which would have a profound effect on professionals practicing in the corporate form. Mr. Stufflebean pointed out that the proposed changes are "in conflict with the traditional and long-established practices of the engineering profession."

The first of a series of meetings between representatives of the engineering profession and the National Aeronautics and Space Administration was held recently to investigate methods of establishing closer collaboration and mutual support for the space program.

During this initial session discussion centered around procurement procedures and policies relative to professional engineering services. The viewpoint of the engineering profession was expressed through members of the Coordinating Committee on Relations of Engineers in Private Practice.

EJC Notes

The National Science Foundation has begun a program of Graduate Traineeships in Engineering, to begin with the 1964-1965 academic year.

This represents the first time that engineering studies are receiving direct NSF support. It is part of a national effort to accelerate the output of graduate students with advanced degrees in engineering.

EJC has organized an intersociety committee to explore engineering applications in medicine and biology. It is to be chaired by Professor Robert E. Stewart, the Chairman of the Agricultural Engineering Department at Ohio State University.

The committee initially will review the opportunities for inter-disciplinary cooperation and activity and formulate recommendations for an EJC program if one is deemed appropriate.

The Engineering Manpower Commission will soon publish its 1964 survey. "Demand for Engineers, Physical Scientists, and Technicians." Advanced orders are now being accepted.

Over 600 companies, agencies, and engineering colleges have participated in the EMC study representing more than one quarter of a million engineers plus physical scientists and technicians.

The survey will also give projections of future needs to 1973.

The report may be purchased from EMC, Dept. E, 345 E. 47 Street, New York City 10017. Each copy is $4 when prepaid.

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Youthful drivers in 1963 had the worst record of any age group in the United States. Young men and women under age 25 represent only about 15 per cent of the nation's licensed drivers, yet they were involved in more than 29 per cent of all fatal accidents and in more than 26 per cent of all non-fatal accidents.

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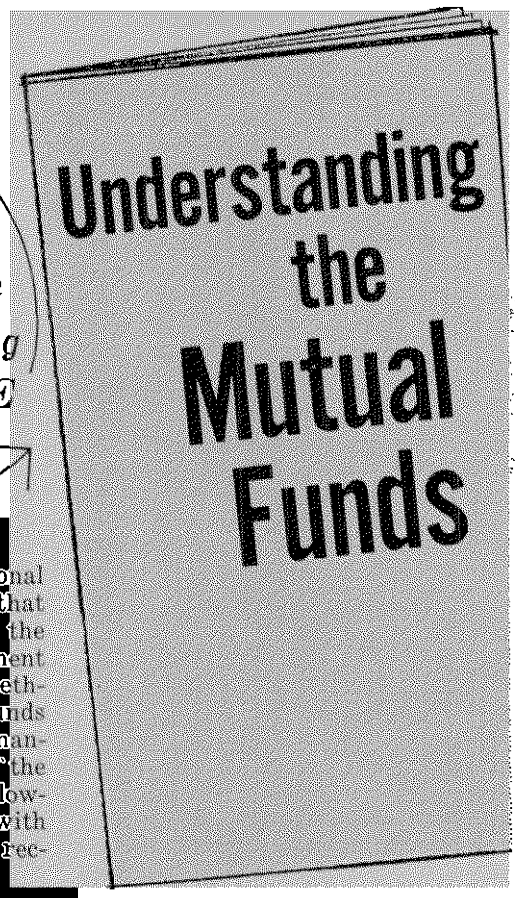

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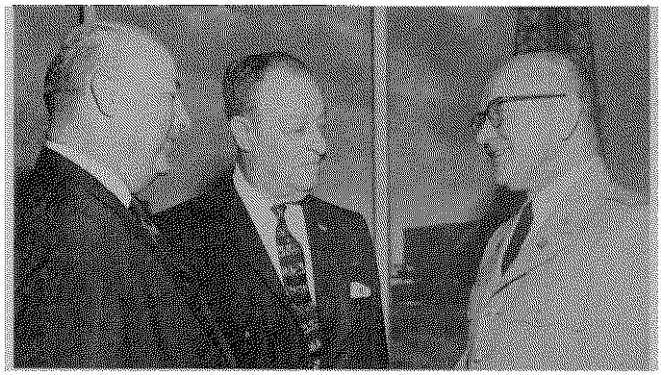
Col. Jennings Honored At Testimonial Dinner



COL. EDWARD B. JENNINGS, U. S. Army, right, guest of honor at a testimonial luncheon in the Roosevelt Hotel, chats with Capt. Neville Levy, center, and Capt. James R. Ayers Jr.

Departing United States District Engineer Col. Edward B. Jennings was honored at a testimonial dinner where he was termed one of the great engineers to have served New Orleans.

Col. Jennings accepted gifts from a citizens' committee, the city, state and Plaquemines Parish at a luncheon recently in New Orleans.

Capt. Neville Levy, in presenting the colonel a silver brulot bowl on behalf of the citizens' committee, said Jennings was one of the great engineers among those who have served the flood control and navigation interests of the area since 1921.

Capt. James R. Ayers, Jr., chairman of the luncheon, said Col. Jennings was chiefly responsible for keeping the Mississippi River-Gulf Outlet construction on schedule and cutting the cost to less than that originally expected.

Col. Jennings leaves soon for a new post in Korea following three years as head of the government public works in the New Orleans area.

Col. Thomas J. Bowen is due in New Orleans about Aug. 1 to assume the district engineer post.

Jennings' wife and three sons were on hand as a large gathering paid the colonel accolades.

In accepting the tribute, Col. Jennings cited the New Orleans district office as certainly one of the best in a proud Corps of Engineers.

He called the work of the engineers a capital investment in the future of the country.

Brig. Gen. Francis A. Woolfley, director of Louisiana Civil Defense, made Jennings an "admiral in the Louisiana Navy" on behalf of the governor. Councilman James E. Fitzmorris, Jr., presented him keys to the city.

Leander H. Perez, president of the Plaquemines Parish council, gave Jennings a watch and said Plaquemines never felt safer with Jennings keeping watch against Mississippi River flooding.

—o—

Excessive speed continued to be the number-one killer on the nation's highways in 1963. More than 14,000 traffic deaths were directly attributable to speeding.

Tulane C. E. Students Receive Practical Training

The civil engineer is the original practical soul and great outdoorsman—the builder of bridges, of roads, of off-shore oil rigs and dozens of other types of structures.

But are today's engineering schools ignoring this tradition? Are the new engineers of a hybrid, indoor type?

A practical-minded Tulane University educator and civil engineer thinks so.

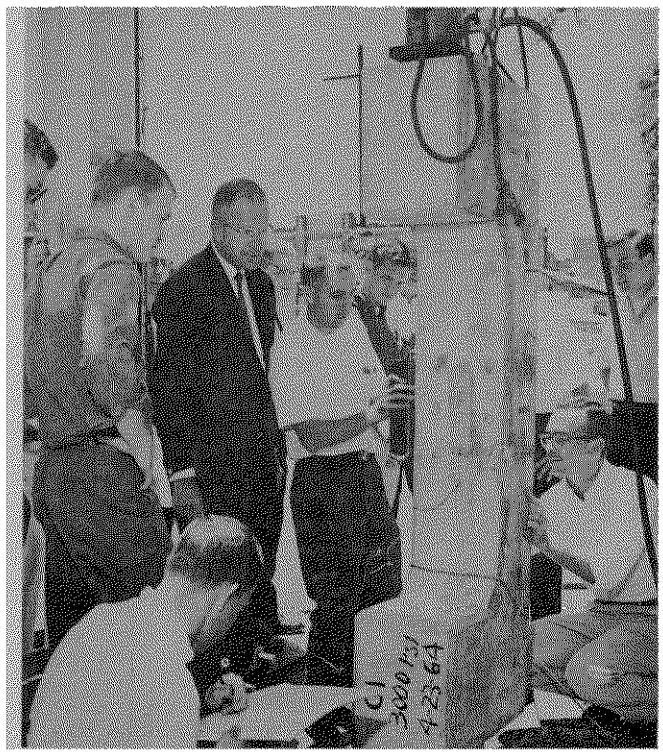
"The emphasis in engineering schools throughout the nation seems to be on research today," according to Dr. Walter E. Blessey, head of the Tulane department of civil engineering, and active member of the Louisiana Engineering Society.

"Students are getting very little practical experience in designing or building. What they're learning might be of value in 25 or 30 years, but it's of little use now—and we have more bulding going on today than ever before."

Of a similar mind is Dr. James K. Finch, deen emeritus of the Columbia University school of engineering. The overemphasis of research in U. S. engineering schools is a "dangerous trend," he wrote recently in the publication, "Civil Engineering."

An illustration of the practical turn of the Tulane civil engineering course occurred recently when students watched as a new type of concrete beam—six feet high and costing more than $2,000—was crushed into rubble.

The beam was designed by Anthony Mumphrey, gradu-



AN ILLUSTRATION of the practical turn of the Tulane civil engineering course occurred recently when students watched as a new type of concrete beam, six feet high and costing more than $2,000, was crushed into rubble. The purpose was to determine the breaking point of the new design. Joining the students in watching the demonstration was Dr. Walter E. Blessey, head of the Tulane department of civil engineering (in dark suit).

ate civil engineering student. In the test, an inverted jack, suspended from a metal frame, pushed down on the beam, exerting thousands of pounds of pressure on it. The purpose was to determine the breaking point of the new design.

Engineering students who participated in the test, as well as Mumphrey, came away with a new and realistic understanding of the nature of an important structural material.

Other features of the practical side of the Tulane civil engineering department include regular lecture visits by professional civil engineers, and frequent field trips to major public works under construction in this area.

But the core of this practical curriculum philosophy is the senior year of instruction.

In the summer between the junior and senior years, students get their first extensive exposure to the practical at Tulane's highway engineering camp at Gurley, Louisiana. In two weeks, the students do all the surveying and calculations for designing a highway—everything up to the designing of the slab, or actual body, of the road.

During the senior year, the students are given the assignment of designing a concrete building and a steel building. In creating the design, the students draw heavily from the three previous years of theory courses.

"We design every single beam of the building," says senior student Dennis F. McCahill of Laurel, Maryland. "The end result is a set of working plans which are ready to give to the contractor."

A third major senior project is the assignment of a student to a town in the region to undertake population and engineering studies needed in the construction of a mythical sewage treatment plant.

The senior year, Blessey emphasizes, is a "year of synthesis—a time for bringing together all the knowledge previously acquired, when some information is retained by the student, when some is discarded, and when building judgment is developed."

Blessey believes that research in engineering is vital, but not on the extraordinarily broad scale of today. The emphasis on the research side of engineering began following World War II as a reaction against the relatively research-poor past of American science, he says.

"I believe only about one student in 50 is bright enough to go into research," he points out. "But in insisting that all engineering students enter research, we are losing a lot of men who might otherwise be talented structural designers and builders."

The emphasis on research, he feels, is one factor in the general decline of engineering enrollments in the nation's universities.

And research tends to create "super-specialists," whereas civil engineers actually need as broad a background as possible, he says.

"After all, by its very definition, engineering is the application of scientific knowledge for practical, social purposes," according to the Tulane engineer. "The country has accomplished what it has through application."

And heavy doses of "application" are exactly what Tulane civil engineering students are getting.

Woman's Auxiliary Forms Lafayette Chapter

WOMAN'S AUXILIARY president Mrs. Roy G. Cappel (left), presents the newly organized Lafayette chapter with its charter. Receiving the charter on behalf of the new chapter is Mrs. Lawrence N. Hunsinger, Jr. (right), president, while Mrs. Roy E. Johnson, chapter development chairman, looks on.

By SALLY BIRDSONG

Mrs. Roy G. Cappel, state president, presented the newly organized Lafayette chapter with its charter on May 2, 1964. This presentation took place at a luncheon at Don's Seafood Restaurant in Lafayette with 34 ladies in attendance. Out of town guests were Mrs. Cappel, Mrs. O. E. Barron, Jr., Mrs. Bernard Louviere, Mrs. Roy E. Johnson, chapter development chairman; Mrs. Waldemar S. Nelson and Mrs. Frank A. Birdsong of New Orleans; Mrs. Newton Himel and Mrs. Laurent DeCourt of New Iberia.

Mrs. L. N. Hunsinger is the president of the newly chartered Lafayette chapter. Other officers elected to serve with her are Mrs. Roland W. Laurent, vice-president; Mrs. James E. Reed, Jr., secretary; and Mrs. Donald P. O'Brien, treasurer.

The Lafayette chapter is the fifth chapter outside of New Orleans to be organized and has a charter membership of twenty-nine ladies.

FIRST OFFICERS of the newly chartered Lafayette chapter of the Woman's Auxiliary are (left to right, front row): Mrs. Lawrence W. Hunsinger, Jr., president and Mrs. Roland W. Laurent, vice-president; (back row): Mrs. James E. Reed, secretary and Mrs. Donald P. O'Brien, treasurer.

Promotions Field Notes By Allen Johnson

William K. Becnel, Earl S. Dobbs and Charles H. Weatherley, all members of LES, have been elected assistant vice-presidents of Waldemar S. Nelson and Co., Inc., a firm spokesman announced recently.

Becnel is a 1934 graduate of Tulane University and a member of the firm since 1953. Since joining Nelson he has had extensive experience in the design of airfields, navigation locks, pumping stations and drainage systems and was active in the Lafayette capital improvements program. He is a member of LES and the American Association of Airport Executives.

Dobbs is a 1941 graduate of Louisiana State University. He joined the firm in 1957 and has had extensive experience in electrical and mechanical planning and design of lines, terminals, offshore structures and computer programming and operation. He is a member of LES and the Institute of Electrical and Electronics Engineers.

Weatherly graduated from Tulane in 1945. He joined the firm in 1956 and has worked on a variety of projects including the Moa Bay nickel processing plant, the Owens-Illinois Glass Container plant and participated in the design of a pumping station in the eastern section of New Orleans.

An aerospatial navigation vehicle won for its teenage designer a top prize in the 1964 engineering project exposition and competition sponsored by the Junior Engineering Technical Society (JETS) May 22-24 at the United Engineering Center in New York City.

A college scholarship was awarded to Robert Dan Brook of Amory, Miss., which he will use for his studies at Mississippi State University.

Memorials

EMANUEL EDGAR GUILLOT, JR.

The Lafayette Section of the Louisiana Engineering Society lost a charter member and the Louisiana Department of Highways lost a sincere and devoted employee on March 24, 1964, by the sudden passing of Emanuel Edgar Guillot, Jr.

"Ed," as he was known by his many friends, was born in Terrebonne Parish on December 25, 1902. He was employed by the Louisiana Department of Highways in January, 1924, as a Rodman and Inspector. He served continuously until his death in various capacities including Instrumentman, Project Engineer, and Assistant District Engineer in charge of Maintenance, the position which he held at the time of his untimely death.

Many of the present highways in Terrebonne and Lafourche Parishes were constructed under his supervision as Project Engineer and he was on the party that surveyed and subsequently constructed the first road in Cameron Parish.

Upon assuming the position of Assistant District Engineer in 1953, he set out enthusiastically with great determination toward achieving an efficient maintenance organization and a well maintained highway system within the Lafayette District.

He was a very active member of the Fatima Catholic Church and a Fourth Degree Knight of Columbus, serving in the capacity as State Treasurer of the Louisiana Knights of Columbus at the time of his death.

To Mrs. E. E. Guillot, Jr., and her son Guy, the officers and members of the Louisiana Engineering Society extend their deepest sympathy and request, by resolution, that a copy of this Memorial be sent to Mrs. Guillot and Mr. Guy Guillot and it be published in the official organ of the Society.

J. E. JARMAN
W. E. ROBERT
W. C. VINCENT

CHARLES M. KERR

The Louisiana Engineering Society lost one of its staunchest supporters and most effective workers with the passing of Charles Macdonald Kerr on Wednesday, March 11, 1964, at the age of 79.

Charlie Kerr, as he was affectionately known to his host of friends, was a native New Orleanian and received his education here at Dyers University School and at Tulane University. Upon entering the business world, he immediately became active in promoting his chosen profession—Professional Engineering. He was one of the first to become registered when the Engineering Registration Act became law in 1908 and when the present State Highway Department was formed in 1908, he was selected to head its New Orleans Office. He was a founder of the American Association of State Highway Officials and in 1914 represented Louisiana at its first National Meeting held in Washington, D. C., where the group was received by President Woodrow Wilson.

In 1922 he became active as an Engineering consultant in the use of creosote timbers for construction, and later travelled extensively in the United States and Canada as Division Engineer for the American Wood Preservers Association. In 1930 he joined the staff of the American Creosote Works and was associated with that firm until his retirement a few years ago.

Mr. Kerr joined the Louisiana Engineering Society in 1912 and served in innumerable capacities through the years, including the presidency in 1944; he became a life member in 1943 and was elevated to honorary membership in 1956. He also was active in many other organizations and was a past president of the Louisiana Section, American Society of Civil Engineers, and of the Louisiana Post, Society of American Military Engineers. In his long service to the engineering profession he followed a tradition set by his father, Colonel Frank M. Kerr, who served as the Louisiana Engineering Society's fourth president in 1901 and who also devoted himself to the struggling young profession.

Mr. Kerr is survived by his widow, the former Helen Coppée; a son, Charles Macdonald Kerr, Jr., two daughters, Mrs. John C. Saunders and Mrs. Joseph Lee Rhodes; five grandchildren and two great-grandchildren.

(Continued on Page 34)

Public Relations For The P. E.

An Address before the Alexandria Section May 19, 1964

by

FRANK H. WALK, LES Public Relations Chairman

Good public relations has been defined as good performance, publicly appreciated. But for the professional engineer it is more than that—to those of us in the Louisiana Engineering Society it is much more. We in LES must grow to realize that good public relations means fully informing the general public, and constantly keeping before it, the true purpose, importance and accomplishments of the engineering profession in the State of Louisiana.

In developing a successful public relations program at the local section level, there are two basic requirements that must be kept in mind:

1. We must render public service, not only in the normal course of professional practice, but also through active participation in the life of the community.

2. We must see to it that the public service which we render is appropriately publicized—that it is made known by word of mouth, by mention in the press and on radio and TV, and by any other available means of public communication.

The first of these requirements establishes a basis for public respect and appreciation while the second makes the deeds known to the public. Both must be positive and creative. They should be directed always toward a long term program. Good public relations cannot be achieved overnight.

A question that each of us might well ask is "Who is the 'public' as far as section public relations activities are concerned?"

A breakdown of this "public" would include at least the following components:

1. Present members . . . A PR program should aim to educate and inflence the membership to a better appreciation of the goals and objectives of the society; to greater public service activity; and to an increased participation in professional society affairs.

2. Prospective members . . . Since these people represent, in a way, the future of our society, they should be considered a vital segment of the public. A successful membership harvest is most often achieved in a well cultivated acreage.

3. Employers . . . Many in this group need to be persuaded toward a greater acceptance of professional standards and requirements. Employers are becoming a more important segment of the public as engineers are employed in larger numbers by industrial firms.

4. Educators at all levels . . . These are key individuals who can greatly influence the development of proper and professional concepts toward engineers among students and future citizens.

5. Legislators and local government officials . . . These leaders must have sound advice and counsel if they are to make sound laws and administer them wisely.

6. General public . . . This group is made up of men and women who form the community in which we as professional engineers must live and work. Local public opinion can be influenced, by word and deed, toward recognition of the engineer as a person whose professional attitude is guided by the ideals of public service.

   The development and continuance of good public relations with each of these components should be the over-all objective of each local section in planning a PR program. Such a program requires the obtaining of widespread publicity in the community—but publicity alone does not define the whole concept of good public relations. Favorable publicity is in reality one of the results of an effective working PR program. A section committee organization which permits the publicity function to be separate and distinct from the over-all public relations function is an organization which fails to recognize the intimate and quite necessary relationship between PR planning and publicizing.

Publicity must be good or not at all. Let us always place our best speakers, and our most confidence inspiring members, in both speech and appearance, before the public. We must remember that the best technically qualified engineer may not be the best one to represent our profession on TV panels, and in delivering an address to a Civic club; in fact he is seldom the one to pick for this purpose from a PR standpoint.

In order to further the course of good public relations for our chosen profession, we must resolve both as individuals and as a part of well organized local secetions within LES as follows:

1. To conduct a planned publicity campaign through newspapers and other recognized media to cultivate a favorable reaction from the public on behalf of the engineering profession.

2. To inform the public on the high qualifications of the engineer, the importance of his services to human progress, the requirements of registration, proper methods of selecting engineering services, and the desirability of appointing engineers in public councils and in executive and administrative positions.

3. To educate engineers and the public as to the mean-

ing and proper use of the terms "Engineer" and "Professional Engineer."

4. To secure credit for engineers in connection with the works designed and executed by them.

5. To stimulate engineering leadership in civic problems and public affairs.

6. To correspond and confer with public officials and government agencies on behalf of the profession in matters affecting the interest of the engineer.

7. To educate the public on the correct place and attitude of the engineer in economic problems at local, state and national levels.

8. To secure for the profession its rightful place in social and economic readjustment, planning, and progress.

As professional engineers, we must recognize that:

1. It is we who stand to benefit most from having our image elevated in the eyes of the public.

2. The matter of improving our public image is solely up to us. We can count on others to help only after we initiate action and display the interest and force to carry it through.

The decline of the engineering profession like the decline of the Roman Empire did not take place in a day, or a month, or a year. It happened over a period of many years, and I submit that it is still going on in many ways—right here in Louisiana, and **right here in Alexandria.**

If we are to stop this decline, and start the trend of public opinion upward, me must first of all sell ourselves on the **profound** importance of good public relations for our engineering profession. To me good public relations means almost everything, since without it we can have almost nothing as professional engineers, but with it we can have almost anything we can want—in the way of position, monitary income, prestige, etc.

We must be proud of our identification as a professional engineer. Do not hesitate to express at every opportunity your enthusiasm for our profession, for the principles on which our profession and its practice are based. Remember—There is nothing so contagious as enthusiasm!

During the latter part of last year, your LES Board of Direction came to the realization that one of, **if not the most important** purpose for which LES exists is to develop within and for its membership a topnotch public relations program designed to make known to the general public, and constantly keep before it, the true purpose, importance and accomplishment of the engineering profession in the State of Louisiana.

In order to commence the fulfillment of this purpose, the Board directed that public relations be accorded the necessary prominence which will make it:

1. A required and important part of every LES Board Meeting, every Section Officers Meeting and every General Meeting of the Society whether at State or Section level.

2. A required and important part of each and every LES Officer's training, thinking and activity, starting with the Society President and extending through the lowest officer and committee member in each State Section, without exception.

3. A required and important consideration in our Annual Budgets at all levels.

In order to assist further on a statewide basis, a new and greatly expanded LES Public Relations Committee was appointed to serve this year. This committee is:

Chairman ..... Frank Walk
Vice-Chairman ..... J. J. Thigpen
Editor of La. Engineer ..... Warren Bankston
Private Industry ..... Hardy M. James, James L. Rike
Private Utilities ..... A. W. Durning
Government ..... William J. Rountree
Education ..... Harry D. Richardson, Zeke Loflin
Private Practice ..... Gus G. Quinn, Randy Whipple
Public Relations Council ..... Allen Johnson

In addition, initiation of the following statewide efforts were scheduled for this year:

1. To assist in initially establishing and maintaining interest for the engineering profession by members of the press, an LES award has been established with the Louisiana Press Association. Such award will be presented annually to the reporter who has written, and had published the best article dealing with professional engineering in the State of Louisiana. The award will consist of a suitably engraved plaque and a $100.00 U. S. Savings Bond.

2. To assist in initially establishing and in maintaining individual interest and support for an overall PR program by our own LES membership, an annual award has been established to recognize the individual LES member who has contributed the most to promote good public relations for professional engineering in the State of Louisiana during the preceding year. In selecting the recipient for this award, emphasis will be given to the individual's contributions to the Society's overall PR program, internal and/or external, rather than to his individual accomplishments as a professional engineer. Officers of the Society and members of the LES PR Committee would not be eligible for this award. The award consists of a suitably engraved plaque.

3. Efforts are being made to work out an arrangement under which LES will sponsor jointly with the Louisiana State Board of Registration for Professional Engineers and Land Surveyors, an annual (or twice a year) indoctrination ceremony at which the new graduates of the engineering colleges of the State will publicly repeat the professional engineers' code of ethics and be formally accepted into the profession.

The establishment of the Charles M. Kerr Public Relations award was formally announced in the April, 1964, issue of the "Louisiana Engineer." This is the award

whereby recognition is given to the individual member of LES who has contributed the most to promote good public relations for professional engineering in the State of Louisiana. Sometime during the month of June your Section will receive a letter from the LES Honors and Awards Committee asking for nominations for this award. Nominations properly supported with detailed data on the activities must be in the hands of your Section President not later than August 1st. After review by your Section officers nomination papers are to be forwarded to the Honor and Awards Committee by September 1st. Review of nomination papers and selection of award recipient will be made by the LES statewide Public Relations Committee in cooperation with the Honors and Awards Committee. Such tentative selection after being approved by the LES Board of Direction will be announced at the LES Annual Meeting in January.

Gentlemen, I offer each of you a challenge! Go forth during the coming months and improve the image of the Louisiana Professional Engineer—**your** image! I suggest that you may best do this in some of the ways that I have outlined here tonight.

To summarize:

1. Strive in every way possible to educate the general public. Inform your friends and others with whom you come in contact in business and social circles as to the true nature of the professional engineer. Teach them, patiently, that a professional engineer is **not** a plumber, **not** a mechanic, **not** the head janitor in a hotel, **not** the operator of a railway locomotive or of a bulldozer or dragline. Let them know that the engineer is a truly professional man —like the doctor and the lawyer.
2. At every opportunity participate in civic affairs and see to it that your identity as a professinal engineer is made known when you do these things.
3. Talk up the professional accomplishments of your fellow engineers in industry, in education, in government, in private practice.

Together we can change the tide of public opinion about our chosen profession. We **can,** and we **must!** No one else is going to do this for us. We must do it for ourselves.

This address embodies basic tenets of public relations for the use and application by all state sections and each individual LES member.

Who Will Manage U. S. Industry?

A scientific industrial revolution, in terms of the composition of today's managerial leadership, is transforming U.S. industry, agriculture and almost every facet of our current society.

According to a study by "SCIENTIFIC AMERICAN,"* the the World War II demonstration of the tremendous power that organized scientific research can bring to industry resulted in the relationship between science and industry being fundamentally and permanently altered.

Since 1940, the study notes, the nation's total manpower in science and technology has grown faster than either the population or the labor force. Its average annual rate of increase has been about 5%, nearly four times that of the labor force as a whole. Manpower in science and technology, according to estimate, will rise to 4.7% of the labor force by 1970.

"Clearly then, a new type of business executive, one whose background is heavily oriented to science and engineering, is emerging at an ever faster rate. Within a short time—by 1980—he will represent a majority in the top management of leading American firms. The plain conclusion to be drawn is that U.S. industry is coming under new management."

The authors of the study "are not suggesting that a technical background has come to supersede other essential qualifications for business leadership. It is evident, however, that the decision-makers of industry today must make increasing numbers of primarily technological decisions. In order to relate such decisions effectively to the daily conduct of business, it has become necessary that an increasing proportion of management be drawn from the technically trained personnel of their organizations."

"An extraordinarily high proportion of scientists and engineers are young, that is, under the age of 45, in great contrast to the age range of the labor force as a whole."

"The analysis to this point—including the important fact that the younger age groups predominate in the community of scientists and engineers—one of the most striking aspects of this period of accelerating technological change is a sharp reversal in the occupational distribution of the top 5% of the nation's income earners. These are the people who carry the heaviest responsibilities in our economy, conduct its most exacting work and, as a consequence, are most highly rewarded in terms of personal income."

The rise in the earnings of engineers and scientists in our society obviously reflects accelerating emergence of technical management, as a percentage of the top management of leading U.S. corporations.

"The percentage of top corporation officials having a degree in science or engineering, or with equivalent experience, rose steadily from 6.8% in 1900 to 20% in 1950. Between 1950 and 1963 the rise of top executives with technical backgrounds was even steeper: at the rate of about 5 points each 5 years, from 20% to 36%."

"By 1980 the executives now in the age group 35-45—of whom 51% have been trained as scientists or engineers —will have become the 55-65 age group, *the pool from which top management is drawn.* If the scientists and engineers in this age group supply their proportionate share to top management, as they do from the present 55-65 age group, the proportion of top industrial management with a background in science and engineering will have risen to more than 50% by 1980. U.S. industry is indeed coming under new management."

**"U.S. Industry: Under New Management" Scientific American, 415 Madison Ave., New York City 10017, 33 pgs.*

What Is The L. E. S.?

The Louisiana Engineering Society is a state-wide organization devoted to the common interests of ALL ENGINEERS.

The aim of L. E. S. is to foster registration, professional pride and honor, and the practice of the established code of ethics for engineers.

The L. E. S. is an organization for Engineers in ALL branches of the profession, ALL fields of endeavor (private practice, government, industry, education, etc.), ALL ranks, ALL ages, in ALL sections of Louisiana. The society's Public Relations Program is directed toward the advancement of all branches of the profession in public recognition and esteem.

The L. E. S. is devoted to the professional, social and economic welfare of the individual engineer and in his behalf promulgates the profession's policy in legislative, civic and labor-industry matters pertaining to engineering.

Through its affiliation with the NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS and ENGINEERS' JOINT COUNCIL, the L. E. S. cooperates with professional organizations in all of the other states in striving for these goals at a national level.

The Louisiana Engineering Society is working for YOUR profession. Won't you help by joining?

For application details contact

J. P. Fernandez, Secretary-Treasurer

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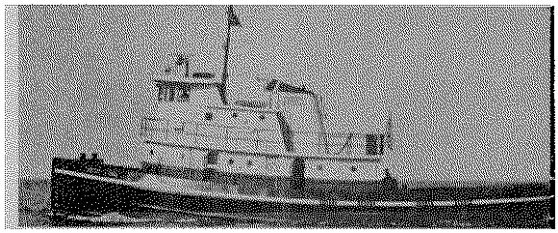

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(Continued from Page 26)

WHEREAS the Engineering Profession in general and the Louisiana Engineering Society in particular have been so beneficially influenced through the years by the personality and ability of Mr. Charles Macdonald Kerr, therefore:

BE IT RESOLVED that this notice of his passing be recorded in the minutes of the Society and that a copy of the resolution be sent to his family.

EDWARD A. McLELLAN
JAMES M. ROBERT

—o—

Alaska Earthquake Described

The force of 10 billion tons of TNT was roughly the amount of energy released by the Good Friday earthquake that rocked southern Alaska.

It took approximately eight minutes for the shock of the quake to travel about 4,000 miles to New Orleans, Fr. Carl Maring, S.J., Loyola University seismologist told the Louisiana Engineering Society recently.

Fr. Maring, who underwent an earthquake in Spain himself in 1921, described the sensation as "the most helpless feeling."

He explianed that quakes most frequently occur in two belts, one running around the perimeter of the Pacific and the other from Central Mexico across the Atlantic into the Mediterranean and across Turkey into the Himalayan Mountains, "where some of the worst earthquakes are."

Of some 100,000 shocks of any magnitude recorded on his instruments annually, some 4,000 are severe, he said. Of these, about 200 are potentially disastrous, depending on their geographic location.

"Anchorage, Alaska should never have been built where it was," he said.

He added that reading the record of the seismograph is "like reading the handwriting of an earthquake."

—o—

MRS. OTHA E. BARRON, JR., newly elected president of the Woman's Auxiliary (second from left) receives the gavel from Mrs. Roy G. Cappel, outgoing president, while Mrs. Thomas A. Fromherz, president-elect (far left) and Mrs. John A. Haase, III, vice-president, look on. The new officers were installed May 19, 1964.

(Continued from Page 9)

dane conception of an "engineer" as "the operator of an engine."

In our efforts to convey the true meaning of a **professional** engineer to our acquaintances, it may be well to remember that "engineer" stems from the Latin word signifying **ingenuity.** So—let's use a little of it.

JOSEPH T. HOGAN, P. E.

(Send us YOUR definition of a professional engineer. In the meantime, remember ours is the job of reminding the general public who we are and what we stand for. Editor's Note.)

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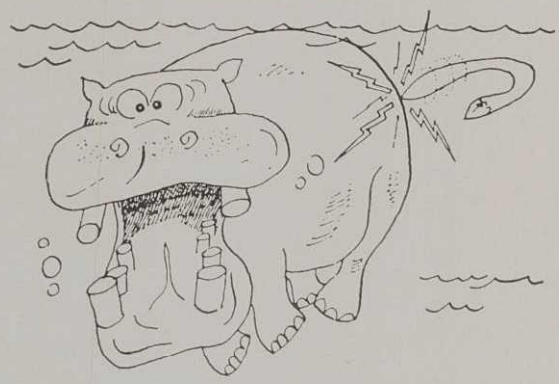

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Vol. 50 No. 4
August, 1964

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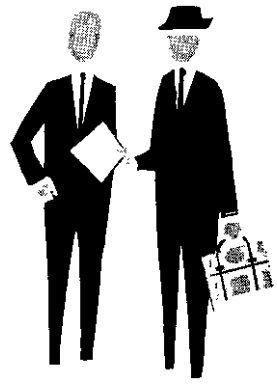

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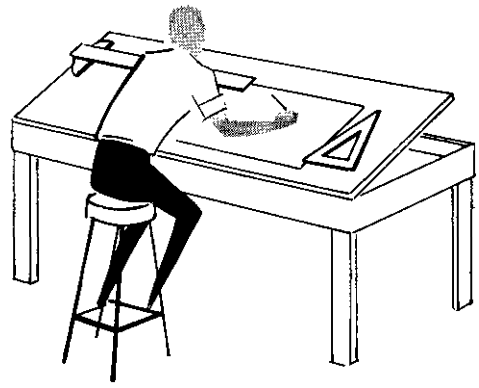
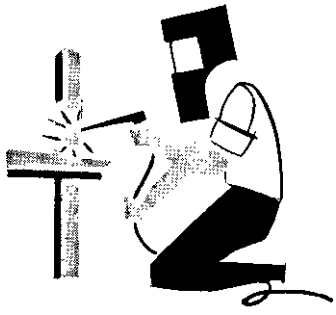


ENGINEERS



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THE LOUISIANA ENGINEER

Vol. 50 AUGUST, 1964 No. 4

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Signed,

Oct. 31, 1963

W. K. Bankston, Editor

OUR COVER: The IBM 1620 is the most recent additions to Louisiana Tech's procession of valuable computers. Tech has also recently acquired a LGP-30 and an IBM 650. For more on Tech and other Engineering Colleges throughout Louisiana see pp. 14-16.

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Minutes Of The Board, LES

LOUISIANA ENGINEERING SOCIETY

Minutes of Meeting of the Board of Direction
Held at Oak Manor Motel, Baton Rouge on
May 30, 1964

The meeting was called to order by President Knight with Messrs. Duclos, Nelson, Odom, Stokes, Vogt, Watts and Fernandez present. Mr. Vogt moved that the minutes of the regular meeting of the Board held on April 13 and of the special meeting held on April 28 be accepted as mailed to board members, with one correction in the wording of the special meeting, i. e., the word "Architect" be changed to "Architecture" in paragraph #7. The motion was duly seconded and carried.

President Knight reported on progress being made by the Paterson Medal Award and the Annual Meeting committees. Mr. Vogt moved that the following additional members be appointed to the Annual Meeting Committee:

Henry H. St. Paul, Jr.
Frank A. Birdsong
Roy E. Johnson
Warren K. Bankston
A. H. Douglas, Jr.

The motion was seconded by Mr. Duclos and carried.

Mr. Odom reported on pending state legislation, advising that our bill to limit the prescription period of liability on project supervision was introduced as Senate Bill 184 and had been referred to Judiciary Committee "C". Plans to urge individual senators to support this bill on the Senate floor were discussed.

H. B. 481 concerning the registration of certain public employees as civil engineers, and H.B. 656 to include safety and industrial engineers in the registration law were discussed. Mr. Nelson moved that the society write to the sponsors of these bills stating the board's objections. Motion seconded by Mr. Stokes and carried.

Discussion followed on H.B. 307 and Senate Bills 206 thru 213 inclusive concerning the registration of architects.

The secretary read committee reports on the 1964 Annual Meeting and the 1964 State Planning Conference. Mr. Vogt reported on plans being made by the Annual Outing Committee and was instructed to advise the committee that their choice of country club was acceptable to the board.

The secretary read a letter from Mr. William A. Baker submitting his resignation as Chairman of the Employment Committee, which was accepted with regret. Mr. Duclos moved that Mr. Roger K. Battle be appointed to replace him, seconded by Mr. Odom and carried.

A letter from Mrs. Charles M. Kerr was read in which she thanked the society for the honor bestowed on her late husband by naming the newly established Public Relations Award in his memory. A letter from James W. Watts III also was read thanking the society for the junior membership award recently given him.

Mr. Nelson announced that he had been reappointed to the NSPE Board of Ethical Review for a three-year term. Discussion followed on the proposed increase of NSPE dues and the new Code of Ethics prepared by ECPD.

Mr. Duclos moved that the president be authorized to take the necessary steps to set up a joint committee with the Louisiana Bar Association and the Louisiana Land Surveyors' Association with the objective of revising and updating the statutes governing land surveys and land surveyors. Motion seconded by Mr. Nelson and carried.

Discussion followed on the subject of engineering schools in Louisiana. Mr. Duclos moved that a standing committee on Engineering Education be established, seconded by Mr. Nelson and carried.

The proposed constitution and by-laws were discussed and approved by major vote, one section at a time. Due to the length of the meeting, Mr. Nelson moved that the incompleted by-laws be drafted by the President and the Secretary and submitted to board members for approval by mail. Motion seconded by Mr. Stokes and carried, and the meeting adjourned. It was then reopened to instruct the secretary to forward complete copies of both the present and the proposed constitution and by-laws to the membership-at-large for their information and comparison.

JOHN P. FERNANDEZ
Secretary-Treasurer

LOUISIANA ENGINEERING SOCIETY

Minutes of Meeting of the Board of Direction
Held at the Engineers' Club, New Orleans
Tuesday, July 14, 1964

The meeting was called to order by President Knight with Messrs. Ewing, Roy Johnson, Nelson, Odom, Stokes, Walk and Fernandez present. Mr. Allen Johnson, Public Relations Counsel, also was in attendance. Mr. Roy Johnson moved that the minutes of the Board meeting of May 30 be accepted as read, seconded by Mr. Walk and carried.

President Knight reported on the 1964 Louisiana Legislative Session and a prolonged discussion followed.

President Knight advised that the committee in charge of the 1965 NSPE Winter Meeting had requested that $1,500 be allocated for their use in planning arrangements for the meeting. Mr. Stokes moved that finances for the 1965 NSPE Winter Meeting be handled in the manner of past LES Annual Meetings. The motion was seconded by Mr. Nelson and carried.

Mr. Nelson recommended that a committee of five be appointed to the newly established Engineering Education Committee.

Mr. Nelson, National Director, reported on the 1964 Annual Meeting of NSPE held at Asheville, North Carolina on July 1-4.

The secretary reported that all applicants listed in the June membership ballot had been elected to the grades indicated. The breakdown of new members is as follows:

Members:	
New Orleans	6
Shreveport	3
Baton Rouge	2
Lake Charles	1
Lafayette	1
Affiliate	
Alexandria	1
Junior	
Alexandria	1
Transfers from Student to Junior	15
Transfers from Junior to Member	1

Upon motion by Mr. Nelson, seconded by Mr. Ewing, the following resignations were accepted with regret:

Harry W. Atkinson (NSPE), Georgia
Hunter S. Allen (Affiliate), Baton Rouge
Cecil I. Dobbs (Member), Overseas
James F. Kerr (Member), Texas
John E. Meeks (NSPE), Baton Rouge

The secretary read a communication from NSPE confirming that LES now has over 500 NSPE members and therefore is entitled to two votes on the national Board of Directors.

President Knight read letters from Messrs. Macdonald, Janssen and Seago concerning the proposed constitution and by-laws. Mr. Nelson moved that paragraph (a) of By-Law 5—"Management" be amended by the addition at the end of the paragraph the words "and to employ an Office Manager and such other staff as may be required and determine their remuneration." The motion was seconded by Mr. Odom and carried.

On motion by Mr. Stokes, seconded by Mr. Roy Johnson, Mr. E. M. DeBlanc, Jr. was reinstated to the grade of Affiliate Member.

President Knight appointed Mr. James M. Todd to head a committee of his own choice to prepare a memorial honoring the late James M. Robert.

President Knight announced that Dr. F. W. Macdonald would study Senate Bill 377 and recommend procedure whereby LES would nominate members to the newly established Air Pollution Board in the event this bill should become law.

The meeting then adjourned.

JOHN P. FERNANDEZ
Secretary-Treasurer.

For the benefit of New York's citizenry, Pan Am's skyscraper heliport now sports a new 300-foot weather-rim of steel angle bars and steel caps. The weather-rim acts as a retaining wall and virtually eliminates the old nuisance of rainwater and melting snow dripping from the roof.

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WHO'S CREATING THE IMAGE OF THE P. E.?

By PAUL H. ROBBINS, P. E.

At an ECPD meeting in Chicago, concern was expressed again that the engineering profession is not attracting the number of qualified young people it appears the nation will need if we are to continue the many technological efforts on which it is embarked. There was, of course, much discussion on why high school students are not choosing engineering in greater numbers.

One of the popular whipping horses for this problem was debated in some detail; namely, what is felt to be the poor image of the engineering profession. Undoubtedly, this image could be improved. In most cases, it is a misunderstanding or a failure to delineate the true role of the professional engineer. Because we do not have the direct liaison with individuals, we have an additional difficult job of relating engineering work to the solution of human problems. But engineers themselves know that their entire effort is primarily directed toward making something better for the public—whether it be better transportation, better communications, better clothing, or more and better food.

Unfortunately, many engineers fall back on the easy answer that the profession should mount a massive public relations program. Undoubtedly, the profession should be doing much more in relating itself to the needs and problems of the man on the street. More can, and should, be done with an organized public relations effort, but a cardinal principle of public relations is that you must have an identifiable, reliable, attractive product that somebody wants if you are going to be successful in any sales campaigns.

The only ones who can give this image of the profession are the members of the profession themselves. Individual members need first of all to comport themselves in such a way that it is readily identifiable that they are professional people. Secondly, as professional people, they need to devote a portion of their energies to their organization, through which they can accomplish joint efforts; and, thirdly, they must be proud of their profession if they expect others to share this pride.

If all the sleeping PE's would wake up, all the lukewarm PE's would follow up, all the disgruntled PE's would sweeten up, all the depressed PE's would look up, all depreciating PE's would shut up, and all true PE's would stand up, more would be done to improve the image of the engineering profession than any massive public relations program that could be conceived.

Reprinted from AMERICAN ENGINEER, *November, 1963*

—o—

B. R. Summers has been named manager, coast engineering for the engineering and construction activities of Olin Mathieson Chemical Corporation. The announcement was made by I. D. Ritson, director of construction.

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Report On Annual Meeting Of N.S.P.E.

By WALDEMAR S. NELSON
NSPE National Director

The Annual Meeting of the National Society of Professional Engineers was held in Asheville, North Carolina July 1 through 4th. As Director from Louisiana I attended sessions of the Board of Directors at which a number of points of interest were decided. Since Louisiana exceeded a total of 500 NSPE members in May, the Society is now entitled to two Directors; and since there was insufficient time to select a second Director prior to the meeting, I was authorized to cast two votes for Louisiana on any questions brought up for decision.

The Board decided to increase the annual dues of NSPE members by $3.00, from $13.00 to $16.00 per year, to permit the NSPE to continue its activities with full effect and to avoid deficit financing. In this regard it was noted that states having the highest dues have the highest percentage of membership in NSPE, and each time NSPE has increased dues their number of members has increased noticeably.

The Board rejected the Code of Ethics proposed by an ECPD conference committee and adopted a new Code of Ethics patterned closely after the former Code recognized by NSPE which was proposed by the ECPD in 1947. The new ECPD code permitted competitive bidding for engineering services which was unacceptable to the NSPE.

Action by the National Electrical Manufacturers' Association seeking to have a clause added to the model law and state engineering registration laws exempting engineers in manufacturing industries from the requirements of registration was discussed and a resolution was drafted stating the NSPE believes that all persons should be registered as engineers if they are responsible for the engineering design of products, machines, buildings, structures, processes, or systems that will be used by the public and requesting NEMA to assist the engineering profession to accomplish this objective.

The new NSPE promotional film "The Common Denominator" was previewed. Copies of this film may be purchased or will be available on loan basis from NSPE.

It was reported that over 300 JETS clubs are being operated throughout the nation under sponsorship of NSPE familiarizing high school students with the applications of science to useful effort being made by engineers and this program is continuing to grow.

The NSPE committee headed by Professor Harry C. Simrall of Mississippi State University is compiling information on "Goals in Engineering Education" to be submitted to the American Society of Engineering Educators who are making a study of this subject. The Louisiana Engineering Society was requested to submit comments on this study.

The Board took cognizance of the recent action by the American Institute of Architects affecting engineers and addressed a resolution to that organization in this regard.

The NSPE will hold its Winter Meeting in New Orleans in January, 1965 and the officers and delegates are anticipating their visit here with a great deal of pleasure.

Respectfully submitted
WALDEMAR S. NELSON
National Director to NSPE for
Louisiana Engineering Society

—o—

Fithian Gets 50-Year Award

New Orleans—Eugene L. Fithian, LES, was honored recently for 50 years service with Eugene Dietzgen Co.

Fithian, Southern regional manager in charge of New Orleans and Florida operations, was awarded a 50-year watch by W. H. Lerch, chairman of the board.

Joseph E. Dietzgen, Chicago, president of the national manufacturing company, attended a cocktail and supper party at Antoine's in honor of Fithian.

He announced that Dietzgen Co. has arranged a 30-day all-expenses paid vacation trip to Europe for Mr. and Mrs. Fithian.

Fithian has been manager of the New Orleans office for the last 20 years, and as Southern regional manager. he is in charge of operations in Mexico, Central America, Texas, Louisiana, Mississippi, Alabama, Georgia and Florida.

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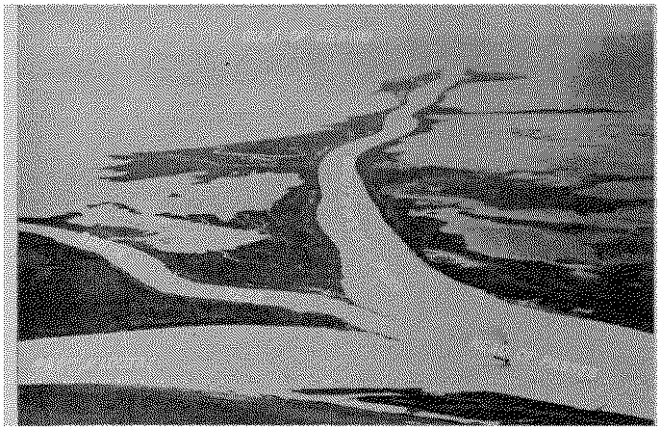
During the past year, the New Orleans District, with a work force of 1,200, of which 123 are professional engineers, augmented by personnel and equipment of numerous civilian contractors, pursued an extensive civil works program that approximates $50 million.

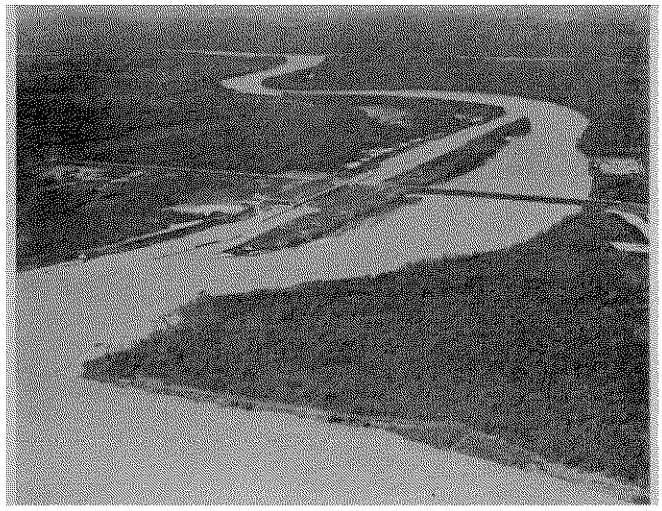
Lieutenant Colonel Anthony Pecoraro, Acting District Engineer, U.S. Army Engineer District, New Orleans, singles out three accomplishments as the most significant in terms of impact on a large area of Louisiana. These are the closure of Old River, the opening of the Mississippi River-Gulf Outlet, and the deepning of the Mississippi River to 40 feet below Baton Rouge.

"At the top of the list," he pointed out, "was the successful closure of Old River, which effectively ended the threat of a diversion of the main flow of the Mississippi. In a quest for the shortest route to sea level, the waters of the Mississippi were on the verge of adopting the routes of the Old and Atchafalaya Rivers as their own."

Col. Pecoraro noted, "The resulting impact of such a diversion on the port activities of Baton Rouge and New Orleans and the vast industrial complex between the two would be astronomical—the Corps' flood control plan for the safe passage of a major flood through Louisiana would go out the window and with it millions of dollars worth of flood control facilities, such as the Bonnet Carre Spillway, Morganza Control Structure, and Atchafalaya Basin Floodway. While a new plan was being prepared, the area westward of the Mississippi and Bayou Lafourche to, and even beyond the Teche would be at the mercy of a major flood. And, of course, this period of danger would prevail until adequate features were constructed.



A 5-FOOT DEEPER navigation channel is now available in the Mississippi River below Baton Rouge as a result of the Corps of Engineers' pile dike construction and dredging activities in Southwest Pass and at eight locations between Baton Rouge and New Orleans. The new channel will accommodate supertankers and other vessels with drafts up to 40 feet.



THE DAM pictured in the center of this photograph ended forever the threat of a change of course by the Mississippi River utilizing the routes of Old River (center) and the Atchafalaya (upper left). To the left of the dam a commercial tow can be seen leaving and one entering the Corps-built navigation lock, which provides for the interchange of waterborne commerce between oil-rich southcentral Louisiana and terminals on the Mississippi, Ohio, and other rivers. The dam was completed on October 15, 1963.

"The Mississippi River Commission," he continued, "developed the solution that Old River would have to be dammed off, and the New Orleans District put the Commission's plans into effect."

Following authorization of the Old River Control Project by the 83rd Congress, construction work began on the first feature—a combination low sill and overbank structure. The low sill portion of the structure, together with channels connecting it with the Mississippi on the east and the Red on the west, was designed to permit the necessary diversion of flow from the Mississippi to the Atchafalaya at all stages, while providing for the control necessary to prevent capture. The overbank portion of the structure would facilitate the passage of flood flows from the Mississippi down the Atchafalaya Basin Floodway. A navigation lock to permit the uninterrupted flow of waterborne commerce from oil-rich southcentral Louisiana to port cities throughout the Midwest and East had to be constructed; all these features, together with connecting levees, were constructed and then work began on the closure itself.

The actual closure of Old River was made in the predawn hours of July 12, 1963. This was accomplished

by the pumping of sand from the bed of Old River itself by hydraulic dredge. The dam, standing 99 feet high at the deepest part of the stream and 1,500 feet wide, with a crown 60 feet in width that will support a scenic highway, was completed on October 15, 1963. This event ended a threat that could have changed the entire economy and well-being of the most populated area of Louisiana.

The opening of the $95 million Mississippi River-Gulf Outlet was an event of widespread import. This 76-mile "shortcut to the Gulf of Mexico" is lopping off 40 miles from the navigation route down the Mississippi. The project, begun in March 1958, opens up miles of water frontage ideally suited for port expansion and industrialization. It's almost straight-as-an-arrow course, plus its freedom from swift currents and floating debris encountered in the Mississippi, makes it a boon to navigation. On July 25, 1963, although construction was—and still is—underway, the Mississippi River-Gulf Outlet was opened to deep-draft navigation. Since that time, utilization of the channel has steadily increased; and to date over 231 vessels have navigated its length.

The third major accomplishment of the District was the deepening of the Mississippi River, providing a 40-foot-deep navigation channel from Baton Rouge to the Gulf. This new channel was the result of three years of work by the District in tailoring this vital shipping artery to the needs of today's modern tankers and cargo carriers.

Although the Mississippi's natural depts below Baton Rouge for the most part greatly exceed 40 feet and in some places approach 200 feet, at its mouth a great percentage of its suspended material and bedload is dropped. This requires annual maintenance dredging even to maintain the former 35-f o o t channel through Southwest Pass.

Additionally there were eight shallow points or crossings between Baton Rouge and New Orleans that had to be deepened to 40 feet. The attaining of the deeper channel and the 20-mile-long Southwest Pass hinged on a double-barreled attack by the Engineers consisting of dredging and pile dike construction. The dikes were built at right angles to the bankline, extending out into the river to confine the flow into the deeper parts, thus increasing the current velocity and helping to maintain its depths by keeping the silt moving.

"The 40-foot-deep navigation channel was authorized by Congress in 1945. The width of the channel varies from 500 feet between Baton Rouge and New Orleans to 800 feet in Southwest Pass and from 1,000 feet between the Head of Passes and New Orleans to 1,500 feet in the New Orleans port limits. The additional 5-foot depth is enabling shippers of bulk commodities, such as oil, petroleum, chemicals, grain and ore, to realize a considerable savings in transportation costs. The giant cargo carriers and tankers now pressed into this service for the most part have drafts exceeding 40 feet. Five additional feet in draft can mean a savings in transportation costs of 33 per cent a ton on a typical 45,000-ton ore carrier operating between Trinidad and a Mississippi River port. On this trip, a total savings of $14,000 is possible by loading to the 40-foot depth. In October 1963, the Corps was able to announce to shipping that a 40-foot channel was a reality.

THE LOW sill structure (left) and connecting channels are vital components of the Old River Control Project, which provides for the passage of regulated flow from the Mississippi River (foreground) to the Atchafalaya Basin via its connection with the Red River in the distance. In the center is the overbank structure, designed to pass flood flows from the Mississippi to the Atchafalaya Floodway.

Accomplishments such as those touched on here are only possible when you have an organization staffed by highly skilled, professional engineers. This the Corps has throughout its worldwide organization, and the fruits of its labors will continue to make history wherever these efforts are applied.

Le Corgne Promoted at ETCO

William R. LeCorgne, L.E.S., has recently been made manager and senior engineer of the New Orleans office of ETCO Engineers and Associates. Mr. LeCorgne, a native Orleanian, was formerly with New Orleans Public Service Inc., as a structure and foundation design engineer. ETCO Engineers and Associates are soil and foundation consultants with offices in Baton Rouge, New Orleans and Houston.

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A Challenge To Our Professionalism

By Col. John T. Knight, Jr., President
Louisiana Engineering Society

On June 26, 1964, I sent to each of you, our "Emergency Bulletin" concerning Louisiana House Bill H-481. You all responded in a most gratifying manner. We were told that the Governor received more than 1,000 letters and telegrams. Up to the very last day, we had reason to believe that the bill would be vetoed.

The bill was received by the Governor on June 30, 1964 and was received by the Secretary of State on July 15, 1964 becoming Act No. 210.

The bill was sponsored by Messrs. McGehee, Dawson, Cole, Keogh and Bernhard and Mrs. Walker. The truth is that it was spawned by the A. F. of L.-C. I. O of Louisiana of which Mr. Victor Bussie is State President. Mr. Bussie "ram-rodded" this bill through the House and Senate. On the last day for the Governor's signature he was seen leaving the Governor's office, after which word came out that the Governor was unable to see our engineers who had been waiting to talk with him about the bill.

The indications are that all the beneficiaries under this bill have already committed themselves to joining an engineers' union. The A. F. of L.-C. I. O. are already established in the State Highway Department, where union dues are being deducted from the union employees' pay checks. With this law it's rather easy for Mr. Bussie to step in and organize all those licensed as a result of this Act. That we expect.

In the meantime, our registration law has been downgraded and we can expect that an increasing number of State Boards of Registration will decline to recognize registration in Louisiana. Thus some 7,000 engineers registered in this state are penalized in order that a possible 48 men who were Aids III or less in 1950 and who now are Aids IV may be registered as professional engineers and be paid accordingly. This was a Civil Service problem and not a situation that should have altered the registration law. Mr. Bussie did not want to do it the proper way because that would not have given him the opportunity to form a professional engineers union within the state.

We were advised by a competent attorney that in his opinion, we could not win our case if we went into court claiming Act 210 unconstitutional. Our only recourse now is "watchful waiting" to see what the next move will be.

For some 20 years the engineering profession has debated, studied, analyzed and experimented with various methods of enhancing the status, prestige, and recognition of engineers. We intend to redouble our efforts. Up to this moment, all experience tends to demonstrate conclusively that the individual engineer and the engineering profession are best served through reliance upon the professional concept of solidarity in service to the public welfare and all avoidance of having the union, through collective bargaining, speak for us.

Labor unions representing engineers have not changed their tactics, but the engineers have had to change theirs to conform to union standards. The usual tactics of labor unions have been employed, all of the standard techniques, strikes, picket lines, and individual engineer members who did not conform found heavy fines placed against them. Moreover, when they tried to question the right to fine members, the engineers found the National Labor Relation Board uninterested and claiming that it was an internal matter in the union; yes, even one court held the same opinion.

When an individual professional engineer is "represented" by force of law and collective bargaining to the extent of every phase, detail and aspect of his professional activities, it cannot be successfully maintained that collective bargaining (unionism) is compatible with professional status.

Labor-oriented students of engineering unionism have confirmed the basic conflict between professionalism and unionism. A labor economist with one of the fine universities of this country and formerly with the A.F. of L-C.I.O., stated: "once the white collar worker gets over the initial trauma of being in a union, he behaves like a bricklayer."

You must choose between unionism and professionalism, "You can't ride two horses."

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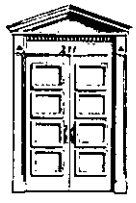

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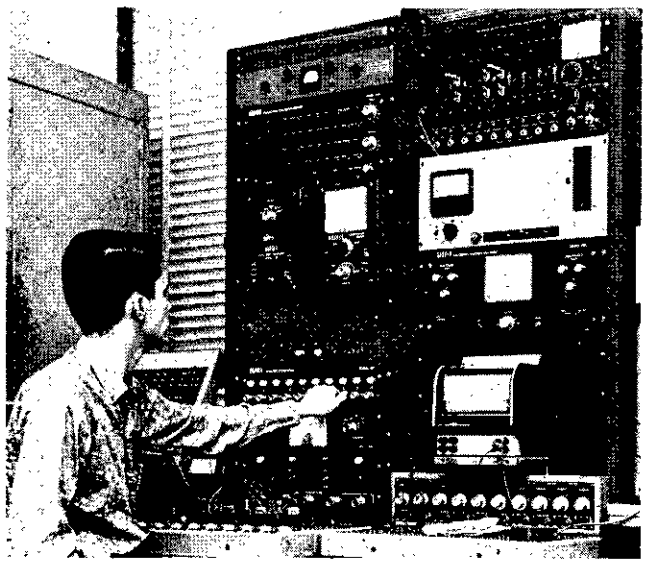
Daily Business Trends...WDSU—5:25 PM • Daily Business News...WWL—5:35 PM

New Courses, Equipment Offered

Engineering Schools Prepare For Opening

The following information describing new courses and equipment being offered Engineering students during the 1964-65 school year was specially compiled by Deans of Engineering Schools throughout Louisiana at the request of The Louisiana Engineer.—Ed. Note.

LOUISIANA TECH



THE MODERN computing and electronic data processing equipment in the Louisiana Tech Computing Center is valued at over $300,00.

By BEN T. BOGARD, Dean
Ruston, Louisiana

Louisiana Tech's School of Engineering has a national reputation for excellence, dedicated to the training of young men and women for positions of responsibility.

The School of Engineering is fully accredited by the Engineers' Council for Professional Development and offers courses leading to the degree of Bachelor of Science in Chemical Engineering, Civil Engineering, Electrical Engineering, Geological Engineering, Industrial Engineering, Mechanical Engineering and Petroleum Engineering.

Courses and curricula also are offered leading to the degree of Master of Science in Chemical Engineering, Civil Engineering, Electrical Engineering, Geological Engineering, Mechanical Engineering and Petroleum Engineering.

The School of Engineering has contributed to higher education and industry through its graduates for the past 68 years. Its graduates hold positions of responsibility in education, industry, government, and the military, second to none.

The continuing goal of the School of Engineering is to keep abreast of the implications of new technology and to prepare its graduates for undertaking the challenging tasks in the decades ahead.

The School of Engineering has more than 2,100 engineering alumni, with 50 per cent employed in Louisiana, 30 per cent in Texas, 5 per cent in California and the remainder world-wide. 42 per cent of this number has graduated since 1957, or in the last seven years.

During 1962-63 school year there were 17 potential job opportunities for each graduating engineer at Louisiana Tech.

ENGINEERING RESEARCH

The School of Engineering has at the present time an amount of $89,424 awarded by the National Science Foundation and the Louisiana Department of Highways for research projects. Approximately 38% of the teaching staff of the School of Engineering, exclusive of Department Heads, is engaged in some form of engineering research.

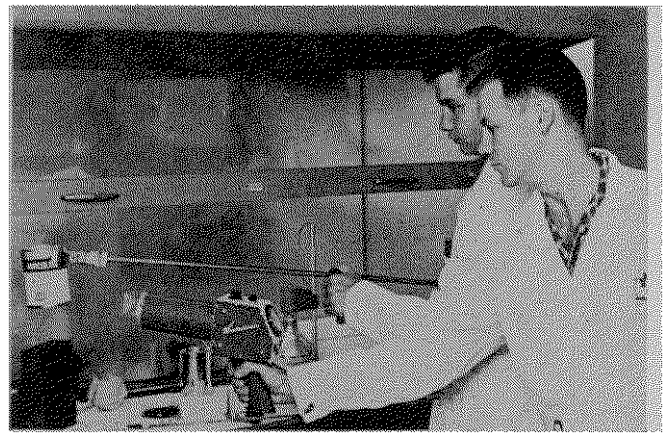
Recently Tech has acquired a 70-acre tract of land on Interstate 20 for the establishment of a research park. The possibilities afforded here are unlimited and long range plans for this area envision means for technological developments, new products, and toward attracting additional industry to North Louisiana.

The establishment of an astronomical observatory at this site, including a 12½ inch reflecting telescope, is 70% completed.

NUCLEAR CENTER

Tech has the capability of establishing a new technical company providing services in the field of applied nucleonics and protection against radiation hazards. It could be a tremendous asset in attracting space age and nuclear industries to the area. The increasing use of radioactive isotopes and radiation generators has created a real need for services relating to the health and safety of both the general public and those people who work with radiation.

Tech's additional capabilities are: provision of commercial assistance in the control of radio-active materials; provision of safety services to industrial, medical and educational users of X-ray machines, teletherapy units and sealed radioactive sources; provision of other



LOUISIANA TECH'S Nuclear Center, with its instrumentation and equipment, encompasses a radioisotopes counting laboratory, a radioisotope and equipment storage room, a radiochemical laboratory and a subcritical nuclear reactor.

aids such as analytical radiochemistry, information and surveys on compliance with federal and state licensing regulations, instrument repair and calibration, bioassay, and facility design.

Tech's Nuclear Center, with its instrumentation and equipment, encompasses a radioisotopes counting laboratory, a radioisotope and equipment storage room, a radiochemical laboratory and a subcritical nuclear reactor. In addition to the more than $60,000 worth of instrumentation and equipment, the Center has on loan from the U. S. Atomic Energy Commission over 5,000 pounds of natural uranium metal valued at $100,000.

COMPUTER CENTER

Tech has been fortunate in being able to provide a progression of valuable computers, including an LGP-30, IBM 650, and an IBM 1620, the most recent edition. The modern computing and electronic data processing equipment in the center at Tech is valued at over $300,000.

INDUSTRIAL ENGINEERING

Beginning this Fall, Industrial Engineering majors at Louisiana Tech will find many changes in the curriculum. The major change will be an increase in computer instruction and application. Following the computer instruction will be a sequence of changes in advanced courses in which operations research, systems analysis, and other decision-making methods and techniques will be emphasized.

CHANGES IN CIVIL ENGINEERING CURRICULUM

The Civil Engineer, as a builder, faces a professional challenge to provide the optimum physical environment for every phase and activity of our society. This demands of the Civil Engineer an extremely high level of social responsibility, a conscious awareness of the needs of people, both present-day problems and trends toward the future, and a professional competence to meet the challenge.

In recent years a downward trend in Civil Engineering enrollment has been accentuated by publicity and increased emphasis on applied science and glamour industries of the space research programs. The accrediting agency, the Engineers' Council for Professional Development, has urged the strengthening of the curriculum through increased emphasis on science, common core curricula, humanistic-social disciplines, and with less emphasis on specialization at the undergraduate level. The Civil Engineering curriculum at Louisiana Polytechnic Institute has recently been revised in keeping with the recommendations of the Engineers' Council for Professional Development and at the same time the total credit-hour requirement has been reduced from 147 to 141 semester hours.

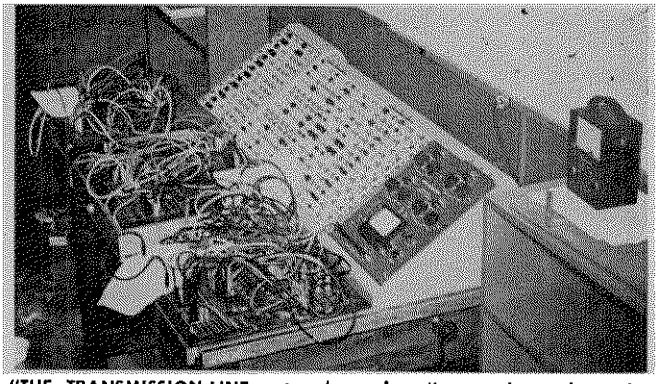
U. S. L.

WAYNE P. WALLACE, DEAN

The School of Engineering of the University of Southwestern Louisiana has added to the analytical instruments and equipment of its various departments over the past year in order to keep up with the ever-increasing demands of modern engineering technology.

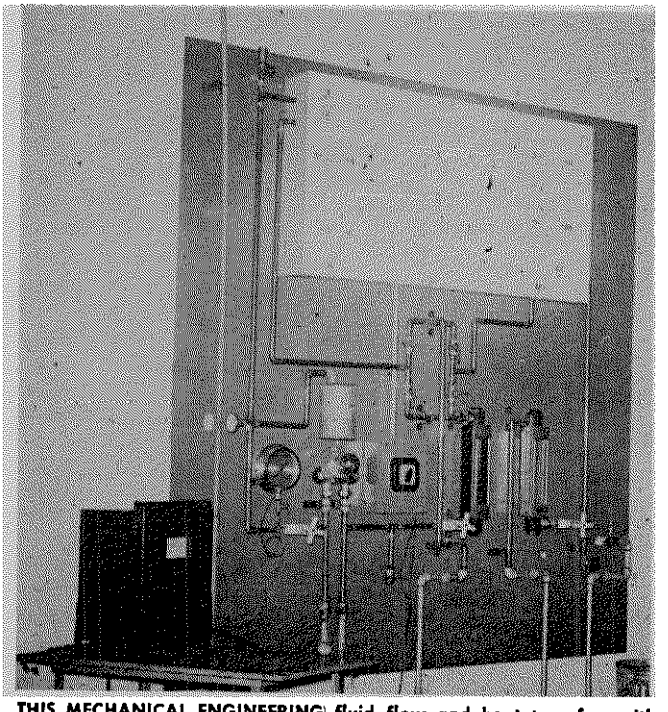
CHEMICAL ENGINEERING

New radiation in nuclear detection devices, high vacuum and high temperature equipment and computers will be added to the existing capabilities in spectrophotometry and limited radiation detection gamma ray



"THE TRANSMISSION-LINE network analyzer" was donated to the Electrical Engineering Department of USL by the Central Louisiana Electric Company. Here a wide variety of network problem solutions are accomplished by an analog model of the actual system.

spectrometer of the Chemical Engineering Dept. The new gamma ray spectrometer incorporates a 512 channel analyzer making it possible to accurately detect and display for analysis the spectrum of radiation sources. A variety of operations are possible with the oscilloscope display of spectra including comparison of spectra energy level by energy level and in conjunction with a catalog of predetermined spectra it is possible to identify any radiation source through photography. Permanent record of the spectrum as a curve is readily available from this equipment. In addition, an electric typewriter programed by the instrument makes available in four minutes the digital output of the 512 channels of the detector, radiation computer. A special computer for use with the gamma ray spectrum analysis equipment makes it possible for the spectrum of one source to be subtracted from or added to another in multiples or fractions of the values entered into the computer. This gives a wide variety of desired operations. In addition, the computer makes it possible to integrate the entire



THIS MECHANICAL ENGINEERING fluid flow and heat transfer, with a double pipe heat exchanger including flow meters, was built at USL.

spectrum or selected portions thereof.

An additional feature of this integration is the rapidity with which the instrument can accomplish it.

Portable radiation detection equipment essential to the operation of a radiation laboratory is the ability to detect radiation sources of very small power. In order to protect human beings from ill effects of radiation our new portable source detector will be capable of detecting any of the sources of radiation alpha, beta, gamma, x-rays, and fast and slow neutrons. Being portable it will give us an ability of protecting individuals outside our laboratories. Our new equipment is more versatile than previously available total count equipment as it is in itself a single channel analyzer with the capability of shifting that channel so that one channel at a time, a complete energy spectrum, can now be determined.

Even before nuclear activity gave rise to radiation polution of the atmosphere, we were surrounded by a radiation field. This field is so low we are not seriously concerned about it as far as health and physics is concerned; but, in counting very weak sources which we wish to determine precisely, it is a serious deteriorant to accuracy. Our new low level detection equipment makes it possible to reduce the evident background radiation to less than 10 per cent.

The auto-printer included in this equipment accumulates radiation counts and on signal prints out this information. The counter includes a sample changer which makes it possible to count up to 50 samples in sequence or repeatedly and the printer makes it possible to operate unattended x-ray defraction equipment.

The new x-ray defraction analysis equipment includes a camera for establishing a film record of this spectrum and also a proportional counter for instantaneous detection of defracted rays. The ability of non-destructive analysis and testing makes this piece of equipment invaluable in the study of material sciences.

The new metallurgical furnace is capable of operation at controlled temperatures up to 4400°F. This widens the scope of possible work in our laboratory well beyond our present capability.

The chemical engineering department has also added this year a special piece of equipment for analyzing the flow of fluids. This is a circuit in which the influence of different types of valves and fittings, size and length of pipe can be evaluated and flow rates and velocity and static pressures can be covered. Aiding in this analysis will be an analog simulation which is part of the equipment and produces an analog reading on dial type meters of the variables being studied.

PEROLEUM ENGINEERING

The Petroleum Engineering Department recently installed a dual completion pumping installation for classroom studies.

MECHANICAL ENGINEERING

The Mechanical Engineering Department has made the following additions during the past academic year:

In the field of Mechanical Analysis: Ellis-type Switch and Balance Unit, six-channel, for use with strain rosettes, Tranducers and associated equipment, Vibration and Accelerometer models.

In the field of Fluid Flow and Heat Transfer: Double Pipe Heat Exchanger, including flow meters, Free and Forced Convention apparatus, Water Tables, Steam Nozzle, Air Distribution system.

Additional instrumentation: Analog Field Plotter, Radiation Counter, Analog Computer and Potentiometers.

ELECTRICAL ENGINEERING

"The transmission-line network analyzer" was donated to the Electrical Engineering Department by the Central Louisiana Electric Company. Here a wide variety of network problem solutions are accompanied by an analog model of the actual system.

A "microwave radar system" is temporarily installed in Madison Hall to stimulate student interest in the many types of circuit and control techniques involved. It is intended that this will be the heart of a meteorological center and propagation laboratory which is in the planning stage.

The art of analog computation is introduced to electrical engineering students in their sophomore year. This is followed by analog-simulation of various types of closed-loop systems, including servomechanism devices.

GEOLOGY DEPARTMENT

The Geology Department, in the School of Engineering, has recently received a well equipped seismic field exploration unit from Robert H. Ray of the Ray Geo Physical Corporation, Houston, Tex.

TULANE

LEE H. JOHNSON, DEAN

The Tulane University School of Engineering has acquired a mobile liquid oxygen and liquid nitrogen generating plant for research in such areas as reaction kinetics, combustion, gas dynamics, and cryogenics. The plant is mounted on two trailers and was formerly used to fuel missiles at the launching pad. It will be put into use at the new Riverside Laboratories of Tulane University at Belle Chasse, La.

ENGINEERING DESIGN AND ANALYSIS SEQUENCE

The Engineering Design and Analysis Sequence is an eighth-semester sequence in the special interest option and the engineering core curriculum. Since design is the central core of all engineering endeavor, it is desir-

(Continued on Page 26)

PAUL B. FRILEY, President of W. S. Dickey Clay Mfg. Co. (center), hands check for $10,000 to Dr. Herbert E. Longenecker, President of Tulane University, as partial payment for sanitary sewer research program sponsored jointly by Dickey, U. S. Public Health Service and the Sewerage and Water Board of New Orleans. Others looking on are (left to right): Elmer R. Ligon, Vice-President in charge of research, W. S. Dickey Clay Mfg. Co.; Joe Mason, Vice-President, W. S. Dickey Clay Mfg. Co., and Dr. Lee Johnson, Dean of School of Engineering, Tulane University.

T. L. JAMES SETS PAVING RECORD

PAUSING FOR a deserved rest are (left to right) J. C. Perritt, project manager, T. L. James & Co., Inc.; Fitzhugh I. Cox, project engineer, Louisiana Department of Highways and J. C. Watson, staff engineer, T. L. James & Co., Inc. On July 16 T. L. James set a new record when their paving crew placed 5,321-feet of 10-inch-thick, 24-feet-wide concrete in one day. Cox and Watson are L. E. S. members.

An all-time highway paving record for the State of Louisiana was set on July 16 by T. L. James & Co., Inc.

Working on the Sulphur-Vinton section of Interstate 10 near Lake Charles, the T. L. James paving crew placed 5,321-feet of 10-inch-thick, 24-feet-wide concrete in one day.

It was the first time a Louisiana highway contractor had ever paved a mile or more in one day. This is roughly twice the normal pace in highway paving, and represents a triumph in efficient organization and sound engineering construction practices.

The project involved is an 11.5-mile stretch of Interstate 10 west of Lake Charles costing approximately $5.3 million. With only about half of the working time allowed in the contract used up at this point, some 75 percent of the paving is already completed. The paving crew has been averaging close to 4,000 feet per day, using a 12-hour work schedule. On the day the paving record was set, placing time was 13 hours.

The work is under the direction of J. C. Perritt, project manager; Griffin (Buck) Nugent, paving superintendent; Reese Nugent, mixer foreman; Ernest Loupe, grade foreman; Kelly Pecontz, plant foreman; Walter Broussard, office manager, all of T. L. James & Co., Inc. (home offices in Ruston, La.)

Fitzhugh L. Cox is project engineer for the Louisiana Department of Highways, and an L.E.S. member.

The paving consisted of 10-inch by 24-foot concrete with 74-lb. mesh, 58½ ft. panel length with star lugs as load transfer devices. The 14,189 sq. yd. of paving required 43 transport truckloads (6,104 barrels) of cement.

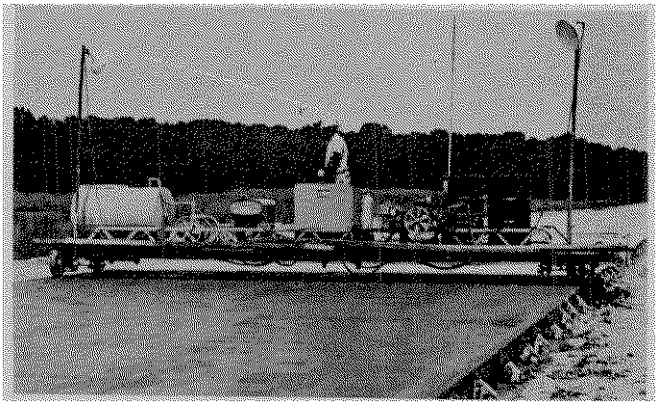
J. C. Perritt, project manager for T. L. James & Co., said the soil-cement subbase contributed materially to the setting of the paving record. The strength of the six inches of soil-cement subbase, Perritt said, allowed him to pave "inside" the forms (placing three heavy mixers abreast inside the forms) and thereby set a fast pace.

All materials hauled on the record day were taken to the paving site by truck, using 20 dry-batch trucks with four-or five-batch compartments. There were a total of 2,856 batches hauled on the record day.

The paving record benefits the general public in two ways: (1) contributes toward getting the road opened for public use more quickly and (2) means a saving in engineering costs to the Louisiana Department of Highways since fewer inspection hours are required to ascertain that the paving meets Department specifications.

The paving was done with the following equipment:

3—Koehring 34-E Twin-Batch mixers working abreast on the job
2—Manually operated Johnson batching plants (total capacity 2,000 barrels)
1—Koehring Model 405 with a 1¼ yd. clamshell bucket stockpiles sand at the batching plant
1—REX finishing machine
1—REX combination finisher-longitudinal float
1—Blaw-Knox spreader
1—Barton curing machine
20—Dry-batch hauling trucks, size varying from 4 to 5-batch compartments.



The finished pavement is shown, as final passes are made with a Barton curing machine.

Highway accidents in the U.S. took a record number of lives in 1963. Some 42,700 persons died on the nation's highways last year, and more than 3,460,000 were injured.

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Subcontract Field Notes
By Allen Johnson

A New Orleans firm has been given a $3 million mechanical equipment subcontract, according to an announcement by Avondale Shipyards, Inc. The award was made to the Allan J. Harris Co., representing DeLaval Turbine, Inc., according to Avondale president Henry Z. Carter.

The equipment includes the main propulsion turbines and gears for four cargo vessels for Lykes Bros. Steamship Co., Inc., on which Avondale received the construction contract recently. Vernon Payne, vice-president of the Harris company, said the equipment contract also includes the main generator sets providing power for four automated Far East Clipper Cargo ships. The latter four vessels brings to 16 the number of ship contracts awarded to Avondale.

* * *

Frank Walk, Chairman of the Professional Engineers in Private Practice of LES, will attend the Third Annual Private Practice Conference to be held in Kansas City, Mo., Oct. 9 and 10, 1964.

The PEPP Conference has been expanded to include a variety of topics which will point up the activity of both the national and state functional sections. The Conference will be divided into three discussion sessions and each participant will be provided an opportunity to attend all three sessions. A number of guest speakers have been invited, including Sen. James Pearson of Kansas, John R. Clark, Esq., who will discuss professional liability, and Frank Virr, P.E., assistant state highway engineer, Kansas Highway Commission, will review the relationship between the engineer in Government and the engineer in private practice.

* * *

National Society of Professional Engineers Field Representative J. D. "Don" Strong, Washington, D. C., will speak before a planning session for the NSPE winter meetings at the Engineers' Club, Sept. 10. The winter meeting will be held at the Jung Hotel in New Orleans Jan. 19 through Jan. 23, 1965.

* * *

Chester A. Peyronnin, Jr., L.E.S., was recently promoted to the rank of professor of mechanical engineering at Tulane University in New Orleans. A native of New Orleans, Professor Peyronnin is one of the principal developers of the new engineering course study at Tulane which includes a core curriculum of engineering, mathematics and science, and a special interest program individually prepared for each student.

He joined the engineering faculty in 1948. He is a former editor of the Louisiana Engineer.

In 1962, Professor Peyronnin received an award from the American Society of Mechanical Engineers for his publication, "Hurricane Design of Industrial Plants," which was judged the most outstanding by the society for 1962. He has served as propulsion engineer for planning the starting system of the B-58 bomber; as test engineer on the J-47 jet engines during development; and as design engineer for U.S. Army Engineers on the hurricane protection of the New Orleans area.

L. E. S. To Nominate Members For Air Control Commission

The Louisiana Engineering Society has been invited to nominate three Registered Professional Engineers to serve on the newly-created Louisiana Air Control Commission. Gov. John J. McKeithen will appoint one engineer from the three nominated by the Society.

The Louisiana Air Control Commission was created by Senate Bill No. 377, and will "provide for an exclusive method for the protection of the purity of the air of the State of Louisiana . . . with certain powers, duties and functions, to provide for the repeal of all other laws in conflict or inconstent herewith and to provide the effective date of this law."

The Law is officially titled the "Louisiana Air Control Law."

The members of the Commission will be the President of the Louisiana State Board of Health, the Director of the State Board of Commerce and Industry, the Commissioner of Agriculture and Immigration of the State of Louisiana or their authorized representatives, and four members who shall be appointed by the Governor.

According to the law, "one shall be registered professional engineer with at least ten (10) years experience in the actual practice of his profession, which experience shall include work in air control, and shall be selected by the Governor from a panel of three names submitted by the Louisiana Engineering Society."

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Nell Cromiller, Asst. Mgr.

General Audit - - Year Ended Dec. 31, 1963

EXHIBIT A

LOUISIANA ENGINEERING SOCIETY
STATEMENT OF ASSETS
DECEMBER 31, 1963

CASH:		
Checking Account—Whitney National Bank of New Orleans		$ 8,018.78
UNITED STATES SAVING BONDS, SERIES J:		
(Maturity value—$2,000.00)—redemption value		1,784.00
INVESTMENTS—HOMESTEADS: (AT COST)		
Columbia Homestead Associations		2,000.00
Commonwealth Homestead Association		2,000.00
Greater New Orleans Homestead Assn.		2,953.16
Security Building and Loan Association		1,500.00
State Savings and Loan Association		1,500.00
Union Savings and Loan Association		1,500.00
Total Investments—Homesteads		$11,453.16
LAPEL EMBLEMS ON HAND		$ 125.00
TOTAL ASSETS		$21,380.94

NOTE: Of the cash in bank stated above, $6,547.72 is available for ordinary operations and $1,471.06 is being reserved for the Registration Law Fund.

EXHIBIT B

LOUISIANA ENGINEERING SOCIETY
STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS FOR THE CALENDAR YEAR 1963

RECEIPTS		
Dues:		
N. S. P. E.		$ 5,918.00
All other		18,363.75
Advertising		11,049.20
Annual meeting		2,664.00
Annual outing		1,315.40
State Board Contribution		6,000.00
Interest—homestead shares		382.50
Sale of emblems		20.10
Engineer's Week contribution		45.00
Miscellaneous—sale of certificates, publications, etc.		39.25
Total Receipts		$45,797.20
DISBURSEMENTS		
Dues rebated:		
N. S. P. E.		$ 5,904.00
Sections		5,250.86
Advertising commissions paid		2,258.00
Annual meeting		3,420.44
Annual outing		1,372.36
Auditor's fee		175.00
Awards, scholarships and vocational guidance		442.15
Dues, Chamber of Commerce, etc.		149.00
Miscellaneous expenses, certificates, floral offerings, etc.		193.80
Monthly meetings		375.94
Printing, stationery, office supplies and postage		1,934.95
Printing Fee Manuels		814.70
Public relations		4,027.79
Publication—The Louisiana Engineer—printing, mailing, editing, etc.		11,188.14
Rent—headquarters		180.00
Salaries:		
Secretary-Treasurer and assistant		5,280.00
Stenographer		1,320.00
Society security tax		239.28
Travel expense		56.20
Statewide programs		704.57
Total Disbursements		$45,287.18
EXCESS OF RECEIPTS OVER DISBURSEMENTS		$ 510.02
CASH BALANCE JANUARY 1, 1963—WHITNEY NATIONAL BANK		7,508.76
CASH BALANCE DECEMBER 31, 1963—WHITNEY NATIONAL BANK		$ 8,018.78

NOTE: Not reflected in receipts above are an increment in U.S. Savings Bonds of $56.00 and optional shares account of the Greater New Orleans Homestead Assn. of $128.53; not reflected in the disbursements is the cost of emblems sold in the amount of $20.09.

Audited by Carlos J. Grimader, Grimader & Hart, Certified Public Accountants, June 25, 1964.

Deloney Named Chief Engineer

Harold L. Deloney, L.E.S. Algiers, has been promoted to chief engineer of Louisiana Power & Light Company.

The 33-year veteran of LP&L, who has been assistant chief engineer since November, 1946, was named to the post by W. T. Hess, L.E.S. formerly vice president and chief engineer of the Company. Hess will continue to head the Company's Engineering Department as vice president in charge of engineering.

A native of Athens, La., Deloney joined LP&L in August, 1931, as a member of the Northern Division construction forces. He later was transferred to division metering, and in 1936 was promoted to meter superintendent at the Company's General Office in New Orleans. Later, he was named transmission and distribution engineer, and then to assistant chief engineer in 1946.

A graduate of Louisiana Tech in electrical engineering, Deloney also successfully completed the Public Utility Executive Training Course at Georgia Tech. He and Mrs. Deloney, the former Miss Margaret Hatch of Rayville, have two sons.

Deloney is a member of the Timberlane Country Club, several Carnival Clubs, the Algiers Methodist Church,

Lambda Chi Alpha social fraternity, the Engineers Club of New Orleans, New Orleans Chamber of Commerce, and the Institute of Electrical and Electronics Engineers. He is now serving as a utility representative on all American Standards Association committees, and represents his Company on Southeastern Electric Exchange committees.

Hess was born in New Orleans, and joined the electric utility industry in April, 1924, as an engineer with New Orleans Public Service Inc. Following two years with NOPSI, he served as distribution engineer of the Havana (Cuba) Electric Company.

In 1927, Hess rejoined NOPSI. The following year, he became an industrial engineer with LP&L, joining the company several months after it was organized. He was named chief engineer of LP&L in April, 1938, and became vice president and chief engineer in April, 1940.

In addition to being a member of LP&L board of directors, Hess also is a member of the board of the National Bank of Commerce in Jefferson Parish, a lifetime member of the Louisiana Engineering Society, and a fellow of the American Institute of Electrical Engineers. He also holds membership in the Engineers Club of New Orleans and the Colonial Golf and Country Club.

Hess is married to the former Miss Alice Carol Root. They have two sons.

—o—

Knight Urges Acceptance of Professional Engineers

LES President John T. Knight, Jr. recently forwarded a telegram to Mayor Roy C. Keller of Westwego informing him of the availability of ASCE's Manual No. 45 and the Guide to Professional Practice Under the Code of Practice for Consulting Engineers. President Knight urged the acceptance of Registered Louisiana Engineers as "true professionals" in the selection and employment of Engineers in Westwego.

The text of the telegram follows:

The American Society of Civil Engineers have available to assist you manual No. 45 and the Guide to Professional Practice under the Code of Ethics for Consulting Engineers. Neither of these documents restrain nor restrict your responsibilities to the people of Westwego. They will guide and facilitate you gentlemen in relation to the selection and employment of Professional Engineers necessary for the design and supervision of any and all utilities planned for the people of Westwego.

The Engineering Profession, like the Medical and the Legal Profession, feels strongly that it is improper to make a selection solely on the basis of fee consideration. No two engineering firms have equal training, experience, skills, capabilities, personnel, work loads, and particular abilities. Your selection of the right firm for a specific project can mean the difference between a well planned, low overall cost, successful project or a mediocre and costly one. Continuity of engineering concept is important; this is reasonably assured by maintaining the same engineering firm for all phases of a development.

My interest is forwarding and pressing for the acceptance of the Registered Louisiana Engineer as a true professional and I would like to feel that his selection for a given project was based upon professional considerations.

J. T. KNIGHT, JR., P.E. President
Louisiana Engineering Society

—o—

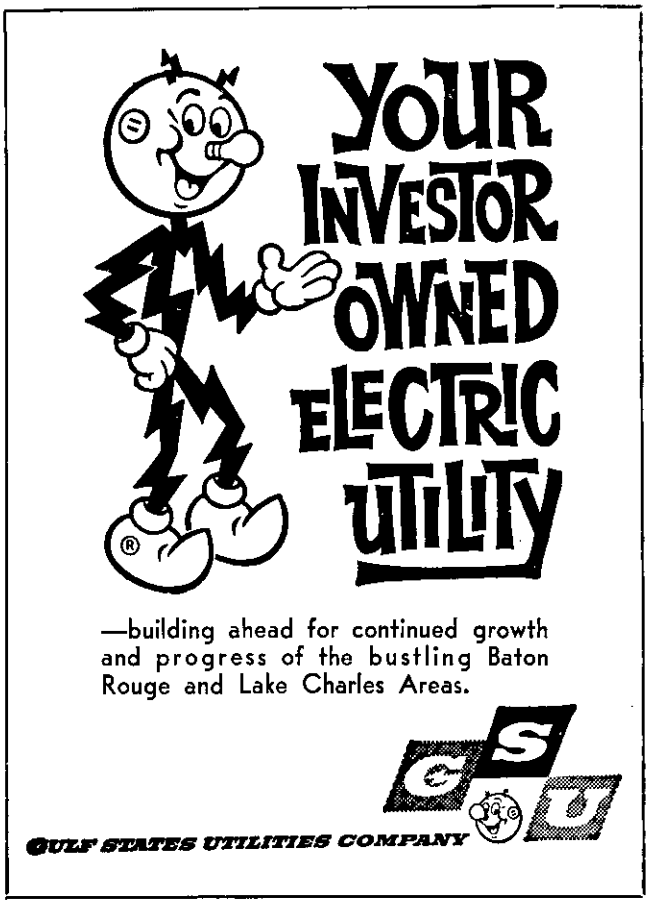
'Secure Annual Award Nominations Now'-Janssen

By JAMES S. JANSSEN
Chairman Honors and Awards Committee

The Honors and Awards Committee would like to remind you that it is **now** time to secure nominations for the awards that are to be presented at the 1965 Annual Meeting. Since this is a joint meeting with the National Society of Professional Engineers, we are especially anxious to secure worthy candidates. Nominations from your section should have been in your hands since August 1 for consideration and recommendation by you and your officers. They should then be forwarded to me by September 1 for consideration and selection by the Honors and Awards Committee. These seemingly early deadlines are necessary to allow for dispatching to the members of the committee in various parts of the state, discussions (perhaps by mail), voting, and finally, engraving before the January Annual Meeting.

To review briefly, the following awards are available if suitable nominations are made:

1. **The Civic Activities Medal-Andrew M. Lockett Award,** presented for distinguished civic



service rendered by an engineer in the interest of the public without compensation for such service.

II. **The Technological Accomplishment Medal,** awarded in recognition of attainments or discoveries contributing to the advancement of engineering.

III. **The A. B. Paterson Engineer-in-Management Award,** presented to an engineer with a record ord of distinguished service in management. This is the newly established award that will be presented for the first time in 1965.

IV. **The Charles M. Kerr Public Relations Award,** to be given to the member of L.E.S. who has contributed the most to promote good public relations for professional engineering in the State of Louisiana. Nominations for this medal are to be sent to the Honors and Awards Committee to be forwarded to the Public Relations Committee for selection.

V. **Honorary Membership** nominations require endorsement by at least 10 members and require approval by the Honorary Membership Committee (all living past presidents) and by the Board of Direction. Nominations for Honorary Membership should also be sent to the Honors and Awards Committee who will forward them to the L.E.S. President for consideration by the Honorary Membership Committee and approval by the Board.

The Committee must have the following data on each nominee:

1. The present company connection and title of the candidate and his present permanent address.
2. A full statement of the training, experience and notable contributions of the nominee.
3. A statement of the basic reasons for submitting the nomination and for believing the nominee to be eligible for the honor.
4. Other information and supporting data that may assist the Committee to consider and act upon the case.

Remember that Certificates of Appreciation are available for you to award, usually during Engineers Week, to members in your section who have done outstanding work.

Previous references to these awards were in the Louisiana Engineer for April (p. 22) and June (p. 28) of this year and in a letter sent you by John Fernandez on June 20, 1964.

If you have not already done so, please start action on nominations immediately.

—o—

NSPE PLANNERS

The planning committee for the winter meeting of NSPE to be held at the Jung Hotel in New Orleans January 19 through January 23, 1965, was announced recently by G. M. Baccich, Jr., A. M. Lockett & Co., Ltd., General Chairman.

Included on the committee are:

Henry St. Paul, Service Supply & Engineering Co., Hotel Arrangements (Housing); Francis J. Favaloro, New Orleans Public Service Inc., Registration; Walter J. Verlander, Verlander Equipment Co., Finance (Budget); Roy E. Johnson, Ladies Program; Frank A. Birdsong, Publicity; Warren K. Bankston, New Orleans Public Service, Inc., Program and Printing; A. H. Douglas, Jr., American Creosote Works, Inc., Entertainment and Reception Committee.

All committee members are residents of New Orleans, La.

—o—

EJC Notes

Four new societies have joined EJC. They are the Society of Women Engineers, Society of Fire Protection Engineers, the Washington Society of Engineers, and the Hartford Engineers Club. They were elected to membership by the EJC Board of Directors at its spring meeting.

This brings the total society membership in EJC to 33, including 24 national societies having a combined membership of more than one-half million engineers.

The EJC Board, at the same meeting, also voted to elevate the American Society for Metals (ASM) to "constituent" society status which is the highest grade of membership in EJC and includes voting privileges. ASM was admitted as a "national affiliate" when it became a member of EJC in Spring of 1962.

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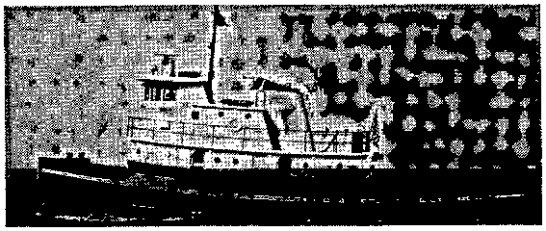

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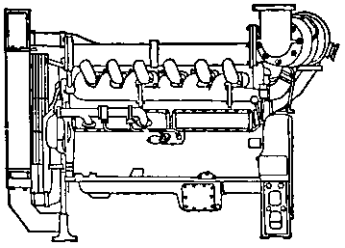

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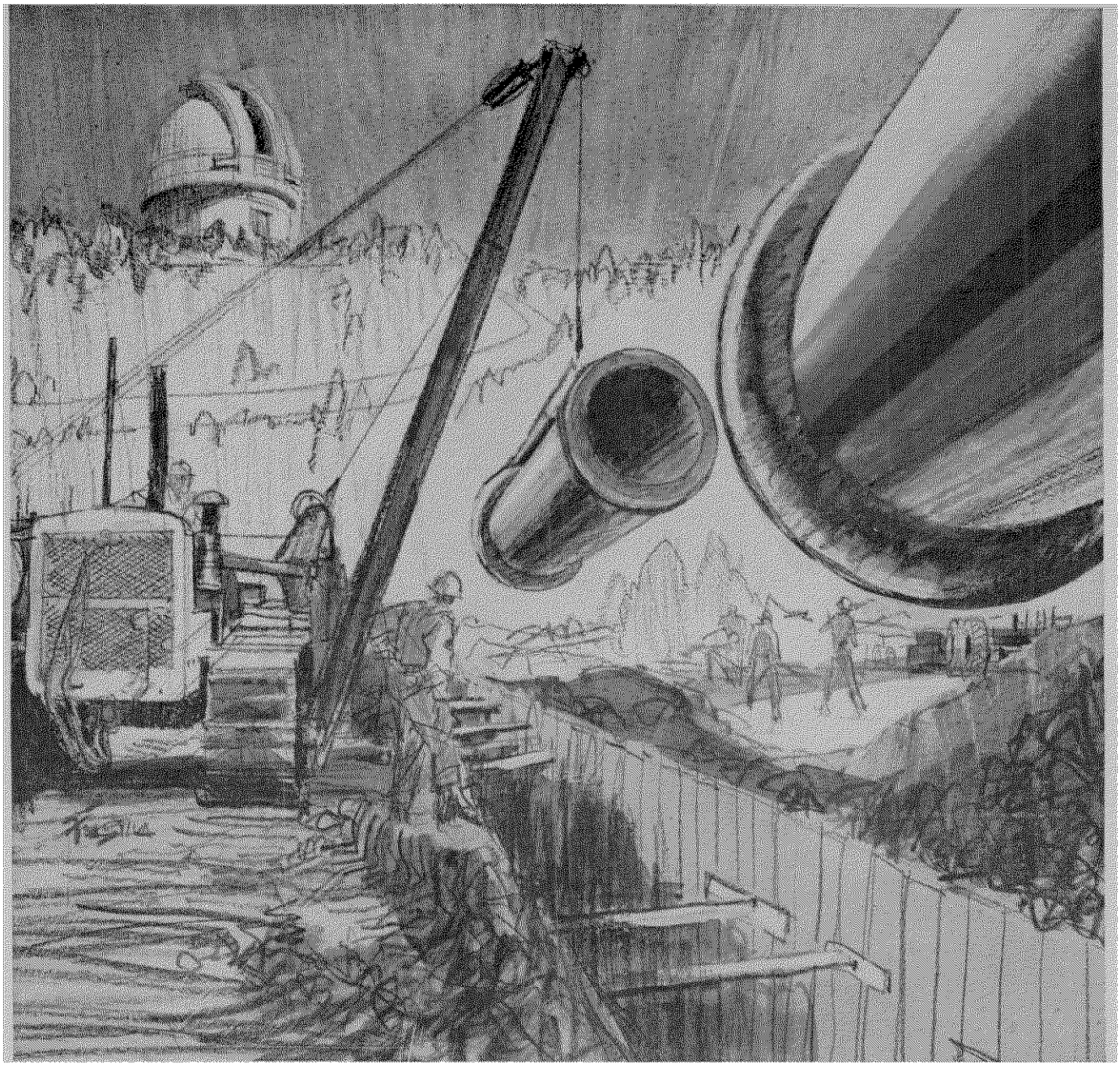

Why tightness is so important to Palomar... and pipe joints

At Mt. Palomar in California, astronomers using the world's largest telescope, sometimes wait years for planets to move into position for viewing and photographing. Imagine what would happen if light leaked into the telescope at the crucial moment. Think of the waste of time . . . and patience . . . and the expense.

You may not realize it, but the same thing applies to sewers. Both house sewers and municipal sewers. People sometimes wait for years to get sanitary sewers . . . and then ground water pours in. Sewers are overloaded. Operating costs go up. Problems begin to pile up. All because the joints in the sewers are not tight.

It doesn't have to be this way. You can build sewers with tight joints. The Dickey flexible, compression Coupling will do the job. It's made of the finest material available . . . urethane. With this Coupling, the lines are sewage-tight. Ground water is locked out. Don't gamble. Build with Dickey Perma-Line Clay Pipe and the Dickey Coupling.

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Auxiliary Head States Plans For Coming Year

Mrs. Otha E. Barron, Jr., New Orleans, president of the Woman's Auxiliary to the Louisiana Engineering Society, announces her plans for the coming year.

Mrs. Barron said she will help further the objectives of the auxiliary. They are: to serve the engineering profession, to cooperate with the Louisiana Engineering Society, to establish new chapters and to provide scholarships and loans to colleges.

The auxiliary has established three funds at Tulane University to aid engineering students. The fellowship fund gives graduate students fellowships from interest accumulated on an investment of $9,000. Mrs. Barron said she hopes to increase the investment to $10,000 during her term.

The group also provides the Selina Elizabeth Bres Gregory Founders Scholarship which pays part of an undergraduate's tuition and a student loan fund from which students can borrow money interest free. Similar funds are available in Baton Rouge, Lake Charles, Shreveport, Lafayette and Alexandria.

The auxiliary is making plans for the national convention of the Engineering Society and Auxiliary in New Orleans Jan. 19-23 and for Engineers Week in late February.

Mrs. Barron said she hopes to visit each Louisiana chapter for its founders day celebration.

Her committee chairmen are Mrs. S. G. Davis, membership; Mrs. G. J. Groh, Fellowship; Mrs. Miles B. Hutson, Student Loan; Mrs. Ronald Cressy, founder's scholarship fund; Mrs. George Schroeder, chapter development; Mrs. Whitney P. Musgrave, entertainment; Mrs. Raymond K. Goode, program; Mrs. Edward J. Welsch, publicity; Mrs. Albert J. Fransen, historian; Mrs. Mario G. Zervigon, parliamentarian; Mrs. Roy E. Johnson, convention; and Mrs. Roy G. Cappel, ex-officio.

John P. Fernandez, James S. Janssen and Edward A. McLellan, all members of the Louisiana Engineering Society, will serve as advisors to the auxiliary.

Mrs. Barron, who said her interest in clubs began when she was 13 years old, is past president of the St. Dominic Mothers Club and the Mt. Carmel Academy Cooperative Club. She is also a board member of the Council of Catholic Schools Cooperative Club.

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Memorials

DEAN EMERITUS JAMES MARSHALL ROBERT

The Louisiana Engineering Society, the engineering profession, the American Society of Mechanical Engineers and the field of engineering education suffered the loss of one of our most outstanding professional engineers in the Death on June 8, 1964 of Dean Emeritus James Marshall Robert at the age of 78.

Dean Robert joined the Louisiana Engineering Society in 1908 and for many years took a leading part in its various activities. He served as its secretary for eleven years (1911-1922), and became vice president in 1923 and president in 1924. As editor of *The Proceedings* from 1931 to 1940, he helped lay the groundwork for the present publication. Elected to Life Membership in 1938 and Honorary Membership in 1949, he always maintained his active interest in the Society.

As a member of the American Society of Mechanical Engineers from 1920, he served as chairman of the New Orleans Section in 1923 and 1924 and as one of the managers of the national organization from 1943 to 1946. As an engineering educator, Dean Robert was a member of the American Society for Engineering Education and served as vice chairman of the Southeastern Section (1937-1938) and as chairman (1938-1939).

Dean Robert was born in St. Paul, Minnesota, on June 20, 1885. He was graduated in engineering from Tulane University in 1906, and entered at once upon a lifelong teaching career with his Alma Mater, starting as an instructor in Mechanical Engineering. He advanced to Assistant Professor of Experimental Engineering in 1912, then to Associate Professor of Machine Design in 1916 and to Professor of Mechanical Engineering in 1920. He served as Acting Dean of the College of Engineering (1935-1936), and in 1936 he became Dean, which post he held until his retirement in 1950.

As a teacher Jim Robert always held the respect of his students, while at the same time being considered one of them. This close association with youth was one that he thoroughly enjoyed. Professionally, he knew no compromise with ethics, and he contributed much to the development of a professional conscience in our young engineers.

During the war years (1917-1921), under government urging, he organized, directed, and taught in a school for marine engineers for the U. S. Shipping Board at Tulane University. He was also head of the Motor Mechanics Division at Camp Martin during World War I. In 1941 he was called upon to organize the Engineering Science and Management War Training Program at Tulane.

James M. Robert, always sought after for his wisdom, knowledge, and wit, served on many technical and educational committees. From 1934 to 1941 he was a member of the Board of Operating Engineers for the City of New Orleans. While occasionally accepting a consulting assignment, he always tried to pass such opportunities along to one of his "boys." His own advice was freely given.

He was a member of Pi Kappa Alpha greek letter fraternity and of Tau Beta Pi, antional honorary engineer-

ing soceity. He also held membership in The Boston Club and the Round Table Club of New Orleans.

Upon his retirement as Dean of the College of Engineering, he retired to Waveland, Mississippi with Mrs. Robert, the former Gladys R. Kearny whom he had married on April 21, 1909. At the time of his death he was a member of the Port Commission of Hancock County, Mississippi. As a further testimonial of his continuing interest in young people and their education he was appointed a trustee of the Christ Episcopal Day School in the Bay St. Louis area.

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HERRICK JOHNSON LANE

Herrick Johnson Lane was born March 17, 1886, in Crestline, Ohio, and died October 20, 1963, in New Orleans, Louisiana. He obtained his preliminary education in the public schools of Ohio, and his technical training first at Princeton University and later obtained his degree in engineering from the University of Illinois.

Herrick Lane started work in 1903 with engineering survey parties and in the construction of locks and dams, hydroelectric developments, aviation fields, and an artillery cantonment. In 1919 he joined Doullut & Williams Shipbuilding Co., Inc., as Office Engineer, but gravitated into cost keeping and accounting activities which proved more interesting to him. This brought about his appointment to Auditor and Office Manager for the Doullut & Williams Company. In 1924 he joined the W. Horace Williams Company, successor to Doullut & Williams, taking on the additional position as Secretary of the Company. At the time of his retirement in 1956, he was a Vice President and Secretary-Treasurer of the Company.

Although he did not practice engineering, he was actively engaged in the construction field and maintained his membership in the American Society of Civil Engineers and the Louisiana Engineering Society. He was also a member of Alpha Tau Omega, social fraternity.

Herrick Lane is survived by his widow, the former Minna Belle Laney, a son, Herrick, Jr., and a daughter, Miss Minna W. Lane. He will be missed by us all.

BE IT RESOLVED that this notice of his passing be recorded in the minutes of the Society.

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—o—

(Continued from Page 16)

able that a design sequence be carried out throughout the entire undergraduate period of an engineering student. This sequence will build upon the theoretical courses that the student has taken and translate theory into reality through application to realistic engineering situations. At all levels the student will function within all of the restraints on any engineering solution. It is necessary that selected analytical techniques be introduced at various levels to either supplement or reinforce the analytical theory taught in the foundation courses.

QUANTUM ELECTRONICS

The Department of Electrical Engineering will offer a graduate course in Quantum Electronics (EE 755-756) during the Fall and Spring semesters of the 1964-65 academic year. The course will be offered to all qualified graduate students interested in the principles of microwave and optical masers.

NEW COURSES

New courses to be offered in the School of Engineering, 1964-65, are: ChE 311 Chemical Engineering Analysis; CE 613 Airport Design; CE 709 Economic Principles of Engineering; CE 733 Santary Chemistry; CE 735 Radiological Health; GE 267 Engineering Laboratory; ME 291 Graphical Analysis and Kinematics; ME 497 Special Studies; ME 715 High Speed Gas Dynamics; ME 785 Advanced Dynamics.

L. S. U.

The following editorial appeared in the New Orleans STATES-ITEM, Aug. 3, 1964.

For those who worry about the lag between scientific development and the classroom is recommended a look at what Louisiana State University is doing in the field of microcircuitry.

A few years ago the stress was on miniaturization such as found in transistorized equipment, then subminiaturization.

Microcircuits—tiny circuits on tissue-thin materials—are the coming thing in electronics and LSU is assertedly the first to offer specialized training in their construction.

So new is the realm, explains William E. Owen, electrical engineering professor, that it is not embodied in textbooks. He has developed a pinhole camera which is important in the building of the microscopic networks on silicon wafers.

Work has been assisted by the National Aeronautics and Space Administration, which has granted a research contract to LSU, and by private industry.

NASA's direct interest stems from use of microcircuitry in space vehicles. Industry's attention comes not only from this but from the employment of microcircuits in a range of products from computers to communications equipment to consumer products.

Expansion of LSU's training program places it in a position to help fill the critical need for electrical engineers schooled in designing and building of microcircuits.

L. S. U. N. O.

By JACK K. CARLTON, Dean

LSU in New Orleans has offered two years of preparatory engineering work since 1959, and in the fall of 1964 it will embark upon the third year of its own four-year degree program in engineering sciences. There are no plans for specialization at the undergraduate level in the traditional areas of chemical, civil, electrical, and mechanical engineering.

The degree program presently requires courses in graphics, statics, dynamics, strength of materials, fluid mechanics, thermodynamics, passive and linear circuit analysis, and heat transfer. Elective courses currently available are advanced strength of materials, vibrations, and properties of materials. The application of analog and digital computers to engineering problems will become a required course in the curriculum during the coming year, while other engineering courses under consideration as required work include response of systems, control of systems, active and non-linear circuit analysis. Additional work being considered in the elective category include biotechnology, instrumentation, energy conversion, and information theory and communications.

Required work in mathematics, beyond the calculus level, includes differential equations, numerical analysis, and advanced topics in applied mathematics. Under consideration as required work is at least one course in probability and statistics. Required beyond the basic course in physics is electricity and magnetism, with atomic and nuclear physics under consideration.

LSU in New Orleans believes that the product of this curriculum will fill an existing need for scientist-engineers in the immediate area and in the region, but it expects the fruition of the program to coincide with much higher demands.

Applaud Shreveport Action

Col. John T. Knight, Jr., president, Louisiana Engineering Society, formally congratulated the Shreveport Section for establishing a $200 annual engineering scholarship for needy junior or senior engineering students at Louisiana Polytechnic Institute.

In a letter to Jack A. Terrill, Secretary-Treasurer of the Shreveport section, Col. Knight stated ". . . one of the most professional things that we can do in the Louisiana Engineering Society . . . is to make Engineering available to potentially fine young people who may for one reason or another be unable to cope with the financial strain of a full engineering education.

"I think that your entire membership should be congratulated, and I hereby extend through you to them, our heartfelt appreciation and congratulations for this fine step forward."

According to the Shreveport resolution the selection will be made prior to, and the award presented not later than Nov. 15 each year, beginning in 1964.

the LOUISIANA ENGINEER

Vol. 50 No. 5
October, 1964

Today Louisiana has more than 5,600 miles of obsolete highways

The highway program in Louisiana is a contrast of sunshine and shadow. ☐ Construction of Louisiana's portion of the nationwide Interstate Highway System is on schedule. ☐ But the state's key primary and secondary routes (the U.S. and Louisiana-numbered highways) are being overwhelmed by traffic—and not enough funds are available to upgrade them. ☐ Today Louisiana has 5,689 miles of critically deficient highways and 2,954 bridges which need improvement.* ☐ This urgently required construction is vital to Louisiana's economic future.

Action is needed now!

**Taken from independent consulting engineer's report on Highway needs prepared for Louisiana Department of Highways*

Portland Cement Association.
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An organization to improve and extend the uses of concrete

Typical Louisiana traffic jam. Photo by Louisiana Department of Highways

THE LOUISIANA ENGINEER

Vol. 50 OCTOBER, 1964 No. 5

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The average number of copies of each issue of this publication sold or distributed through the mails or otherwise to paid subscribers during the 12 months preceding the date shown was 7,533.

Signed,

Oct. 31, 1963 — W. K. Bankston, Editor

OUR COVER: Overall view of bosses and secretaries at Engineers Club annual Luncheon which attracted many L.E.S. officials and members; as well as men from related industries and their secretaries.

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Minutes Of The Board, LES

LOUISIANA ENGINEERING SOCIETY
Minutes of Special Meeting of the Board of Direction
Held at the Engineers' Club, New Orleans
On July 28, 1964

The meeting was called to order by President Knight at 9:15 a.m. with Messrs. Duclos, Odom, Stokes and Fernandez present. Messrs. Bogard, Brown and Macdonald of the State Board of Registration for Professional Engineers & Land Surveyors also were present.

President Knight described his long-distance telephone conversation with Mr. Milton F. Lunch, NSPE Executive Assistant, and read Mr. Lunch's letter in which he outlined the means by which House Bill 481's constitutionality could be challenged. Discussion followed on the mode of procedure that LES should take.

Mr. Duclos moved that funds be raised by voluntary contribution to protect the integrity of and improve the Professional Engineering Registration Law in the State of Louisiana. Motion seconded by Mr. Stokes and carried.

Mr. Duclos moved that the president be authorized to determine the necessary effective measures to preserve the integrity of the registration law. Motion seconded by Mr. Stokes and carried.

Discussion followed in which Mr. Odom agreed to attempt to arrange a meeting with President Knight, Mr. Carter Brown and other members of the Gulf Institute of Consulting Engineers, and with Legal Counsel Alvin B. Rubin, prior to the next meeting of the board scheduled for August 5.

The meeting adjourned at 11:00 a.m.

JOHN P. FERNANDEZ,
Secretary-Treasurer

LOUISIANA ENGINEERING SOCIETY
Minutes of Meeting of the Board of Direction
Held in the Conference Room, New Orleans Public
Service Building, on August 5, 1964

The meeting was called to order by President Knight with Messrs. Eustis, Roy E. Johnson, Nelson, Odom, Stokes and Fernandez present. Mr. Allen Johnson, Public Relations Counsel, also was present at the board's request.

Mr. Roy Johnson moved that the minutes of the Board meeting of July 14 be accepted with one correction, i.e., that the words "Executive Secretary" be used in lieu of "Office Manager" in Mr. Nelson's motion stated in Paragraph 9. The motion was seconded by Mr. Odom and carried. Upon motion by Mr. Odom, seconded by Mr. Eustis, minutes of the Special Board meeting held on July 28 were accepted as read.

President Knight announced that the committee to prepare a memorial honoring the late Dean James M. Robert had been completed. He also reported that Colonel Don Strong, Field Representative of NSPE, would attend a meeting of the Annual Meeting Committee scheduled for September.

Mr. Odom reported on a meeting between himself, Messrs. Carter Brown, John McCain, Nash Ogden, and Attorney Alvin B. Rubin, in which Mr. Rubin advised that there were insufficient legal grounds on which to contest the constitutionality of House Bill 481 recently passed by the State Legislature. In the event that the State Board of Registration should decline to register individuals who apply for registration under this law and consequently be sued, Mr. Rubin suggested that the LES, together with all other engineering organizations in the state, should participate in the Board's defense.

The secretary read a letter from Mr. John E. Trygg of the Louisian State Board of Health, relative to the newly created Louisiana Air Pollution Control Commission. Discussion followed on a list of nominees to be submitted to the Governor for appointment to the new board. It was decided that LES board members would submit to President Knight their recommendation and that he would forward the names to Governor McKeithen.

Correspondence from Messrs. M. C. Bubenzer, Chris Demopulos and A. J. Coleman, Jr., concerning the proposed new constitution were read. Discussion followed and the secretary was instructed to explain to Messrs. Bubenzer and Demopulos why paragraph (c) of Section 2, Article II was included in the proposed constitution.

The secretary was instructed to submit to the membership, after the August meeting of the society, a ballot for the acceptance or rejection of the proposed constitution and by-laws as a whole.

Discussion followed on the submission of nominations for the proposed National Academy of Engineering and it was decided to refer the matter to the Committee on Honors & Awards.

The meeting then adjourned.

JOHN P. FERNANDEZ
Secretary-Treasurer

LOUISIANA ENGINEERING SOCIETY
Minutes of Meeting of the Board of Direction
Held at the Engineers' Club, New Orleans
September 14, 1964

The meeting was called to order by President Knight with Messrs. Affolter, Duclos, Ewing, Nelson, Vogt, Walk, Watts and Fernandez present. Messrs. Allen Johnson, Public Relations Counsel, and George M. Baccich, Jr., Chairman of the Annual Meeting Committee, also were in attendance. Mr. Duclos moved that the minutes of the board's August meeting be accepted as distributed to board members by mail, seconded by Mr. Vogt and carried. The secretary then read minutes of a meeting of the Louisiana State Board of Registration held on August 4-5.

In accordance with Act. No. 377 of the 1964 State Legislature creating the Louisiana Air Pollution Control Commission, President Knight reported that the following nominees had been recommended to Governor McKeithen:

Cecil M. Shilstone, P. E.
James H. Huguet, P. E.
Samuel R. Williamson, P. E.

President Knight also reported on the Engineering Education Committee and the proposed NSPE Southwestern Regional Meeting.

The secretary announced that a partial count of ballots received to date on the proposed new constitution and by-laws showed 456 votes in favor and 14 against. President Knight outlined the proposed action to be taken when the new constitution is formally accepted. It was the concensus of those present that the Chapter Officers' Indoctrination Conference should be held in June, the Annual Meeting and Installation of Officers in July, and the State Planning Conference in August.

Mr. Duclos moved that the new schedule of dues rebates to the chapters become effective with 1965 dues. Motion seconded by Mr. Watts and carried.

A report of Mr. J. J. Thigpen, State-wide Chairman of the 1964 Engineers' Week Committee, was read. The Board commended the local chapter committee for their splendid work, particularly the Shreveport Chapter for its very comprehensive report.

The sceretary reported that Mr. J. B. Carter had been appointed to prepare a memorial resolution honoring the late Hermann L. Lehmann, Honorary Member and Past President of the society. Mr. Ewing announced that Mr. Lolan J. Melancon had passed away and that he would appoint a committee to prepare a suitable memorial.

Mr. Baccich reported on plans for the NSPE meeting to be held in New Orleans January 19-23, 1965. It was recommended that only the A. B. Paterson Engineer-in-Management Medal be presented at this meeting. In conformity with other NSPE meetings it was decided to have a Registration Fee; however, LES members who attend the Friday night banquet only would not be required to register.

The secretary read a communication from Professor Daniel H. Vliet advising that the Tulane Student Chapter of LES had been disestablished.

Discussion followed on the National Academy of Engineering and it was decided to wait until the criteria for selection is established before the Chairman of Honors & Awards be requested to submit candidates.

On motion by Mr. Watts, seconded by Mr. Vogt, Mr. Francis E. David Jr., was reinstated to the grade of Member.

On motion by Mr. Watts, seconded by Mr. Vogt, the following were dropped from the rolls in accordance with their request:

Gerald Viator (Junior Member), Illinois
V. E. Haywood (NSPE), New Orleans

The meeting then adjourned.

JOHN P. FERNANDEZ,
Secretary-Treasurer

New York.—A new, amply illustrated, six page bulletin on wet and dry dust control and pneumatic conveying equipment has just been issued by the Ducon Company, Mineola, New York.

A copy of the brochure may be obtained by writing to the Ducon Company, 147 East Second Street, Mineola, L. I., New York, requesting bulletin A-9164.

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HERBERT HOOVER — PRESIDENT AND ENGINEER

Herbert Clark Hoover, 31st President of the United States, died at the age of 90 in his New York apartment on October 20 after a lengthy illness.

Consulting engineers everywhere took pride in numbering in their brotherhood this outspoken champion for the cause of private enterprise. For they knew that Hoover, though he had received hundreds of honors and increasing volumes of praise as the years have passed, was probably no prouder of any of those honors than he was of being an "engineer."

In August, 1963 Herbert Hoover celebrated his 89th birthday. At that time THE LOUISIANA ENGINEER reprinted an article by him from the Consulting Engineer entitled "Herbert Hoover: The Engineering Profession." In the article Mr. Hoover wrote:

"It is a great profession. There is the fascination of watching a figment of the imagination emerge through the aid of science to a plan on paper. Then it moves to realization in stone or metal or energy. Then it brings jobs and homes to men. Then it elevates the standards of living and adds to the comforts of life. That is the engineer's high privilege. . . . The enginer himself looks back at the unending stream of goodness which flows from his successes with satisfactions that few professions may know. And the verdict of his fellow professionals is all the accolade he wants."

His range of public service included direction of massive relief operations in World War I, food administration at home, secretary of commerce and then the presidency from 1929 to 1933.

In later years, he made worldwide food surveys for the government, was chairman of the nonpartisan Hoover Commission studying executive branch operations, and carried on various other tasks.

Hoover equated the early space flights with the bold expeditions of great explorers such as Lewis and Clark, Lindbergh and Byrd.

"Each of these men has added spirit and character to our country. There could be no greater tribute than this to any man and no greater service to our people."

The son of a small town blacksmith, Hoover was orphaned at the age of 10, and knew poverty. But he worked his way through Stanford University to become a top-flight mining engineer and a wealthy man at 28. Then he turned to public affairs.

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When he viisted his birthplace at West Branch, Iowa, on his 88th birthday in 1962, a crowd of 25,000 hailed him.

A tall, pipe-smoking man, Hoover had remained remarkably robust until a series of recent afflictions. He maintained that a man should not "retire without some occupation."

He served as a director or trustee of 12 educational and scientific institutions, and took part in numerous fund-raising drives.

On his successive birthdays in his advancing years Hoover always had the same advice about longevity — keep up some kind of productive work.

Otherwise, he said, "you will shrivel up into a nuisance to mankind."

President Lyndon B. Johnson and Republican presidential nominee Barry Goldwater led Americans of all political creeds in tributes to Herbert Hoover as a patriot and humanitarian.

Johnson said Hoover's "unquenchable sense of public responsibility for both our nation and a troubled world stands as an example that will endure."

Goldwater said Hoover's death was a profound loss to the American people and to the cause of individual freedom and dignity throughout the world.

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New Sugar Mill Dedicated In Reserve, Louisiana

Reserve, La.—United States Sen. Russell B. Long and U. S. Rep. Hale Boggs spoke recently at dedication ceremonies for Tinguaro II, the new multi-million dollar sugar mill. It was built by the Reserve Sugar Co. Inc.

Also speaking were Julio Lobo, president of the Godchaux Sugar Refining Co., and a representative of the Washington, D. C. office of the Area Redevelopment Administration.

V. O. Calandro, St. John the Baptist county agent, was master of ceremonies. The invocation and the blessing was given by the Rev. Michael Killoughey, pastor of St. Peter's Catholic Church here.

The ceremony included a start up of the new mill by Queen Sugar XXIII, the 1964 Louisiana Festival queen, Miss Mary Sue Barker of Houma. Miss Jo Ann Busse, Queen Sugar XXII, and Miss Anita Monica, 1964 St. John Parish sugar queen, assisted in the christening.

Now ready for operation, Tinguaro has an initial grinding capacity of 2,400 tons of cane per day. Daily capacity eventually will be increased to 4,000 tons.

The new Graver water filter system supplying Reserve Sugar Company's new raw sugar factory is a unique example of engineering the application of equipment to nature's environment. During the sugar cane grinding season in Louisiana it so happens that the Mississippi River normally flows its clearest water and while this water is still too "dirty" to be made usable with simple filters, Graver Water Conditioning Company has developed a new fully automatic gravity filter called the MONO-FLOC which, by pretreatment with coagulants and air scouring of the filter media, makes it possible and economical to produce 400 gallons per minute of clear water with the very minimum of equipment.

When cornerstone laying ceremonies were held, Lobo said the name "Tinguaro" was chosen because it was the name of his favorite sugar mill in Cuba.

In addition to the production of raw sugar, Tinguaro will be capable of producing specialty items, such as edible syrups and molasses, plantation white sugars, large crystal sugars, etc.

The new mill will also carry on experimental work in its laboratory with its agricultural staff in an effort to improve and strengthen the sugar cane income of the area.

Construction of the mill was made possible by an ARA loan approved last October in the amount of $1,170,000.

ARA said, at the time, establishment of the new mill would create 323 new jobs in the mill itself and in the growing and harvesting of sugar cane. Total estimated cost of the mill was set at $1,800,000.

In addition to providing land for the mill, the Godchaux Company will purchase the mill's production, ARA officials said when the loan was announced.

Tinguaro is the third raw sugar mill in St. John Parish. The other two are Columbia at Edgard, and St. Francisco at Lions.

—o—

HUNTSVILLE, Ala.—Midwesco Enterprise Inc., Chicago, Ill., has received a $509,000 contract for installing a new boiler, modifying existing boilers and adding piping systems at the steam plant at NASA Michoud Operations in New Orleans, La.

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L.S.U. OFFERS NEW ENGINEERING COURSES

By BERNARD S. PRESSBURG

Acting Dean, Baton Rouge, La.

As approximately 700 pre-engineering freshmen, 1,000 engineering upperclassmen and 100 graduate students in all branches of engineering enrolled at Louisiana State University this fall, they had offered them many new courses and curricula. Also available were a wide variety of new facilities and activities to further their technical education. The College faculty, responsible for counseling, teaching and directing the research activities of the group, now numbers over 100 individuals, over 40 of whom hold the doctorate degree.

All freshmen at L.S.U. are administered in the Junior Division and do not enter the senior Colleges until they have taken the courses and met the standards specified by the Colleges. The pre-engineering curriculum has been upgraded in the past several years. The qualified student now starts his study of Mathematics with analytic geometry and calculus. (Since 1961, algebra and trigonometry, if taken, have been considered "remedial"; they receive no Engineering credit and lengthen the student's stay in the University.)

In the 1963-64 school year, the first semester of Physics was moved to the freshman year; this enables the student to start his technical courses sooner since most of these consider Physics a prerequisite. An introductory course in Engineering was initiated this fall to give the beginner a perspective of the entire field and to give him general training which will help in subsequent work. To make room for these, the freshman choice between basic courses in Geography, History or Sociology was eliminated; in their place, the student now elects more advanced courses in the humanities or social studies later in his curriculum.

A student moving from the Junior Division to the College of Engineering has a wider choice of curricula in which to major than ever before. Those leading to the B.S. degree include: Architecture (a five year program), Agricultural, Chemical, Civil, Electrical, Industrial, Mechanical, Petroleum, or Sugar Engineering(a four year curricula), a combined program in Petroleum and Chemical Engineering (a five year program), and Engineering Science. In addition, he may elect the Aeronautic Option in Mechanical Engineering.

The 1964-65 school year will see the first graduates in Engineering Science. This is a four year curriculum that concentrates on fundamentals, rather than on the application of these. Graduates of it are broadly trained, with courses in Mathematics, Physics, and Engineering Mechanics beyond those most other curricula prescribe; this provides a solid base for graduate training in specific disciplines, for research, or for similar types of employment. 1965 also marks the first year in which the B.S. will be awarded in Industrial Engineering: heretofore, this was an option in Mechanical Engineering.

The class of 1965 will be the first to graduate under Chemical Engineering's revised curriculum. Chemical Engineering reorganized its course work around the transport phenomena concept and rearranged the sequence of material so that courses dealing with the fundamental and engineering sciences were substantially completed in the first three years and the fourth could be devoted to the application of these in design and industrial practice. It also provided for elective groups designed to match the plans and capabilities of the individual.

Similarly, the curriculum and course offerings of the Electrical Engineering Department have been completely reorganized to reflect developments in the field and the diverse areas in which the graduate may find himself employed. Most of the new courses are being offered this year for the first time.

The changes that have been made in the courses in Mechancial, in Civil, in Agricultural and Petroleum Engineering are too numerous to mention individually. These and the corresponding changes in their curricula have been made to incorporate new subject matter, including the result of research by the faculty, and to insure that the student is taught the most up-to-date information.

Probably the most significant trends and changes are at the graduate level where a greater variety of graduate courses are available to a larger number of students and where there is a marked increase in research participation.

Engineering Departments were recently awarded seven NSF and eight NASA Engineering Traineeships; these, together with the fellowships provided by unrestricted industrial grants and the graduate teaching assistantships provided by the University, make financial support available to many who could not enter the graduate school otherwise.

All departments in the College, except Architecture, offer the M.S. degree while Chemical Engineering and Engineering Mechanics offer the Ph.D. — the latter being offered for the first time this year. Graduate courses are given both on the campus and off, during the day and in the evening. The evening and the off campus work is for the primary benefit of engineers in industry — in the Baton Rouge area **and** at the Space Plants in New Orleans — who wish to continue their studies; these number over 150 and are in addition to the same number of "day-time" graduate students mentioned earlier.

The Engineering Research Division is the administrative agency for all sponsored research. At the start of the 1964-65 school year, there were 14 projects in effect, utilizing the services of some 16 faculty members and 20 graduate research assistants. They are concerned with such diverse subjects as highway engineering, miniaturization of electrical circuits, materials of construction, vibrations, structural design, sugar cane and bagasse chemistry, material science, and non-destructive testing.

Other research undertakings are: the Water Resources Institute, the Saline Water Institute, the ESSO Research and Engineering Study of Catalysis, Plasma Research,

and thesis or dissertation projects within the various departments. The two Institutes are an outgrowth of the University's recent designation as a Land Grant College to participate in the research sponsored by the Federal Government in this area. The ESSO project provides for both pre-doctoral and post-doctoral fellows. It is located in the Department of Chemical Engineering. The Plasma Research is being conducted by Dr. Necdet Eraslan and Mr. Ozar Arnas of the Mechanical and Aerospace Engineering Department. The thesis and dissertation research, while primarily for the purpose of training graduate students in research techniques, also serves to develop faculty competence on specific technical subjects. In 1963-64 three Doctoral Dissertations and 50 or more Master's Theses resulted; prospects are that an even larger number will be produced in 1964-65.

No new buildings have been added to the College's facilities in the past year. However, Engineering Research's shops in the Engineering Laboratory have been remodeled and can now help the Departments to fabricate equipment for their research needs. The ground floor of Atkinson Hall has been converted into Soils and Highway Engineering Laboratories.

Many items of new or special purpose equipment have been acquired during the past year. Among others are: analog computers, x-ray diffraction units, heat transfer equipment, photoelasticity equipment, a six channel Sanborn Recorder, a test pit to load large prototypes to over one million pounds, units with humidity and temperature environment controllers, extensive photographic research equipment, and strain indicators for structural analysis.

Outside of the College, University-wide facilities continue to lend support to Engineering. The computer center has acquired an IBM 7040 and auxiliaries to supplement its 1620; the center operates under the "open-shop" policy and has been patronized extensively both by undergraduates (many of whom take the course on its use and some of whom apply this knowledge to the solution of engineering problems in subsequent courses) and by graduate students who use it in their research and course work.

The University's Library includes extensive holdings of books in the field of Engineering and bound sets of the major Engineering Journals. The materials, services and equipment of the Nuclear Center have been used on several research projects.

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Indications are that the 1965 Engineering Graduate will be in demand. The Placement Office has already scheduled the visits of 192 companies to the campus. Last year 313 companies interviewed the recipients of 230 Bachelor's, 50 Master's and three Doctor's degrees.

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Col. Knight Addresses Instrumentation Conference

Louisiana Engineering Society President Col. John T. Knight, Jr., gave the keynote address to the Thirteenth Annual Instrumentation Conference conducted by the Louisiana Polytechnic Institute School of Engineering at Ruston, La., Nov. 4-6.

Col. Knight told the assembly that they have the distinction of being declared our most important economic resource. "The inventory of education assimilated by you gentlemen has given you that distinction," he said.

He said that it is not so important to relate ourselves to the various procedures and disciplines that have affected us as it is to realize where we are now and just what we must do to sustain our position and to continue to grow.

Col. Knight said that the rapid technological "revolution" tends to make us all specialists of a sort. "We keep finding more to do and work on within the small clearing of known facts and knowelge in our own field and we find our life's horizons somewhat shrunken, and in time it tends to separate us from the great responsibilities of living and therefore truly pulling our fair share of the load of community life," he said.

"Change — being prepared for it and working energetically to bring about the control — the direction — of that change, may truly have some bearing on the time factor which is of such importance if we ever, even for short sorties outside the boundaries of the discipline of our training and every day work are to "spread" our knowledge, our "know how" on the sometime turbulent waters of industry, commerce and society in general."

Col. Knight said that more than is generally realized our professions are constantly looking to the future, not with dread, but with expectation. He said that if the world of tomorrow is to be a better place to live in it is up to us to make it so.

"The really top notch specialist is the one who is versatile and who is a specialist in more than one field," Col. Knight said. "The really great achievements have been accomplished by the trained specialists who collaborate with other specialists in another field which may seem totally irrelevant at the start. Often, through such collaboration, a whole new idea or development evolves."

Col. Knight said he is now trying to select and appoint a committee to establish goals of scientfiic and engineering education. He said that the engineer and scientist of today "never finishes his education."

"By being aware of our shortcomings we can be helpful to ourselves by making contact with educators and conferring with them on the subject matter of the various engineering and scientific courses so that the young men coming along will be better prepared than we were," he said.

Continued on Page 25

L. E. S. 34th ANNUAL OUTING A SUCCESS

James Gore, left, vice-chairman of the 34th LES Annual Outing, discusses the success of the event with Pierre Stouse, chairman.

The following is a list of the winners and donors of prizes at the 34th Annual L. E. S. Outing:

F. W. Macdonald (President's Flight Golf Trophy), Equitable Equipment Co. and John T. Knight, Jr.; Hank Armatis, Eustis Engineering Company; Joe Montgomery, W. S. Dickey Clay Mfg. Co.; H. A. Liles, Metal Building Products; Bill Hogan, Gulf Engineering Company; George Nusloch, Walter J. Barnes Electric Co.; J. S. Riorda, Pittsburgh Testing Lab.; Don Schell, J. Ray McDermott; S. A. Walsh, Boh Bros. Construction Co.; Wayne Williams, United Gas Pipeline; R. E. Gosa, Standard Supply & Hardware; A. J. Lehman, Standard Supply & Hardware; Dan Hogan, Gulf Engineering Company; M. M. Ford, T. L. James Company; J. J. Ranna, Alumaglass Building Products; Harry Tormey, J. Ray McDermott; Pat Cancienne, Dixie Machine Wldg.; Jim Scott, Leo Daly Company; W. Brewer, T. L. James Company; R. F. Fleming, Alumaglass Building Products; Don Schell, Perrilliat-Rickey Const. Co.; Bill Hogan, Allis-Chalmers; Don Guiza, Allan J. Harris Company; Ed McNamara, New Orleans Public Service Inc.; Joe Riorda, George Gabler, Inc.; George Davis, Boland Machine Mfg.; George Nusloch, Boh Brothers Const. Co.

Bob Grehan, Frank P. Fisher; A. P. Morovich, Fidelity & Deposit Co. of Md.; Curtis L. Lundstrom, Boland Mach. & Manufacture; Dr. F. Taylor, American Creosote Works; Curtis Novak, Betz Engineering Sales; Jim Janssen, Markel Lumber; Dr. F. Taylor, Fromherz Engineers; Curtis Novak, Waldemar S. Nelson Co.; James Gore, Jahncke Services; Gary Jacob, McLellan Equip. Co.; Jack Roach, Armco Metal Prod.; John Grosch, Shilstone Testing Lab.; F. O. Bragg, Louisiana Gas Service Co.; Hoyt Brown, Prestressed Concrete Prod.; Jules A. Lorio, Prestressed Concrete Prod.; Grover Bayles, Baton Rouge Blueprint; Nolan Dudley, Service Supply & Engineering Co.; Harold Tormey, R. J. Tricon; Murray Cunningham, Ayers Materials Co.

Louis W. Owen, Delta Testing Co.; M. A. Roth, Louisiana Power & Light Co.; P. R. Brown, Pavia-Byrne; A. M. Fromherz, Mason-Rust; H. Chapman, Woodward, Wight & Co.; Norman Ford, Dixie Machine Welding; Roger Battle, E. G. Boh Forest Products; J. T. Montgomery, Haag & Trammell; M. E. Bienvenu, Haag & Trammell; E. J. McNamara, Freeport Sulphur Co.; Bill Weidner, Freeport Sulphur Co.; M. M. Williamson, Fromherz Engineers; Dan Cristopher, Walk-Haydel & Assoc.; D. E. Guiza, General Electric Co.; W. K. Bankston, Jay Jalenak; N. W. Markel, N. O. Blue Print & Eugene Dietzgen Co.; Al Adoue, Gore Engineering Co.; Charles Bragg, A. M. Lockett Co.; B. A. Axelrad, A. M. Lockett Co.; C. J. Skinner, Walk-Haydel & Assoc.; J. C. Wink, Verlander Equip. Co.; George Tonry, Shilstone Testing Lab.; Curt Novak, Reagan Equipment Co.

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After the golfing, horseshoe pitching and putting, LES members relax for a social hour at the Annual Outing.

Louisiana is the latest state to adopt a statute of limitations law on design, planning, inspection, supervision or construction of buildiings. The Louisiana statute provides a period of ten years after acceptance of the work by the owner during which actions can be brought against engineers, architects or contractors for deficiencies in design, supervision or construction. Similar statutes, with varying periods of time, have been adopted in Wisconsin, Ohio, Illinois, Virginia and North Carolina. A Model Statute of Limitations developed by NSPE-AIA-AGC is available.

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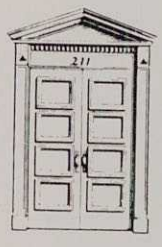

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		Magnolia, Ark.	CE 4-5440

ENGINEERS' 'GIRL FRIDAY' FETE

Taking time out were (from left), William F. Horrell, Jr., M. L. Hurstell Miss Gail Evans, secretary to Mr. Horrell and Miss Sharyn Jensen, whose boss is Mr. Hurstell.

Luncheon followed for Miss Lynn LaPeyronnie, Miss Charlotte Fenerty, Miss Mary Giardina, secretaries resepectively for (from left), Francis J. Favalora, H. W. Stumborg, Harvey Martin.

Among those present were (from left), D. J. Cognevich and Mrs. Elaine de Laet; Mrs. Elizabeth Domilise and "Chuck" Weatherly.

Jovial group included (from left), J. W. Ramsey and Mrs. Jessiemae Chirico; Mrs. Gladys Smart and L. E. S. past president Waldemar S. Nelson; Miss Mary Suddeth and J. T. Montgomery. Standing behind are Mrs. Mary Lou Thomas and T. G. (Bud) Chachere.

Chatting before luncheon were (from left), Ray Putfark, executive director, Construction Industries Association and Miaa Mary Stonecipher; Miss Lynn Godelfer and John Fernandez.

D AT SECRETARIES LUNCHEON

Annual event proved success for all, including (from left), Miss Ruth Carroll, Sydney Ellis; Mrs. Bette Taskin and George Reech.

Forming congenial crowd were (from left), James M. Janssen, an L.E.S. past president and secretary Miss Frances Giarraputo; Malcolm Stumpf and secretary Mrs. Lois Kushler; secretary Miss Kay Noble and Edward Freitag.

Seated in comfortable quarters are (from left) Miss Adele Augustin, Mrs. Elaine Babin and Mrs. Cyd Strickland; behind them are (from left), W. K. Bankston, editor, The Louisiana Engineer; H. L. Hammett, Jr. and R. M. Seago, an L.E.S. past president.

Pre-Hallowe'en event attracted large throng including Miss Jeanne Vernon and Mr. Odie Tucker; Miss Doris Eckelmann and John F. Vogt, Jr., an L.E.S. board member; Mrs. Judi Neumann and James Campbell.

Seated at the head table were (from left), Mrs. Carolyn Roy, G. H. Kellermann, club secretary-treasurer; Mrs. Kathryn Pool, club director and J. G. Ausman.

The Engineers Club fall dance will be held Friday, Nov. 20 from 9:00 p. m. to 1:30 a. m. in the club room, 404 Baronne St., club president Allen J. Jensen announced.

Members and guests are invited to attend. The cost is $3.50 per couple and includes mixers and snacks.

Reservations will be limited to the first 75 couples due to the capacity of the room. Checks can be mailed to 404 Baronne St. or reservations made by phoning Mrs. Pool at JA 5-8076. Please list names of members and guests.

Bridge Builder Defends Construction

Suggestions For Causeway Safety Offered

The following talk was given by J. E. Walters, vice-president, Prestressed Concrete Products Co., Inc., August 10, 1964 to the Louisiana Engineering Society.

The subject I have been asked to discuss has had a great deal of publicity in the past few months, and many suggestions have been made of ways and means to prevent future collisions of towboats and barges with the Lake Pontchartrain Causeway.

Our Company, as builder of this bridge, is deeply concerned about the many collisions that have occurred in the past nine years; also, deeply concerned about the publication of irresponsible and unfounded statements that lead the general public to believe that the Causeway is supported by a foundation referred to as "match stick construction" that causes the structure to be knocked down any time a small marine craft approaches it.

You, as engineers, are capable of reviewing the history of these accidents and placing the blame where it belongs.

The Lake Pontchartrain Causeway is supported by 54" diameter Prestressed cylinder piles, identical except for length, to those that support the twin bridges across the eastern end of Lake Pontchtrain near Slidell, Louisiana. A typical bent of roadway bridge at Slidell consists of three 54" diameter Prestressed cylinder piles, joined with a precast cap that supports adjoining ends of a precast, prestressed roadway slab, having roadway width of 40' and length of 65'.

The typical bent of the Lake Pontchartrain Causeway consists of two 54" diameter prestressed cylinder piles, of the same specification as those used for the Slidell twin bridges, joined with a precast cap that supports adjoining ends of a precast, prestressed roadway slab, having roadway width of 28' and length of 56'. You will readily see that the loading on the foundation piles is similar for both bridges.

The Slidell twin bridges project was designed by the Louisiana State Highway Department and the Lake Pontchartrain Causeway was designed by Palmer and Baker, Engineers of Mobile, Ala. Invitation to bidders on both jobs provided an alternate foundation design consisting of 24" square piles, similar to the foundation piles used under the Watson-Williams Bridge across the eastern end of Lake Pontchartrain, also near Slidell, La.

The successful bidder for both projects elected to use the cylinder pile alternate. As most of you know, I was vice-president in responsible charge of all phases of both the Slidell Twin Bridges and the Lake Pontchartrain Causeway, and our election to use the cylinder pile foundation alternate was reached after careful review of all factors involved. It was our opinion then, and still is, that they were superior to the alternate design. It is our firm opinion that the foundation piles used for the Lake Pontchartrain Causeway compare favorably with the piles used for similar structures throughout the nation.

The Causeway has been hit six times in the past nine years by tows consisting of a towboat and a minimum of two empty barges. The dead weight of the tows varied from 400 to 1500 tons, and it was indicated that all tows were travelling at full speed of 8 to 9 miles per hour when they hit the bridge foundations.

Two to four roadway slabs fell into the lake in each of the accidents, after the foundation was destroyed.

Five of the six accidents were caused by the captain of the towboat turning the wheel of the towboat over to a mate or deck hand while he was sleeping below deck in his quarters. The mate or deck hand on watch in all cases also went to sleep at the wheel and allowed the towboat to seek its own course at full speed.

The sixth accident was caused by a tow ramming the Causeway in a dense fog when all prudent operators were tied up at port, or anchored in the lake as our towboat was, when the fog moved in, hours before this towboat left its berth in New Orleans.

Six lives were lost in the second to last accident that occurred when the towboat, Rebel, Jr., collided with the bridge causing four spans of roadway to fall in the lake at the exact instant a Trailways Bus was crossing these spans. It is near miraculous that additional lives have not been lost when the roadway spans were suddenly dropped in the lake.

Gentlemen, I am ashamed to report this, but one of the five accidents that were caused by the helmsmen being asleep, was caused by our tug; fortunately, this oc-

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curred before the bridge was opened to traffic, and I can assure you it served as a good lesson to us.

As stated above, the minimum weight of tow that knocked the bridge foundation down was 400 tons, the maximum 1500 tons.

The energy force of a 400-ton tow travelling eight miles per hour is 856 foot tons.

The energy force of a 1500-ton tow travelling eight miles per hour is 3200 foot tons.

You, as engineers, realize, of course, that it is not feasible from a cost standpoint to design and construct a bridge foundation over a wide span of water that will withstand such an impact.

To give you a better idea of the impact force when collision occurs, the last accident was caused by a 300 H.P. towboat pushing two empty barges ahead of him. The two barges mated perfectly and the barges were of normal construction, calling for a vertical end wall approximately 2 feet high, changing to a rake section below that depth. In this case, conditions were similar to the others, namely, the captain was asleep below deck, the second and only other man on board was at the wheel. This tow was headed for our plant on the east side of the bridge and had no occasion to cross the causeway; however, witnesses verify that when they saw the tow approaching the bridge no one was at the wheel of the towboat and their efforts to wake the helmsman were unsuccessful.

When the leading barge crashed into the pier destroyed, the second barge rammed under the stern of the leading barge and moved ahead under the lead barge until more than one-third of the lead barge was piggy back on the deck of the second barge. This is not hearsay, Gentlemen. Our towboat, after the accident, assisted this tow into our slip and we lifted the lead barge off the trailing barge with our 300-ton yard crane.

To further refute the irresponsible and malicious statement made about the "match stick construction" of the Causeway foundation, I would like to describe a non-publicized event that occurred three or four years ago.

A large shell barge, loaded to capacity for two-thirds of its length with shell, the other one-third empty, causing the barge to ride with the loaded end barely above water, and the opposite end approximately seven feet above water, broke loose from its mooring west of the Causeway in a 50 to 60-mile-an-hour thunderstorm. The wind was blowing from the north-northwest and the barge hit the Causeway first at a point approximately four miles north of the south shore, then cartwheeled end over end against the side of the pile foundation for approximately two miles, knocking holes in 45 piles varying in size from one foot in diameter to an area of 2′ x 10′.

Following inspection of the damage by the Causeway engineers and myself, it was decided the bridge was capable of handling traffic and normal traffic was released two hours after the accident occurred.

The damaged piles were repaired to 100% of their original capacity with only a two-hour interruption to normal traffic.

Loose barges have hit the Causeway on numerous other occasions, but their force is not sufficient to cause serious damage to the foundation piles.

Few people realize the exposure the Causeway is subjected to. The shell industry in the lake is a major one and industries on the north shore of the lake and oil field operations cause many tows to pass through the bascule bridges daily.

It is a fact that many towboats operating in Lake Pontchartrain are undermanned, and in addition, in many cases manned by incompetent personnel. This condition, in my opinion, is primarily responsible for the accidents the bridge has sustained.

Many suggestions have been made by groups and individuals to prevent future accidents to the Causeway. Some, in my opinion, are good, others impractical.

Two suggestions most often mentioned were to have a series of signal lights installed the full length of the bridge that would be actuated, if a slab dropped, thereby severing the electric supply cable that would feed them and care for other electrical requirements. This would, undoubtedly, be effective if each car was stopped before making its first trip across and an explanation given of the warning lights.

A second was the installation of barrier gates, similar to those used at railroad crossings, that would set in vertical position normally, but if a slab dropped, severing the electric supply cable and actuating the lowering of the barrier they would then be in position to warn car operators of a break in the roadway ahead.

Gentlemen, I shudder to think of the confusion and accidents caused if such warning devices were suddenly actuated during peak traffic conditions, if they were

(Continued on Page 22)

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Subcontract Field Notes
By Allen Johnson

Once a year an Engineers Club luncheon serves in a token sort of way to acknowledge the invaluable assistance rendered the engineering profession by the secretaries. This year Mrs. Kathryn Pool again presided at the event in her usual considerate manner; it was a success once again. The engineer's secretary so often provides him with "a window to the world" and provides the world with "a window to the engineer"; it's part of the good public relations an engineer has, often without his realizing it, that his alert secretary provides with a courteous, patient answer — and a better-than-average awareness of technical information and how to expedite office routines effectively. This luncheon is the engineers' way of saying "thank you" to the secretaries.

* * *

Boeing Co. engineers may either attend graduate courses at local universities or in-plant evening courses as part of the company's efforts to help employees upgrade their professional qualifications, according to the NSPE Engineering Employment Practices Newsletter. Under the Graduate study program, Boeing engineers may attend classes at accredited colleges or universities in either full or provisional graduate status, subject to approval by the applicant's immediate supervisor. Full reimbursement of all tuition and fees, plus $10 per quarter credit hour or $15 per semester credit hour, is provided for courses applicable towards an advanced degree which are completed with a grade of "B" or better. To permit attendance at classes, working hours may be adjusted to a part time or irregular basis when necessary. In addition, a wide range of technical subjects are taught in-plant.

Sounds like a program worthy of discussion by industries seeking means of promoting professionalism among its engineers.

* * *

Pierre (Pete) Stouse and his committee are to be commended for their successful Annual Outing at the Colonial Country Club in Harahan; a congenial banquet emceeded by the perennial cajun-kamikaze jokester Nussloch closed out a splendid day's outing of golf, putting and horseshoes. The results are given elsewhere in this issue. . . . Mike Bassich is virtually set with plans for the 1965 Winter Meeting of NSPE at the Jung Hotel in New Orleans following intensive sessions as meticulous as astronautical countdowns with NSPE's J. D. Don Strong, LES President John T. Knight, Jr. and the arrangements committee. Follow the event in both The Louisiana Engineer and the American Engineer, which has promised pictorial coverage of the blue-ribbon meeting.

—o—

ARO, Inc., a subsidiary of Sverdrup and Parcel, Inc., has received the fifth annual NSPE Industrial Professional Development Award.

ARO was cited for its record of advancement and improvement of the engineering profession through development and use of forward-looking engineering practices.

PR FOR THE PE

Every member of the Louisiana Engineering Society is a public relations representative of the Society. Our every action, whether on a professional basis or as a private citizen, reflects directly or indirectly on our Society and on our Profession.

The public image of any organization is as strong as the image created by the individual members of that organization. Therefore, we should not consider our Society as a "mass representative" or "mass spokesman" for our individual actions. The Louisiana Engineering Society does not so much represent us as we represent the Louisiana Engineering Society.

This is as it should be. By always keeping our own professional and personal standards at their highest level, by letting our **individual** conscience be our **individual** guide, we can be assured of the public's respect and appreciation for our Profession and our Society.

As Professionals, we should all know what constitutes professional conduct in any given situation. By adhering rigidly to our Code of Ethics, by active participation in the life of our community, by an honest, apparent **pride** in our Profession we can do much to enhance our own image and the image of our Society.

A good public image is not something you automatically receive with membership in the Louisiana Engineering Society, but is something you give to the Society through your conduct as a Professional Engineer.

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Space-Age Courses Offered At Tulane

Space and Nuclear-Age engineering students at Tulane University have the opportunity to study courses in radiological health, high speed gas dynamics and economic principles of engineering during the 1964-65 school year.

Courses in these subjects — and air pollution, airport design, advanced dynamics and chemical engineering analysis — are being presented for the first time by the Tulane School of Engineering.

In addition, a special studies course in mechanical engineering will permit students to do research of their choice, Dr. Lee H. Johnson, LES dean of the Tulane School of Engineering, said.

Radiological health will include study on the use of survey meters, safety monitoring, statistical evaluation of counting data, de-contamination, and the removal of radio-active matter from water. Laboratory work will include chemical analyses for Strontium 90, one of the major fallout isotopes.

The courses in high speed gas dynamics includes instruction in mathematics of high velocity gas flow from supersonic aircraft and missile engines, and the effects of air friction on their superstructures in flight.

Economic principles of engineering is a blend of economics and engineering, Dean Johnson said, and will include instruction in engineering planning, feasibility studies, analysis of proposed investments, and development of resources.

Dr. Donald Rowe (left) is a newly-appointed faculty member of Tulane University whose specialty is environmental health. He is teaching a course in radiological health. Dr. Frank Dalia, LES, received his doctor of philosopy degree in economics at Tulane and currently teaching a course on the economic principles of engineering.

Dr. Donald Rowe, newly-appointed faculty member whose specialty is environmental health, will teach the radiological health course.

Instructor for the course in high speed gas dynamics will be Dr. Henry F. Hrubecky, professor of mechanical engineering.

The engineering-economics course will be taught by Dr. Frank Dalia, LES, who received his doctor of philosophy degree in economics at Tulane during summer graduation ceremonies last August.

In addition to engineering students, the new courses will be available to sanitary engineers and other public health officials, physicists, radiologists and other professional people in the New Orleans area, Dean Johnson said.

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Memorials

LOLAN J. MELANCON

Lolan J. Melancon, or "Mac" as he was affectionately known to his many friends, died on Friday, September 11, 1964, at the age of 60. He is survived by his wife, the former Maurice Miller, three sons, Lolan J., Jr. of Baton Rouge, John M. of Omaha, and Edward F., a freshman at Louisiana Tech; one daughter, Anne M., a senior in high school; and a brother, Edward P. of Baton Rouge.

The engineering profession, the company for which he worked, and the community suffered a great loss in Mac's death. Mac was a diligent worker in the activities of the Louisiana Engineering Society and the National Association of Professional Engineers. In the Alexandria Section he served one term as Secretary Treasurer and one as First Vice-President. He was continuously active on various committees on the local and state levels. At the time of his death, Mac was a member of the Statewide Legislative Committee, and on the Statewide Legislative Committee, and on the Technical Program Committee at the Section level.

Mac was a telephone engineer and a good one. There are many monuments he has been instrumental in erecting within the state in the field of communications that attest to his ability. On January 10, 1924, Mac went to work in New Orleans in the Plant Department. This proved to be the beginning of his long career with the Southern Bell Telephone and Telegraph Company. He worked in New Orleans, Baton Rouge, Shreveport and Monroe before coming to Alexandria in July 1932, where he remained until his death. He transferred to the Engineering Department in January 1941. During the hectic World War II years of men and material shortages, he performed yoeman service and contributed much to the war effort in furnishing telephone service for the armed forces' maneuvers and many camps in this area. One of his accomplishments after the war was the designing and placing of a submarine cable across Lake Charles. This was the longest of its size ever placed at that time. The placing required his use of special techniques. Motion pictures were taken of the operation and shown throughout the country. The method was adopted as standard by the American Telephone and Telegraph Company. This is just one of his many accomplishments of which there are too many to mention.

Mac was active as a member of the Knights of Columbus. He became a Third Degree Knight in December 1936, was made Deputy Grand Knight, and then Grand Knight of the Council in 1945. He served in this office for one year. He was a member of the Board of Trustees for several three-year terms and did valuable work as a Trustee on this Board. Mac entered Fourth Degree Knights of Columbus, which is the highest order, in July 1943. He joined Father Ryan's General Assembly of Fourth Degree Knights in 1943. In 1955 when the Assembly branched off, he joined Monsignor Pregay's General Assembly. He was a charter member of this Assembly and maintained his membership until death.

Mac was a charter member of the Alexandria Telephone Credit Union and served as its president for one term. He was also President of the Alexandria Chapter of Credit Unions for a year. At his death he was a member of the Board of Directors for the Louisiana League of Credit Unions and a National Director of the Credit Union National Association. The Louisiana League sets policies for the State and the National Associations for all nations. As a Board Member and Director, his duties made it necessary to travel extensively in Louisiana, through the United States, and to foreign countries.

Among Mac's other activities was work in the church and in the Boy Scout organization.

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Former L. E. S. President Dies

BATON ROUGE—Herman L. Lehmann, former president of the Louisiana Engineering Society and nationally known testing and research engineer for the Louisiana Department of Highways, died at 7:00 A. M. Thursday, Aug. 5, following a heart attack.

A 36-year veteran of the Louisiana highway program, Lehmann joined the department's engineering staff in 1928.

Lehmann spent his entire highway engineering career in the testing and research section, a unit he organized and headed from its inception. In March, 1929, he was promoted to chemist in charge of asphalt research. From March, 1929, until December, 1931, Lehmann served as

assistant chemical testing engineer. He was promoted to chemical testing engineer in May, 1932.

A tour of duty as assistant to the testing engineer preceded his appointment as testing and research engineer in March ,1933. He held this post until the time of his death.

Lehmann, a native of Hahnville, concluded his formal education at the eleventh grade. He completed his high school studies under private tutorship and amassed his large storehouse of knowledge by setting his own pace in the quest for know-how in chemistry and engineering. A pioneer in his field, Lehmann was nationally known, having presented more than a dozen dissertations on technical subjects at national and international forums. He represented the Highway Department at more than 100 sectional, regional, national and international gatherings of professional highway engineering organizations.

Lehmann was winner in 1959 of the coveted Charles E. Dunbar, Jr., Career Service Award given by the Louisiana Civil Service League.

He represented the Department with the American Society of Testing Materials and the National Highway Research Board. He has served as chairman of the Bituminous Division of the Department of Materials and Construction of the Highway Research Board. He has served on the Advisory Committee on Asphalt Research of the American Association of State Highway Officials. He has served in every office of the Baton Rouge section of the Louisiana Engineering Society, and has served many officerships of the statewide organization.

Lehmann has been active in training programs for out-of-state and foreign engineers in his field.

Lehmann served as an elder in the First Presbyterian Church of Baton Rouge and has served as principal of its Sunday school. Lehmann was a Master Mason, a member of Baton Rouge Lodge No. 372, F&AM, for 34 years and a member of the Maomi Chapter, Order of Eastern Star for 30 years.

During World War II, Lehmann served on the advisory board in Baton Rouge for the National Selective Service System.

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PHOENIX, Ariz.—K. N. (Ken) Burnett has been named manager of electric utility sales for General Electric's Process Computer Section, by L. J. Geiger, manager of marketing.

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Luncheon Auxiliary Notes By Mrs. Edward J. Welsch

The Woman's Auxiliary to the Louisiana Engineering Society presented their annual gala Luncheon and Fashion Show for members and guests at the Vista Shores Club in New Orleans on Oct. 20.

Fall fashion by Gus Mayer were shown, and a Fall motif highlighted the program. Autumn blossoms decorated the tables.

Receiving informally with Mrs. Otha E. Barron, Jr., president, were Mrs. Richard H. Earl, chairman; Mrs. Warrington B. Speer, Mrs. Jerry D. Dickson, Mrs. Johe E. Watson, Mrs. John E. Walker, Mrs. Bernard Ruckstuhl, and Mrs. Alfred J. Diamond.

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Mrs. O. E. Barron, Jr., Mrs. Thomas Fromherz, Mrs. Albert Fransen, Mrs. Edward J. Welsch, Jr., Mrs. John A. Haase, III, Mrs. John K. Mayer and Mrs. Ralph Elizardi motored to Baton Rouge November 5 to attend the Founder's Day Tea of the Baton Rouge Chapter of the Woman's Auxiliary to the Louisiana Engineering Society. The tea was held at the Governor's Mansion.

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N. S. P. E. TO MEET IN N. O.

Pictured above is the local arrangements committee for the winter meeting of the NSPE to be held in the Jung Hotel, New Orleans, Jan. 20-22, 1965. The committee members are (from left, standing): A. H. Douglas, Henry H. St. Paul, Francis Favalora, W. K. Bankston, Frank Birdsong, (from left, seated): Mrs. Sally Birdsong, G. M. Baccich and Walter Verlander.

———o———

The National Society of Professional Engineers will hold its winter meeting at the Jung Hotel in New Orleans Jan. 20-22, 1965, G. M. Baccich, local arrangements chairman, announced recently.

J. D. "Don" Strong, Washington, D. C., field representative for the national society, told the committee at the Engineers Club that approximately 250 officers and directors of the 55,000 member society would attend.

The plans include a cocktail party sponsored by the Louisiana Engineering Society, a buffet supper and dance. Participating in the planning session were W. J. Verlander, W. K. Bankston, Mr. and Mrs. Frank Birdsong, A. H. Douglas, Jr., Henry H. St. Paul, Jr., Francis Favalora, Allen Johnson and Col. J. T. Knight, Jr., president of LES.

(Continued from Page 17)

actuated by a power outage from normal causes.

Drastic measures have been considered that would curtail the marine industry in the lake and elsewhere, including the shell industry. In view of the past history, immediate and positive means should be put in effect to protect the lives of users of the Causeway and, also, protect the property interests of the owners.

The marine industry has enough at stake to cause them to cooperate and overcome the bad record caused by a few towboats, undermanned and manned by incompetent personnel.

In view of the cause of all accidents sustained to date by the Causeway, I suggest the following remedies:

1) All captains and mates charged with the responsibility of operating power towboats must secure a license for their position after satisfactorily proving their qualification by examination.
2) All towboats will be manned at all times they are in use by a minimum crew of two operators per shift capable of handling the movement of the vessel, in emergency, in case the captain or mate on watch becomes incapacitated, or feels the need of rest.
3) All accidents would be carefully investigated by the licensing agency, and if negligence or incompetency is proven, the operators license would be suspended or revoked, as conditions warrant.

Additional precautions are as follows:

1) Require all towboats entering the lake to be equipped with ship-to-shore radio telephone, and immediately notify the north or south bascule radio operator at the Causeway of their destination and planned course in the lake, so their movement can be checked by the radar operator, and any variation from the stated course called to the attention of the captain or mate on duty on the towboat, by the radar operator.
2) A second safety precaution would be to have a high speed patrol boat, large enough to take loose barges in tow, and prevent collision with the Causeway, manned by **competent** personnel, to investigate any deviation in the course given to the radar operator on duty by any towboat approaching the Causeway.

To summarize, Gentlemen, no one realizes the seriousness of past accidents more than I. Our company has been called on to repair the damage caused by all accidents that have occurred to date. To do it in the time usually taken of four to six days, calls for the maximum effort of our entire force of 250 employees. Some of us get very little sleep during the repair period.

The Causeway as designed and constructed is a safe installation, but it is a fact that any bridge is vulnerable to direct hits at high speed by tows, and the risk of being hit and knocked down is magnified greatly unless ways and means are developed to assure operation of towboats by qualified, responsible operators.

Car operators are required to pass examinations and be licensed. They are responsible if they cause personal or property damage, and negligence on their part can result in their license being revoked, charges filed for homicide, or anything indicated. If similar requirements and provisions were required for towboat operators, it is my firm opinion that the accidents would be eliminated.

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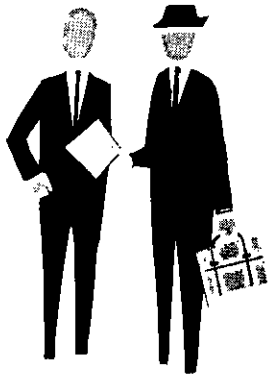

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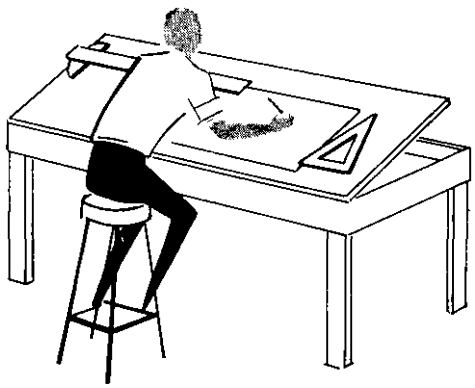

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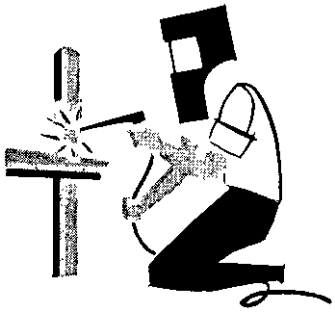

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A top engineering educator sees the engineer of today as more than fulfilling the destiny implicit in the words of world-renowned engineer Theodore von Karman:

"The scientist explores what is. The engineer creates what never has been."

In the opinion of Dr. Lee H. Johnson, LES, dean of the Tulane University School of Engineering, the creativity involved in the nature of engineering is a key to its golden age.

"Engineering is a creative discipline," he believes. "Its creations rival nature in grandeur, in intricacy, and in power. It has to do with using nature's laws, transforming nature's materials, and harnessing nature's energy.

"One must be dull indeed not to respond to the challenge of bending nature to man's will.

"To do this, the engineer has incredible new tools for his use: tools that for the first time give us capabilities of solving problems of any degree of complexity—problems that would have required years, if not a lifetime, for an engineer to solve."

Prior to the development of mass-calculation computers, engineers had to make "simplifying assumptions" about the stresses of waves against such structures as offshore drilling rigs.

Now, Dr. Johnson says, "we can program variations, stresses and conditions, with tremendously more reliability." The three-dimensional calculations in such programming are "frightening," he says.

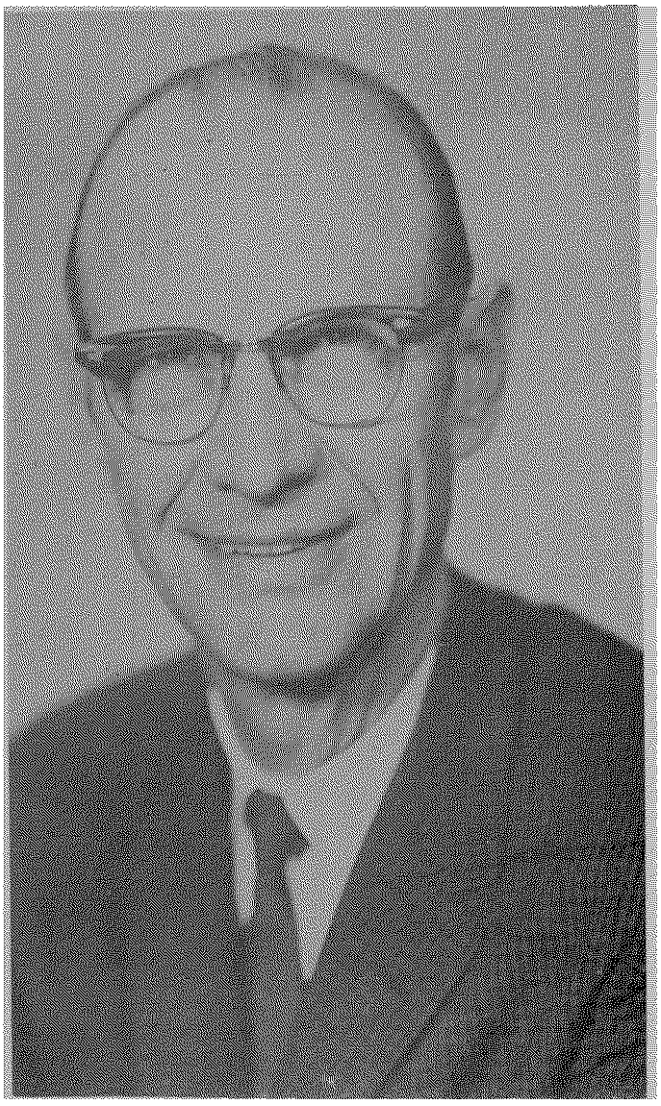
The Tulane dean pays tribute to the "scientific breakthrough, the acceleration in the rate of discovery of the world about us," as another key to engineering's Golden Age.

The world's space programs are the most spectacular exhibit of the golden age, highly appealing to the engineering student. Space-age engineers are working with new applications, new orders of magniture hardly dreamed of in the past.

In order to prepare its students to walk into this new engineering world, Tulane has instituted a new course in aerospace engineering for senior students.

To stand a 30-story rocket on end, balance it on gas, then direct it to some infinitestimal point in the cosmos where it performs another function such as orbiting a satellite, "demands a precision of control never reached in the past. The degree of reliability is fantastic," Dr. Johnson observes.

"Feedback" from space exploration has opened up new worlds for those not directly involved. The Telstar project, for instance, enabled us to see the Olympics, via satellite, from Japan. It has paved the way for eventual worldwide wireless telephone communication.



Dean Johnson

All automobiles may someday be like a prototype developed by one of the big automakers. All parts of the vehicle are directed by a computer, and all controls are operated by one hand-operated six-inch lever.

As men live together in larger groups, "environmental engineering," will assume increasing importance.

"There will be more demand for power, new use of chemicals, and problems in use and control of air and water, in transportation and distribution," Dr. Johnson foresees.

Although the day when cities are planned from the "ground up" is still far distant, civil engineers are now working "in that direction," developing the decentralization concept for cities. Already in operation near New Orleans, Dr. Johnson points out, is a completely automated power station, which controls the electrical output for a huge area and makes automatic corrections for

power disturbances.

Tulane's engineering dean makes this assessment of his profession's future:

"No profession offers greater challenge to young people nor greater opportunity to make significant contributions in the years ahead. This is indeed the 'golden age' of engineering."

(Continued from Page 11)

In his opinion, Col. Knight said, scientists and engineers are "formally trained in orderly thought habits, and have been inspired to search for facts and to master the laws of cause and effect, combined with some emphasis on controlled observation.

"For this reason I believe that there should be a place on every board of education, every police jury in this state, and all boards of County Supervisors in other states, and in state boards and national groups for scientists and engineers. We will not be fulfilling our maximum destiny nor our fullest social obligations until we have experienced such service," he aid.

The three-day conference was called to order by G. J. Trammell, conference chairman. Papers presented were: "Direct Energy Balance Control System for High Pressure-High Temperature Units," H. E. McMichael, Leeds & Northrup Co., Philadelphia, Pa.; "Automatic Blending of Gasoline Additives," Warren E. Green, Ethyl Corp., Baton Rouge, La.; "Shortcuts with Cascade Control," R. M. Wright, American Oil Co., El Dorado, Ark.; "Computer Control of the Kamyer Digester," L. B. Hilsee, Minneapolis-Honeywell Regulator Co., Philadelphia, Pa.; "Control of pH with Concentrated Acid and Alum Solutions," E. L. Spruill, Continental Can Co., Hodge, La.; "Oil Field Automation—Present and Future," Bill Compton, National Tank Co., Tulsa, Okla.; "A System to Automatically Control Load for Reciprocating Compressors," O. T. Tolson, Jr., The Cooper-Bessemer Corp., Dallas, Tex.

Throughout the conference short courses were given by Dr. M. R. Johnson, Jr., assistant program chairman, and Grady Carroll, instrumentation maintenance consultant.

Dean Ben T. Bogard, LES past president, presided over the banquet.

Serving on the program committee were: Charles A. Killgore, chairman; Milton R. Johnson, Jr., assistant chairman; Jere K. Price, Grady Carroll, E. E. Brown, F. X. Shaughnessy, Robert M. Wright, C. B. Sprague, W. C. Robertson and Ed Lafaye.

—o—

Knight Thanks Keller For Professional Consideration

Following is the text of a letter written by LES President John T. Knight Jr. to Mayor Roy C. Keller of Westwego. In the August issue of THE LOUISIANA ENGINEER we printed the text of a telegram written by Knight to Mayor Keller urging the acceptance of professional engineers.—Ed. Note.

This will, as you requested, confirm our phone conversation of September 23, 1964 in reference to your selection of an engineer for the design and supervision of construction of an addition to your water system for the City of Westwego.

You stated, and I accept, your statement that you did not publically nor otherwise advertise, nor in any other manner call for competitive bids by professional engineers on this project. Further, you stated to me that Mr. Sam Applewhite did not solicit this work, but that you invited Mr. Applewhite, and no one else to call and discuss this project with you and your associates, and that prior to inviting Mr. Applewhite to come to see you that you had investigated Mr. Applewhite's past performance of similar work and were entirely satisfied that he was qualified to perform the work at hand.

I believe you also indicated that you did not feel that the extension or addition to your water system was, or should be, considered as an extension to the sewerage system, which work was in progress and had been designed and supervised by another engineering firm.

If you will recall, I closed my telegram of July 13, 1964 with this sentence:

> "My interest is forwarding and pressing
> for the acceptance of the registered
> Louisiana Engineer as a true professional
> and I would like to feel that his selection for a given project was based upon
> professional considerations."

From your statements, I must say that, you have made your selection in accordance with good "professional considerations," for which I thank you.

I will avail myself of the pleasure of personally calling on you at some time in the near future.

Until then,

With best personal regards,

Sincerely,

J. T. Knight, Jr., P. E., President
LOUISIANA ENGINEERING SOCIETY.

—o—

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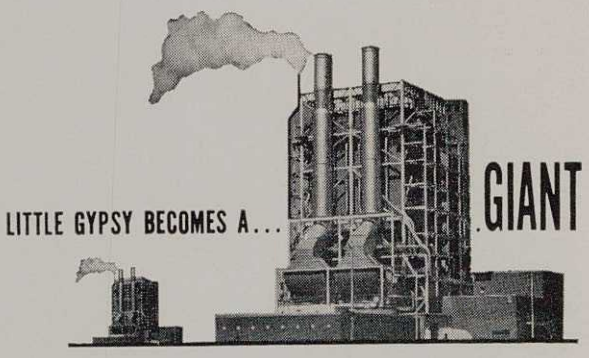
—o—

EJC Notes

NEW YORK, Aug. 30—Job opportunities for this year's crop of engineering graduates are remarkably bright in view of employment difficulties for some categories of experienced engineers. This is the highlight of a new survey just published by the Engineering Manpower Commission of Engineers Joint Council in which colleges were asked to provide information on the post-graduation plans of engineering graduates to have just received their bachelor's degrees.

The survey was based on responses from 134 institutions representing over one-half of the total number of engineering schools in the nation. The report, "THE PLACEMENT OF ENGINEERING GRADUATES—1964," is available through the Engineering Manpower Commission, 345 E. 47th Street, New York, N. Y. 10017, at $1.00 per copy.



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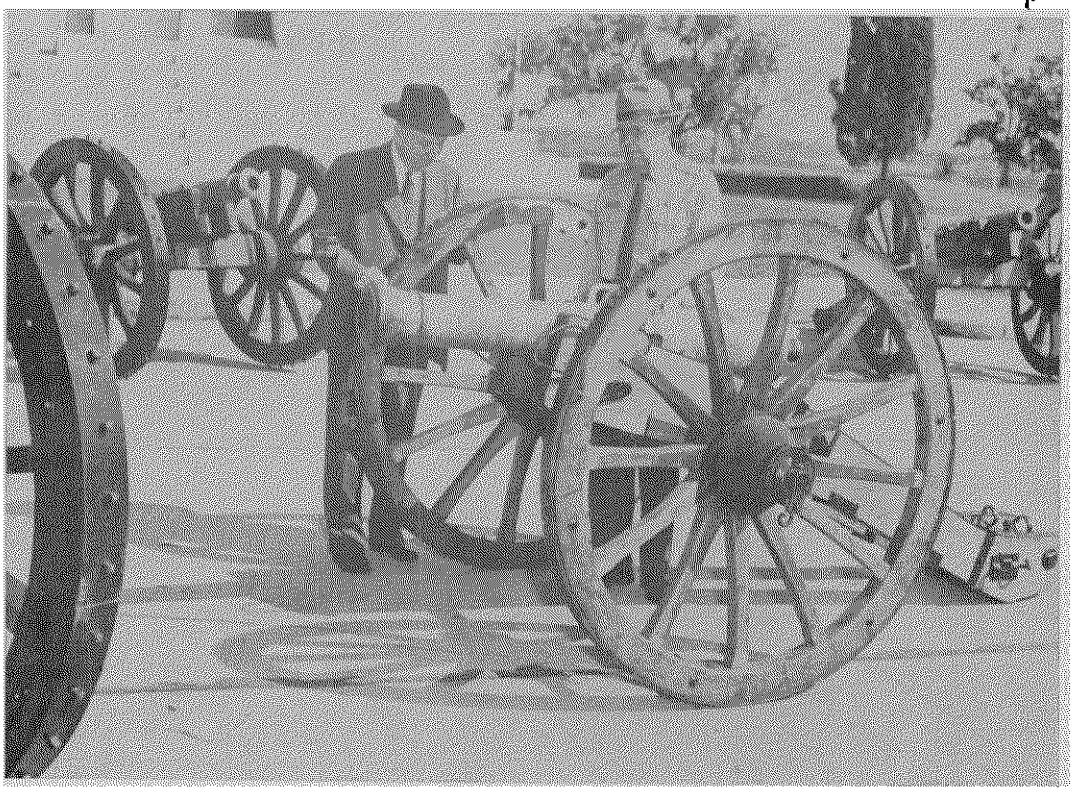

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Signed,

Oct. 31, 1963 — W. K. Bankston, Editor

LES TO EMPLOY EXECUTIVE SECRETARY (See Pg. 12)

OUR COVER

Maj. Gen. Edward S. Bres (Ret.) tours the recently restored "Line Jackson" at Chalmette National Historical Park with park superintendent Courtland T. Reid. The restoration was completed in time for the 150th observance of the Battle of New Orleans.

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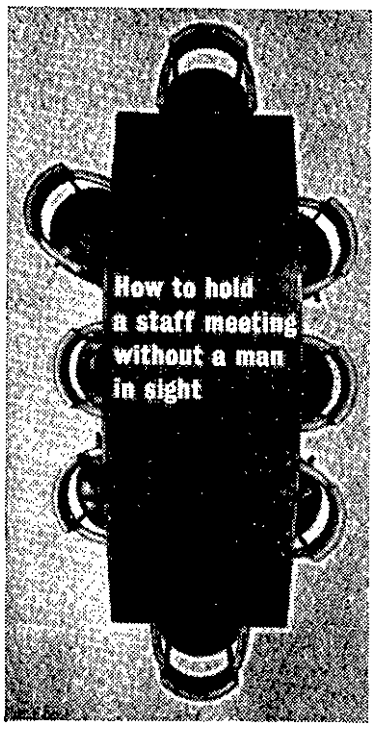

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Minutes Of The Board, LES

LOUISIANA ENGINEERING SOCIETY

Minutes of Meeting of the Board of Direction Held at the Engineers' Club, New Orleans, on Monday, October 12, 1964

The meeting was called to order by President Knight at 7:05 p. m. with Messrs. Eustis, Ewing, Roy Johnson, Odom, Stokes, Vogt, Walk and Fernandez present. Mr. Allen Johnson, Public Relations Counsel, also was in attendance. Mr. Ewing moved that minutes of the board meeting held on September 14 be accepted as read, seconded by Mr. Johnson and carried.

Discussion took place on proposed personnel for the Committee on Goals of Engineering Education. President Knight stated that he would make appointments and report his selections to the board at its next meeting.

Two reported violations of Ethics and Professional Conduct were discussed and it was decided to have an LES observer at one of the hearings scheduled during the week.

The secretary reported that 551 ballots had been cast on the proposed revisions to the constitution and by-laws, with a vote-count of 536 in favor and 15 opposed. Accordingly, the new constitution and by-laws are now in effect.

The secrtary also announced that 399 membership ballots were returned and that all applicants were elected to the grades indicated on the ballot. The breakdown of new members is as follows:

Chapters	Members	Affiliates	Juniors	Total
New Orleans	7	1	1	9
Baton Rouge	5	1	....	6
Shreveport	2	....	....	2
Monroe	2	....	....	2
Lake Charles	1	....	1	2
Lafayette	1	....	....	1
Alexandria	....	1	1	2
	18	3	3	24

In addition, one Baton Rouge Junior Member was transferred to Member grade.

A Financial Report for the third quarter of 1964 and a report of the Chairman of the 1964 Outing were read by the Secretary.

Mr. Frank Walk presented his report on the Third Annual Conference of Professional Engineers in Private Practice (PEPP). Because of the excellent material presented, President Knight requested Mr. Walk to submit his report in writing.

The secretary read correspondence concerning the list of nominees to be submitted to the Governor for the appointment of a member to the State Board of Registration for Professional Engineers & Land Surveyors. After prolonged discussion it was decided to submit the following names to the Governor:

Mario G. Zervignon
R. O. Beckham, Jr.
A. D. Hargroder
Charles P. Knost
Wm. Stone Leake

The following correspondence was read and it was decided that no action would be taken at this time on these requests:

(1) From Mr. James M. Todd concerning a James M. Robert Memorial.

(2) From the Fraternal Order of Police requesting support of their effort to reduce the work-week of the New Orleans Police Department.

(3) From the Orleans Levee Board requesting assistance to defeat the proposed tax millage transfer.

President Knight announced that a meeting between representatives of the Louisiana Bar Association and the Land Surveyors' Association would be held on Wednesday to discuss the advisability of up-dating the laws governing the practice of land surveying.

Mr. Vogt moved that Roy C. Hingle be transferred from Affiliate to Member, seconded by Mr. Eustis and carried. On motion of Mr. Johnson, seconded by Mr. Vogt, Messrs. E. R. Ezekiel (New Orleans) and B. F. Svoboda (Baton Rouge) were dropped and their election to Member grade declared void.

A petition and proposed by-laws for the establishment of a New Orleans Chapter of LES were presented and accepted upon motion by Mr. Ewing, seconded by Mr. Stokes. Discussion followed on a desirable program that could be implemented by a full-time Executive Secretary. The meeting adjourned at 10:15 p. m.

JOHN P. FERNANDEZ
Secrtary-Treasurer

LOUISIANA ENGINEERING SOCIETY

Minutes of Meeting of the Board of Diretcion Held in the Conference Room, New Orleans Public Service Building on Monday, November 16, 1964

The meeting was called to order by President Knight at 7:35 p. m. with Messrs. Odom, Watts, Ewing, Duclos, Vogt, Affolter, Nelson, and Walk in attendance. Messrs. Allen Johnson, Public Relations Counsel, and M. J. Marchese, Assistant Secretary-Treasurer, also were in attendance. Mr. Duclos moved that minutes of the board meeting held on October 12 be accepted as forwarded to board members by mail, seconded by Mr. Odom and carried.

Discussion took place on the subject of proposed James M. Robert Memorial. Mr. Vogt reported that there was no conflict in plans for the memorial and that he would work with Mr. James M. Todd and the Tulane Engineers and report back to the board at its next meeting.

Discussion followed on proposed personnel for the Committee on Goals of Engineering Education and President Knight stated he would try to form a committee from the following persons: Lawrence R. Daniel, Wayne P. Wallace, Milton R. Johnson, John L. Martinez, F. Hugh Coughlin, DeWitt L. Morris, Max P. Watson and E. T. Robinson.

Mr. Odom reported on the meeting held between representatives of the Louisiana Bar Association and the Land Surveyors' Associaiton. He stated that progress was being made but there was nothing of specific nature to report at this time. Mr. Odom agreed to represent LES at future meetings of this committee.

A letter from the Illinois Society of Professional Engineers was read in which they requested support of a resolution that would limit the delinquency period for non dues-paying members. A motion by Mr. Ewing to support the Illinois Society was seconded by Mr. Nelson and carried.

The president read a letter from Mr. Lawrence Mann, Jr. of L.S.U. concerning an article he wrote for THE LOUISIANA ENGINEER which has not been published. It was decided that Mr. Odom would discuss the matter with Mr. Mann and in addition, President Knight will answer Mr. Mann's letter.

President Knight recommended the referral of "JESSI" correspondence regarding summertime seminars for high school students to the Vocational Guidance Committee. This was so moved by Mr. Nelson, seconded by Mr. Affolter and carried.

Mr. Allen Johnson reported on plans for the NSPE Winter Meeting, stating that the budget would be established by November 30. He advised that some key assignments are still unfilled but planning for the sessions is progressing in an orderly manner.

The president read a letter from Tulane University requesting the society to co-sponsor a meeting to be held at the university on December 2, 1964 at which Mrs. Jane Hanna, U.S. Deputy Director of Civil Defense, would be the speaker. It was moved by Mr. Duclos, seconded by Mr. Affolter, that LES serve as a sponsor of the meeting. The motion carried and President Knight indicated he would notify Tulane.

The request of Mr. C. R. Haulman for transfer from Affiliate to Member grade was discussed and action was postponed until additional information could be obtained concerning Mr. Haulman's qualifications.

The president appointed Messrs. Frank W. Macdonald and Russell A. Hall to prepare an obituary for the late T. Edward Ernst.

Mr. Watts reported that a Functional Section for Engineers in State Government had been established and presented minutes of a meeting held on October 20. He further stated that the officers of this new functional section desired to meet with the Board of Direction at its next meeting.

President Knight announced that the next meeting of the board would be held in Baton Rouge, December 8 at 4:00 p. m.

Extensive discussion took place concerning the employment of an Executive Secretary and President Knight suggested a committee of seven members to get together to develop a plan for submission to the Board. The meeting then adjourned at 9:50 p. m.

M. J. MARCHESE
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LSU'S New Industrial Engineering Curriculum

Lawrence Mann, Jr., Associate Professer

Background

Beginning in 1946, Louisiana State University offered a number of courses in Industrial Engineering. For many years, LSU offered this work as an option in Mechanical Engineering. That is, the IE had to schedule nearly all of the work as the ME plus the Industrial Engineering subjects. In the age of rapidly growing technology, each engineering discipline is requiring the student to devote more time to its content. For this reason, the option is no longer feasible and it was decided to offer a separate degree.

This action, by the LSU administration is but additional evidence of the vitality of the university, in general, and the College of Engineering in particular to keep pace with the age of "industry."

There are 53 academic institutions in the U. S. offering programs in Industrial Engineering. IE is the fifth most popular engineering branch after electrical, mechanical, civil and chemical in that order.

What is Industrial Engineering?

A comparatively new field of engineering, industrial engineering was originated shortly before the turn of the century. It is a well known fact that industry desires, and has found that it needs men in top positions who have analytical ability, a technical background, and who have the capacity and ability to work with people. Industrial engineers are, by and large, men who have decided that they prefer to work with people as well as things, to work out on the production line of a plant dealing with individuals as well as with specific design problems in engineering offices. It should be evident, therefore, that with the constant growth of our present society with its constant increase in industrialization, together with the great increase during the past ten years in both numbers of industrial engineers and in their importance, will not only continue in the future, but probably will proceed at a faster rate. According to the U. S. Department of Labor's "Occupational Outlook Handbook" the employment of industrial engineers has more than doubled during the past ten years.

The study of industrial engineering prepares the student for a career in both the manufacturing and service industries. The industrial engineer deals with most of the activity concerned with production in a manufacturing establishment—with product design, process design, methods analysis, organization, planning, coordination, equipment, personnel, and each of the factors which play a role in the cost, quantity, and quality of output. The industrial engineer is also engaged in plant and equipment maintenance, safety engineering, technical sales, purchasing, and other activities which require a sound engineering education as well as knowledge of manufacturing.

The Curriculum

Freshman Year

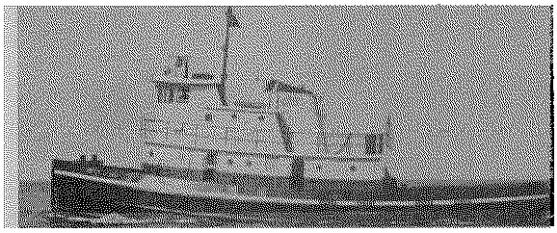
Subject	Hours
General Chemistry & Laboratory	8
English Composition	6
Analytic Geometry & Calculus	10
Engineering Drawing	2
Use of Library	1
Engineering Orientation	1
General Physics for Technical Student & Lab.	5
Military, Air Science or Electives	2
	35

Sophomore Year

Subject	Hours
Calculus & Differential Equations	6
General Physics for Technical Student & Lab.	5
Statics and Dynamics	6
Descriptive Geometry	2
American History	6
Elements of Electrical Eng. & Lab.	5
Manufacturing Processes	3
Military, Air Science or Electives	4
	37

Junior Year

Subject	Hours
Design and Analysis	3
Production Control	3
Engineering Statistics	3
Industrial Electronics	3
Kinematics	3
Instrumentation Lab.	2
Thermodynamics	6
Engr. Use of Digit Computers	3



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Strength of Materials & Lab	5
Humanistic & Social Elective	3
	—
	34

Senior Year

Subject	Hours
Plant and System Design	3
Industrial Relations	3
Operations Research	3
Industrial Engineering Lab	1
Dynamics of Machinery	3
Metallurgy	3
Metallurgy Laboratory	1
Fluid Mechanics	3
Fluid Mechanics Laboratory	1
Exper. & Perform. Lab	2
Technical Electives	6
Hum. & Social Electives	8
	—
	37

Of the courses listed above, those unique to the Industrial Engineering curriculum are:

Engineering Statistics—Descriptive statistics for one or two variable of measumement curve fitting, frequency, distribution, regression and correlation, statistical inference, application to engineering problems including control charts and acceptance sampling, analysis of variance, multiple regression.

Design and Analysis—Process charting, motion study, operation analysis, motion and time study, design of workspace, work sampling, standard costs, synthetic basic motion time, indirect labor standards and wage incentive plans.

Production Control—Fundamentals of types of manufacturing, inventory control, manufacturing systems, product forecasting and estimating, quantity and batch-size determinations, scheduling procedures, progress evaluation and review techniques, synthesis of manufacturing planning orders.

Engineering Economics (Technical Elective)—Elementary tools for evaluating alternative engineering proposals with emphasis on the reduction of the various criteria to the single measure of monetary worth, quantitative methods of decision making, depreciation and rate of return, economic proposals and feasibility studies, and cost control.

Plant and Systems Design—Machine loading, line balancing techniques, design of physical manufacturing systems, material handling principles, plant engineering, introduction to mechanization and automatic control.

Industrial Relations—Principles of human relations between workers and technical personnel of industrial enterprises, job evaluation and merit rating programs, industrial training programs, methods of motivating employer.

IE Laboratory—Process chart construction, exercises in work simplification, time study, work sampling, product planning, and the design of a plant including manufacturing equipment, inventory, storage area, utility systems, transportation and material handling equipment.

Operations Research—Construction of mathematical models, with emphasis on linear programming, allocation methods, queuing and waiting line methods, and advanced scheduling and forecasting procedures.

Engineering Use of Electronic Digital Computers—An introduction to digital computers and computer programming with application to engineering and production problems, electronic data processing, information systems, numerical analysis.

The curriculum has been designed so that, at the appropriate time accreditation can be asked of the Engineer's Council for Profession Development (ECPD). In order for a curriculum to be so accredited the curriculum must have:

1. At least the equivalent of one academic year of basic sciences, about one-half of which is mathematics beyond trigonometry.
2. At least the equivalent of approximately one year of engineering sciences.
3. At least the equivalent of approximately one-half of an academic year devoted to engineering analysis, design and engineering systems.
4. The curriculum must be designed for integrated sequential study.
5. The curriculum must have the equivalent of from one-half to one full year of humanistic and social studies.

The IE course has been designed around these restrictions.

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(Continued on Page 20)

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Engineers Role In Battle Of N. O. Told

(The role of The Engineer in combat is vividly reflected in this account of the construction of the vital "Line Jackson" defended by Americans against the British in the Battle of New Orleans in December and January, 1815. The account, that of Maj. Arsene Lacarriere Latour, Maj. Gen. Andrew Jackson's chief engineer, was edited by Warren K. Bankston, editor of The Louisiana Engineer and a descendant of Henry Bankston, Washington Parish, one of 13 American casualties (7 killed and 6 wounded) in the decisive battle Jan. 8 at Chalmette. The British lost over 2,000 killed. Another LES descendant is Walter Plauche, New Orleans, whose ancestor is mentioned in the following account by Maj. Latour.

HISTORICAL MEMOIR

Before I proceed to relate the events of the 8th of January, a day of ever-glorious memory in the annals of America, and especially in those of Louisiana, I think it not unseasonable here to describe those lines, before which was performed the most important military exploit of the whole war, and, considering local circumstances and the respective forces contending, that which reflects on America the highest glory.

Jackson's lines, within five miles of the city of New Orleans, and running along the limits of Rodriguez's and Chalmette's plantations, formerly the property of the United States, were but one of those ancient mill-races, so common in Louisiana, extending from the bank of the river to the Cypress swamp. It has been already seen, from my description of the form of the soil in Lower Louisiana, and from its shelving from the river towards the swamps, that when the Mississippi is swelled to its greatest height, the level of the surface of its waters is some feet above that of the contiguous soil, and from twelve to fifteen above that of the prairies and bayous, which at those periods receive the waters flowing from the Mississippi. To add to the mass and the force of the water, the planters dig canals a few feet deep, throwing the earth on both sides, so as to afford a mass of water from eight to eleven feet deep; and at the head of these canals, which are commonly twenty-five feet wide, are constructed saw-mills. The canal on which Jackson's lines were formed, had long been abandoned, having no longer any mill to turn, so that its banks had fallen in and raised its bottom, which was covered with grass, presenting rather the appearance of an old fraining (sic) ditch than of a canal. On the 24th of December, General Jackson had taken this position.

I will only observe, that those lines leave the least possible space between the river and the wood, and that from the lines to Villere's canal, the depth of the high-land continually increases, and is at Laronde's plantation nearly three times as great as at the lines. As soon as this position was chosen, the troops began to raise a parapet, leaving the ditch as it was, except that by cutting the road it was laid under water, as there was then a temporary rise of the river. Earth was fetched from the rear of the line and thrown carelessly on the left bank, where the earth had been thrown when the canal was originally dug. The bank on the right side being but little elevated above the soil, formed a kind of glacis. All the pales (sic) of the fences in the vicinity were taken to line the parapet, and prevent the earth from falling into the canal. All this was done at various intervals, and by different corps, owing to the frequent mutations in the disposition of the troops. This circumstance, added to the cold and to incessant rain, rendered it impossible to observe any regularity as to the thickness and height of the parapet, which in some places was as much as twenty feet thick at the top, though hardly five feet high; whilst in other places the enemy's balls went through it at the base. On the 1st of January there was but a very small proportion of the line able to withstand the balls; but on the 8th of January the whole extent, as far as the wood, was proof against the enemy's cannon. The length of the lines was eight hundred and fifteen toises, or about a mile, somewhat more than half of which ran from the river to the wood, the remainder extending into the depth, where the lien took a direction towards the left, which rested on a cypress swamp almost impassable. On that part of the line which was in the wood, the breastwork was not thicker than was necessary to resist musketry; it was formed of a double row of logs, laid one over the other, leaving a space of two feet, which was filled up with earth. Along one part of the line ran a banquette; in some parts, the height of the breastwork above the soil was hardly sufficient to cover the men. The earth thrown up to form the breastwork, had been dug out at various intervals, and without any order, the rainy weather not admitting of the work's being carried on with regularity, as observed before.

The artillery was distributed on the lines in the following manner. On the soil of the road within the levee was battery No. 1, commanded by captain Humphreys, of the U.S. artillery. It consisted of two brass twelve-pounders, and a six-inch howitzer, on field carriages; these pieces enfiladed the road towards that side where the enemy was posted, and their fire grazed the parapet of the flank of the redoubt, towards the right. Battery No. 1, was seventy feet from the bank of the river. The two twelve-pounders were served by soldiers belonging to the regular artillery, and the rowitzer by dragoons of major St. Geme's company.

Battery No. 2, which had a twenty-four-pounder, was commanded by Lieutenant Norris, of the navy, and served

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by part of the crew of the late schooner Carolina; its distance from No. 1 was ninety yards. This battery was the most elevated above the soil.

Battery No. 3, commanded by captains Dominique You and Bluche, commanders of privateers, had two twenty-four-pounders, which were served by French mariners; its distance from No. 2 was fifty yards.

Battery No. 4, commanded by lieutenant Crawley, of the navy, and served by part of the crew of the Carolina, had a thirty-two-pounder; its distance from No. 3 was twenty yards.

Battery No. 5, commanded by colonel Perry and lieutenant Kerr, of the artillery, had two six-pounders; its distance from No. 4 was one hundred and ninety yards.

Battery No. 6, commanded by general Garrigues Flaujeac, and served by a detachment of the company of France, under the immediate command of lieutenant Bertel, had a brass twelve-pounder; its distance from No. 5 was thirty-six yards.

Battery No. 7 had a long brass eighteen-pound culverine, and a six-pounder, commanded by lieutenants Spotts and Chauveau, and served by gunners of the U.S. artillery; its distance from No. 6 was one hundred and ninety yards.

The 8th battery had a small brass carronade, which rendered very little service, on account of the ill condition of its carriage; it was commanded by a corporal of artillery, and served by militiamen of general Carroll's command; its distance from No. 7 was sixty yards.

Next to this piece the line formed a receding elbow, as laid down in the draught of the affair of the 8th—enormous holes in the soil made impassable by their being full of water from the canal, rendered this bend in the line unavoidable.

From this bend, where the wood began, to the extremity of the line, the ground was so low, and so difficult to be drained, that the troops were literally encamped in the water, walking knee deep in mud; and the several tents were pitched on small isles or hillocks, surrounded with water or mud.

It was here that the brave troops of generals Carroll and Coffee, from the 24th of December, 1814, and part of those of Kentucky, from the 6th, until the 20th of January, 1815, gave an example of all the military virtues. Though constantly living, and even sleeping in the mud, those worthy sons of Columbia never uttered a complaint, nor showed the least symptom of discontent or impatience. Those who have not seen the ground, cannot form an idea of the deplorable condition of the troops encamped on the left of the line. But it was necessary to guard that quarter against the attacks of the enemy; it was necessary that troops should be stationed there, to repulse him on the edge of the breastwork, if, under cover of the bushes, he advanced to our intrenchments. Those brave men supported all their hardships with resignation, and even with alacrity. The safety of the country was at stake, and their desire to chastise insolent invaders, operated too strongly on hearts inflamed with patriotic ardour, to suffer them to perceive the uncomfortableness of their situation. Such conduct is so much superior to any eulogy I could bestow on it, that I must be content to admire it in silence.

In order to give a correct narrative of the affair of the 8th, I must previously make the reader acquainted with the respective position of the different corps stationed at the lines; that he may perceive, that if a considerable part of the troops exhibited no active valour, it was owing to the attack's not being made on their position; for had it been general; there can be no doubt but all would have equally vied in ardour and bravery.

The redoubt on the river, in front of the extremity of the line on the right, was guarded by a comapny of the 7th regiment, commanded by lieutenant Ross. The artillery was served by a detachment of the 44th, under the command of lieutenant Marant. Within the line, at the extremity of the right, between battery No. 1 and the river, was stationed the New Orleans volunteer company of riflemen, about thirty men strong.

The 7th regiment covered from that battery to battery No. 3, taking in the powder-magazine, built since the 1st of January, as also battery No. 2, commanded by lieutenant Norris. This regiment, four hundred and thirty men strong, was commanded by major Peire.

The interval between that battery and No. 4, commanded by lieutenant Crawley, was occupied by major Plauche's battalion of volunteer uniform companies, and by major Lacoste's battalion of Louisiana men of colour. The former was two hundred and eighty-nine men strong, and the latter two hundred and eighty.

From battery No. 4, to colonel Perry's No. 5, the line was defended by major Daquin's battalion of St. Domingo men of colour, one hundred and fifty men strong, and from that out by the 44th, two hundred and forty men strong, commanded by captain Baker. All the corps, from the 7th regiment to the 44th inclusively, were under the command of colonel Ross.

Two-thirds of the remaining length of the line, were guarded by the troops commanded by major-general Carroll. On the right of battery No. 7, commanded by lieutenants Spotts and Chauveau, were stationed fifty marines, under the command of lieutenant Bellevue.

On the preceding day, part of the Kentucky troops, under the command of general Adair, had gone to reenforce that part of the line. The order in which they were ranged may be seen on the plan. All those troops formed a force of about sixteen hundred men.

The troops under the command of general Coffee occupied the rest of the length of the line, as also that part which turned off towards the left into the wood; their number was about five hundred men.

Captain Ogden's company of cavalry was stationed behind head-quarters, and a detachment of the Attakapas

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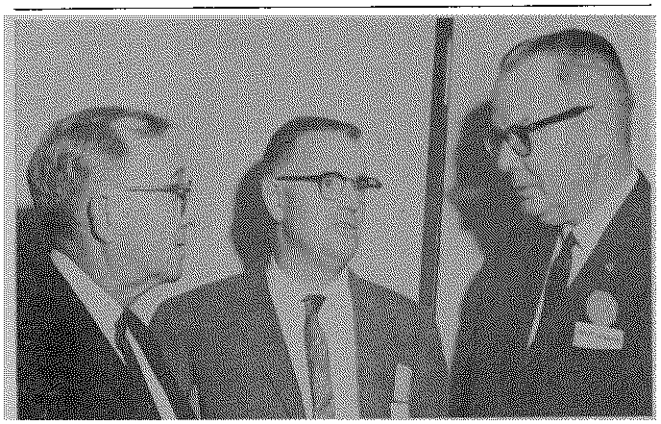
dragoons was posted within the court-yard, together about fifty men strong.

During the attack, captain Chauveau's company of horse volunteers, about thirty men strong, hasted from town and drew up in the same court-yard, to be ready for a sortie, should it be thought expedient.

Although the above details show the number of our troops to have amounted to about four thousand men, including one hundred artilleries who did not belong to any corps, it is nevertheless true, that general Jackson's line was defended by only three thousand two hundred men, the remaining eight hundred having been distributed into various detachments, and posted behind to guard the camp, for the defense of the Piernas canal, and on the outskirts of the wood.



ROLE OF professional engineering in agriculture is reviewed at meeting of American Society of Agricultural Engineers (ASAE) at Jung Hotel in New Orleans Dec. 7-11, 1964, by from left), Harold Barr, LES, arrangements chairman for Baton Rouge chapter and LSU College of Agriculture professor; Wiley Poole, a winner of the prized LES Technological Accomplishment Medal, and ASAE National President Price Hopgood, professor of agricultural engineering at Texas A & M. K. V. Stewart, Alexandria, chairman, 1063 State Planning Conference of LES, also attended. William H. (Nick) Carter, LSU professor and former LES Board member, is also an ASAE member.

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LES To Employ Executive Secretary

The Board of Direction of the Louisiana Engineering Society has approved a resolution that it seek to employ an executive secretary.

The resolution followed a lengthy discussion at the Board's meeting December 8, 1964 at the Oak Manor Motel in Baton Rouge.

J. T. Knight, Jr., LES President, had requested the Board to consider proposed qualifications and methods of financing the new post.

It was the consensus of those present that the new executive secretary of L.E.S. should be responsible for developing programs that would:

Provide good public relations.

Maintain a good working relationship with the State Legislature.

Promote membership.

Combat unionization.

Give a closer unity among L.E.S. state chapters.

Further interprofessional ties.

It was also required that the executive secretary should have no conflict of interest with the basic principles of L.E.S., particularly affecting the welfare of the professional engineer in the educational, ethics, social and economic fields.

Upon motion of Waldemar S. Nelson, seconded by Louis M. Duclos, the Board agreed to seek to employ an executive secretary, to be an engineer or a person with a broad knowledge of the engineering profession, with executive ability and a knowledge of legislative proceedings, to be alert, aggressive, personable and widely acquainted throughout the state.

Participating in the discussions were Messrs. Knight, Nelson, Duclos, C. W. Stokes, Jerry W. Affolter, Leo M. Odom, Frank H. Walk, Roy Johnson, Ed McNamara, Marshall B. Ewing and John P. Fernandez.

President Knight appointed a selection committee composed of C. W. Stokes, chairman; Louis Duclos, and F. H. Walk to accept and screen applications and recommend selection to the Board. Anyone interested in being considered for this position, please see notice below:

Executive Secretary

The Louisiana Engineering Society, established 1898, having just completed reorganization plans, desires to employ a fulltime Executive Secretary.

Under the direction of the elected officers, this man will handle business affairs, public relations programs, membership development, inter-professional relations and legislative affairs for the Society.

Individuals interested in being considered for this position, submit written application accompanied by detailed resumé of experience and qualifications to anyone of the following named members of the Selection Committee:

C. W. Stokes, 1311 Eleventh St., Lake Charles, Louisiana.

Louis Duclos, 4328 Hyacinth Ave., Baton Rouge, Louisiana.

F. H. Walk, 833 Howard Ave., New Orleans, Louisiana 70113.

BRES DESCRIBES RESTORATION OF CHALMETTE

By MAJ. GEN. EDWARD S. BRES (RET.)

The following is an excerpt from a report written by Maj. Gen. Edward S. Bres (Ret.), a past president of LES and Chairman of the Battle of New Orleans Sesquicentennial Celebration Commission.

On January 8, 1840, Major General Andrew Jackson, ex-president of the United States, visited Chalmette Battlefield to participate in the 25th Anniversary Celebration of the victory of the Battle of New Orleans.

The visit of General Jackson imbued in his veterans and the people of New Orleans the desire to appropriately commemorate this victory and honor those who had fought and died to save the city from the British. A site on the battlefield was selected by General Jackson for the erection of a monument.

During the 125 years that have intervened since the visit of General Jackson, the development of the battlefield befitting the glory of the victory has been the objective of the people of New Orleans and patriotic organizations. With the completion of the restoration of the battlefield fortifications of 1815, now in progress, the objective will be realized.

There were times during the past 125 years when the successful establishment of the park seemed doubtful. And during these same years, progress was impaired by the lack of funds for battlefield restoration on the small area then constituting the park and for the purchase of additional lands for a suitable park.

The sale in 1952 of these additional lands, the 66 acres comprising the battlefield area, to the Kaiser Corporation could have doomed the park. But through the untiring efforts of Mrs. Martha G. Robinson, who organized and directed a campaign, Mr. Henry J. Kaiser was prevailed upon to donate this area to the park.

Had Mrs. Robinson failed in her plea, the establishment of the eagerly sought park, too, would have failed,

In 1944 Maj. Gen. Edward S. Bres (Ret.), *(right)* then a Colonel heading the engineering division in the South-West Pacific Theatre, was awarded the Legion of Merit by Maj. Gen. J. L. Frink, Commanding General of U. S. Army Service of Supply in the S. W. Pacfic area for "Servce of noteworthy efficiency in the area and development of an Engineering Staff."

as the Chalmette area then owned by the Federal Government was not large enough to be developed as a National Historical Park. Therefore, the project would necessarily have been reclassified and qualified for development in a lower grade as a memorial area.

The event since 1960 reveal the continuing strong support of Senators Allen J. Ellender and Russell B. Long and Congressman F. Edward Hebert and Hale Boggs and show that close attention and firm action were necessary to bring about the satisfactory development of the program and its completion in 1964.

Those who have been active in sponsoring the reconstruction of Chalmette National Historical Park have learned of the high ideals of the able officials of the National Park Service and have received insight into the very constructive nation-wide program they are accomplishing.

The appendix chronologically clarifies and substantiates the events recorded.

E. S. B.

Washington, D. C., August 1964

THE ESTABLISHMENT AND DEVELOPMENT OF CHALMETTE NATIONAL HISTORICAL PARK has been accomplished because of the perseverance of the civic minded people of New Orleans over a continuing period of 125 years.

The greatest progress has been effected during the final thirty years. This progress can be attributed to the preparation of an authentic map of the area, on which the presentation to Congress was based; the very vital procurement, through the efforts of Mrs. Martha G. Robinson, of the 66 acres of land, donated by the Henry J. Kaiser Corporation; and, during the last seven years, the close work with officials of the National Park Service

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in determining an acceptable program of period reconstruction and in placing this work under contract.

Unfortunately, the Battle of New Orleans has never received the national recognition it warrants. This might be attributed to our American histories and historians who dismiss the victory as of little importance because of the "constant cry" that the battle was fought after the Treaty of Ghent was signed. Maybe these historians were not familiar with the Articles of the Treaty and were not aware that in the Treaty of Ghent, it was specifically provided that the treaty would not be binding until ratified by both nations; this ratification did not occur until 40 days after the Battle of January 8, 1815. They also overlooked the important fact that while negotiations, which lasted five months, were pending between the Ministers of the United States and Great Britain, an expedition to invade New Orleans was in preparation under the command of General Pakenham.

We can reasonably assume, with all due deference to the friendly relationship existing today between America and England, that if England had been successful and had defeated General Jackson and his troops at New Orleans, she would not have relinquished her possession of New Orleans and the Louisiana Territory. There was no obligation on her part to do so, nor were there any provisions in the Treaty of Ghent that would have justified England's releasing the Louisiana territory. The contrary was the case. Spain had protested and claimed that the transfer of the Louisiana Territory by Bonaparte was invalid and was in violation of the San Ildefonso Treaty.

Those who have studied and have become familiar with the international situation at the time of the battle readily understand how important the success of the American troops on January 8 was to this country. It is not difficult to visualize what might have occurred had Jackson and his troops been defeated. Would the United States, as then constituted, have been able to survive the British attacks from the interior—with the Mississippi Valley, extending from the Gulf of Mexico to the Canadian border, in the possession of the British whose fleet threatened the security of the Atlantic seaboard?

The Battle of New Orleans was not a local battle as many of our present day, intelligent, well-educated American believe. It was one of the most important military engagements in the history of this country and secured and preserved for us the independence gained at Yorktown. Many Americans have never heard of the Hartford Convention, the political unrest of the Union and the possible secession of the Northeastesn States which would have disrupted our country, or of the financial difficulties our Treasury was facing. The victory of General Jackson immediately eliminated these hazards.

The origin of the blemish that demands the glory of the victory of General Jackson on January 8, 1815, by stating that the battle was fought after the treaty had been signed, is not known; and certainly it was not the evidence in Washington on February 4, 1814. Quoting from page 42, et als . . . National Park Service Historical Handbook, No. 29.

"In January 1815, people in the cities of the East knew only that a large British force had landed and that fighting was going on. An editor of **Niles Register**, a Baltimore newspaper, wrote that "great interests" in all the Nation were anxiously awaiting news. Some leaders of the New England States, meeting in Hartford, were strongly suspected of planning to secede from the Union. The Capitol in Washington was in ruins. The Federal Government was in bad financial condition. Men feared that the negotiations at Ghent would fail or that the resulting treaty would not be ratified. It was possible that one of these outcomes, coupled with probable defeat at New Orleans, could have broken up the Union.

"The relief of the government was extreme when the news of victory at New Orleans finally reached Washington on February 4. The **Naitonal Intelligencer** used its largest type for the headline: ALMOST INCREDIBLE VICTORY!!! People went wild with delight. A heavy fall of snow did not dampen the celebration in Philadelphia. All over the East the fireworks and rejoicing were greater than for any other victory of the War of 1812.

"Nine days later, news of the signing of the Peace Treaty at Ghent completed the people's happiness. The envoys to Washington from the Hartford Convention were glad to slip back to their own States without presenting their demands to the Federal Government. Even the Massachusetts Legislature gave thinks for the victory—to God if not to Andrew Jackson.

"WHAT THE VICTORY MEANT TO THE UNITED STATES

"The Battle of New Orleans was fought between the signing and the ratification of the Treaty of Ghent, ending the War of 1812 . . . because of the American victory in Louisiana, the treaty was promptly ratified by both sides.

"Much of the significance of the Battle of New Orleans is found in its effect on political thinking. From its founding, many men doubted that the United States could endure . . . We have seen that news of the British defeat helped to end a secession movement in New England. Partly because of the victory's unifying effect, the United States endured as a republic. Its success belied the prophesies of the skeptics, and its form of government became a model for the new nations of Latin America.

"The victory meant much to the people of the United States as a nation. It helped them to forget earlier defeats in the War of 1812—such as Detroit, Niagara, and the burning of Washington—and it helped them to feel

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pride in their country as a whole. This national feeling was shown in the following years by the establishment of the Second Bank of the United States, protective tariffs, increased army appropriations, and acceptance of the nationalizing opinions of Chief Justice John Marshall.

"Before 1815, American leaders had watched with anxiety every political and military move in Europe. After the New Orleans victory they stood on their own feet."

(Note: A conversation between President Jackson and William Allen, M. C., Ohio, quoted from White House secret files, gives President Jackson's summation of the Treaty of Ghent. This conversation was cited during Congressional hearings before the Committee on Military Affairs. "Hearing before the Committee on Military Affairs, House of Representatives on H.R. 4820 and H.R. 4869, 1st Sess. 68th Cong., March 27, 1924," pp. 13-15.)

Events which have led to the present development of Chalmette National Historial Park may be chronologically listed:

January 8, 1840: Maj. Gen. Andrew Jackson, ex-President of the United States, visited New Orleans to participate in the 25th Anniversary Ceremonies of the Battle of New Orleans. At that time, he laid the cornerstone of the monument to him in Jackson Square (Place D'Armes). He also visited the battlefield and selected the location for the erection of Chalmette Monument, honoring those who gave their lives in the battle.

January 13, 1840: The cornerstone was laid for a battlefield monument.

February 1852: The Legislature of Louisiana passed an act appropriating $5,000 for the purchase of a tract of land in St. Bernard Parish known as "Chalmette Plains" for the purpose of erecting a monument on the battlefield of January 8, 1815. This purchase was made in 1855 and a committee consisting of Newton Richards, architect; John Stroud, contractor; and D. D. d'Hemecourt, surveyor, after due consideration, fixed the exact site for the monument.

Following the laying of the cornerstone on January 13, 1840, nothing was accomplished on the construction until the project was revived and promoted by the Jackson Day Monument Association and the State of Louisiana started work in 1855. Over a period of years, the monument rose to a height of 55 feet before work ceased because of the lack of funds and the approaching war.

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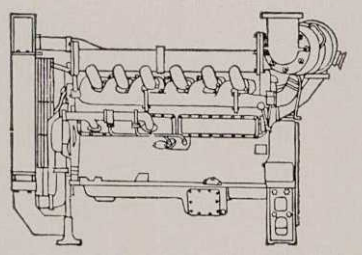

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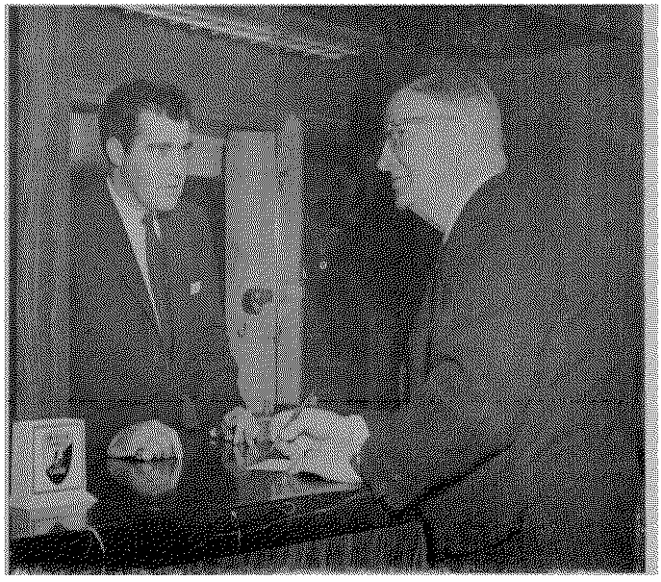
NSPE TO HOLD WINTER A

STATUTE OF ANDREW JACKSON, victor in the Battle of New Orleans, Jan. 8, 1815—two weeks after the treaty ending the War of 1812 was signed—is centerpiece of Jackson Square, formerly Place d'Armes, in the Vieux Carre. Sesquicentennial of battle, two weeks before NSPE meeting is attracting international visitors. Shown above are (from left), Mmes. Nelson, Barron, Birdsong.

UNDER CONSTRUCTION is International Trade Mart, 33 stories tall, which will be New Orleans' highest building. It will be topped by deluxe restaurant with revolving cocktail lounge, and will house international trade interests in New Orleans. Auditorium will house large conventions. Shown above are Edward J. McNamara, NPSE, newly-elected New Orleans chapter president of Louisiana Engineering Society (left), and Waldemar S. Nelson, national director for NSPE in Louisiana.

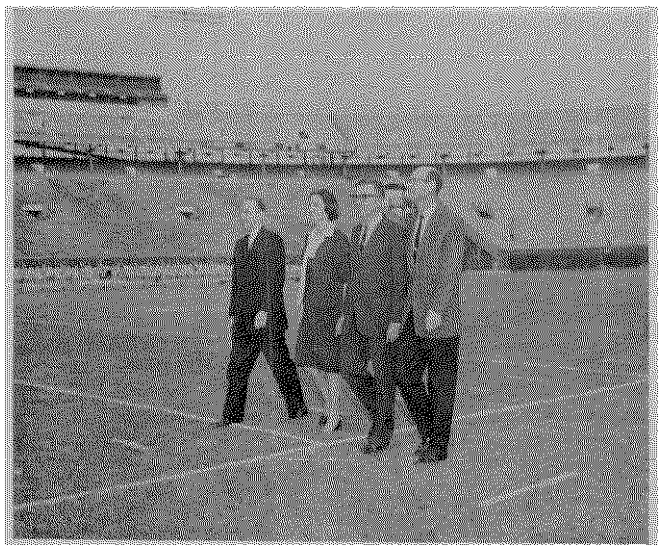


HOW TO REGISTER at Jung Hotel is demonstration given by (right), Col. John T. Knight (NSPE) president of the Louisiana Engineering Society, with assistaance of Paul Thornton, an assistant manager of the hotel. Col. Knight has been coordinating plans of state society for arrangements with J. D. (Don) Strong, Washington, D. C., NSPE field representative.

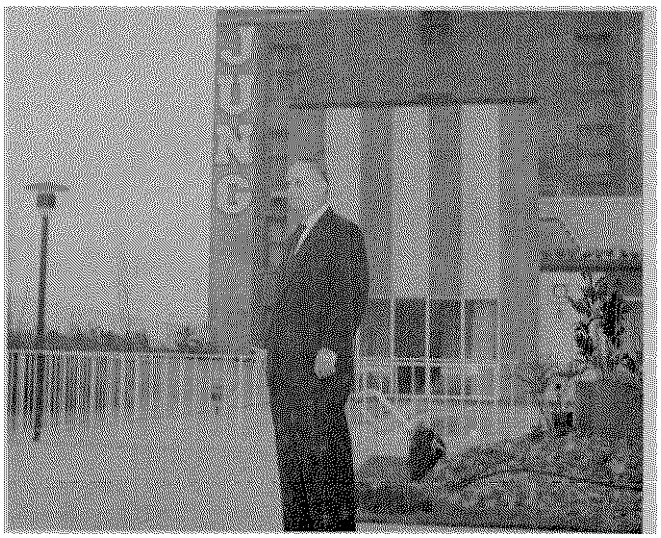
EETING IN NEW ORLEANS

STEAMER PRESIDENT is popular Mississippi River excursion boat through Port of New Orleans, which ranks second in the nation. Inspecting Eads Plaza at foot of world-famous Canal Street are (from left), Edward J. McNamara (NSPE), and Francis J. Favaloro, registration chairman for the Winter Meeting. Other chairmen not shown in these photos are Frank Birdsong, publicity; A. H. Douglas, Jr., entertainment; W. J. Verlander, finance, and Henry H. St. Paul, Jr., hotel.

SPIRAL STAIRCASE of antebellum home in New Orleans, site of midwinter meeting of NSPE, is graced by (from left), Mrs. Frank Birdsong, Mrs. Otha Barron, Jr., Mrs. Bernard Louviere and Mrs. Roy Johnson. Home in famed Garden District is one to be toured as part of meeting events.



LINING UP ON 30-YARD line of gridiron at Tulane University's celebrated Sugar Bowl stadium are (from left), John Martinez, NSPE, assistant dean of engineering; Mrs. F. W. Mcdonald, who is serving on ladies committee; Dr. Macdonald, a past national NSPE director, executive secretary of the Louisiana State Board of Registration for Professional Engineers & Land Surveyors and a Civil Engineering professor; and Dean Lee H. Johnson, NSPE, of the Tulane School of Engineering. Sugar Bowl in January 1965, three weeks prior to NSPE meeting, hosts Louisiana State University and Syracuse football teams.



TERRACE POOL and cypress knee decorations on Jung Hotel roof are inspected by Warren K. Bankston, program committee chairman for the NSPE winter meeting Jan. 20-22. Spacious Presidential Salon will be used for business sessions, expected to attract approximately 250 officers and directors, according to G. M. Baccich, New Orleans arrangements chairmen.

NSPE Winter Meeting Set For January 20-23

PROGRAM FOR WINTER PROFESSIONAL MEETING
January 20-23, 1965—Jung Hotel
New Orleans, Louisiana

Tuesday, January 19

All day — NSPE Executive Committee

Wednesday, January 20

All day — NSPE Executive Committee
Executive Board of Professional Engineers in Private Practice
Executive Board of Professional Engineers in Government
Executive Board of Professional Engineers in Industry

12:10 p.m. — Informal Luncheon

7:00 p.m. — STATE OF THE SOCIETY DINNER
Presiding—L. M. Van Doren, P.E.
Vice President
North Central Region
Address—Brandon H. Backlund, P.E.
NSPE President

9:00 p.m. — NSPE PROFESSIONAL MEETING
Calling of Roll
Reading of Minutes of Previous Meeting
Reading of Communications
Report of Treasurer
Report of Executive Director
Following: NSPE Vice Presidents to meet with respective committee chairmen

Thursday, January 21

8:30 a.m. — NSPE PROFESSIONAL MEETING
Presentation of Membership Contest Leaders
Introduction of Chapter Evaluation Program Award Recipients
Parliamentary Procedure
Report of Executive Committee
PUBLIC RELATIONS GROUP—Vice President Clarke, P.E., presiding
Plans for 15th Annual National Engineers' Week
Presentation of Promotional Materials
Premiere of TV Film Spots
M. H. Morris, P.E., Chairman, Engineers' Week Committee
Review of NSPE Legislative Interests For 89th Congress
D. E. Marlowe, P.E., Chairman, Legislative and Government Affairs Committee
The Society's PR Program for 1965
J. L. Gillman, P.E., Chairman, Public Relations Committee
Report of Water Policy Committee
A. S. Janssen, P.E., Chairman, Water Policy Committee
PROFESSIONAL DEVELOPMENT GROUP — Vice President Bonnell, P.E., Chairman, Education Committee
"Goals for Engineering Education" Study
B. J. Shell, P.E., Chairman, Education Committee
The New "Engineering—A Career of Opportunity"
L. Z. Seltzer, P.E., Chairman, Cobmittee on Engineering Preparation
Model Law Developments—August 1964 Meeting of NCSBEE
J. R. Matlock, P.E., Chairman, Registration Committee
The "Senior Package" Program
Increased Services to Student Chapters
W. M. Lee, P.E., Chairman, Student Professional Development Committee
Report of the Young Engineers Committee
J. R. Carroll, P.E., Chairman, Young Engineers Committee

1:00 p.m. — REGIONAL LUNCHEONS

2:00 p.m. — REGIONAL MEETINGS

6:00 p.m. — LES Social Hour

Evening Free

Friday, January 22

8:30 a.m. — SOCIETY DEVELOPMENT GROUP—Vice President Ellis, P.E., presiding
Editorial and Advertising—Review of 1964
Plans for 1965
H. T. Borton, P.E., Chairman, American Engineer Committee
Report of the Membership Committee
H. B. Baty, P.E., Chairman, Membership Committee
Plans for Improvement of Chapter Activities
C. R. Hanos, P.E., Chairman, State Society and Chapter Activities Committee.

10:00 a.m. — PANEL DISCUSSION
The Professional Challenge to NSPE
Moderator: Harvey F. Pierce, P.E.
Chairman
Long Range Planning Committee
Panelists:
Brandon H. Backlund, P.E.
President, NSPE
Murray A. Wilson, P.E.
Past President, NSPE
Clark A. Dunn, P.E.
Past President, NSPE
Harold A. Mosher, P.E.

Past President, NSPE
Noah E. Hull, P.E.
Past President, NSPE

12:30 p.m. General Luncheon

Speaker: Charles Keller, Jr.
Past President, AGC
Presentation—A. B. Paterson "Engineer in Management Medal," designed by Angela Gregory, to J. R. Gaugler, Central Louisiana Electric Co., Inc., Lafayette, La.

2:20 p.m. NSPE PROFESSIONAL MEETING

PROFESSIONAL RELATIONS GROUP—Vice President Rawlins, P.E., presiding

Cases of the Board of Ethical Review:
Signature of Responsible Engineer on Plans
Advertising of Engineering Services—Text
Supplanting Another Engineer
Services to Joint Clients
Engineering Services Included as Part of Material Promotion Sales
Professional Affiliations in Cards and on Letterheads

New Publication of "Opinions on the Board of Ethical Review"
P. T. Elliott, P.E., Chairman, Board of Ethical Review

Progress Report on the American Society of Certified Engineering Technicians
W. E. Ault, P.E., Chairman, Engineering Technicians Committee

Application of Competitive Bidding Rule to Production and Construction Operations

Publication of NSPE Code of Ethics
E. B. Boynton, P.E., Chairman, Ethical Practices Committee

Guide to Collaboration—Environmental Design Professionals AIA-Engineers Conference Committee Studies
J. B. McGaughy, P.E., NSPE Representative to AIA-Engineers Conference Committee

6:30 p.m. SOCIAL HOUR

7:30 p.m. BUFFET
ENTERTAINMENT AND DANCING

Saturday, January 23

8:30 a.m. NSPE PROFESSIONAL MEETING

Selection of Sites for NSPE Meetings
PROFESSIONAL EMPLOYMENT GROUP—Vice President Van Doren, P.E., presiding

Engineers in Government
Plans for National Workshop Meeting
Legislative Plans for 1965
Survey of State Engineering Employment Policies
Progress under Federal Employee-Management Cooperation Program
E. M. Titus, P.E., Chairman, Professional Engineers in Government (Functional Section)

Engineers in Industry
Proposed Survey on Extent of Continuing Education of Engineers in Industry
Report on Detroit Industry Conference
Plans for State PEI Workshops
Proposed Addition to Code of Ethics Regarding Engineers in Industry
Establishment of Employment Service
W. L. Crowder, P.E., Chairman, Professional Engineers in Industry (Functional Section)

Engineers in Private Practice
Unionization of Survey New Employees
Revision of NSPE Policies on Relations with Government
New Engineer-Owner Contract Forms and General Conditions
Publication of "Roster of Professional Engineers in Private Practice"
Policy on Bidding for Sub-professional Services
J. F. Shivler, P.E., Chairman, Professional Engineers in Private Practice (Functional Section)

POLICY OPERATIONS GROUP—Vice President Gompf, P.E., presiding
Revisions to 1964 Budget
Adoption of 1965 Budget
A. M. Gompf, P.E., Chairman, Budget Committee
Report of Policy Review Committee
T. M. Linville, P.E., Chairman, Policy Review Committee
Report of Constitution and Bylaws Committee
F. H. Kohloss, P.E., Chairman, Constitution and Bylaws Committee
Report of Headquarters Building Committee
Arthur M. Gompf, P. E., Chairman Headquarters Building Committee
Report of Nominating Committee
Election of Nominating Committee
H. F. Pierce, P.E., Chairman, Nominating Committee

New Business
Adjournment

Memorials

HERMANN LOUIS LEHMANN

The Baton Rouge Section of the Louisiana Engineering Society lost a Charter Member and the parent Society lost a staunch supporter and an effective worker with the sudden passing of Hermann Louis Lehmann, on Wednesday morning, August 5, 1964, at the age of 63.

Hermann, as he was affectionately known to his many friends, was born at Hahnville, St. Charles Parish, Louisiana, May 16, 1901, and ended his formal education with high school in his hometown of Hahnville and set out on his own in quest of knowledge and experience, which eventually won recognition for him as a successful Civil Engineer, as well as National recognition as the Testing and Research Engineer for the Louisiana Department of Highways, a post he held from 1933 until his death.

A pioneer in his chosen field, of highway materials testing and research, he represented the Highway Department with the American Society of Testing Materials and the National Highway Research Board. Hermann served as Chairman of the Bituminous Division of the Research Board and on the Advisory Committee for Asphalt Research of the American Association of State Highway Officials.

Under his careful direction, the Testing and Research Section of the Department of Highways grew from a few employees with special training in 1933, to more than 250 employees, including many outstanding specialists trained in the field of testing and research, so as to be proficient in examining and approving various materials essential to successful prosecution of Louisiana's multi-million dollar annual road and bridge construction program.

Hermann served as President of the Louisiana Engineering Society and of the Baton Rouge Section, and was an honorary Life Member of the Society. He was active in the Presbyterian Church and was a Moderator of the Louisiana Presbytery. Hermann also served as Deacon and Elder in his Church for thirty-eight years, including ten years as General Superintendent of the Sunday School. He was a Master Mason for forty-two years and a member of the Order of Eastern Star for thirty-eight years. He was a Thirty Second Degree Mason. Hermann was honored in 1959 as recipient of the Charles E. Dunbar, Jr. Career Service Award, given by the Louisiana Civil Service League to the most outstanding State employee for the year.

He is survived by his wife, the former Grace Drews, three daughters, Miss Grace Lehmann, Mrs. Jeff Adams and Mrs. Dan Moller, two sisters and seven grandchildren.

Hermann's warm personality and his love and compassion toward others reached way beyond his close associates. In his home life, his Church life, and in his contact with the man on the street, Hermann always had time for a word of encouragement, or to be helpful in some way. It can be well said of him, in his passing, the Nation lost a fine citizen, the State lost a loyal servant and all who knew him lost a noble friend.

To Mrs. Hermann L. Lehmann, her daughters and grandchildren and to Mr. Lehmann's sisters, the Members of the Louisiana Engineering Society extend their deepest sympathy, and by this Resolution, now request that this Memorial be recorded in the Minutes of the Society and that a copy be sent to Mrs. Lehmann.

J. B. CARTER
R. B. RICHARDSON
N. E. LANT

—o—

JOSEPH McLEAN LeDOUX

1900—1963

Joseph McLean LeDoux, retired District Manager of National Electric Products Corporation, passed away following a heart attack at his home in Mandeville, Louisiana, on January 10, 1963.

He was born in New Orleans, Louisiana, in 1900 and received his early education there. He received a degree of B.S. in Mechanical Engineering from Louisiana State University in 1922.

Mr. LeDoux worked with consulting engineers, contractors and industry, in the early days of his career, as well as one assignment with the Standard Oil Company of New Jersey in Maracaibo, Venezuela.

He served with the Sewerage and Water Board of New Orleans for ten years, where he was responsible for the design and supervision of construction of many of the major drainage structures in the city.

He was District Manager for National Electric Products Corporation for 21 years preceding his retirement in 1962.

He was active in a number of Carnival organizations in New Orleans and served on the Board of Directors of the Charity Hospital of Louisiana in New Orleans.

Mr. LeDoux was highly respected by his associates and served his profession well and actively. He was a member of the Louisiana Engineering Society and served on numerous committees of the Society; he was also a member of the Louisiana Section, American Society of Civil Engineers, as well as being active in various electrical organizations.

He is survived by his widow, the former Eugenie Friedrichs, and three daughters, Mrs. William D. Faust, Mrs. Arthur B. Middleton, and Mrs. Louis P. LeBourgeois, Jr., all of New Orleans.

RESOLVED, That the Louisiana Engineering Society, mourns the loss of its valued member, that this memoir be inscribed in the records of the Society, and that a copy be sent to his family.

B. M. DORNBLATT

L. S. U.

(Continued from Page 9)

engineering programs and are always seeking qualified personnel. The ore refining and reduction, petroleum refining, chemical, paper, textile, building materials and hard goods type of manufacturing plants, only to mention a few, are all seeking industrial engineers. Last year thirty-three recruiters came to LSU seeking industrial engineers although they knew no separate program existed.

Knight Greets ASAE Convention

Professionalism was emphasized in a greeting to the American Society of Agricultural Engineering national president at the ASAE convention in New Orleans Dec. 13-17, 1964.

LES President J. T. Knight, Jr. wrote Professor Price Hopgood, President American Society of Agricultural Engineers:

"I would like to take this opportunity to extend to the members of the American Society of Agricultural Engineers a most cordial welcome to Louisiana.

"As with our neighboring state of Texas, agriculture has always been basic to a flourishing economy in Louisiana. There is also a basic association between professional engineering and the successful research production, processing and marketing of our sugar, rice, cotton and other crops.

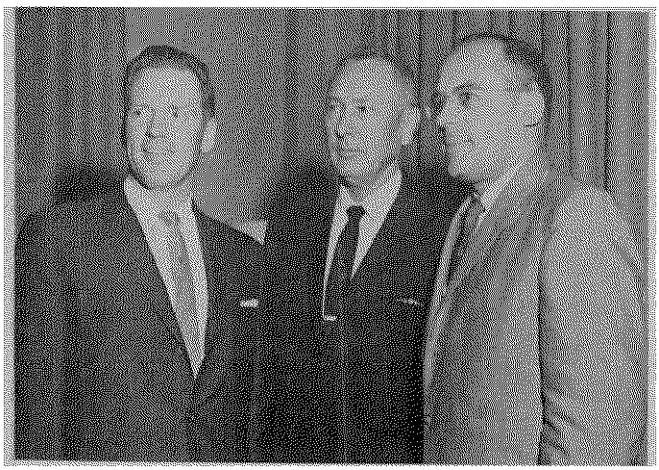
"The future of our state depends on the successful development of relationships between our agriculture and new industries particularly in the petrochemical field.

"It is in this context that the agricultural engineer in education, government, and private enterprise can contribute so greatly to all through a unique understanding and knowledge of the mechanical aspects of agriculture.

"The Louisiana Engineering Society's concern is promoting professionalism among the 7,000 registered engineers in Louisiana, and encouraging the youth of our state to adopt engineering as a career.

"Having many agricultural engineers in our membership (to name a few Harold Barr and Wiley Poole of the LSU College of Agriculture and K. V. Stewart of Alexandria), we are well aware of your parallel interest and enthusiasm.

"We wish you all continued success as professional engineers and hope that your deliberations in New Orleans will be productive of all the results you envision."



New officers of Louisiana Section, ASCE are (from left), Russell Hall, first vice-president; C. K. Oakes, president, and Beverly J. Covington, second vice-president.

Bulk Cement Station Established At Lafayette

WACO, Tex.—The establishment of a bulk cement distribution station at Lafayette, La., by the Universal Atlas Cement Division, United States Steel Corporation, has been announced by James C. Gresham, sales manager of the division's Waco district.

Commenting on the selection of Lafayette as the location of the new station, Gresham pointed out that the city is considered a major distribution center for the rapidly expanding economy of Southwest Louisiana and establishment of the facility would accelerate service to area users of cement.

Located near Boudreaux Street alongside a spur track of the Southern Pacific Railroad, the Lafayette station is equipped to unload bulk cement from hopper cars directly into waiting trucks. Through the use of incline screw conveyors, fifty thousand pounds of bulk cement is transferred from cars to trucks in from 15 to 20 minutes, with the loaded truck thereafter rapidly transporting the cement to the point of customer need.

Cement distributed through the new station is manufactured at Universal Atlas' Waco plant, where it is loaded directly into the railroad hopper cars and routed to Lafayette.

Ed Henson, 213 Maryland Drive, Lafayette, is in charge of the distribution center.

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Promotion Field Notes
By Allen Johnson

Recently Southern Bell announced the appointment of Bernard H. Nolan of New Orleans as General Transmission and Outside Plant Engineer for Louisiana.

The appointment became effective December 1. Mr. Nolan was previously assigned as the Long Range Planning Engineer for the company's Louisiana operations.

BERNARD J. NOLAN

A graduate of Tulane University, Mr. Nolan has been associated with Southern Bell since 1930. His first assignment was in the company's plant department in New Orleans. He later held various assignments in West Palm Beach, Jacksonville, Florida; and in the company's general headquarters in Atlanta, Georgia.

He returned to New Orleans in 1949 as Toll Facilities Engineer in the company's Louisiana area headquarters. He served as District Engineer in Shreveport and in the New Orleans West Bank area.

As General Transmission and Outside Plant Engineer for Southern Bell, he is responsible for the design of all underground and aerial cable systems in the state.

A member of St. Andrew's Episcopal Church, Nolan is active in both community and engineering affairs. He currently is serving as a director of the Jefferson Parish Chapter of the American Red Cross, and is a member of the Chamber of Commerce of the Greater New Orleans area, the Louisiana Engineering Society and the Institute of Electronic and Electrical Engineers.

Married to the former Rose G. Roberts of New Orleans, he is the father of four children. The Nolans reside at 2824 State Street.

—o—

Draftsmen Not Pros - FLSA

A recent opinion letter of the Wage-Hour Administration indicates that architectural draftsmen do not meet Fair Labor Standards Act requirements for professional status, and are therefore not exempt from minimum wage and overtime requirements.

In **Opinion Letter 277, dated July 20, 1964,** the Wage-Hour Administrator stated that under the FLSA, **it is the duties of the employee rather than his title which determine whether he is or is not a bona-fide professional.**

"It can be said, however, that the typical **symbol of professional training** and the best evidence of its possession is the appropriation academic degree and in the learned professions, such as architecture, an advanced degree is a standard (if not absolutely universal) prerequisite. The experience of the Divisions has been that architectural draftsmen ordinarily spend all or most of their time in subprofessional work of a fairly routine character, and generally do not meet the tests of exemption under (the regulations)."

NLRB Decision Upheld By Federal Appeals Court

A Federal Appeals Court has upheld a National Labor Relations Board rule, first established in 1961, that technical employees may be placed in the same collective bargaining unit with production workers where sufficient "community of interest" exists. Prior to the 1961 ruling, the NLRB had removed technical employees from production units upon the request of either the employer or union.

The test case arose when the Labor Board decided under the 1961 rule that 12 employees of the Dewey Portland Cement Company, Tulsa, should be included in a production unit.

The Union won the subsequent election, but the company refused to bargain on the grounds that the collective bargaining unit was improper.

In the subsequent court action, however, the **Circuit Judge refused to overturn the NLRB's decision.** In his decision, the Judge said that "automation must necessarily bring to industry a new concept of operational and maintenance functions when, as here, the complete manufacture and quality control of a product is directed and mastered by such innovations as closed circuit television and remote electronic push button operational control. So, too, automation may bring to the technician and operational employee a much closer relationship and community of interest."

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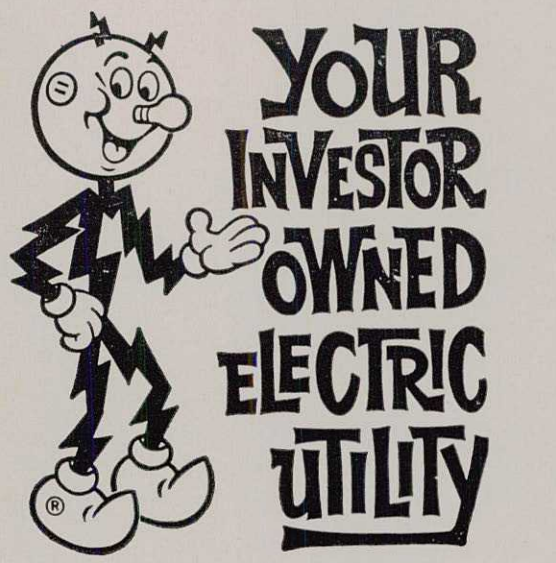
NLRB Reaffirms Police

A recent decision of the National Labor Relation Board **reaffirmed its long-standing policy that neither a college degree nor a P.E. license will qualify a man as a professional under Taft-Hartley standards unless he actually does professional work.**

In the course of directing a union election among employees of Design Service Company of New York, the board considered the question, raised by the union, of whether 151 engineers involved were professionals, and thereby entitled to a separate vote.

The Board found that by the employer's statement, "none of the engineers in the New York City plant was engaged in work which required 'a prolonged course of specialized intellectual instruction' of which 'cannot be standardized'."

Although 24 of the 151 engineers held engineering degrees and two more who do not have degrees are licensed engineers, the Board found no basis to conclude that their work "consistent requires the exercise of discretion and judgment predominantly intellectual in character" in accordance with the statutory definition of professional employees. All 151 engineers are technical, rather than professional, employees, the Board found, and will vote as part of the technical unit.



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Christmas Program

Auxiliary Notes
By
Mrs. Edward J. Welsch

The members of the Woman's Auxiliary to the Louisiana Engineering Society gathered in the Kendall Cram Room at the University Center on Tulane Campus on Tuesday, December 15 for a gala tea and Christmas program. Musical selections by "The Tulanians" was the entertainment for this event.

Receiving with Mrs. Otha E. Barron, Jr., president, were Mrs. Thomas A. Fromherz, Mrs. John A. Haase, III, Mrs. L. Villere Cressy, Mrs. E. Landry Murphy, Mrs. Joseph R. Pezold, Mrs. Daniel H. Vliet and Mrs. Forney Fuller.

Alternating in pouring were Mrs. Roy G. Cappel, Mrs. Waldemar S. Nelson, Mrs. Frank C. Fromherz, Mrs. Albert J. Fransen, Mrs. Frank W. Macdonald, Mrs. Mario G. Zervigon, Mrs. John K. Mayer, Mrs. Sargent J. Jones, Mrs. Frederick H. Fox, Mrs. Ernest L. Mire and Mrs. John A. McNiven.

—o—

SHREVEPORT, La.—The Women's Auxiliary to the Louisiana Engineering Society met at the home of Mrs. W. C. Sorenson on Tuesday, December 8 at 10:00 a. m. In observance of the Christmas season, the regular business of the meeting was omitted, and a lovely seated coffee was planned for the membership. Those in charge were Mrs. W. W. Alsup, Mrs. R. O. Beckham, and Mrs. George Dutton.

Guests were greeted at the door by Mrs. Sorenson and Mrs. R. M. Hood, president. A lovely arrangement of gold magnolia leaves studded with white satin gilded birds and gold lacy bells adorned the chest in the foyer. As the guests entered the living room, their attention was caught by a lovely hand carved creche of miniature figures from East Germany. This was flanked by large green candles in brass holders. The spirit of Christmas was symbolized by a handmade miniature old-fashioned Christmas tree on the coffee table. Other lovely decorations were in evidence at other vantage points.

The desk in the family room was chosen as the site for the guest book. This was decorated with a green satin ribbon tree ornamented with small red beads. A styrofoam kissing ball with small angels and musicians was nestled in holly to further accentuate the red and green theme of this room.

Guests were invited into the dining room where the table was covered with a Christmas cloth of red nylon tulle over white satin. The center piece was a della robia arrangement in a white porcelain oval accented with white birds. Alternating at the twin silver services were Mrs. E. M. Freeman, Mrs. Frank Quinn and Mrs. R. B. Lane, all past presidents. The serving table was centered with a silver candelabra holding tall red tapers and centered with a small green tree also decorated to carry out the della robia theme. The buffet featured a spiral of red candles and Santa and his sleigh.

After having coffee the guests and members assembled in the living and family rooms where Mrs. Hood welcomed all and introduced Mrs. C. B. Foster Jr., pro-

gram chariman. She presented Mrs. Huron Smith Jr., soloist, accompanied by Mrs. James R. McKinley at the piano. Their selections included "Gesu Bambino" by Yon, "O Holy Night" by Adams, and "Silver Bells" by Livingston. Mrs. Val A. Lyons then closed the program with a lovely rendition of "The Littlest Angel" by Charles Tazewell. After the program members enjoyed visiting with each other and listening to background Christmas music provided by Mrs. McKinley.

Members enjoying this gala occasion were: Mrs. Farrell Adams, Mrs. W. W. Alsup, Mrs. R. O. Beckham, Mrs. D. E. Burchett, Mrs. Robert L. Davis, Mrs. Chris Demopulos, Mrs. George Dutton, Mrs. Charles N. Dyer, Mrs. Bill Ferguson, Mrs. C. B. Foster Jr., Mrs. E. M. Freeman, Mrs. Robin M. Hood, Mrs. Robert L. Horton, Mrs. O. T. Ice, Jr., Mrs. R. B. Lane, Mrs. Val A. Lyons, Mrs. William G. Mayer, Mrs. Henry E. McDowell, Mrs. James R. McKinley, Mrs. James E. Moody, Mrs. L. D. Myers, Mrs. Rhett S. Parker, Mrs. Frank W. Quinn Jr., Mrs. C. E. Richardson Jr., Mrs. William N. Sessions, Mrs. W. C. Sorenson, Mrs. Paul R. Waddle, Mrs. Max Watson, Mrs. Lester E. Wenk, Mrs. R. F. Zimmerman and two guests, Mrs. Huron Smith Jr., and Mrs. O. F. Agee.

Publicity chairman, **MRS. E. M. GILLEN**

WELCOME TO PROFESSIONAL STATUS

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Barfield, Thomas A., 5071 Woodside Dr., Baton Rouge, La.
Barnett, Larry A., 7831 Fondren Rd., Houston, Texas.
Bendler, John Carl, 251 Citrus Rd., New Orleans 23, La.
Berger, Richard L., 3465 St. Cloud, Dallas, Texas
Black, Sammy M., 176 Grand Ave., Lafayette, La.
Blair, Ray B., 1033 Cambronne St., New Orleans, La.
Blanchard, Robert D., Headquarters, U.S. Army, Europe Engineer Element, APO 757, N. Y., N. Y.
Boston, Lawrence A., 2237 Kraft Place, New Orleans, La.
Boyd, Claude D., III, 1603 Armistead St., College Station, Texas.
Bridges, Hugh F., III, 1612 Fairmont Ave., Morgan City, La.
Burns, Robert F., 1504 Davis Blvd., Ruston, La.
Bush, Robert J., 9556 Wesson Dr., Baton Rouge, La.
Chelf, Harvey J., 818 N. Rice Ave., Bellaire, Texas.
Chisholm, Robert G., 3416 London Ave., New Orleans, La.
Cloessner, Joseph J., 3418 Valleyview Dr., Shreveport, La.
Coleman, Robert G., III, 210 Cherbourg St., Houma, La.
Cooper, Dale S., 5312 Greentree Rd., Houston Texas
Dufficy, Maurice J., 3204 Dow St., Pompano Beach, Fla.
Escoffier, Raymond P., 230 Citrus Rd., New Orleans, La.
Fagin, David K., 6218 Sul Rosa Ln., Dallas 14, Texas
Feldhan, Stanley L., 326 Cherokee St., Enmaus, Pa.
Ford, Alfred W., 4811 Schindler Dr., New Orleans, La.
Forrester, Albert A., Crescent Dr., Ferriday, La.
Fridge, John M., 1219 Loretto Ave., Sulphur, La.
Geentiens, Gaston P., Jr., 768 S. Burgess Dr., Baton Rouge, La.
Ghent, Peer, 900 Memorial Dr., Apt. 1601E, Cambridge Mass.
Gorman, Harold J., Jr., 831 Louque Pl., New Orleans, La.
Harvey, Edward M., 706 Alpine, Hot Springs, Ark.
Hebermehl, Harold W., 2313 Whitney Dr., Monroe, La.
Hensley, Marble J., 6615 Danby Dr., Chattanooga, Tenn.
Howell, Harry R., Jr., 719 Moss Dr., Annandale, Va.
Inbau, Perrin A., 4721 Corinne St., New Orleans, La.
Irving, John T., 5612 Volder Dr., Forth Worth, Tex.
La Fleur, Richard L., P. O. Box 746, Baton Rouge, La.
Larisey, Donald R., 3003 Oliver Rd., Monroe, La.
Larson, William D., 629 Meadow Dale Pl., Shreveport, La.
Lightfoot, Benjamin H., Jr., 1245 Lake Ave., Apt. D, Metairie, La.
Lytton, Robert L., 1660 Kipling, Apt. 1, Houston, Texas.
Maluski, Tony E., Jr., 10827 St. Mary's Ln., Houston, Tex.
Markham, Charles E., 1506 W. 9th St., Texarkana, Texas.
Marlow, Robert D., Lt. Col., US Air Force, AFIT-CEC, Wright-Patterson AFB, Ohio.
Martens, Leo J., 1109 Milford Ln., Lynchburg, Va.
McDuffie, George E., 4533 Lynhuber Dr., New Orleans, La.
McIntosh, Charles A., Jr., 1617 Boise D'Arc, Monroe, La.
McIver, Ronny M., 410-A Nashville Ave., New Orleans, La.
McKnight, Joseph G., 5414 Pine, Bellaire, Texas.
Melnar, William C., 207 Elmwood Dr., Lafayette, La.
Meszaros, Leslie J. M., P. O. Box 177, Inverness, Calif.
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La.

Mumphrey, Anthony J., Jr., 5140 Touro St., New Orleans, La.

Muyshondt, Yudice Leopoldo, 27 Avenida Norte, #1157, San Salvador, El Salvador, C. A.

Nyquist, Earl S., Creole Petroleum Corp., Cabimas, Edo. Zulia, Venezuela.

O'Donnell, Hugh W., 112 East 71st St., Shreveport, La.

Oubre, Harold J., 212 Nancy, New Iberia, La.

Patron, Arthur S., 813 Sandy Lane, Ruston, La.

Peters, Charles W., 231 Greenvale Dr., Springfield, Ore.

Pillow, Raymond E., 10164 Rhapsody Dr., Baton Rouge, La.

Porter, James R., 4929 Pollard Ave., Lawton, Okla.

Prager, H. David, 22 Falmouth Rd., Yonkers, New York.

Price, James M., 104 Audubon Rd., Fayetteville, N. Y.

Primeaux, Gary R., 7451 Southway, Houston, Texas.

Roberts, Jack F., 4512 W. 15th St., Lubbock, Texas.

Rodehorst, Charles W., 3170 De Saix Blvd., New Orleans, La.

Rowland, William H., Jr., P. O. Box 2371, Beaumont, Tex.

Ruess, Charles W., 5805 Grape Rd., Houston, Texas.

Sibley, James S., Quarters, 509 E., West Point, N. Y.

Summer, Walter B., 240 Williams Ave., Moorestown, N. J.

Tucker, Ribert B., Jr., 1541 Westbrook Dr., New Orleans, La.

Tunstall Karl N., 404 Wayne St., New Iberia, La.

Vanderhout, William, 150 Millcreek Lane, Chagrin Falls, Ohio.

Walther, Milton M., 1738 Broadway St., New Orleans, La.

Willock, Jack, 102 Elmwood Dr., Lafayette, La.

Wren, Edward J., Jr., 805 Richland Ave., Baton Rouge, La.

Ziegler, Robert P., 628 Sizeler Ave., New Orleans, La.

———o———

Listed below are the engineers granted registration December 15, 1964 by the Louisiana State Board of Registration for Professional Engineers and Land Surveyors:

Brewer, John F., 1533 Brame Dr., Baton Rouge, La.

Buck, Charles L., Jr., Rt. 1, Box 33A, Tomball, Texas.

Coopey, Martin P., 1610 Robt. E. Lee, Apt. 2, New Orleans, La.

Cox, Dee O., 300 S. Lincoln St., Tallulah, La.

de Ryss, Emil B., 143 N. Broadway, El Dorado, Ark.

Dorris, Richard E., 1508 Evergreen, Morgan City, La.

Ewton, Albion H., Jr., 1810 Taylor St., Kenner, La.

Fritschi, Engelbert W., 2269 Carondelet, New Orleans, La.

Gingles, Tommy, P. O. Box 30491, Lafayette Station, New Orleans, La.

Haddox, Rollo P., 5142 Carew, Houston, Texas.

Harry, Lawrence C., 217 Whitehead Blvd., Port Allen, La.

Ide, Vaughn A., Box 693, St. Francisville, La.

LaCasse, Joseph T., 120 McIntosh Rd., Cherry Hill, New Jersey.

Latimer, Rodney A., 249 Ashcot Circle, Jackson, Miss.

Lewis, James D., 109 West Linda Dr., Garland, Texas.

Liddell, William W., Jr., 1608 Ridgeway Dr., Morgan City, La.

Martenet, Oscar C., 313 West Ave., Jenkintown, Pa.

McLaulin, Norwood S., 216 Ridgecrest Ave., Bastrop, La.

Moore, Robert B., 2860 Reading Rd., Allentown, Pa.

Moreland, Laurie R., 2202 Illinois Ave., Kenner, La.

Nettles, Charlton J., Jr., 3705 Bissonet Dr., Metairie, La.

Ong., Michael Eng Yau, 8402 Belfast St., New Orleans, La.

Peairs, Robert I., II, 4151 Fleet Dr., Baton Rouge, La.

Ross, Leroy C., 1312 Mezpah Dr., Las Vegas, Nevada.

Shina, Isaac S., 311 Myrtle Lane, Edgeworth Sewickley, Pensylvania.

Suggs, William P., 328 Heritage, Gretna, La.

Taylor, Marma D., 9101 Blom Blvd., Shreveport, La.

Thompson, Henry E., 2973 Bannockburn, Memphis, Tenn.

Tyson, William L., Jr., 4560 Meadowridge Dr., Jackson, Miss.

Wilkinson, Wesley J., 3604 James Dr., Metairie, La.

Wilson, Robert, 3391 Higley Road, Rockey River, Ohio.

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Michoud Report

The following report on the growth and progress of the Michoud operations is the text of a report recently presented by the news department of WWL-TV, New Orleans.—(Ed.)

The Michoud operations in New Orleans East, production site of giant Saturn space boosters and the State's largest industrial installation, is three years old.

Established by the National Aeronautics and Space Administration in September of 1961, Michoud has evolved from an array of vacant buildings in East New Orleans to a modern industrial complex manufacturing first stages of the Saturn One, Saturn One "B", and Saturn Five Space vehicles.

More than 11,400 government and contractor personnel, representing an annual payroll of some 85 million dollars, are employed at Michoud, the former Crescent City Ordnance Plant.

Government owned and managed, the Michoud operations is a division of the NASA Marshall Space Flight Center at Huntsville, Alabama. Michoud general manager is Dr. G. N. Constan.

The 825 acre installation is operated by four major firms, under contracts presently totaling more than one billion dollars. The Boeing Company, Chrysler Corporation, Mason Rust, and Telecomputing Services all have facilities at the Michoud complex.

Boeing will make ten Saturn Five first stages; Chrysler's space division is assemblying two Saturn One first stages and 12 Saturn One "B" first stages; Mason Rust is the support services contractor, and Telecomputing Services is responsible for operation of computers at the computer operations office at Slidell.

The economic impact of Michoud on the Greater New Orleans Area has exceeded even the more optimistic estimates of three years ago.

A recent survey revealed that 27 thousand new jobs, including those in construction, are directly attributed to Michoud. The total annual salary of these 27 thousand persons was estimated at about 170 million dollars. An additional four and a half million in city and state sales and income taxes are paid annually by the almost 30 thousand.

NASA, and its prime contractors, have, to date, awarded in excess of 41 million dollars in contracts and modification of existing, and construction of new facilities

at Michoud. Of this amount, more than 76 per cent, or 31 million dollars, was awarded to firms in the New Orleans area.

Michoud's continued growth and increased production of Saturn Space Boosters has also created widespread community, state and national interest. Since January of 1962, more than 120 thousand persons have visited the facility.

Closely associated with Michoud is the Mississippi Test Operations near the Louisiana-Mississippi border, which, when completed, will serve as a testing ground of the giant birds of the sky being assembled at the East New Orleans Complex.

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EJC Notes

NEW YORK CITY—Carl Frey has been elected Secretary of Engineers Joint Council which is EJC's chief staff office. He assumed the position on January 1, 1965, succeeding L. L. Wheelock who is resigning to enter private industry.

Frey was elected at a recent meeting of the Board of Directors at which time the Board also accepted, with regret, the resignation of Mr. Wheelock who has been Secretary of EJC since 1960.

Frey has been Executive Secretary of the Engineering Manpower Commission of EJC since 1960. He has also served as Associate Secretary of Council during the past year. A mechanical engineering graduate of New York University, he holds a Master's degree in Education from Columbia University and has taken various specialized management courses. Mr. Frey's early career, since completing his formal education in 1952, was spent in administrative and executive positions with the Young Men's Christian Association. He had been Associate Executive Director, YMCA Camp Branch, prior to his joining the staff of Engineers Joint Council in early 1960.

Frey is married to the former Iris Ihde, has three sons and resides in Westport, Conecticut.

Wheelock has been associated with Engineers Joint Council since 1956 and leaves on December 31, 1964 to join the St. Joseph Lead Company, 250 Park Avenue, New York City.

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NSPE Notes

Who should pay the costs of keeping engineers in industry up to date in their technical fields, the individual engineers or the companies for which they work? According to a recent survey of engineers and engineering supervisors by *Machine Design* magazine there is a wide divergence of views on the subject.

Among 500 working-level engineers questioned, forty-one per cent felt it was primarily the company's responsibility to see to it that engineering employees were kept current in their specialties. The most commonly cited reason for this stand was that the company benefits most from employees' skills, and should therefore bear most or all cost, including the provision of company time for advanced study.

Almost one-third of this group, thirty-one per cent, indicated the responsibility should be shared by the company and its engineering employees. Typical comments from this group were "Industry should help but not pay 100 per cent . . . Industry should contribute, but the responsibility should rest with the engineer."

Only twenty-four per cent felt it was strictly a matter of individual responsibility to prevent obsolesence. The most important factor to this group was professional pride. "If we are real pros, this is a matter of individual responsibility . . . An engineer is his own responsibility . . . This is a question of freeloading vs. motivation and professional ethics."

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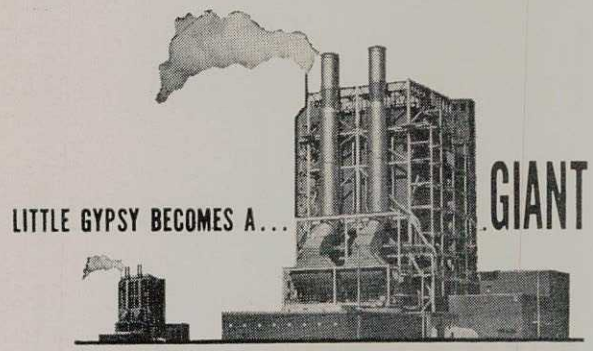
The Georgia Institute of Technology announced two short courses in civil engineering, traffic engineering and urban transportation planning and analysis sponsored by The School of Civil Engineering and conducted by The Department of Continuing Education.



LP&L made news at Little Gypsy with the world's first steam-electric generating unit capable of completely automatic operation. Now Little Gypsy will have a giant new 400,000-kilowatt unit also designed for computer control. When completed in 1965, the new unit will raise Little Gypsy's capability to 647,000 KW and that of the company to 1,338,700 KW. Investor-owned taxpaying LP&L works constantly to assure plenty of low-cost electricity for any need.

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Structure To Withstand Nuclear Blast Studied

NEW ORLEANS—A research project is underway at Tulane University which could save 40 per cent of the American population—if the United States ever comes under nuclear attack.

It involves the design of structures capable of withstanding the tremendous blast, fire, and radiation fallout of a nuclear explosion.

Such a structure may be designed within a year, according to Dr. Robert Bruce, Jr., LES, project coordinator. The project will then be coordinated with a nationwide program to construct adequate nuclear shelters for the American public.

No single conventional structure exists today which can withstand the combined forces of shock, heat and radiation fallout generated by a nuclear explosion, Dr. Bruce emphasizes.

Structures have been designed to provide protection from each of the nuclear explosion effects—if they occur separately. But the blast, fire and fallout occur simultaneously.

A shelter offering protection from fallout would serve no purpose if it were blown off its foundation or crushed by the blast wave, or set on fire by the thermal wave, Dr. Bruce points out.

Purpose of the Tulane project is to develop criteria to enable architects and engineers to design conventional structures capable of resisting the total combined effects of a nuclear detonation.

The project is being sponsored by a $15,750 grant to Tulane by the U. S. Office of Civil Defense, in cooperation with the U. S. Department of the Army and the U. S. Department of Defense.

Dr. Bruce, who is associate professor of civil engineering in Tulane's School of Engineering and an authority on the shock, fire and radiation effects of nuclear explosions, was selected to coordinate the research. He in turn selected outstanding specialists to assist in the project:

Professor John T. Hanley, University of Minnesota civil engineer who has studied the blast effects of nuclear weapons effects at the Nevada Testing Grounds.

Professor M. P. Gronbeck, Wisconsin State University authority on nuclear ignition and fire effects.

Professor James E. Branch, University of Miami architectural engineer and specialist on fallout radiation.

These specialists will use as the basis for their research the plans of 26 fallout-proof schools designed during a recent competition conducted by the American Institute of Architects under sponsorship of the Office of Civil Defense. Each school design will be examined for its potential ability to resist both the shock and heat of a nuclear blast.

The need for a mass nuclear shelter construction program has long been evident, Dr. Bruce points out. The United States stood on the brink of a nuclear war over Cuba in 1962—without an adequate shelter program, he recalls.

A bill making possible the shelter plan has been passed by the U. S. House of Representatives. It still awaits U. S. Senate approval.

Dr. Bruce says there are good reasons why such a program is vital:

(1) Military experts believe Soviet Russia will have a supply of 600 10-megaton bombs by 1973.

(2) Since 1945, all new Russian public buildings have been constructed with nuclear-protection features—and thousands of Moscow residents are offered protection in the city's vast network of subways, 400 feet deep in solid rock.

And contrary to belief of many, Dr. Bruce says, atomic attack need not mean sudden death for the American people. He quotes nuclear strategists with saying:

Only 30 per cent of the population would be killed by direct hits. Another 30 per cent in mountains, plains and other non-target areas would survive. The other 40 per cent (77.6 million Americans) would live—or die, depending on the public shelter program in this country.

With the United States now faced with a desperate "catch-up" race with Russia, it is expected the basic design criteria, once selected, will be immediately channeled to architects, engineers, contractors and educators for incorporation into new construction.

And then, says Dr. Bruce, with passage of the public shelter bill, future federal projects—and state and local public buildings constructed with U.S. aid, will require the specifications now being searched out at Tulane.

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Old Man River Chained

By B. A. SOSSAMAN

GOOD HOPE, La.—The destructive efforts of the North American Continent's greatest land builder — the Mississippi River — were challenged recently and defeated in a contest of engineering skill and concrete versus the force of flowing water.

The battle lines were drawn in an east bank bend of the River, some 16 miles above New Orleans known as Goodhope, Louisiana. Behind the levee in this area are the towns of Norco and Goodhope, and a densely industrialized area populated by a number of petrochemical and other facilities representing an investment conservatively estimated at $150 million. It is a peaceful setting.

On the other side of the levee it was something else again. The meanderings of the Mississippi are legend —the river in its race to the sea winds many times in every direction on the compass, carrying through this area some 300 million tons of silt annually. Much of this material is deposited on the inside of the bends.

But on the outside of the bends the precious land placed here by Old Man River millions of years ago is steadily eaten away.

Colonel Thomas J. Bowen, New Orleans District Engineer for the U.S. Army Corps of Engineers described the situation, saying "The Mississippi has been eroding this bank at an average rate of four feet a year. The levee has twice been set back and a bank failure was experienced here in 1956." He added that the top of the bank is now within 80 feet of the riverside edge of the levee.

He pointed out that the Corps of Engineers was faced with two alternatives—either surrender to the river and once again set back the levee at an enormous cost in relocations of industrial facilities and homes, roads and utilities, not to mention the disruption of business activities, or . . . hold the bend and stabilize the channel with bank revetment known as articulated concrete mattress.

The President of the Mississippi River Commission, Major General Ellsworth I. Davis, determined the latter course would be followed. And as a result the Corps' huge barge mounted revetment sinking plant moved into the lower end of the bend.

Then the productive activities on the landslide of the levee were echoed by labors of a different nature on the riverside. As gantry cranes slid pre-cast 4-foot wide by 25-foot long and 3-inch thick concrete sections into place on the plant, a team of 100 men busily fabricated them into one flexible mattress 140 feet wide and 50 feet deep. As the workmen completed the first mattress, the leading edge of the section was securely anchored on the previously graded bank. The sinking plant then moved out from the bank, allowing the huge protective structure to slide off the unit onto the bank. The trailing edge of the mattress was retained aboard the deck of the plant and within the 45 seconds required for the launch, the workmen were back fabricating another section and trying it securely to the former one already partially sunk. This procedure was repeated until the mattress extended far enough from the bank to reach the deepest part of the river—in the case of Goodhope, as much as 550 feet. Then the outer edge of the mattress was lowered by cables to the river bottom. The sinking plant then moved up river and back into the bank and repeated the operation. Each succeeding mattress overlapped the former by at least 10 feet.

This form of bank stabilization has been proven as the most effective and economical means by the Mississippi River Commission in its many years of work on the Mississippi.

And so through the continuing efforts of the Army Engineers, working under Congressional authorization and funding, the attempts of the Mississippi to reclaim the lands that he himself deposited here aeons ago are effectively being thwarted. It will, however, require many years of this work before the river that Mark Twain called the "body of our nation" becomes stabilized in the channel most suited to man's needs.

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