LOUISIANA ENGINEER
February, 1975

STATE OF LOUISIANA
EXECUTIVE DEPARTMENT
BATON ROUGE

P R O C L A M A T I O N

WHEREAS, National Engineers Week, February 16-22, 1975, directs public attention to the accomplishments and responsibilities of the engineering profession; and

WHEREAS, the eight Chapters of the Louisiana Engineering Society throughout the State will conduct special programs emphasizing this year's theme, Engineering ....Exploring New Energy Frontiers; and

WHEREAS, the challenges of meeting our future energy needs are of great magnitude, and we recognize the engineering profession's criticial role in energy conservation and in the further development of our energy resources; and

NOW, THEREFORE, I, EDWIN EDWARDS, Governor of the State of Louisiana welcome the opportunity to express the state's gratitude to the dedicated members of the engineering profession, and do hereby proclaim the week of February 16-22, 1975, as

ENGINEERS WEEK

in Louisiana and urge our citizens to honor the thousands of engineers working and living in our State.

IN WITNESS WHEREOF, I have hereunto set my hand officially and caused to be affixed the Great Seal of the State of Louisiana, at the Capitol, in the City of Baton Rouge, on this the 20th day of January, A. D., 1975.

Edwin Edwards
GOVERNOR OF LOUISIANA

ATTEST BY
THE GOVERNOR

Wade O. Martin, Jr.
SECRETARY OF STATE

engineering
exploring
new energy frontiers
feb 16-22
national engineers week



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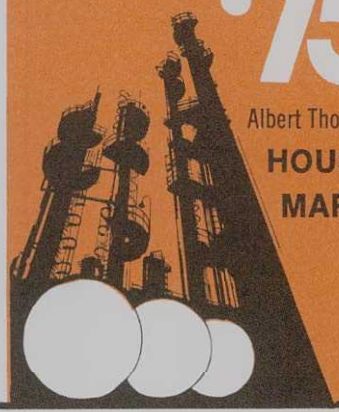

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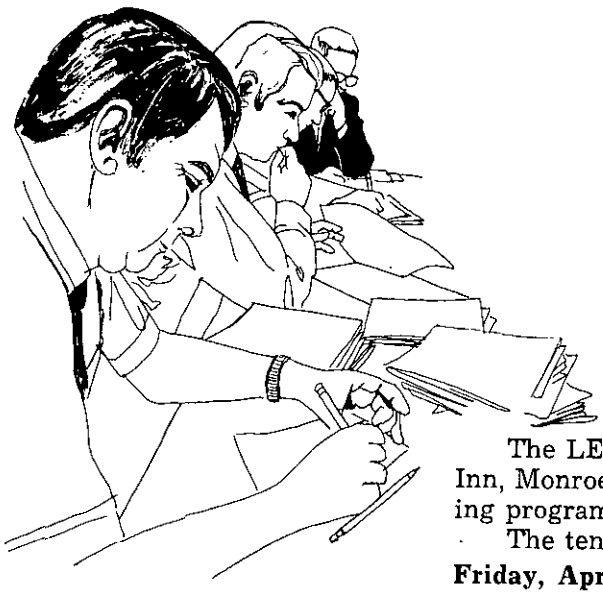
LES Spring Meeting



The LES Spring Meeting will be held April 11-12 at the Ramada Inn, Monroe. The program committee is putting together an interesting program for your education and enjoyment.

The tentative program:

Friday, April 11, 1975

10 a.m. - 5 p.m.
Registration, Lobby

1 p.m.
General Session

1:15 p.m.
Practice Divisions Meetings
Professional Engineers in Industry
Professional Engineers in Private Practice
Professional Engineers in Construction
Professional Engineers in Government
Professional Engineers in Education

2:30 p.m.
Address by Guest Speaker (Senator Bennett Johnson has been invited)

3:30 p.m.
Presentation of Student Papers. (Engineering Senior Students from LSU, La. Tech., Southern, Tulane, USL and UNO)

6:30 p.m.
Dinner and cruise aboard the *Twin City Queen* on the Ouachita River

Saturday, April 12, 1975

8:15 a.m.
LES Committee Meetings

10:30 a.m.
Address by Guest Speaker

11:30 a.m.
Social Hour and LES Awards Luncheon
Presentations of:
- Andrew M. Lockett Medal for Civic Activities
- Leo M. Odom Award for Professional Services
- A. B. Patterson Medal for Engineer in Management
- James M. Todd Technological Accomplishment Medal
- Charles M. Kerr Public Relations Award
- F. Hugh Coughlin Young Engineers Award

Recognition of Life Members
Announcement of Junior Membership Awards

1:30 p.m.
General Society Business Meeting

2:00 p.m.
LES Board of Direction Meeting

A Ladies Program is planned for both days; it will be provided later.

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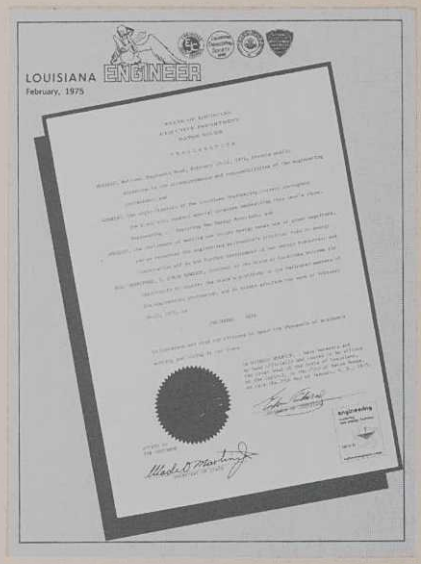

COVER

Louisiana Governor Edwin Edwards has proclaimed Engineers Week February 16-22 in Louisiana.

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P. O. Box 2683, Baton Rouge, La. 70821
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Presidential Privilege



Fred C. Culpepper, Jr., P.E.
President, L.E.S.

By now I am sure that any of you who take the time to read this page are tired of hearing me use the word "involvement." At the risk of being redundant, I will say again that we cannot be an effective Society unless all of our membership is involved in the activities and the decision-making process of the organization. I am beginning to believe that some of our members have heard my message and taken it to heart.

When Governor Edwards signed Executive Order Number 76 creating the Engineers Selection Board, several of our members appeared in Baton Rouge to applaud the action of the Governor. Your Society, on the recommendation of the Board of Direction, approved the appointment of Robert C. Freeman, Jr., P.E., and Arthur DeFraites, Jr., P.E., as our representatives on this board. On January 13, our representatives along with Messrs. Harold Faller and Nash Ogden, representatives of CEC, met in Baton Rouge for the purposes of organizing and appointing a chairman.

Dudley Hixson, president of the Alexandria chapter, has been actively involved at the request of the Rapides Parish Police Jury in making recommendations concerning parish engineering services. This work took a great deal of time for many of the members of the Alexandria chapter and again indicated the desire of our Society to participate in all matters concerning engineers and their work in all areas of government and private endeavor.

Lafayette chapter has also indicated its involvement by requesting the Lafayette Parish School Board to withdraw a request for quotation to obtain professional surveying services and to adopt the procedure recommended in the Manual of Practice published by LES and CEC in 1970.

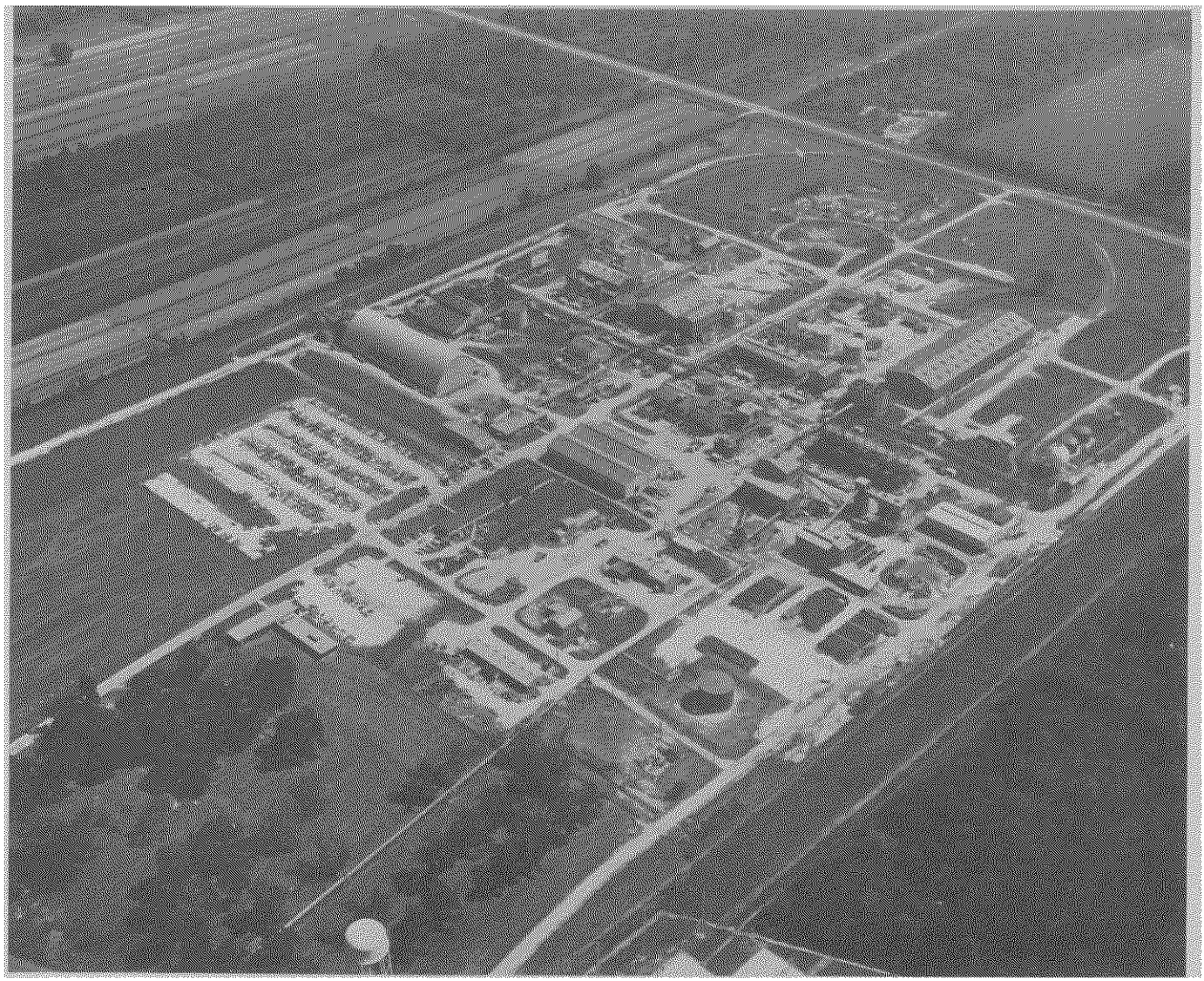
I am sure that other chapters can point to participation of a similar nature, although I am not aware of their various projects. I only cite the foregoing to indicate that we are becoming more involved in matters that affect engineers in the state.

The finance committee of the Society is holding continuing meetings to determine the need for consideration of a dues increase. With more participation at all levels there is no doubt that increased revenues will be needed. I feel sure that as members of LES you will accept the need for additional funds if the studies now underway indicate they are warranted.

Our new member campaign has not produced the results I had hoped for. With all of the many activities that our chapters are involved in, it is hard for me to believe that qualified engineers could afford to pass up the opportunity to join. It is up to each of us to see that they have the opportunity.

I would like to remind all members that the Spring Meeting will be held in Monroe this year. All indications are that this will be a fun-type meeting as well as a productive one. The dates are April 11 and 12. Start planning now to attend this meeting so that you can add your voice to those of all interested engineers in the state to arrive at the best solutions for problems and commitments that are inherent in the day-to-day activities of your Society.

Amax Nickel Refining in Louisiana



Pictured above is the Port Nickel metal refinery, built in the 1950s, in Braithwaite, Louisiana. Amax Nickel Refining Company is in the process of reviving the refinery, expecting to reach design capacity in late 1975 or early 1976.

The Amax Nickel Refining Co., Inc., is bringing back to life a long-dormant Louisiana plant.

The Port Nickel metal refinery in Braithwaite, La., was built in the late 1950s to process nickel-cobalt sulfide concentrates from Cuba. Actual operations started in January 1960 and lasted only for about six months due to the cut off of the raw material when Castro expropriated the Cuban mines and plant facilities in the summer of the same year. As a result, the banks which loaned most of the capital for the project mothballed the plant and retained a permanent staff to preserve it in workable condition.

In 1970 Amax, Inc. took an option to buy the Port Nickel facilities, while, with other partners, they were making a feasibility study to develop the nickel-copper deposits at Selebi-Pickwe in Botswana, Africa. In March 1971 Amax purchased the nickel plant after the decision was made to go ahead with the Botswana project.

Amax, Inc. is a widely diversified natural resources and minerals development company which mines, smelts, refines, fabricates and markets metals, minerals and fuels. Operations are worldwide with production, exploration, or sales and development facilities on six continents. Amax is the world's largest producer of molybdenum. It also produces copper, aluminum, potash, coal, iron ore, oil, zinc, lead, hafnium and zirconium. It has domestic operation in twelve states with Port Nickel being its first Louisiana operation.

Amax formed in 1971 its wholly owned subsidiary, Amax Nickel Refining Company, Inc., which will be responsible for the operation at Port Nickel. It is headed in Louisiana by J. S. Mitchell, vice president of operations, and Jorge L. Blanco, plant manager at Port Nickel. The headquarters are in Greenwich, Conn.

In addition to the original nickel property, Amax also purchased adjacent land and now holds a site of about 800 acres with about 3,150 feet of first class Mississippi River water frontage. It is here that

Amax's first new investment was made in the new 700-foot wharf with a 40-foot draft capable of handling ocean going vessels of up to about 40,000 tons. At full production, ships will arrive every two to three weeks from Africa and the South Pacific island of New Caledonia. From the new wharf some of the palletized product metals will be shipped to the European market and other parts of the world.

The old wharf is in 20 feet of water and is now used only to unload fuel oil and other liquid supplies.

Plant feed stock consists primarily of copper-nickel matte produced in Botswana. This semi-refined material contains approximately 80 percent copper plus nickel and cobalt and 20 percent sulfur. The Botswana facilities are owned by Bamangwato Concessions, Limited (BCL), which in turn is owned 15 percent by the Botswana government and 85 percent by Botswana RST, the latter being owned 50 percent equally by Amax and Anglo-American Corporation, a South Africa mining company.

The project at the Selebi-Pickwe mines required building infrastructures consisting of a town of 12,000 people, a dam on the Shashe River, a 50-mile-long water pipeline to the mine, a 60-megawatt coal-fired power station and a spur railroad track to the nickel-copper mine. Mining, concentrating and pyro-metallurgical facilities were built to process approximately two million tons of ore per year. This is expected to produce about 46,000 tons annually of nickel-copper matte which, in addition to matte from other parts of the world, will form the main feed supply to Port Nickel.

The matte will arrive at Port Nickel in 100-pound slabs, stacked 32 to a pallet. The pallets are transferred by truck from the ship to the matte storage area on the plant site. This area is large enough to hold two to three months inventory of feed material.

Next, the matte slabs go through two stages of crushing to reduce them to pieces about one-half inch in size. Mattes of different composition are blended and then charged into a six-megawatt electric furnace where they are melted. Cuprous-nickel and monel scraps can be fed into the furnace also where it blends with the matte to give a homogenous material. This provides the capability of converting domestic scraps of scarce and valuable metals to a refined form which can be used again in making primary nickel alloys or high purity copper products.

The molten matte is tapped from the furnace periodically into a granulating chamber where a high pressure water spray breaks the molten matte into particles less than one-tenth inch in diameter.

The granulated matte is then fed into a ball mill where it is wet ground to a fine particle size ready to be fed into the first chemical step, which is the atmospheric leach section. In this section a portion of the nickel and cobalt in the matte is leached with a recycle acid solution from the copper tankhouse. By means of a copper cementation reaction this step also provides a nickel-copper separation, the leached nickel and cobalt going with the liquor and all the copper and part of the nickel and cobalt going with the solids.

The solids are then sent to a high temperature pressure leaching step where under acid conditions all of the meals are dissolved into the sulfate formed. The solution is sent to the copper tankhouse where copper is deposited as cathodes by electrowinning. The tankhouse will have a capacity of 45 million pounds per year in the initial installation and it has been designed so that expansion to a 60-million-pound capacity could be achieved at minimum cost in the future. This is the first copper tankhouse in the deep South and one of the most modern in the country.

The exit solution from the tankhouse, containing nickel, cobalt, sulfuric acid and some copper, is recycled back to the leaching step.

The nickel-cobalt sulfate solution from the leaching step is sent to a cobalt removal step where a virtually cobalt-free nickel sulfate solution is obtained. This is sent to the nickel reduction step where the nickel sulfate solution is heated and contacted with hydrogen and ammonia in special autoclaves. The nickel is reduced to a metallic powder form which is then washed, filtered and dried in a rotary dryer. The powder of high purity nickel can then be loaded into drums for shipment or briquettes, which are sintered in the conventional manner prior to packaging into drums.

The cobalt material from the cobalt removal section is redissolved and after further purification, the cobalt containing solution is submitted to the same hydrogen ammonia reduction step as the nickel. The cobalt metal powder is then sold as powder or briquettes.

The end solution from both reduction operations is sent to the crystallization-evaporation section where ammonium sulfate generated during the reduction of the nickel and cobalt is recovered as a byproduct.

In the initial stage the annual production will amount to 80 million pounds of nickel, 45 million pounds of copper, 1.3 million pounds of cobalt and 100,000 short tons of ammonium sulfate.

The plant was started during the last quarter of 1974 and it is expected to reach design capacity by late 1975 or early 1976. At design capacity it will employ a total of about 425 employees with an annual payroll of over 5 million dollars.

Amax, Inc., the parent company, has been a leader in environmental control. One of its subsidiaries, Climax Molybdenum Company in Red Mountain, Colo., won the 1968 National Gold Medal Award for its water pollution control project. Openness and cooperation are the key to the Amax approach to environmental programs.

With so many industries, Louisiana has become one of the most pollution-conscious areas of our country. It is, therefore, of great satisfaction for Amax to be able to point to the hydro-metallurgical nature of the operations and a complete absence of pyrometallurgy as a basis for its claim that this project will bring employment to an area of Louisiana that needs it, without pollution.

The Professional Engineering Team— The P.E. and the C.E.T.



and CET

LOUIS J. SCHOBER[1]

The engineering profession, as a whole, must be guided and directed by registered professional engineers. However, in today's world of technological development and evolutionary circumstances, the professional engineer requires the services of others on his staff who are professionals in their own right. Among these are the engineering technicians, heavily relied upon by the professional engineer to perform many of the duties that were formerly those of the engineer.

While the professional engineer is concerned with the research and development of new technological concepts, modern engineering methods and materials, financing, management consultation and the overall planning of major engineering projects, both public and private, he relies on the engineering technician actually to perform many of the detailed calculations involved.

In most private engineering firms, governmental agencies and industrial firms, the engineering technician has reached a degree of competence, through education and experience, that merits the admiration and trust of the professional engineer.

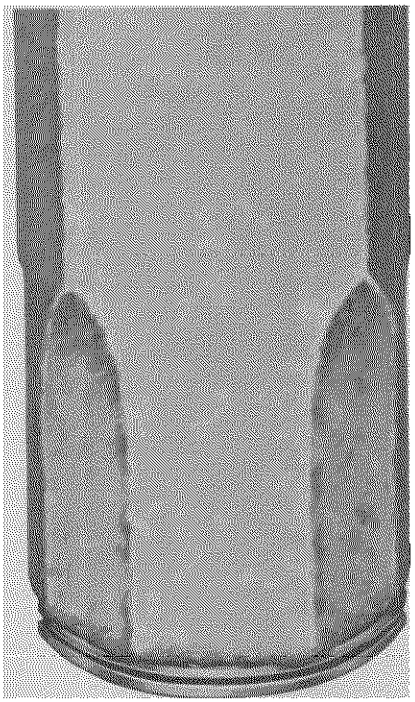
The formation of the Institute for Certification of Engineering Technicians provides for the reward, recognition and documentation of these professional achievements. The National Certification Program for Certified Engineering Technicians is a positive step toward increased professionalism among engineering technicians who are deeply concerned and involved with the public interest through professional responsibility for the health, safety and environment of everyone they serve.

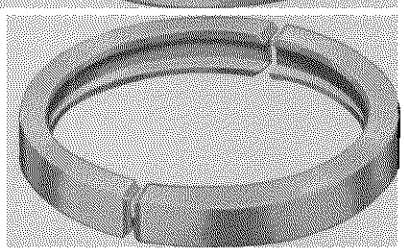
Engineering technicians constitute a major component of the engineering profession today. The U. S. Bureau of Labor Statistics projects a growth in the employment of persons in this field of 43 percent between 1968 and 1980, with 890,000 expected to be employed in 1980. This is a net growth of 270,000, besides the 102,000 that will be needed to replace deaths, retirements and other losses from the labor force.

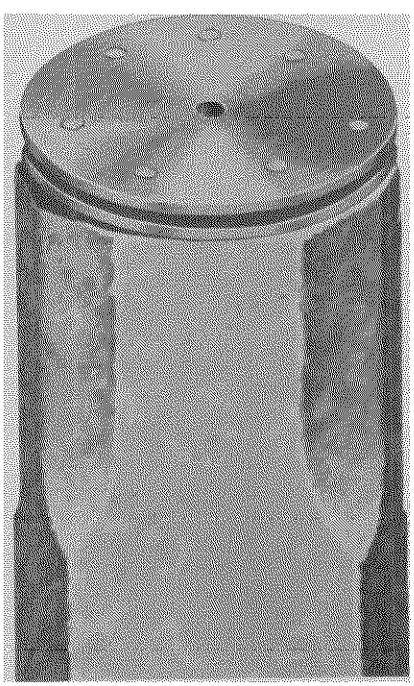
Some 10,000 engineers are registered in Louisiana, approximately 5,000 of whom reside in the state. One engineer can often supervise as many as four or five technicians. If we equate this we find that there are approximately 20,000 to 25,000 men and women performing important tasks on the engineering team who are eligible to be certified at one of the three levels provided by ICET.

Many engineering firms employ personnel over long periods of time, and these personnel grow with the company. Their worth is compounded by their longevity and experience in the company's operational procedures and engineering disciplines. The engineer challenges the initiative of these indivduals, and they in turn accept the challenge willingly because they are professionals, even though they may lack the engineer's formal educational training.

[1] **Louisiana State Chairman, American Society of Certified Engineering Technicians.**







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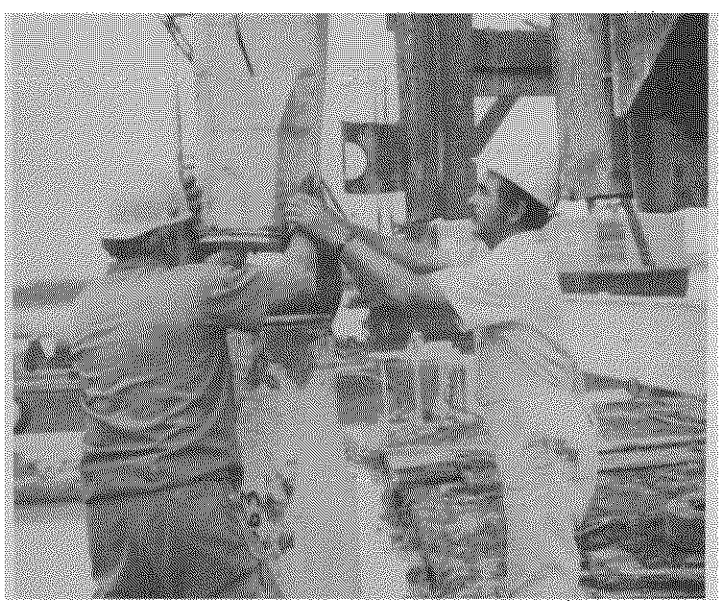

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Louisiana Professional Societies

The list of engineering societies and related groups in Louisiana is included as a convenience to our members and others and to promote intersociety cooperation and communications on professional, technical, social and other matters of mutual concern. It is recommended that chapters invite local members of the societies listed to participate in their activities. Programs in which these society members could participate with great success include National Engineers Week, legislative activity, public relations, joint publications, combined meetings and community programs.

We hope all the chapters will use the listings to initiate contacts with their counterparts in these societies.

A letter was mailed to all organizations listed in the February 1974 issue on August 9 requesting updated information for the new listings. The only ones responding are carried below. Organizations wishing to be listed in future listings should contact the LES office: P. O. Box 2683, Baton Rouge, La. 70821 (504 344-4318).

American Institute of Industrial Engineers
Northwest Louisiana Chapter
Alec F. Adams, Jr.
1909 Bittersweet
Ruston, La. 71270
(318) 255-3337

Baton Rouge Chapter
Dr. Mayo E. Zohd
Mech., Aero., & Ind. Eng. Dept.
Louisiana State University
Baton Rouge, La. 70803

American Society for Quality Control
New Orleans Section
Charles Saucier
Avondale Shipyards
P. O. Box 50280
New Orleans, La. 70150
(504) 776-2121, ext. 280

Shreveport Section
William P. Harris
General Electric Co.
7000 Flournoy-Lucas Rd.
Shreveport, La. 71109
(318) 687-6600

American Society of Agricultural Engineers
Louisiana Section
Malcolm E. Simmons, Chairman
P. O. Box 1630
Alexandria, La. 71301

Baton Rouge Chapter
Dr. Carl Camp
Agri. Engineering Bldg.
Louisiana State University
Baton Rouge, La. 70803
(504) 388-6010

American Society of Civil Engineers
Louisiana Section
A. D. Kaufman, President
10201 Mayfair Drive
Baton Rouge, La. 70809
(504) 293-3044

New Orleans Chapter
Dr. John L. Niklaus, President
2128 Valentine Court
New Orleans, La. 70114
(504) 865-4401

Shreveport Branch
Philip J. Lindsay, Sr., President
3346 Youree Drive
Shreveport, La. 71105
(318) 865-6504

American Society of Heating, Refrigerating, and Air Conditioning Engineers
Shreveport Chapter
R. E. Murphy
Agent Service, Inc.
P. O. Drawer 6320
Shreveport, La. 71106
(318) 861-3069

American Society of Mechanical Engineers
New Orleans Section
Dr. D. C. Hamilton, Jr., Chairman
Prof. of Mechanical Engineering
Tulane University
New Orleans, La. 70118
(504) 865-4411

Baton Rouge Section
Louis B. Gaudin
Gaudin Equipment Co., Inc.
P. O. Box 15232
Baton Rouge, La. 70815
(504) 275-3216

Monroe Subsection
Lawrence R. McClain
Dixie Acres
Sterlington, La. 71280

Southwest Louisiana Group
Barry B. Thomas
1822 19th Street
Lake Charles, La. 70601
(318) 477-1202

Shreveport Section
A. L. Jones
2984 Risinger Dr.
Shreveport, La. 71109
(318) 865-8441

American Society of Safety Engineers
Ark.-La.-Tex.
Willis Meeks, President
Mid Continent Steel Castings
Drawer 6611m
Shreveport, La. 71106
(318) 869-1601

Baton Rouge Chapter
E. Don Law, President
9411 Wesson St.
Baton Rouge, La. 70806
(504) 642-5441, ext. 321

New Orleans Chapter
Edgar E. Kimball, Jr., President
Engineers Club of New Orleans
546 Carondelet
New Orleans, La. 70130

Consulting Engineers Council of Louisiana
R. Dale Hodges, President
2708 North Acadian Thruway
Baton Rouge, La. 70806
(504) 356-3432

Baton Rouge Chapter
Bren Kramer
P. O. Box 2262
Baton Rouge, La. 70821

New Orleans Chapter
Irwin Isaacson, Jr.
600 Audubon Bldg.
931 Canal St.
New Orleans, La. 70112
(504) 522-0611

Lafayette Chapter
Emery Dominque
117 Calco Blvd.
Lafayette, La. 70501
(318) 234-4566

Shreveport Chapter
Robert K. Hawkins
3346 Youree Dr.
Shreveport, La. 71105
(318) 865-6504

Monroe-West Monroe Chapter
Don Newton
P. O. Box 6056
Monroe, La. 71201

Illuminating Engineering Society
T. M. Wilson
123 East 69th St.
Shreveport, La. 71106
(318) 865-4605

Institute of Electrical & Electronics Engineers
New Orleans Section
O. Clark Landry
Middle South Services, Inc.
P. O. Box 61000
New Orleans, La. 70161
(504) 529-5262

Shreveport Section
Joseph R. Efferson
3754 Greenway Pl.
Shreveport, La. 71105

Lafayette Section
Sylvan Richard
200 Ludovic Ln.
Lafayette, La. 70501
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Institute of Traffic Engineers
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Hensley-Schmidt, Inc.
1212 American National Bank Bldg.
Chattanooga, Tenn. 37402
(615) 624-4364

International Materials Management Society
New Orleans Chapter
B. Joseph St. Germaine, President
P. O. Box 60160
New Orleans, La. 70160

Louisiana Society of Professional Engineers in Civil Service
Charles M. Higgins, President
P. O. Box 44311, Capitol Station
Baton Rouge, La. 70804

National Association of Corrosion Engineers
A. T. Fuller
P. O. Box 146
Shreveport, La. 71161
(318) 221-8151

Society of Military Engineers
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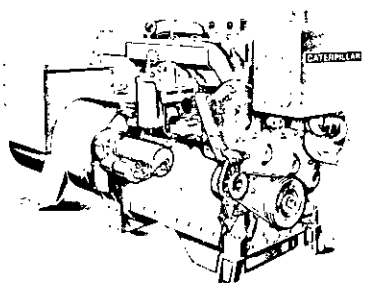

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Don't miss this opportunity to keep up with what's happening in the fast expanding civil engineering profession.

You also can participate in the continuing education sessions which will take place during and following this national convention.

Complete program details and registration forms are available in the January issue of CIVIL ENGINEERING, or write to the American Society of Civil Engineers, 345 East 47th Street, New York, N.Y. 10017, or call (212) PL 2-6800.

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ASCE to Meet in New Orleans For National Structural Engineering Convention

All aspects of structural engineering will be reviewed in New Orleans, April 14-18, at the National Structural Engineering Convention and Exposition sponsored by the American Society of Civil Engineers.

This convention, which will be held in the Fairmont Hotel, will bring together civil engineers from all parts of the United States to discuss the latest trends in structural engineering. Outstanding speakers will present papers on new ideas, techniques and developments in construction and engineering.

An added attraction of this convention is an exposition of the newest in construction equipment, products, materials, design and methods. The exposition will supplement information disseminated at the technical sessions.

Although papers in all fields of engineering will be given, those pertaining to structural engineering are emphasized. Technical sessions include: Instrumentation and Techniques for Model and Prototype Testing; Model Analysis as a Design Tool; Joints in Reinforced Concrete Structures; Wave Structure Interaction; Structural Identification and Control; Modern Computer Technology and You; Recent Developments in Engineered Masonry; Computational Methods in Nonlinear Mechanics; Advanced Analysis Method for Fracture Mechanics; Failure Due to Fire, Storm, Earthquakes and Man; Insulation and Insulating Materials; Granular Media and Contact Problems; Aerospace Structures and Related Technology; Guidelines for Finite Element Idealization; Limit Design of Slab Code Considerations; Advancements in Industrial and Municipal Waste Treatment; Data Handling Techniques in Civil Engineering; and Surface Water Quality Monitoring, Modeling and Forecasting.

Professional sessions include: A New ASCE Manual No. 45; Education for the Practice of Civil Engineering; Conglomerate Take-Over of Small Consulting Firms; and the Engineering Technology Movement.

Monday's luncheon speaker is Robert H. Clement, Deputy Undersecretary of Transportation, U.S. Department of Transportation; Wednesday's luncheon speaker is Dr. Samuel Hulbert, Dean, School of Engineering, Tulane University. Dr. Hulbert's topic is "Structural Design of Surgical Implants."

Three continuing education courses are being offered in conjunction with the convention. They are: Operating a Consulting Firm; Effective Marketing of Professional Services; and Cost Estimating.

A number of social activities and special activities are planned for engineers' wives. Special events are also designed for engineering students attending the convention. Registration for this convention is open to all interested persons.

Complete details and registration forms are available from the American Society of Civil Engineers, 345 East 47th St., New York, N.Y. 10017.

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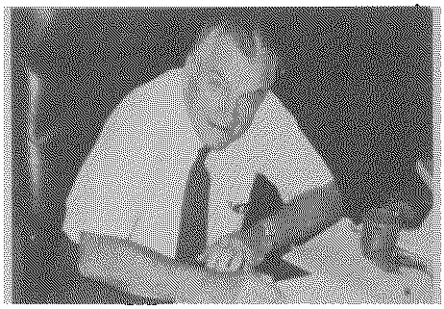

Potpourri

From Your Executive Director

R. C. "DOC" SPEARS

Structural Steel Design Short Course

The University of New Orleans will conduct a short course to provide a fundamental background in the design problems of structural engineers. Emphasis will be placed on the recently issued Supplement 3 of the AICE specification.

The course will be held March 11-13, and the fee is $150. For details, contact Dr. E. P. Russo, School of Engineering, UNO, New Orleans 70122; (504) 288-3161, ext. 327.

LES Automobile Insurance Program

The LES auto insurance program is moving into high gear. As a result of the advertisement in the December issue of the LOUISIANA ENGINEER and a special mailing to all members in January, 81 members have requested quotations and 15 members have signed up for insurance from the LES program administrator.

The LES auto insurance program should save you money. Will it pay you to change? It costs no more than a 10-cent stamp to find out. Write Program Administrator, P.O. Box 3616, Baton Rouge 70821; (504) 387-0791.

LES License Plates

We are still offering a special license plate with the P.E. emblem and an outline of the State of Louisiana in attractive red, white and blue. The price is $5, and all profits go toward purchase of our reproduction machine.

Engineers need recognition and identity. We believe this plate on your car will do a lot to promote just that. Order yours now. Send your request for LES license plates and your check for $5 each to LES, P.O. Box 2683, Baton Rouge 70821.

Seminar on Maintenance Management for Process Industries

The Department of Mechanical, Aerospace and Industrial Engineering, LSU, will conduct a seminar on Maintenance Management for the Process Industries, March 24-26. All sessions will be held in Room 130 of Pleasant Hall, LSU.

With the advent of ever increasing demands for maintenance and the scarcity of trained maintenance craftsmen, it becomes necessary to better plan and schedule maintenance operations in order to make best use of the limited resources available to any maintenance manager. The techniques and topics discussed in this seminar are designed to give the maintenance manager the necessary background and tools to build a more efficient maintenance control system.

Write or telephone for a brochure or additional information: Dr. Lawrence Mann, Jr., Industrial Engineering, LSU, Baton Rouge 70803; (504) 388-4428.

AGC Conference With EPA

The Associated General Contractors of America (AGC) is having a statewide conference with the Environmental Protection Agency on March 12 at the Alexandria Convention Center.

The purpose of the meeting is to discuss the EPA Grants Program for Louisiana this coming year and to attempt to resolve some of the problems connected with the Federal programs. These problems concern engineers, municipalities and contractors.

Participating in the meeting along with AGC will be the Louisiana Municipal Association, CEC and hopefully LES. Please contact Bill Carter, AGC, Taylor Bldg., 251 Florida St., Baton Rouge 70801; (504) 344-0432.

Six LES Awards Honor Individuals

The honors and awards committee will recommend adding the name James M. Todd to the Technological Accomplishment Award and F. Hugh Coughlin to the Young Engineers Award.

Mrs. Todd has thanked the Society for the honor being bestowed on her late husband. Mr. Todd was dedicated to engineering and did much for many years in LES.

Mr. Coughlin has indicated his acceptance of the honor, with humility, and he is very grateful.

With the appropriate naming of these two awards, each of the six LES awards will now be named to honor an outstanding engineer.

National PEPP Inaugurates PR Service Program

On Jan. 1, National PEPP inaugurated a service program to assist consulting engineering firms. The Professional Engineers in Private Practice (PEPP) identifies some 250 public relations firms interested in helping engineering firms with their public relations, marketing and business development efforts.

Upon request from a consulting engineer, PEPP will forward a list of public relation firms doing business in the engineer's geographical location along with brief resumes and guidelines of the PR firm. There is no charge for the service.

For information on how to take advantage of the PEPP service, write NSPE/PEPP Public Relations Referral Service, 2029 K Street, N.W., Washington, D.C. 20006; or call (202) 331-7020, ext. 79.

Government Professional Development Award Goes to Port of Portland

The Development Services Department, Port of Portland, Portland, Ore., has been named recipient of NSPE's 1975 Government Professional Development Award for superior engineering employment practices.

The Government Professional Development Award is presented on a rotating basis to agencies of local, state and federal government which demonstrate a record of advancement and improvement of the engineering profession through development and use of forward-looking employment practices. The 1975 competition was limited to local level agencies.

The award will be presented at a special luncheon during NSPE's winter meeting in Tucson, Ariz.

Announcement of Tulane Short Courses

Refresher Course in Engineering Fundamentals
A preparation for taking the E.I.T. Exam.
Course Director—Dr. Robert P. Chambers
Dates—Tuesday and Thursday Evenings at 7 p.m., March 4 - April 8, 1975

Matrix and Computer Methods for Structural Analysis
Course Director—Dr. John L. Niklas
Dates—March 12, 13, 14, 1975

Structural Design Fundamentals
An introductory course for engineers, architects and contractors. The latest building codes will be used as texts in the course.
Course Director—Dr. Frank J. Dalia

(Continued on Page 17)



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Engineers need recognition and identity. Let's promote Professional Engineers in Louisiana. If you are a PE, you should be proud to display this identifying item. At the same time you will be assisting the LES office in obtaining badly needed office equipment, to better serve the engineers of Louisiana. All profits from this promotion will go toward the purchase of new office equipment.

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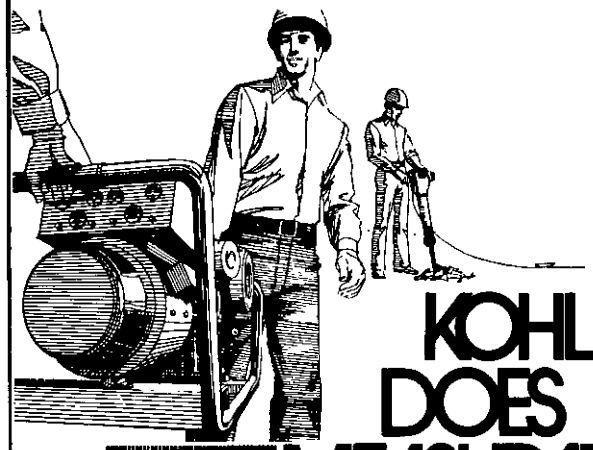

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80 YEARS
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One night in New Orleans, two of the partners, Messrs. Bacon and Davis, were riding to their hotel on a streetcar. As it sped around a curve, a large laundress and her basket of clothes lurched into their laps. It was this event that led to the idea of handles for standees on trolley cars, and the Ford, Bacon & Davis firm collected royalties on the patent for many years. The two young engineers were riding on the Canal and Claiborne Railroad Company lines, which they had converted from mule-drawn to electric power in 1895.

They had also rebuilt the New Orleans and Carrollton Railroad Company lines, which, followed by other transit system projects in the United States, created an entirely new field of engineering that utilized and adapted improved power equipment that had only recently been invented — the dynamo in 1882, and the steam turbine to drive it, in 1890. And it was George H. Davis who conceived the inverted third rail as a power source where overhead lines were impracticable.

The work of the young firm was thus gaining recognition, and the resulting engineering projects in the early days of electric power led to Ford, Bacon & Davis' present-day eminence in engineering. New Orleans was in fact the first "branch" facility of the New York-based firm, and Ford, Bacon & Davis has been in Louisiana ever since. *(Continued.)*

* From *For Human Needs*, a history of the first 80 years of Ford, Bacon & Davis

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For further details, contact Dean, School of Engineering, Tulane University, New Orleans 70118.

LES Finances

The LES finance committee met Friday, Jan. 17, in the state office, Baton Rouge. Those present were Malcolm Hurstell, P.E., President-Elect; James L. Meyer, P.E., Vice President; Carl H. Thomas, P.E., Secretary-Treasurer; R. C. Spears and Prudence Landry from the state office.

Present and anticipated income and expenses were carefully analyzed.

The committee reported to the LES Board of Direction meeting on Feb. 7 on recommended changes with justifications for the revisions to the budget. Items up for change include income for NSPE members because of the $5 dues increase; a new income item to reflect member contributions received; small increases and decreases in the expense items to bring the budget more in line with actual expenditures.

LES Membership Drive



Buddy Moncla
LES Membership Committee Chairman

We still are operating under a deficit budget. However, the deficit was reduced from $5,900 to $2,900, which is about the amount that members have contributed this year.

LES needs a dues increase. The finance committee plans to recommend one for 1975-76; the matter will be on the agenda for general membership approval at the Spring Meeting in Monroe, April 11-12.

House Bill No. 29

During the special session of the legislature Jan. 13-27, House Bill 29 was enacted. It amends and reenacts Section 131 of Title 39 of the Louisiana Revised Statutes of 1950, to provide for deposits in the state treasury of all monies received by the state or any state board, commission or agency and to provide for certain exceptions.

The second exception of the Act is for "Trade and Professional Associations." Ed Harding, clerk of the House, has obtained transcripts of certain committee hearings in the Constitutional Convention to ascertain whether or not the State Board of Registration for Professional Engineers was included or defined as a professional association. He indicates the intent of the convention was that all agencies created in the Revised Statutes, sometimes referred to as self-generating agencies, be exempt from the provisions of depositing their funds with the treasurer.

House Bill 29 was reported out of the House Appropriations Committee on Jan. 16, passed by the House on Jan. 17, and passed by the Senate on Jan. 23.

Examination in Fundamental Engineering Subjects

On April 19, the Louisiana State Board of Registration for Professional Engineers and Land Surveyors will offer to graduates of baccalaureate engineering curricula and senior engineering students the opportunity to take the current uniform examination in Fundamental Engineering Subjects prepared by NCEE.

The examination will be given at Louisiana State University, University of Southwestern Louisiana, Louisiana Tech University and Tulane University. It will be administered by Dr. Jesse Coates at LSU, Dr. Raymond E. Jenkins at USL, Dean Ben T. Bogard at Louisiana Tech and Dr. D. H. Vliet at Tulane.

Seniors and graduate students who wish to take this test may submit their applications to one of the persons named above. All persons other than students who desire to take the examination must submit appropriate applications by March 19 to the Louisiana State Board of Registration, 1055 St. Charles Avenue, Suite 415, New Orleans 70130.

A fee of $10 must be paid at the time the application is submitted.

LES Membership Contest Standings
As of January 17, 1975

Position	Chapter	Chairman	Quota	Applications	Percent Quota	NSPE	NET	Contest	Students
1	Bayou	Peterman	10	9	90.00	3	12	120.00	
2	Baton Rouge	Blanche	47	31	65.96	17	48	102.13	
3	Shreveport	Richardson	19	12	63.16	7	19	100.00	
4	Monroe	Ray	19	12	63.16	6	18	94.74	4
5	Lafayette	Bingham	17	11	64.70	5	16	94.12	
6	New Orleans	Riorda	88	34	38.64	13	47	53.41	
7	Alexandria	Moore	15	6	40.00	1	7	46.67	
8	Lake Charles	Brassette	11	3	27.27	0	3	27.27	
			226	118	52.21	52	170	75.22	4
	Non-Resident			14		2			

IN MEMORIAM

J. D. Hilburn, P.E.
1913-1975

With his death in the city of Shreveport on January 13, 1975, at an age when he was in the prime of life, J. D. Hilburn, professional engineer, ended a life of devotion to his community, to his country, and to humanity. He was born on November 29, 1913, and was a lifelong resident of Shreveport.

Mr. Hilburn was a staff engineer for United Gas Pipeline Company. He was a member of the American Gas Association, Petroleum Club, Louisiana Engineering Society, National Society of Professional Engineers and the American Society of Mechanical Engineers. He was a registered professional engineer in Louisiana, Texas, Alabama and Mississippi. Mr. Hilburn graduated from Louisiana Tech with a B.S. degree in mechanical engineering in 1938.

"Great souls are portions of eternity." The Louisiana Engineering Society extends sympathy to his wife, Mrs. Iva Nell Hilburn; a son, Dr. Jere D. Hilburn of Mobile, Ala., and a daughter, Mrs. Barre C. Tanquis of Monroe.

IN MEMORIAM

Robert C. Reed, P.E.

Robert C. Reed, Houma, consulting engineer and land surveyor, died January 24 at the Veterans Hospital, New Orleans. Mr. Reed had suffered a serious illness about two years ago.

Mr. Reed was a graduate of the University of Illinois with a degree in civil engineering. He was a registered professional engineer and land surveyor in Louisiana, a member of the American Congress of Surveying and Mapping, and a former member of LES and NSPE.

(Note: In our last issue, the name of Marion Bubenzer was misspelled in the announcement of his death. We sincerely regret the error.)

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"Footsteps in History"

The dark old structure stands before the bayou, proudly displaying the eight columns of the most photographed private home in America. The visitor who walks around colorful gardens and lovely live oaks feels instinctively that The Shadows was not merely built, but "grew" without man's help.

A man did build The Shadows, however — a determined seven-foot Scotsman named David Weeks who came to the small settlement of New Iberia in 1830. He decided to build his home directly on Bayou Teche, a thriving commercial artery of South Louisiana.

The two-story house was built with sturdy cypress timbers, handmade brick and picturesque galleries on both floors. A giant man, with a huge family of 8 children, he made the rooms 30' square and the ceiling 16' high, and on May 17, 1834 moved into the newest home on the Teche.

On May 22, Weeks left for a business trip north from which he never returned. He died later that year in New Haven, never again setting foot in the home he had lived in only five days.

Week's widow occupied the home until the Civil War when Union soldiers, on the march to Opelousas, commandeered The Shadows as their headquarters. Mrs. Weeks banished herself to a second floor room in despair, and died of grief almost a year later.

After the war, the mansion deteriorated steadily from lack of use and care, until in 1922, Weeks Hall, great-grandson of David Weeks, returned from Paris. After one look at the old mansion, he knew what his life work would be; he would bring new light and life to The Shadows.

A bachelor with no family ties, he devoted every minute to his only love. The priceless silverware, furnishings, paintings and other relics were kept spotless. The entire home and surrounding grounds were renovated under his loving direction to create new grace in the old setting.

The house bloomed with life, as Hall brought writers, painters, actors, producers, explorers and statesmen as his guests. Before leaving, each guest would sign the sitting room door, and although the names were once all mistakenly scrubbed off by well-meaning servants, Hall managed to get his friends to return and sign again.

Hall always feared his beloved Shadows would be turned into cheap commercial venture after he was gone. A few years before his death, he wrote the National Trust for Historic Preservation, asking their help in preserving his home.

Only four days before his death in 1958 he received a telegram from the Trust, accepting his home as an historical site.

The Shadows, symbol of a family's determined love, and of one man's love for all things beautiful, is today treasured as a landmark of the beauty and strength man can create. It is admired by visitors from all parts of the world.

The heritage we have from our forefathers we are building for our children today. Patterson-Redmond builds it strong, by serving well those who build for business, industry, education, health and home.



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April, 1975

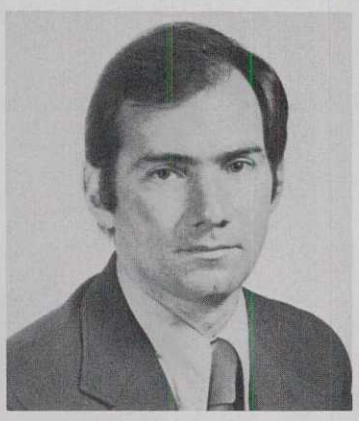
LOUISIANA ENGINEER



Charles A. Killgore



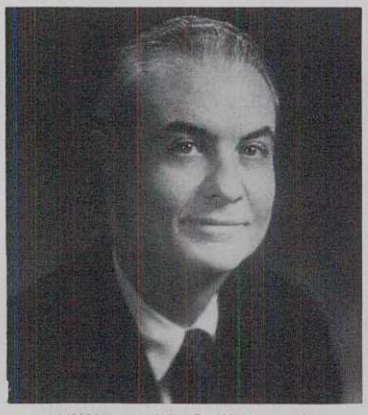
Farrell W. Adams



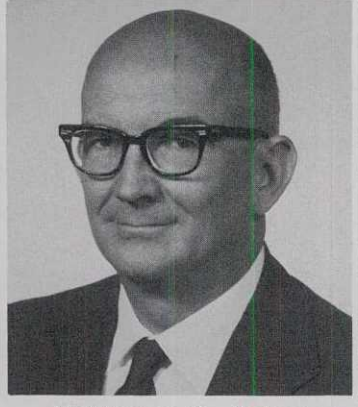
J. Alvin Badeaux



Walter E. Blessey



William McCollam, Jr.



Waldemar S. Nelson

1975 LES AWARDS

Improve and upgrade your road investment.

New Jersey township modernizes with Full-Depth® Asphalt.

Are motorists asking, "Where did the smooth ride go?" Are you faced with replacing aging, unsafe, inadequate roads? Do you want to conserve both energy and road improvement funds? Mendham Township, Morris County, N.J., worked out its solution by modernizing some unpaved rural roads with Full-Depth Asphalt pavement for less than the cost of upkeep!

Because some of the roads were unpaved, traffic and vital services could not always get through in bad weather and dust control was a continuous problem in dry weather. Then a Township Committee study showed that ten years' bond amortization costs for Full-Depth Asphalt construction would be less than dirt and gravel road maintenance costs. A special municipal bond issue was authorized and the roads paved.

The Township's new Asphalt roads are safer, smoother riding, assure years of low-maintenance performance. Moreover, the environment has been protected and improved because no trees were removed or harmed in the upgrading, and silt runoff to nearby streams was ended.

Road modernization like Mendham Township's can also save money and energy by taking advantage of stage construction with Asphalt. Stage construction permits upgrading as necessary at a given time with future work scheduled to meet traffic projections.

Find out now how you can plan on Asphalt, the more-mileage material, to improve your roads and your road investment. Ask for free stage construction pavement rehabilitation and fuel conservation bulletins from your local Asphalt Institute engineer or write: The Asphalt Institute, 3101 37th St., Metairie, La. 70001 (New Orleans)

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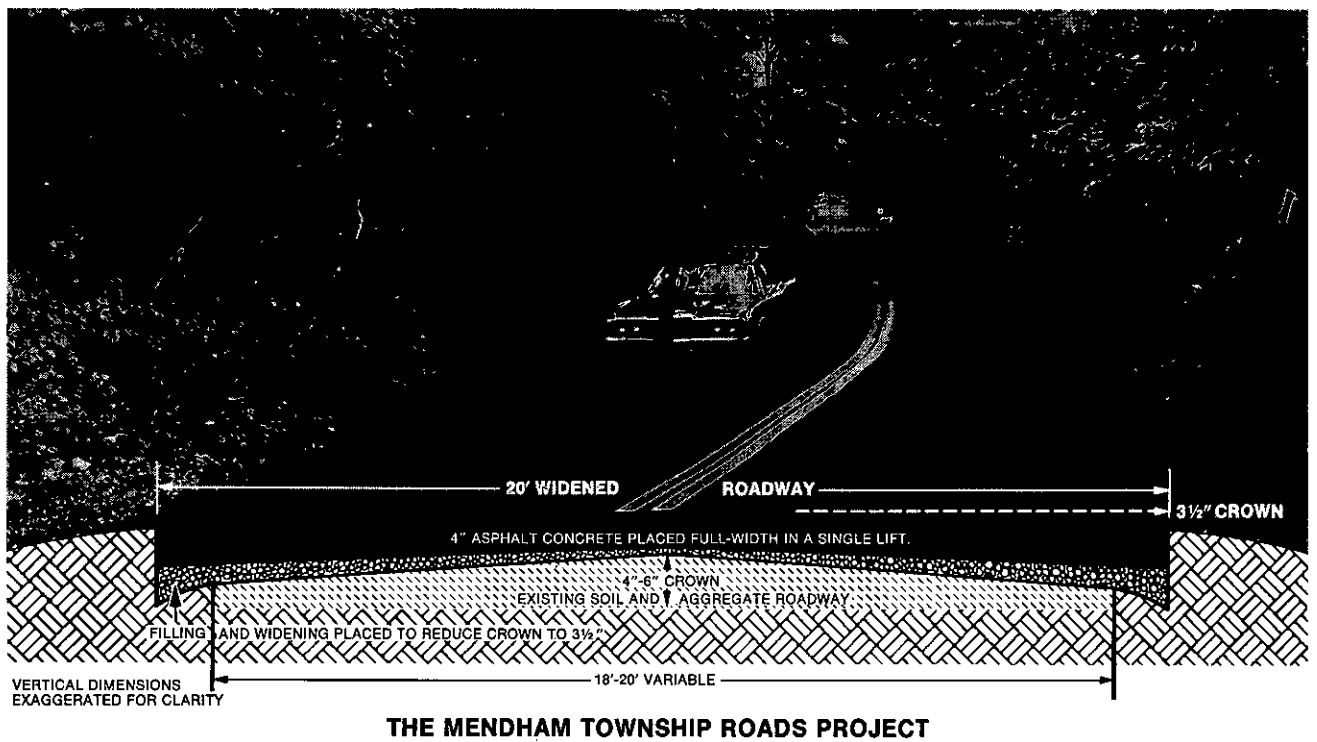


THE MENDHAM TOWNSHIP ROADS PROJECT

LOCATION: Several within the township.

TYPE: Existing dirt and gravel roads from 18-20' wide, having a crown of 4" to 6", widened to 20' with Full Depth Asphalt construction in a 4" single layer. Filling and widening with soil aggregate was placed at the sides to bring the crown to 3½".

TERRAIN: Rugged & rocky—an upland region of rolling gneissic hills and prominent gneissic & quartzitic ridges.

LENGTH OF PROJECT: 7.59 miles.

DRAINAGE: Natural fall to numerous streams; storm drains to handle surface runoff.

CLIMATE: Average temperature range—29°F (Feb.) to 68°F (July).

WEATHER: 46" average rainfall per year.

TRAFFIC: Light to medium DTN = 5.

ROADWAY: Subgrade: CBR = 15.

BASE AND SURFACE: Single layer of 4" compacted Asphalt concrete (N.J. Mix #4) Asphalt—AC 20 (5.3 by total weight of mix).

COMPACTION: Subgrade: 95% of AASHO Method T-180 4" Asphalt pavement—98% Density.

Construction was under the supervision of Robert H. Fox, P.E., Mendham Township Engineer. Mr. Fox stresses the placement of the Asphalt in one lift saved 50% in labor costs alone and was the secret of the success of the Asphalt pavement. He adds that this was the single most outstanding public works project that Mendham Township has ever had. It's another example of the savings of Full-Depth Deep-Strength® Asphalt for both new construction and rehabilitation.

Support an LES Dues Increase

Carl H. Thomas
Secretary-Treasurer

Apparently, the membership of LES is not fully convinced that the cost of running this organization has increased beyond its financial resources. The proposal to raise the dues for members failed when presented in a letter ballot in 1974, but the need for this increase has not gone away. It has become even more pressing.

The dues for membership in LES have never been increased unless it was demonstrated that the need existed. Let me attempt this demonstration even though it affects my pocketbook as much as any other member's. The simple fact is that inflation has outrun our finances. The last dues increase occurred January 1, 1970, at which time an increase of $5 per year was approved. You know how costs due to inflation have increased since that time.

The financial status of the society is under continual scrutiny by our Board of Direction. Additionally, the finance committee was required to review the finances and update the budget for the February meeting. Based on this review, the budget was revised to reflect current costs and incomes in an attempt to balance the budget. Simple juggling of figures can never "balance a budget" if the expenses exceed the incomes.

With the mailing of dues notices for 1975, an appeal was made for contributions to relieve the financial stress of the society. This proposal was approved by the Board of Direction at its November meeting. Members were asked for a $5 voluntary contribution and the response has been gratifying. Approximately 50 percent of the members did include an additional $5 in payment of their dues for 1975. Evidently this highly significant number of our members is convinced of the need for an increase in the dues.

With the collection of approximately $3,000 through voluntary contributions, there is still an outstanding deficit of $2,900 in the current operating budget. We no longer have a cash reserve on which to draw to bail us out of financial trouble.

A line item for legislative expenses was approved at the February 7 meeting of the Board of Direction. As there are no funds available for this purpose, the budget shows "0" for this item. Obviously, we can neither continue to carry out a legislative program nor monitor legislative sessions without financial support. Certainly we recognize the importance of this effort to our members.

A copy of the recently adopted revised budget is presented for your information. Please be assured that each item was carefully considered. We feel that the budget is realistic in every respect and we believe that you will support a new appeal for an increase of $5 per year in our dues. A letter ballot for this purpose is being prepared.

Please vote **for** the proposed dues increase.

1974-75 ANNUAL BUDGET

INCOME	
Dues	$ 73,700
Advertising	12,500
State Board of Registration	10,000
Miscellaneous	1,000
Member Contributions	3,000
Total	$100,200

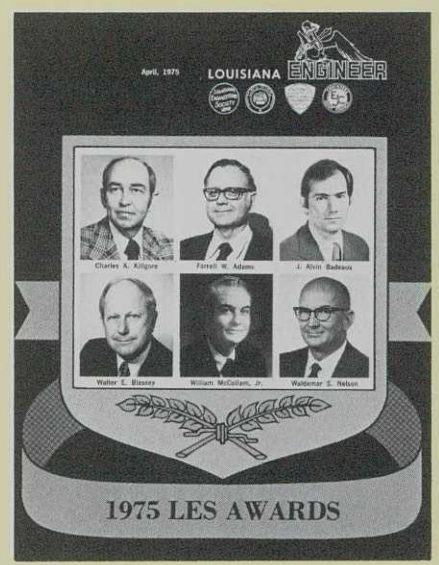
EXPENSES	
NSPE	$ 24,700
Chapter Rebates	7,000
Salaries	24,700
Payroll Taxes	2,100
Rent	3,400
Telephone	1,700
Electricity	800
Supplies	7,500
Postage	2,300
Rentals	1,250
LOUISIANA ENGINEER	21,250
Travel	1,200
Committee Expenses	800
Awards	300
Insurance	700
Professional Services	1,000
Furniture & Fixtures	250
Miscellaneous	500
Dues & Periodicals	250
Automobile	1,000
Newsletter	400
Legislative Program	0
Total	$103,100

April, 1975

LOUISIANA ENGINEER

The LOUISIANA ENGINEER is the official publication of the Louisiana Engineering Society and the journal of the Louisiana State Board of Registration for Professional Engineers and Land Surveyors. The magazine is published in February, April, June, August, October and December. Subscription $1.00 per year for engineers registered in Louisiana and non-registered members of the Louisiana Engineering Society. Second class postage paid at Baton Rouge, La. The Louisiana Engineering Society and the Louisiana State Board of Registration for Professional Engineers and Land Surveyors do not guarantee the accuracy of statements made or necessarily concur with opinions expressed in this publication.

Address LES Communications and Change of Address Forms to LOUISIANA ENGINEERING SOCIETY, P. O. Box 2683, Baton Rouge, La. 70821. Telephone 504/344-4318.



About the Cover

Winners of the 1975 annual LES awards recognizing outstanding engineers in the state are honored. See Page 8.

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Engineers to Repeat European Trip



The Louisiana engineers and their wives who were part of the Louisiana Professional Engineers delegation to Europe in 1974 were so enthusiastic about its results that a repeat performance is being scheduled in 1975.

To make the trip more available to a greater number of delegates, the time will be reduced from three weeks to 16 days.

More popular sites have been selected. (No sturgeon and samovars this time.) Instead we will visit West Germany (and cruise the Rhine), Switzerland (and climb a mountain in the Alps) and Paris (and stroll a boulevard). Where feasible, parts of the trip will be by chartered motorcoach to see more of the countryside and to get closer to the people and their way of life.

Arrangements and rates will be all-inclusive from New Orleans so that we may devote all available time to professional visits and sightseeing. The trip will be planned in all details by People-to-People International and Maupintour, Inc., with Jim Janssen of New Orleans as Delegation Leader.

Highlights will include the Rhine cruise past ancient castles and the famed Lorelei, old world cathedrals, a cable car and cog wheel trip on Mount Pilatus plus a spectacular grand tour of the Alps and the Swiss lakes. Then on to Paris with all its quaintness and its splendor.

We can learn much from our European engineering counterparts. We certainly did on the 1974 trip. It's an enjoyable and profitable way to continue and to expand your engineering education, since a good portion of our time will be devoted to visiting engineering and construction projects and to conferring with European engineers.

The wives accompanying us will find much to do with special extra sightseeing excursions and shopping expeditions.

The delegation will depart from New Orleans on Saturday, September 13 and return on Sunday, September 28. So save your vacation and come to Europe with us this autumn. For information contact James S. Janssen at 225 Bellaire Drive, New Orleans, La. 70124.

*"The engineering mind is nothing if not ingenious."**

80 YEARS Of Engineering In Louisiana*

(CONTINUED) In 1895, Ford, Bacon & Davis electrified the two mule-drawn streetcar systems in New Orleans and invented the overhead handles for standees and the third (power) rail, which are still in use today in rapid transit systems throughout the world. This sort of Louisiana engineering history all began in the firm's first branch office in New Orleans.

Many of Ford, Bacon & Davis' projects in Louisiana are, from an engineering standpoint, both historical and noteworthy, and include the huge New Orleans Harbor Board Grain Elevator that was built before World War I, and the even-larger U.S. Army Supply Base, built in 1918.

Although work in the electric power field was not at that time one of the firm's major engineering fortes, such projects as the design and construction of the steam electric power station in Sterlington for Louisiana Power and Light Company in 1924-1927 became a harbinger of Ford, Bacon & Davis' niche in American industry today as The Energy Engineers® — so registered in the United States Copyright Office of the Library of Congress. (Almost unbelievably, Ford, Bacon & Davis has had at least one power plant project in the house every single day that it has been in business.)

The extension of the Sterlington power station's transmission lines to substations in Bastrop, on up to Crossett, Arkansas, and as far away as Vicksburg, Mississippi, was a natural transition into cross-country pipelines, to carry the crude oil and natural gas from Louisiana and adjacent fields that over the years became one of this country's principal supplies of energy.

So it was in the 1920's that the engineering pendulum of Ford, Bacon & Davis swung toward the pipeline business, to include the construction of what was at the time the longest large-diameter pipeline in the United States — constructed after Ford, Bacon & Davis had made a study for the Standard Oil Company about the development of the huge reserves in the Monroe natural gas field and to transport them to Baton Rouge, New Orleans, and eastward, via the first pipeline to cross the Mississippi River. *(Continued next issue.)*

* From *For Human Needs*, a history of the first 80 years of Ford, Bacon & Davis

Ford, Bacon & Davis
Engineers.
MONROE • BATON ROUGE

1894

Presidential Privilege



Fred C. Culpper, Jr., P.E.
President, L.E.S.

In the past I have preached involvement in this column. Basically my message was beamed to our membership and potential members. At this time I want to share with you a letter I wrote recently to our elected representatives in Washington. This is also involvement. You may not agree with my solutions, but I think we can all agree that it is important for us to let our elected representatives know how we the people feel about matters that concern not only our lives but our future wellbeing.

"Like most Americans today I feel frustrated with the apparent inability of our elected representatives to come to grips with the important issues facing us. It seems that each representative is more interested in being reelected than in the interest of the future of our country. In addition, it seems that you always promulgate laws and regulations so complex that interpretation ends up in the courts.

"Let me discuss what I believe to be the most important issue that faces our nation and the world today: that is, the energy crisis. Obviously this question is so complex and far-reaching that there can be no one solution, but it is vitally important that we find some solutions before it is too late.

"One of the things we tend to forget is the basic interrelationship between energy and labor in an industrial society. When energy is abundant and relatively cheap, the cost of labor can increase without appreciably affecting the competitive cost of the product. The high standard of living prevalent in this country today is largely attributable to this economic fact of life. We now find that our cost of energy has risen astronomically and we cannot continue to increase our labor costs and still remain competitive in world markets. Our labor leaders and our Congress do not seem to understand this simple lesson in economics, thereby complicating an already difficult problem.

"I do not have an easy answer to propose. In fact, I am sure that a realistic answer is going to require sacrifice on the part of all Americans and real patriotism on the part of our legislators to make decisions based on true need rather than expediency and news media pressure.

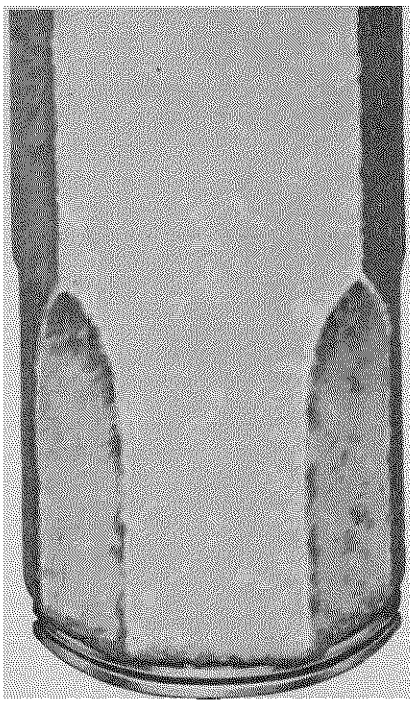
"First, we should do everything possible to encourage the use of coal as a substitute for imported oil. This should include acceptance of strip mining under reasonable environmental regulations, burning of higher sulfur coal, and improvement of working conditions and wages for miners in the coal industry to augment the available work force.

"Second, we must deregulate the unrealistic price ceilings we have placed on oil and gas produced in this country. It makes absolutely no sense to allow our oil companies to pay $12 a barrel for oil in Iran and force them to sell oil that they produce in this country at $6 a barrel. Government regulation of natural gas prices over the years has contributed to the shortage that we are experiencing now. Natural gas should have always been a premium fuel but FPC regulation made it the cheapest form of fossil fuel. I'm not naive enough to believe that discontinuing price regulation would result in immediate additional reserves being found in the United States, but it would make our people realize the true value of these rapidly depleting energy sources and hopefully discipline their own use of these products.

"Lastly, we should mount a massive campaign similar to the NASA program to arrive at economical alternate energy sources that can sustain our way of life long after fossil fuels are depleted. To finance this program, I suggest a direct tax on automotive gasoline at the pump. The money collected from this source should be placed in a trust fund identified and used only to support a National Energy Research Administration (NERA). If this is done, the American people can understand what they are paying for and the potential rewards to them as individuals. Increased cost would tend to lower our ever-increasing demands for imported oil which we can ill afford. A decreasing demand could influence a down turn in world oil prices.

"I do not believe the American people really understand how serious this problem is. The news media have distorted this matter to the point that nobody knows what to believe. Unfortunately the people will only believe if they are faced with a realistic price structure at the gasoline pump. They will then accept a direct tax to support a program of improvement.

"Obviously, implementation of this program would be a bitter pill for all of us to swallow, but the sure alternative is diminution of our standard of living on a massive scale, and quite probably, a war which, like all wars, would solve nothing."





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It meets splicing requirements for long piling under high rise buildings, wharves and off-shore structures. It also permits the coupling of concrete and steel piling. Coupler can be joined in minutes—with welding of two 1½" butt welds.

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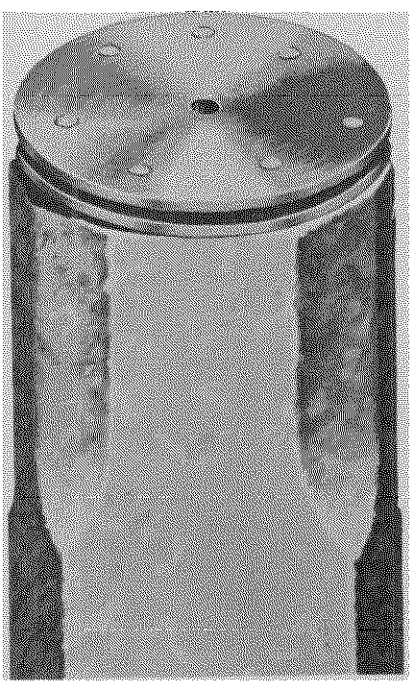

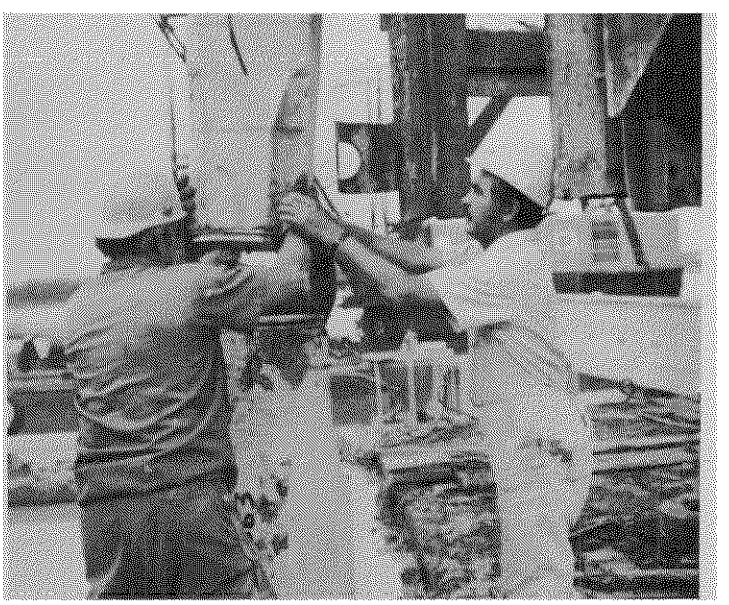

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LES Honors Outstanding Engineers

The Louisiana Engineering Society will recognize six outstanding members at the Spring Meeting awards luncheon on April 12 at the Ramada Inn, Monroe. Each award is named after a present or former outstanding engineer member of the Society.

Andrew M. Lockett Medal For Civic Activities

The Andrew M. Lockett Medal is the Society's civic activities award and was first given in 1951. It is named to honor Andrew M. Lockett, a member of LES from 1900 until his death in 1945.

Charles A. Killgore, P.E.

Charles A. Killgore received BS and MS degrees in Chemical Engineering from Louisiana Tech University. He has spent three summers working toward his Ph.D. in Chemical Engineering at Oklahoma State University and has completed studies in radioisotope technology at Iowa State University and radiation shielding at Kansas State University.

Mr. Killgore is Associate Dean and Director of Engineering Research at Louisiana Tech University.

He has been very active in civic organizations in Ruston and northern Louisiana. Among his memberships and offices held are: President, Lions Club; Secretary, Lincoln Parish Coordinating Committee; holder of the Silver Beaver Award for service to the Boy Scouts of America; recipient of Ruston's Outstanding Young Man Award in 1967; Secretary-Treasurer of the Monroe Chapter of the Louisiana Engineering Society; Board of Directors, Ruston Chamber of Commerce; Captain, Louisiana Radiation Emergency Reaction team; recipient of the Distinguished Award, Ruston 1967; ex-manager, Dixie Youth baseball team; and ex-coach of area basketball teams.

Among the many activities in which Mr. Killgore has been involved, one major accomplishment was his assignment as Chairman of the Citizens Committee for the Parks and Recreation Department to investigate the facilities and activities available to the people of Ruston, particularly the youth. His report included a thorough investigation of the present facilities and recommendations for added facilities and improvements. Many of these recommendations were accepted by the City Council and are being implemented.

Most significant of Mr. Killgore's high qualifications for this award is the fact that while he pursued these many civic endeavors he has not diminished in his high degree of service to the engineering profession. The character and scope of the service rendered are the predominant criteria for this award. It is obvious to all that Charles A. Killgore's service to his community is and has been outstanding.

Leo M. Odom Award for Professional Services

The Leo M. Odom Award, named after its first recipient in 1972, is given for distinguished service to the engineering profession in Louisiana by a registered professional engineer member of the Society over a period of long duration, who has demonstrated leadership in technical societies and other professional engineering groups.

Farrell W. Adams, P.E.

Farrell W. Adams grew up in Alexandria. He attended Bolton High School and completed two years of pre-engineering at Louisiana College, Pineville, before he went to LSU. He is married and has four children, two boys and two girls. Two of the children are in college, one is married and the youngest is in high school. Mr. Adams spent three years in the army in the South Pacific during World War II.

Upon graduation from Louisiana State University in 1948 with a bachelor of science degree in Mechanical Engineering, Mr. Adams began his professional career with United Gas Corporation in New Iberia as a Junior Engineer and Air Conditioning Engineer. He continued with United Gas, moving to Monroe and then to Shreveport. Since 1962, Mr. Adams has been General Office Engineer and Senior Engineer with United Gas in Shreveport. His basic work is in design of mechanical systems for structures and conversion of oil and coal equipment to use natural gas.

Mr. Adams' participation in professional and technical societies began in 1946 when he became a student member of LES. He has been a member of LES for 29 years, NSPE for 18 years, ASME for 29 years and ASHRAE for 22 years, and became a charter member of the Society of Environmental Engineers in 1970.

Mr. Adams has dedicated himself to the engineering profession and has devoted many hours of his time to the improvement of the profession. He has served on many committees in LES, NSPE, ASME and ASHRAE. A brief outline of his service to the profession is summarized:

LES—He assembled all information, indexed and has his company print the current LES Constitution and Bylaws in 1971; he chaired an ad hoc committee for selection of the Society emblem, banner and jewelry; he chaired the Membership Committee, 1966-68, during which time he developed the Membership Committee Handbook, form 100, and other membership forms still in use; he was a State Director between 1969 and 1972, and was very instrumental in setting up the present computer system for the state office.

NSPE—He was on the NSPE Membership Committee from 1969 to 1971 and attended many meetings in Washington and other cities.

ASME—He was chairman of the ArkLaTex Section, 1963-64; Group Coordinator, 1967-71; served on Honors and Awards and Membership Committees, 1964-74; and has attended 15 re-

gional Administrative Committee meetings since 1963.

ASHRAE—He was president of the Shreveport Chapter, 1963-64; served on several committees and was a Chapter delegate to eight regional conferences. Mr. Adams wrote the initial letter suggesting and leading to the formation of the Engineering and Scientific Council of Shreveport.

F. Hugh Coughlin Young Engineer Award

This award is given to an engineer not over 35 years of age who has demonstrated to a high degree capabilities in his chosen field. This year marks the first year for the award to be named for F. Hugh Coughlin. Mr. Coughlin has been a member of LES since 1944 and his interest and support of young engineers was very instrumental in the establishing of this award.

J. Alvin Badeaux, P.E.

J. Alvin Badeaux was graduated from the University of Southwestern Louisiana with a BS degree in Civil Engineering and in 1965 was awarded an MS degree in Structural Mechanics from Rensselaer Polytechnic Institute.

Mr. Badeaux's professional experience includes: Design Engineer, the Boeing Company, 1962-63; Associate Engineer, Pratt and Whitney Aircraft Corporation, 1963-1965; and Design Engineer, Fromherz Engineers, 1965-1968. In 1968 he established his own consulting firm in Thibodaux where his principal area of practice is in the field of Structural Engineering. Since the formation of the firm, Mr. Badeaux has served as a structural consultant to numerous architectural firms and has provided prime professional services for many industrial and marine installations. In addition, he finds time to serve as a part-time professor of Structural Engineering and Engineering Mechanics at Nicholls State University in Thibodaux.

He is a member of the Prestressed Concrete Institute, the American Concrete Institute, the American Institute of Steel Construction, the American Society of Civil Engineers, the National Society of Professional Engineers and the Louisiana Engineering Society. Mr. Badeaux served for two years as Vice President of the Bayou Chapter of LES, Bayou Chapter President in 1971-72, Statewide Membership Committee Chairman, 1972-73, Board Sponsor of Ethics Committee, 1973-74, Chairman of ad-hoc committee to compose LES legislative goals for 1973-74 and Vice Chairman of Ethics Committee, 1974-75. Mr. Badeaux is currently serving a two-year term as LES Director.

Even though he is so actively engaged in affairs relative to his profession, Mr. Badeaux has also recognized his responsibility to his community. He is a member of Rotary International, a member of the Thibodaux City Planning Commission and a member of the Thibodaux Chamber of Commerce Board of Directors and serves that group as Chairman of its Industrial Development Committee.

James M. Todd Technological Accomplishment Medal

The Technological Accomplishment Medal is given for distinguished services by an engineer for technological advancement or discoveries as contributions to the advancement of engineering. This is the first year for adding James M. Todd's name to the award. Mr. Todd, president of LES in 1930, was very active in the affairs of the Society. He suggested the formation of an award for engineering ingenuity in 1950, which prompted the adoption of the technological accomplishment award in 1951. Mr. Todd was a dedicated member of the Society and the engineering profession.

Walter E. Blessey, P.E.

Walter Emanuel Blessey is a Professor and Head of Civil Engineering, Tulane University. He holds a BS and MS degree in Civil Engineering from Tulane.

Mr. Blessey's career started with hydrographic surveys in the Atchafalaya and Red river basins for the Corps of Engineers. He was an Assistant District Engineer for the United Gas Pipe Line Company, Assistant City Engineer, City of New Orleans and an officer in the U. S. Navy Civil Engineer Corps in Okinawa during World War II. Since September 1942, he has held faculty positions at Tulane University including Assistant Professor of Experimental Engineering, Associate Professor of Bridge, Structural and Foundation Engineering, and Professor of Civil Engineering. He was appointed to his present position as Head of Civil Engineering in 1959.

Mr. Blessey is registered as a Civil Engineer in Louisiana. He is a member of the American Society of Civil Engineers, Louisiana Engineering Society, American Concrete Institute, Prestressed Concrete Institute, Tau Beta Pi Engineering Society, Phi Kappa Sigma Social Fraternity, American Society of Engineering Education, Omicron Delta Kappa, Sigma Xi, and the Consultant Engineers Council of Louisiana.

Mr. Blessey's technological accomplishments in the use of prestressed concrete have been outstanding. He was one of the early researchers and designers in this field in the United States and is one of the most sought-after consultants whenever modern techniques are required. Proof of his expertise is the long list of shopping centers, schools, manufacturing facilities, bridges, motels and other structures with which he has been involved as designer or consultant.

Mr. Blessey's technological accomplishments and research activities with prestressed concrete and structural steel will truly encourage and inspire other engineers to reach for greater heights of personal achievement.

A. B. Paterson Medal for An Engineer in Management

The Louisiana Engineering Society has a special award for the engineer who distinguishes himself in Management. This is the A. B. Paterson Medal, which was first given in 1965. Albert B. Paterson, an active member of the Society from 1923 until his death in 1952, was an engineer, admin-

istrator, executive, banker, civic leader and humanitarian.

William McCollam, Jr., P.E.

William McCollam, Jr. was born in New Orleans and was reared in Houma. He graduated from both Louisiana State University and West Point with BS degrees and earned an MS degree in Civil Engineering at MIT. After retiring from the Army Corps of Engineers with the rank of Lt. Colonel, he entered the utility industry with Arkansas Power & Light Company. He is a registered Professional Engineer and a member of the Louisiana Engineering Society.

Mr. McCollam is President of New Orleans Public Service. He assumed this position on April 1, 1971, after serving as Executive Vice President and a Director of Public Service since July 1970. He joined Public Service after having served with Arkansas Power & Light Company in various executive capacities including Vice President and Senior Vice President and Director. Both Public Service and Arkansas Power & Light are operating companies of Middle South Utilities System.

He is also a Director of Middle South Utilities, Inc., Middle South Services, Inc., and Middle South Energy, Inc.; of Louisiana Power & Light Co., also an operating company of the Middle South System; and of System Fuels, Inc.

Active in community affairs, he is President of the Chamber of Commerce of the New Orleans Area. He also presently serves on the Executive Board of the New Orleans Area Council, Boy Scouts of America; is a Director of Loyola University, International House, the New Orleans Chapter of the American Red Cross and the New Orleans Philharmonic Symphony Society; and is a Trustee of the United Way for the Greater New Orleans Area. He serves on the Council of Tulane University's Graduate School of Business Administration.

Mr. McCollam's outstanding management ability is demonstrated not only by his many achievements in both his military career and his career in the public utility industry, but also by his appointment to numerous positions of leadership in civic and community activities. His continuing success as an engineer in management is a genuine, exalting influence upon all his fellow engineers.

Charles M. Kerr Public Relations Award

The Charles M. Kerr Public Relations Award was first presented in 1965 and was named to pay tribute to Charles M. Kerr, LES president in 1944. Mr. Kerr was very active in the business world and in promoting his chosen profession, engineering.

Waldemar S. Nelson, P.E.

Waldemar S. Nelson was born in New Orleans. After attending New Orleans public schools he entered the College of Engineering, Tulane University, graduating in 1936 with a BS in Mechanical and Electrical Engineering. Following graduation he worked as Field Engineer on construction projects in Indiana, Louisiana and Texas. He returned to New Or-

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leans in 1939, where he opened his own practice as Consulting Engineer. From 1941 to 1945 he was with the U.S. Army Corps of Engineers.

Since 1945 he has been a principal in the consulting engineering firm of Waldemar S. Nelson and Company, Inc., engaged in engineering design and administration of engineering construction on projects including power plants, electrical transmission and distribution systems, sulphur mining plants, pumping stations, port and harbor improvements, offshore structures, petroleum production facilities, chemical process plants and design of process equipment.

As Chairman of the LES Publications Committee, Mr. Nelson has guided the development of the Louisiana Engineering Society's publication so that today the LOUISIANA ENGINEER is considered one of the leading magazines of its type published in the United States. During his tenure as Publications Committee Chairman, the Louisiana Board of Registration for Professional Engineers selected the LOUISIANA ENGINEER as their official publication. As a result the magazine is mailed to all Professional Engineers registered in the State of Louisiana. This enables the Society to communicate with virtually every segment of professional engineering in the state. The present format and improved readability of the magazine combined with the increased circulation has made the LOUISIANA ENGINEER the most effective public relations device available to the Society today.

He is a Civil, Electrical and Mechanical Engineer registered in 26 states. He has been active in engineering affairs, being a member and Past Chairman of the Louisiana State Board of Registration for Professional Engineers and Land Surveyors; and having been a Past President of the Society of Tulane Engineers; a founder and Past President of the Engineers' Club of New Orleans; an Honorary Member and Past President of the Louisiana Engineering Society; and a Past Chairman of the New Orleans Section of the American Society of Mechanical Engineers and Fellow of this Society. He is a Past National Director from Louisiana and Past Chairman of the Board of Ethical Review of the National Society of Professional Engineers; a Fellow of the American Society of Civil Engineers, and a member of the Institute of Electrical and Electronics Engineers, Society of American Military Engineers, American Public Works Association, and other technical societies.

He is Past President of the Tulane Alumni Association was a founding member and President of the Board of Advisors of the Tulane School of Engineering; is a member of the Board of Visitors of Tulane, and is a Trustee of the Tulane Engineering Foundation.

He is married and the father of five children; a member and former Senior Warden of the Vestry of St. Andrew's Episcopal Church and Chairman of the Board of St. Andrew's Episcopal School; Past President of the Board of Trustees of St. Martin's Protestant Episcopal School; Vice President of New Orleans City Park Improvement Association; and active in Boy Scouts of America.

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Annual Report

Louisiana State Board of Registration for Professional Engineers and Land Surveyors for 1974

The regular meetings of the Board were held in January, February, March, May, June, July, September, October and November.

The following is a tabulation of applicants considered during the year:

Professional Engineer

Applicants considered	761
Applicants approved on the basis of:	
Graduation plus Experience	334
Long Established Practice	15
Reciprocity	214
Experience plus Examination	31
Applicants disapproved	36
Applications withdrawn	24
Applications being processed	107

Land Surveyors

Applicants considered	34
Applicants approved	15
Applicants disapproved	3
Applications withdrawn	1
Applications being processed	15

The following is a tabulation of the total number of Professional Engineers, Land Surveyors and Professional Engineers (Public Employees) and Engineers-in-Training holding registration on December 31, 1974:

Professional Engineers	11,596
Professional Engineers (Public Employees)	71
Land Surveyors	3,299
Engineers-In-Training	1,556

Below is a tabulation, by branches, of the Professional Engineers who were registered as of December 31, 1974:

Agricultural	151
Chemical	994
Civil	4,531
Civil/Industrial	2
Electrical	1,900
Industrial	51
Mechanical	3,216
Mechanical/Industrial	62
Metallurgical	32
Mining	30
Petroleum	1,046
Petroleum/Industrial	1

Examinations in fundamental engineering subjects were given on April 20 and November 9, 1974, in each of four cities in Louisiana: New Orleans, Baton Rouge, Lafayette and Ruston. A total of 632 applicants took these examinations.

The Board used the examinations prepared by the National Council of Engineering Examiners to examine applicants in the branches of engineering



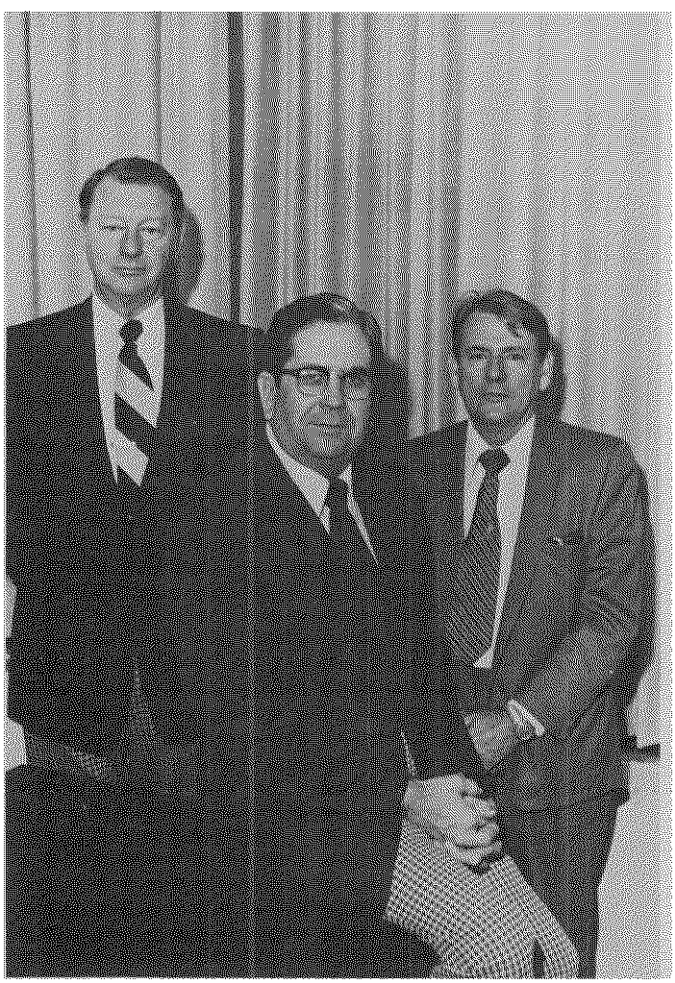
Members of the Louisiana State Board of Registration for Professional Engineers and Land Surveyors are (seated, left to right) officers Fred C. Culpepper, Jr., Larkin B. Agnew, and Sidney L. Poleynard, and (standing, same order) Waldemar S. Nelson, Andrew M. Moore, Jesse Coates, Roy T. Sessums, Ben T. Bogard, Leo M. Odom, and Daniel H. Vliet, Executive Secretary.

and in the fundamentals of land surveying. These examinations were given in New Orleans in April and November. In April the Board gave an examination in the laws, procedures, and practice pertaining to land surveying in the State of Louisiana.

During the 1974 regular session of the Louisiana Legislature two acts were passed to amend the registration law. The amended version of this law will be published in the 1975 YEAR BOOK. Under the amended law the Board has the authority to require a written examination for the registration of Professional Engineers on the basis of Long Established Practice. Sections 18 and 24 of Act 73 of 1950 were amended to modify industrial exemptions.

Other new amendments to the Statutes of the State of Louisiana are concerned with corporations which have in their titles the words "Engineering" and "Surveying." These amendments are effective in requiring that our Board be notified before corporate charters are issued or before a foreign corporation can qualify to do business in Louisiana.

Mr. Waldemar S. Nelson and Mr. Roy T. Sessums received Distinguished Service Certificates of the Southern Zone of the National Council of Engineering Examiners at the Spring Meeting of the Southern Zone. This April the Southern Zone will meet in New Orleans.



Officers of the Louisiana State Board of Registration for Professional Engineers and Land Surveyors, from left to right: Fred C. Culpepper, Jr., Secretary; Larkin B. Agnew, Chairman; and Sidney L. Poleynard, Vice Chairman.

In October 1974 Governor Edwards appointed Mr. Frederick C. Culpepper, Jr., as a Member of the Board to replace Mr. Calvin T. Watts whose term of office had expired. Mr. Culpepper is Vice President of Ford, Bacon and Davis in Monroe and President of the Louisiana Engineering Society.

Mr. Watts, Executive Director of the Red River Valley Association and former Director of the State Department of Public Works served with distinction and held every office of the Board during his seven-year tenure.

Mr. Jarrell E. Godfrey, Jr. has been appointed Attorney for the Board to replace Mr. Wood Brown, who retired from the position in December. Mr. Godfrey is an attorney with the law firm of Chaffe, McCall, Phillips, Toler and Sarpy of New Orleans. The Board greatly appreciates the more than twenty years of talented and dedicated legal service that Mr. Brown has rendered.

As a result of an investigation and a hearing the Board acted to reprove publicly a registered Professional Engineer who was found guilty of a violation of Section 20 of the registration law. The statement by the Board in this matter was published in the December 1974 issue of the LOUISIANA ENGINEER.

The Board investigated 234 cases involving possible violations of the registration law with regard to the practice of engineering and land surveying. Of these 199 were settled without litigation. The balance are still under investigation.

A list of the firms that have complied with the regulations of the Board that govern engineering and land surveying firms is published in the YEAR BOOK. These regulations, also published in the YEAR BOOK, require each qualifying firm to list principals and full-time employees who are registered in Louisiana. A new list must be submitted before July 1 of each even numbered year.

* * * *

STATE OF LOUISIANA
BOARD OF REGISTRATION FOR
PROFESSIONAL ENGINEERS AND
LAND SURVEYORS
1055 St. Charles Avenue - Suite 415
New Orleans, La. 70130

February 19, 1975

Governor Edwin W. Edwards
State of Louisiana
Baton Rouge, Louisiana 70804

Dear Governor Edwards:

Pursuant to the provisions of Act 73 of 1950, Section 10, I submit the report of the transactions of the Louisiana State Board of Registration for Professional Engineers and Land Surveyors for the year 1974. A duly certified audit and financial statement showing the receipts and expenditures for the fiscal year ending June 30, 1975 will be sent to you at a later date.

(Continued on Page 18)

Engineers' Week Huge Success in Louisiana

Mayors' proclamations, chapter banquets and student participation highlighted 1975 Engineers' Week February 16-22.

Alexandria Chapter

Engineers' Week was proclaimed by the mayors of Pineville and Alexandria at the signing of a joint proclamation February 6. About 300 display posters announcing Engineers' Week were distributed in the Alexandria-Pineville area and in the 21 towns and communities in the surrounding area.

Spot announcements were sent to the local radio stations. The Chapter President and Engineers' Week Chairman appeared on the televised Ethma Odum interview program to discuss local Engineers' Week activities. Local engineers spoke to several civic clubs and groups of high school students interested in engineering.

The highlight of the observance was the engineering banquet on Friday, February 21. The guest speaker, Jack T. Painter, Professor of Civil Engineering at Louisiana Tech, spoke on "Circus Engineering."

Painter, who is a circus enthusiast, gave an engineer's-eye view of the circus world. He amused the audience with a slide show, film footage of the circus, and topped it off with performances on the rolla-rolla and unicycle.

Three area high school students who had been selected to compete nationally for NSPE scholarships attended the banquet as guests. Coverage of banquet activities appeared in the local newspaper.

Baton Rouge Chapter

The Baton Rouge Chapter enjoyed a highly successful Engineers' Week banquet on Tuesday, February 18, under the direction of Guy Miller, Engineers' Week Chairman.

Some 246 persons gathered at the Cotillion ballroom of the LSU Union to hear Dr. John H. O'Neill, Jr., a research director with Deering-Milliken, discuss a successful engineering research venture into computer injection dyeing of carpet. Dr. O'Neill whetted the interest of the group with the four 6x9 oriental-design rugs he displayed and with colorful slides which illustrated the process and the results of this team effort.

Bayou Chapter

Dr. James Reeves of Lafayette was the Engineers' Week speaker at the Bayou Chapter's annual banquet at which members of the Nicholls State University Engineering Society were guests. A total of 59 people attended.

Area newspapers published an article about Governor Edwards' proclamation of Engineers' Week.

Lafayette Chapter

Along with IEEE, the host society, the Lafayette Chapter had a joint meeting for Engineers' Week on Thursday, February 20, at the Petroleum Club of Lafayette.

Mayor Kenny Bowen of Lafayette addressed the group. Principal speaker was Dr. Mary Good, Professor of Chemistry at University of New Orleans, who spoke on the role that nuclear energy will play in solving the energy crisis.

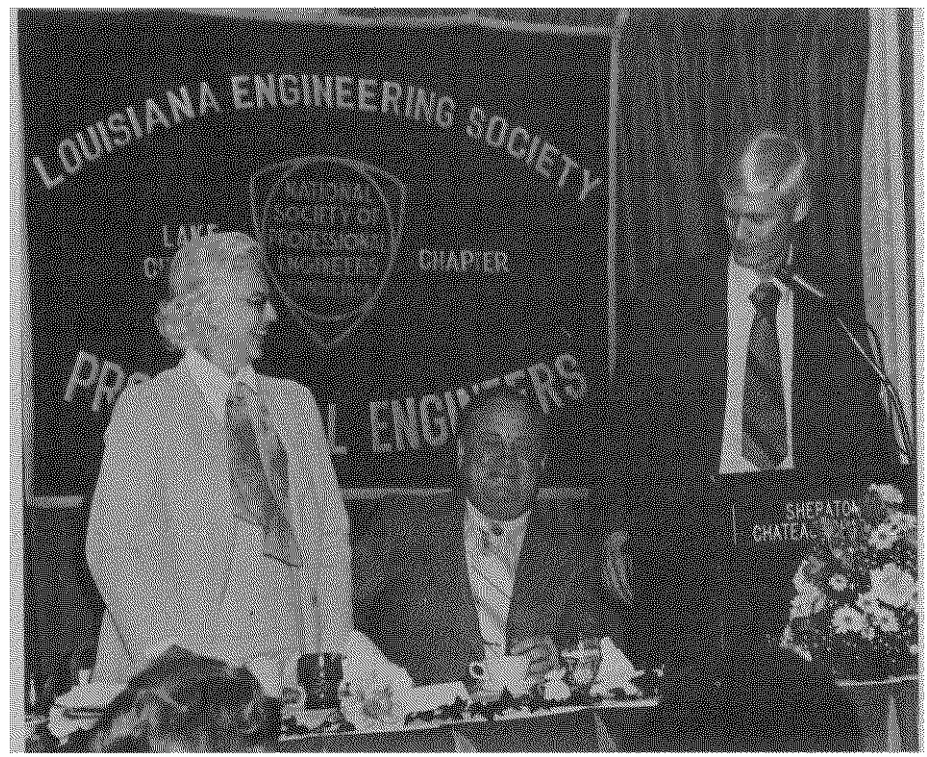
Approximately 70 persons attended the program. LES participation was coordinated by R. L. Bright, P.E., Second Vice President of the Lafayette Chapter and Chairman of Engineers' Week activities.

Several of the Lafayette radio and television stations gave public service time for announcements about Engineers' Week.

Lake Charles Chapter

The first function of the Lake Charles Chapter during Engineers' Week was a banquet held at the Sheraton Chateau Charles on February 20. With all the preliminary work complete under the direction of John Caruthers, General Chairman, the meeting was preceded with a social hour. Dinner was served to 344 members and guests.

The Honorable Bob Jones, State Senator, was the master of ceremonies with Mr. Norman Lee, President of Gulf States Utilities, the principal speaker. Mr. Lee's



State Senator Bob Jones introduces Mr. and Mrs. Norman Lee at the Lake Charles Engineers' Week Banquet. Lee, president of Gulf States Utilities, was the principal speaker at the event.

speech and remarks were very timely with regard to the present energy problems and conformed to the National Engineers' Week theme of "Engineering—Developing New Energy Frontiers."

The outstanding junior and senior engineering students from McNeese State University, Prentice Dale Walker and Phillip W. Ruhnow, were recognized and honored for their achievements. Miss Barbara Gray, an Electrical Engineering senior, was crowned Queen of Engineers' Week.

Monroe Chapter

Seven high school students were selected as Engineers for a Day in Monroe. Each of these students was taken by a sponsor on February 8 and given a morning tour of the sponsor's work. At noon all of the students, representatives of the sponsors and some high school counselors attended a luncheon and heard a talk by Mr. H. L. Henry of Louisiana Tech.

Sponsors were Ford, Bacon and Davis; Olinkraft; Ray Engineering; Nelson, DeRidder and Harrison; Louisiana Power and Light; James Machine Works; and Columbian Carbon.

On Tuesday, Wednesday, and Thursday afternoons, there was a tour of Ford, Bacon, and Davis; Olinkraft; and the Monroe City Power Plant for high school students interested in engineering.

In Ruston, three students were selected as Engineers for a Day. They spent most of the time at Louisiana Tech and attended the meeting of the Monroe Section on Tuesday night. Engineers from other organizations were also present.

In both Monroe and Ruston there was local publicity in the newspapers and in Monroe on television.

New Orleans Chapter

Engineers' Week in New Orleans was highlighted by a joint meeting of LES, ASME and IEEE members February 18 at the International American Motor Inn in Metairie.

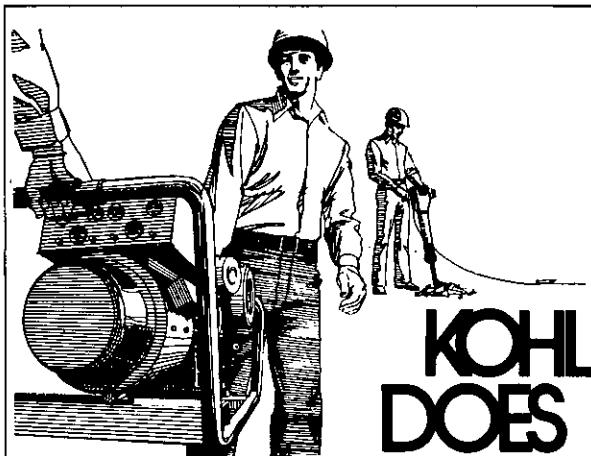
Commander B. C. Read, Chief of Marine Safety for the Eighth Coast Guard District, spoke on "Oil Pollution Abatement in our Waterways." He discussed the present problems facing New Orleans because of its dependence on waterways and the impact of Environmental Protection Agency requirements on industry and local governments in this regard.

Shreveport Chapter

The Engineering Scientific Council of Shreveport (ESCS) coordinated all Engineers' Week activities. This group is made up of representatives from 13 area engineering societies.

Preceding Engineers' Week, ESCS representatives visited local high schools where informal question-and-answer sessions were held with students interested in engineering as a profession. The Council gave the JETS test to 72 students, with the student scoring the highest grade receiving a $200 scholarship.

The annual banquet held at the Petroleum Club in Shreveport featured Lt. Governor James E. Fitzmorris who spoke on Louisiana and engineering. The high point of the evening was the presentation of the outstanding engineer award, with this year's recipient being Farrell Adams of LES.



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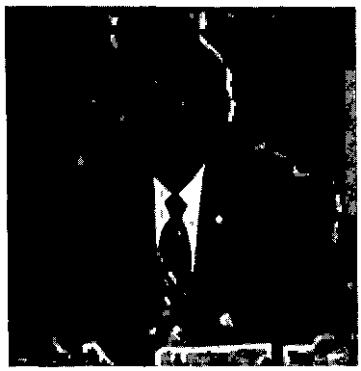

Potpourri

From Your
Executive Secretary
R. C. "DOC" SPEARS

Engineers Selection Board

The Louisiana Engineers Selection Board set up by Governor Edwards' Executive Order No. 76 in November 1974 has prepared a "Rules of Organization" and a "Rules of Selection Procedure." These rules have been forwarded to the LES Board of Direction and to PEPP officers and chapter representatives for review and comment.

The Engineers Selection Board is composed of five members, two appointed by LES, two appointed by CEC/La and one appointed by the governor. Arthur DeFraites, P.E., Houma, chairman, and R. C. Freeman, P.E., West Monroe, are the LES appointees. H. Nash Ogden, P.E., vice chairman, Baton Rouge, and Harold Faller, P.E., New Orleans, are the CEC appointees. The governor has not made his appointment. George Gele from Facility Planning and Control, Division of Administration, has been named executive secretary of the Engineers Selection Board.

The selection procedure calls for preparing an engineers' experience file and the adoption of federal form 251 or its successor, form 254. It will be the responsibility of the firm to keep its experience record current in the files of the Board. Experience records may be submitted at any time during the year, but all experience records shall be considered obsolete on January 1 of each year.

On public notification of an agency's intention to contract for professional engineering services, the Board shall cause the official notification to be advertised within five days of the date of receipt, in the Official State Journal, the Daily Journal of Commerce and a major newspaper within the multi-parish planning region.

The official notification will include all necessary data including the fee, as determined by the Division of Administration, together with the contractural obligation as contained in the Capital Improvement Projects 1974 Procedure Manual for Planning, Design, Construction, or the latest published revision thereof.

All requests for selection shall be filed with the executive secretary within 19 days of the date of the official notification.

The Selection Board plans preliminary selections by preparing a "short list" after review of all experience records applicable. Final selection will be made from the "short list." Applicants will be notified within 60 days from the date of the official notification.

Reorganization of Louisiana Government

The plan for reorganization of the executive branch of state government prepared for the governor by the Commissioner of Administration, Charles Roemer, proposes that the State Board of Registration for Professional Engineers and Land Surveyors be placed under the Department of Commerce.

A subcommittee on Reorganization of the Executive Branch, chaired by Raymond LaBorde, Marksville, held hearings on the Roemer plan on March 19 at the capitol. Leo Odom, P.E., Andrew Moore, P.E., and Dan Vliet, P.E., represented the State Board of Registration at the hearings.

Odom expressed concern about the plan because it had not been submitted to the Board for study before the meeting. The legislative subcommittee directed that a representative from the Department of Administration schedule a session with the registration board members for criteria development and clarification of the plan. After this session, the State Board of Registration will have the opportunity to express their opinions to the subcommittee.

Others assigned to the Commerce Department are occupational standards, shorthand reporters, watch makers and accountants.

Actions and Deliberations at Lafayette Board Meeting, March 14

- A travel expense reimbursement policy for members and the executive secretary was approved.
- The Board reaffirmed membership with Engineers Joint Council (EJC).
- Dudley Hixson, P.E., Alexandria, was appointed chairman of an ad hoc committee to establish liaison with architects, CEC and public agencies regarding Engineers Selection Board.
- Nominating committee for 1975-76 officers was appointed. Members are J. J. Thigpen, P.E., Chairman, A. J. Szabo, P.E., and T. J. Hogue, P.E. The first meeting was called for 11 a.m. Friday, April 4, at the State Office.
- The LES Board will meet May 30 in New Orleans in conjunction with the New Orleans Chapter outing. The Board meeting will start at 11 a.m.
- Shreveport Chapter reports 23 new member applications this year.
- Senator Bob Jones, Lake Charles, has joined LES.
- NSPE affirms that it will hold the January 1978 meeting in New Orleans.
- The LES ad hoc committee appointed to study pay scales for engineers in state government will prepare a comparison of Louisiana engineers' salaries with those of other Southern states for publication.
- Engineers' Week activities were reported by all chapters. An article on this subject is included in this issue of LOUISIANA ENGINEER.

Statute of Limitations

The Louisiana Architects Association is planning legislation to reduce the Statute of Limitations for construction projects in Louisiana from its present 10 years. LES has been requested to support the architects and others in meeting such a goal.

LES Membership Contest Standings As Of March 11, 1975—67% of Year

Postion	Chapter	Chairman	Quota	Applications	% Quota	NSPE	NET	Contest	Student
1	Bayou	Peterman	10	15	150.00	5	20	200.00	
2	Shreveport	Richardson	19	23	121.05	13	36	189.47	
3	Lafayette	Deal	17	19	111.76	9	28	164.70	94
4	Monroe	Ray	19	16	84.21	10	26	136.84	4
5	Baton Rouge	Blanche	47	40	85.10	23	63	134.04	
6	New Orleans	Riorda	88	44	50.00	19	63	71.59	1
7	Alexandria	Moore	15	8	53.33	2	10	66.66	
8	Lake Charles	Brassette	11	4	36.36	0	4	36.36	
			226	169	74.77	81	250	110.61	99
	Non-Resident			15		3			

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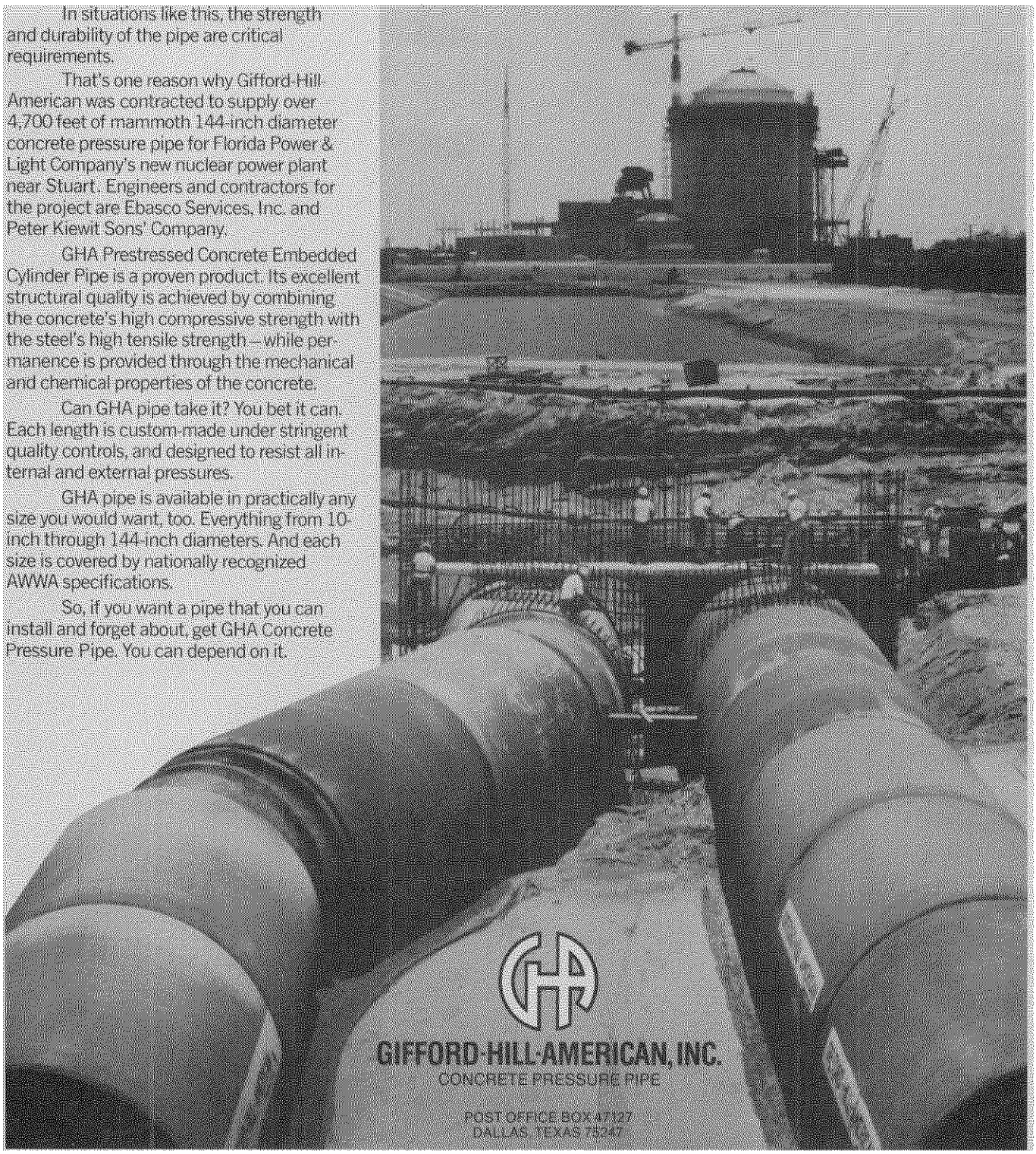

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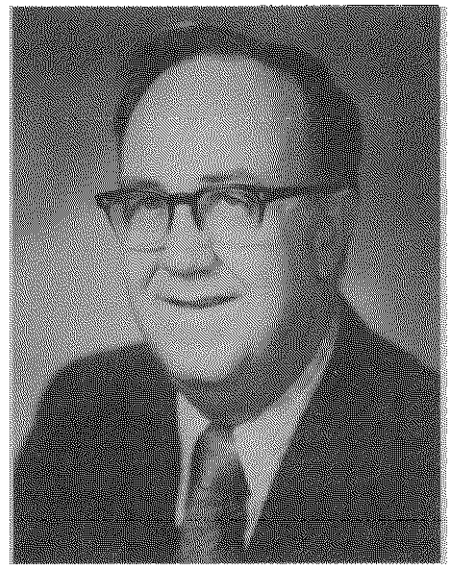

Malcolm L. Hurstell

PROMOTIONS IN NOPSI

Congratulations to Malcolm L. Hurstell, P.E., Regis G. Trumps, P.E., and John F. Vogt, Jr., P.E. Hurstell and Trumps have recently been promoted by New Orleans Public Service and Vogt has been elected a vice president of Middle South Services, Inc.

Hurstell assumed his new responsibilities as Vice President, Engineering, for NOPSI on April 1, succeeding Vogt, a 36-year NOPSI veteran who has become Vice President of Engineering and Operations for Middle South Services, a Middle South Utilities subsidiary headquartered in New Orleans.

Vogt had been Vice President, Engineering, since 1971 after serving as Manager, Engineering, for NOPSI since 1968.

Hurstell, a native of New Orleans, holds a B.S. in Electrical Engineering from Louisiana State University. He joined NOPSI's Engineering Department as an assistant engineer and was an electric system planning engineer from 1961 to 1964, at which time he was named Manager, Electric System Planning Division, his position at the time of his election as Vice President.

Trumps was appointed to succeed Hurstell as Manager of the Electric System Planning Division. He holds a B.S. in Electrical Engineering from the University of Southwestern Louisiana and has been a NOPSI engineer since 1956.

All three are very active in the Louisiana Engineering Society. Hurstell is President-Elect of LES, Past Chairman of the New Orleans Section of the Institute of Electrical & Electronics Engineers, Past President of the New Orleans Chapter of the American Public Works Association and Past President of the Engineers Club of New Orleans. Trumps is a Past President of the New Orleans Chapter of the Jaycees. Vogt is a Past President of LES.

Annual Report

(Continued from Page 13)

The Louisiana State Board of Registration for Professional Engineers and Land Surveyors was created by Act 73 of the Legislature of the State of Louisiana at the regular sessions of 1950. The Act delegates to the Board the duty of registering qualified persons as Professional Engineers and Land Surveyors, and charges the Board with the responsibility of enforcing the provisions concerning violations.

The members of the Board and the expiration dates of their appointments are as follows:

Leo M. Odom	July 31, 1976
Waldemar S. Nelson	July 31, 1977
Jesse Coates	July 31, 1977
Roy T. Sessums	July 31, 1978
Ben T. Bogard	July 29, 1979
Andrew M. Moore	July 29, 1980
Larkin B. Agnew	July 29, 1981
Sidney L. Poleynard	July 29, 1982
Fred C. Culpepper, Jr.	October 16, 1983

At the annual meeting of the Board held on February 18, 1975, the following officers were elected:

Larkin B. Agnew, Chairman
Sidney L. Poleynard, Vice Chairman
Fred C. Culpepper, Jr., Secretary

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Chairman of the Board, 1974

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Baker, Joe Thomas
Baton Rouge, LA—Civil
Barnett, Leon Gorden
Metairie, LA—Chemical
Bernstein, Richard Lazare
Los Altos, CA—Electrical
Bertinot, Benjamin Edward
Gonzales, LA—Chemical
Bibbo, Domenico Nicholas
West Chester, PA—Civil
Biles, James Edward
Monroe, LA—Mechanical
Biderman, Jr. Sam
Dallas, TX—Civil
Bogmilsky, Ahron
Sunnyvale, CA—Civil
Bolin, Samuel David
Huntsville, AL—Civil
Bonacci, Blaine Louis
Concord, CA—Civil
Boyd, James Albert
Three Rivers, TX—Chem.
Branson, Jr. John Heath
Jena, LA—Electrical
Brost, Fredric Benjamin
Baton Rouge, LA—Mining
Brown, Jr. Thomas Francis
Metairie, LA—Mechanical
Bryans, Robert Hilliard
Aston, PA—Civil
Bryant, John Howard
Needham, MA—Civil
Burguieres, Jr. Samuel T.
New Orleans, LA—Civil
Burkhard, Lorrin Arthur
Marshall, TX—Electrical
Burleigh, Allison David
New Iberia, LA—Electrical
Butler, Byron Whitfield
Houston, TX—Electrical
Cannon, James Allen
Aberdeen, MD—Industrial
Chester, Robert Allen
Houston, TX—Civil
Cifreo, Frederick Phillips
Bueche, LA—Agricultural
Claunch, Robert Worth
New Orleans, LA—Civil
Clement, Howard Walter
Concord, MA—Civil
Conn, Jr. Alvin Morris
Baton Rouge, LA—Chemical
Cooper, Jr. Robert
Hammond, LA—Civil
Cotter, Jr. Leonard Nicholas
Metairie, LA—Civil
Crawford, Brodie Earl
N. Orleans, LA—Mechanical
Cunningham, Jr. Silas Daily
New Orleans, LA—Civil
Davies, John Virgil
Luling, LA—Chemical
Day, David Charles
Houston, TX—Chemical
Dupuis, Alvin Joseph
Lafayette, LA—Industrial
Durham, Marcus Oliver
Tulsa, OK—Electrical
Emmert, Fred
Kenner, LA—Mechanical
Endres, Michael Edward
Waukegan, IL—Civil
Files, James Harold
New Orleans, LA—Civil
Fisher, Stephen Marvin
Sulphur, LA—Mechanical
Friese, Michael Melvin
Shreveport, LA—Civil
Girgis, Gamil Barsoum
N. Orleans, LA—Electrical
Goff, Richard Jerome
Shreveport, LA—Electrical
Goldenberg, Stephen Leon
Houston, LA—Chemical
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Monroe, LA—Mechanical
Gormsen, Eric Valdemar
Mansura, LA—Electrical
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New Orleans, LA—Civil
Griffin, Jack Lee
Baton Rouge, LA—Chem.
Guggenheimer, Carl R.
Metairie, LA—Civil
Hagius, Jr. Leon Edwin
Baton Rouge, LA—Chemical
Hallanger, Robert John
Orinda, CA—Mechanical
Hansen, Steven McKay
Houston, TX—Civil
Hartigan, Michael Joseph
Elmhurst, IL—Civil
Hays, Thomas Hardy
Monroe, LA—Mechanical
Heard, Michael Francis
Woodbridge, VA—Mech. & Ind.
Hill, Perry Lee
Baton Rouge, LA—Civil
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Marlton, NJ—Mechanical
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Birmingham, AL—Mech.
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Metairie, LA—Mechanical
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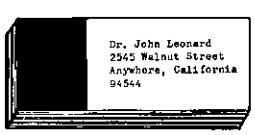

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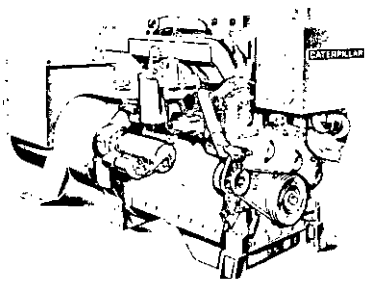

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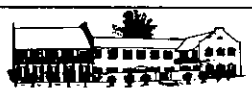

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"Footsteps in History"

It has been called the "Ditch of Destiny", a very appropriate name for the Louisiana section of the Gulf Coast Intercoastal Waterway which stretches from Brownsville, Texas to Apalachee Bay Florida.

The canal is 12' deep and 125' wide, extending from the Sabine River on the West through the bayous, lakes, and marsh country of South Louisiana to New Orleans and Lake Pontchatrain on the East. All types of ships from small pleasure craft to large ocean-going vessels ply its waters, waters which have inspired all types of dreams, all types of men.

In 1873 Congress authorized the first study for a proposed waterway along the Gulf Coast; the survey was completed, but a pessimistic cost estimate killed the project.

The idea lay dormant more than 30 years, but in 1905 a Texas banker named C. S. Holland called a meeting of interested citizens from Louisiana and Texas to discuss the idea of a waterway from the Rio Grande to the Mississippi.

Out of the spirited gathering was created the Intracoastal Canal Association of Louisiana and Texas, an organization which has met annually ever since.

Although the association continued, red tape and lack of consensus delayed the project further until 1925, when President Coolidge gave his formal approval for a canal from Galveston to New Orleans, to cost $9 million. The U.S. Corps of Engineers began work immediately, and the waterway was opened in time to greet the 1930's. It was then 9' deep and 100' wide.

Men with vision continued to improve the canal. One was Captain Horace H. Harvey, who proposed a faster way of getting ships from the Mississippi River below New Orleans into the waterway. The transfer was costing too much in time, money, and manpower.

And so the Harvey Locks were built to move countless ships, barges and towboats into the canal more efficiently. The double-gated locks, dedicated in 1933, cut transfer time from 6 hours to 20 minutes. Commerce moved faster, and so did Louisiana's prosperity.

Overwhelming traffic on the canal caused Congress to authorize in 1938 an increase of the waterway to a 12' depth and 125' width.

When World War Two erupted in 1941, the canal proved its value all over again. Some 90 million tons of war supplies were carried through the system, safe from the German submarines which preyed on traffic in the Gulf of Mexico.

After the war, commerce and industry in the canal boomed to still greater heights. There are now 500 companies located along the system's banks, and 5,000 ships pass from the canal through New Orleans annually. Communities along the 400-mile Louisiana section of the waterway continue to mark gratifying economic growth.

And men still dream of ways to better the canal. Organizations such as the Louisiana Intracoastal Seaway Association have several active improvement proposals. They know, if past history means anything, that the Intracoastal Canal will indeed be a "Ditch of Destiny" to Louisiana and its people for many years to come.

The heritage we have from our forefathers we are building for our children today. Patterson-Redmond builds it strong, by serving well those who build for business, industry, education, health, and home.



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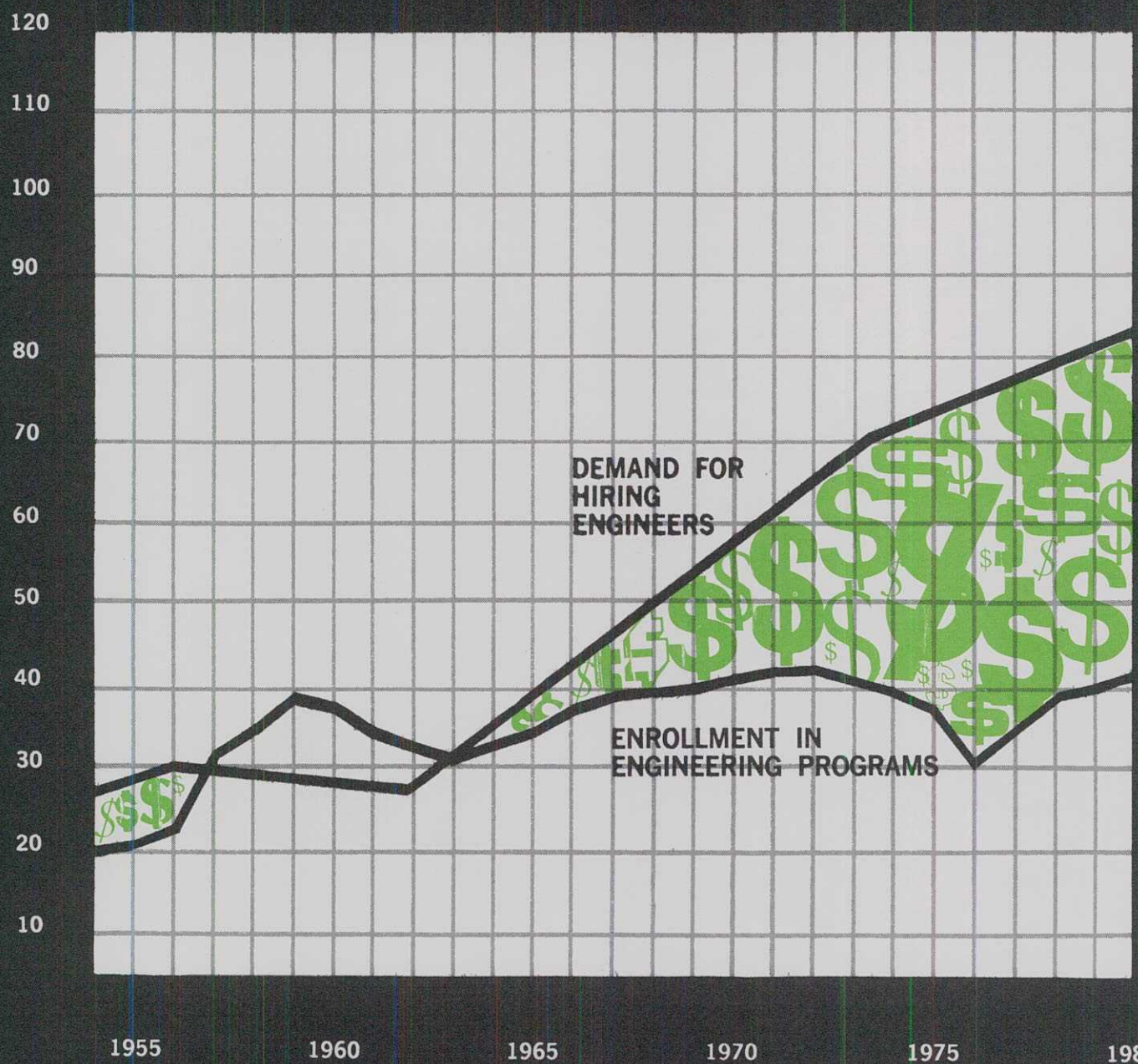
LOUISIANA ENGINEER



Employment Opportunities and Engineering Enrollment

Improve and upgrade your road investment.

New Jersey township modernizes with Full-Depth® Asphalt.

Are motorists asking, "Where did the smooth ride go?" Are you faced with replacing aging, unsafe, inadequate roads? Do you want to conserve both energy and road improvement funds? Mendham Township, Morris County, N.J., worked out its solution by modernizing some unpaved rural roads with Full-Depth Asphalt pavement for less than the cost of upkeep!

Because some of the roads were unpaved, traffic and vital services could not always get through in bad weather and dust control was a continuous problem in dry weather. Then a Township Committee study showed that ten years' bond amortization costs for Full-Depth Asphalt construction would be less than dirt and gravel road maintenance costs. A special municipal bond issue was authorized and the roads paved.

The Township's new Asphalt roads are safer, smoother riding, assure years of low-maintenance performance. Moreover, the environment has been protected and improved because no trees were removed or harmed in the upgrading, and silt runoff to nearby streams was ended.

Road modernization like Mendham Township's can also save money and energy by taking advantage of stage construction with Asphalt. Stage construction permits upgrading as necessary at a given time with future work scheduled to meet traffic projections.

Find out now how you can plan on Asphalt, the more-mileage material, to improve your roads and your road investment. Ask for free stage construction pavement rehabilitation and fuel conservation bulletins from your local Asphalt Institute engineer or write: The Asphalt Institute, 3101 37th St., Metairie, La. 70001 (New Orleans)

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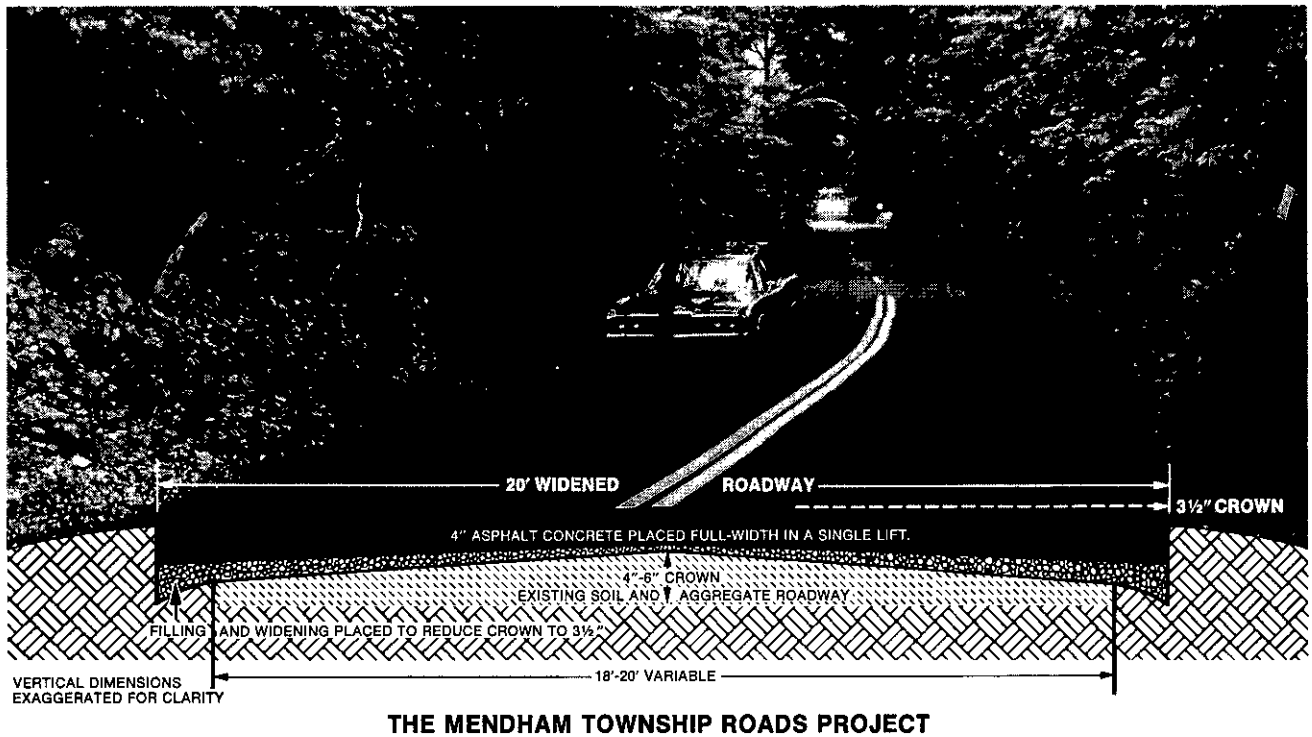


THE MENDHAM TOWNSHIP ROADS PROJECT

LOCATION: Several within the township.

TYPE: Existing dirt and gravel roads from 18-20' wide, having a crown of 4" to 6", widened to 20' with Full Depth Asphalt construction in a 4" single layer. Filling and widening with soil aggregate was placed at the sides to bring the crown to 3½".

TERRAIN: Rugged & rocky—an upland region of rolling gneissic hills and prominent gneissic & quartzitic ridges.

LENGTH OF PROJECT: 7.59 miles.

DRAINAGE: Natural fall to numerous streams; storm drains to handle surface runoff.

CLIMATE: Average temperature range—29°F (Feb.) to 68°F (July).

WEATHER: 46" average rainfall per year.

TRAFFIC: Light to medium DTN = 5.

ROADWAY: Subgrade: CBR = 15.

BASE AND SURFACE: Single layer of 4" compacted Asphalt concrete (N.J. Mix #4) Asphalt—AC 20 (5.3 by total weight of mix).

COMPACTION: Subgrade: 95% of AASHO Method T-180 4" Asphalt pavement—98% Density.

Construction was under the supervision of Robert H. Fox, P.E., Mendham Township Engineer. Mr. Fox stresses the placement of the Asphalt in one lift saved 50% in labor costs alone and was the secret of the success of the Asphalt pavement. He adds that this was the single most outstanding public works project that Mendham Township has ever had. It's another example of the savings of Full-Depth Deep-Strength® Asphalt for both new construction and rehabilitation.

MAKE PLANS NOW TO ATTEND

Louisiana Engineering Society/Mississippi Engineering Society

5th Joint Meeting

July 31, August 1 and 2, 1975
Broadwater Beach Hotel — Biloxi, Mississippi

TENTATIVE PROGRAM

Thursday, July 31

12 noon to 7 p.m.—**Registration, Lobby**
1 p.m. to 3 p.m.
LES Committee Meetings
MES Board of Directors Meeting

3 p.m. to 5 p.m.—**LES/MES Practice Division Meetings**

6 p.m.—**Social Hour**

7 p.m.—**Seafood Jamboree**

Friday, August 1

8 a.m. to 7 p.m.—**Registration, Lobby**

8:30 a.m.—**MES General Meeting**
Welcome by Nelson L. Douglass, P.E., President, MES
Welcome by Fred C. Culpepper, Jr., P.E., President, LES

8:30 a.m.—**Panel Discussion**
"ENGINEERS AND POLITICAL CAMPAIGN CONTRIBUTIONS"
Moderator: James L. Meyer, P.E.
THE ENGINEER'S VIEWPOINT—Arthur DeFraites, P.E.
THE LEGAL VIEWPOINT—Milton Lunch, General Counsel, NSPE
THE POLITICIAN'S VIEWPOINT—Ben H. Stone, Mississippi State Senator
Questions and Answers

11:45 a.m.—**Lunch—Dutch Treat**

12:30 p.m.
Men's Golf Tournament—Broadwater Sun Course
Ladies' Golf Tournament—Broadwater 3-Par Course
Deep Sea Fishing

7 p.m.—**Social Hour**
Sponsored by Faulkner Concrete Pipe Co.

8 p.m.—**Banquet**
Presiding—Nelson L. Douglass, P.E.
Presentation of Trophies and Prizes
Installation of 1975-76 LES and MES Officers

9:30 p.m. till — **"On the Coast"**

Saturday, August 2

8:30 a.m.—**MES General Meeting**
Robert K. Hunter, P.E., Presiding
LES General Meeting
Malcolm L. Hurstell, P.E., Presiding

9:30 a.m.—**LES Board of Direction Meeting**

Ladies' Program

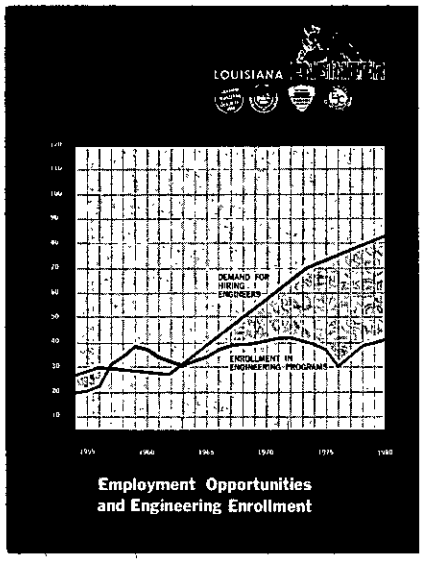
A complete Ladies' Program is to be announced later.

June, 1975

LOUISIANA ENGINEER

The LOUISIANA ENGINEER is the official publication of the Louisiana Engineering Society and the journal of the Louisiana State Board of Registration for Professional Engineers and Land Surveyors. The magazine is published in February, April, June, August, October and December. Subscription $1.00 per year for engineers registered in Louisiana and non-registered members of the Louisiana Engineering Society. Second class postage paid at Baton Rouge, La. The Louisiana Engineering Society and the Louisiana State Board of Registration for Professional Engineers and Land Surveyors do not guarantee the accuracy of statements made or necessarily concur with opinions expressed in this publication.

Address LES Communications and Change of Address Forms to LOUISIANA ENGINEERING SOCIETY, P. O. Box 2683, Baton Rouge, La. 70821. Telephone 504/344-4318.



Employment Opportunities and Engineering Enrollment

About the Cover

Prospects are bright for graduates looking for engineering positions, and the trend points to continued need for more engineers. See Page 7.

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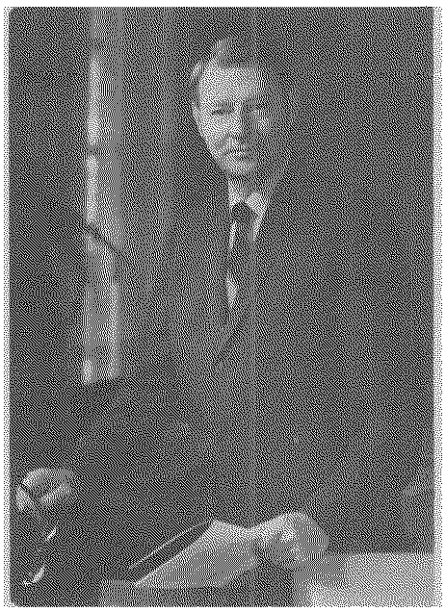
Presidential Privilege



Fred C. Culpepper, Jr., P.E.
President, L.E.S.

For many years the Louisiana Engineering Society and the Louisiana Land Surveyors Association have worked in close harmony to promote the professional interests of each group. Unfortunately, recent events indicate that we have an honest difference of opinion as to the makeup of the State Board of Registration for Engineers and Land Surveyors.

It may be well to review the background of the controversy and outline the position of LES. The present law states that the board shall consist of nine professional engineers. At least two members of the board shall be registered professional engineers in private practice, at least two shall be registered professional engineers in government employment, at least two shall be registered professional engineers employed in the field of industry, and at least two shall be registered professional engineers employed in the field of education. Not less than one member shall be a professional engineer who is also a registered land surveyor, and who is engaged in the field of land surveying.

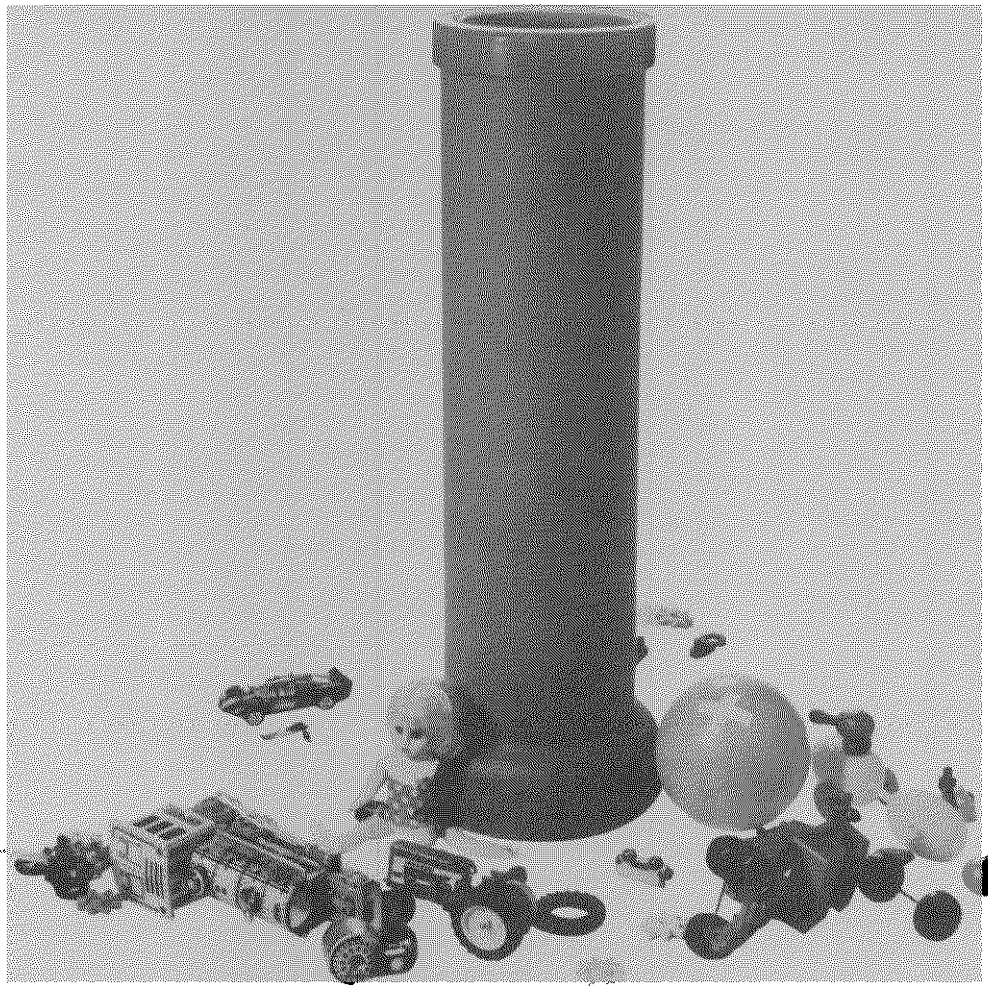
The LLSA has proposed that an additional member be added to the board who shall be a professional land surveyor who is engaged exclusively in the field of surveying as the same may be construed in the broad generic sense and who shall not cast a vote on matters exclusively related to registered professional engineers.

A close analysis of the wording of the LLSA proposal would seem to indicate that the only purpose of the proposal is to add a tenth member to the board. The act as now drawn provides for a professional engineer who is also a land surveyor. As a matter of record the State Board as now constituted has five professional engineers who are also registered land surveyors. Certainly this provides ample protection of the vital interests of presently registered land surveyors as well as future applicants.

Of the 52 similar boards that register professional engineers and land surveyors in the United States and its territories, most have five members or less. None have more than nine. Since our board is financed by monies paid for by initial registration and yearly license renewal fees, it appears economically imprudent to add the expense of another member to the board as long as the interests of all professional engineers and land surveyors as well as the public are properly protected by the law as now written.

The proposed LLSA revision to the law also poses a potential administrative problem for the efficient conduct of the board's business. This conflict could occur since the land surveyor member would be precluded from acting on matters exclusively related to registered professional engineers. The record shows that only 15 land surveyors were registered in 1974, whereas there were 594 professional engineers registered during the same year. This indicates that there would be very little justification for an additional member to handle this relatively small amount of business pertaining only to land surveyors.

We in LES do not relish being at odds with our valued friends and associates, the land surveyors. The problems inherent in the LLSA proposal have been studied and weighed carefully. Based on the considerations outlined herein, we feel that the addition of another member to the State Board of Registration for Professional Engineers and Land Surveyors would not serve the best interests of the land surveyors or the public; therefore, we must take a position against the proposed change.



In today's plastic world, it's nice to know there are still a few dependables.

Every material has its use. But something that's good for one use isn't necessarily good for another.

Some sewer pipe materials shouldn't be used in sewer pipes. They lack the structural characteristics found in a dependable sewer pipe system. They have minimum resistance to rot and roots. Deflection under load which can cause stoppages and eventual collapse. Thin walls susceptible to puncture. And weakness when exposed to high temperatures.

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Employment Opportunities and Engineering Enrollment, 1975

Grover J. Trammell, P.E.[1]

Newly graduating engineers of the class of 1974 enjoyed the best job prospects since 1970, according to data compiled by the Engineering Manpower Commission. More graduates were employed and fewer were without offers or other plans than in recent years, and there was a tendency toward accepting employment and away from continuing full time study because students found job offers and salaries particularly attractive.

Starting salaries averaged over $1,000 per month, and the supply of graduates did not meet the demand. As can be seen in Table 1, the number of degrees granted was again down due to the declining enrollment of the last several years. The information in this Table, and also in Table 2 and Figure 1, is taken from surveys conducted by the Engineering Manpower Commission of Engineers Joint Council.

The outlook for 1975 shows an even greater shortage of engineering graduates with an estimated 39,000 graduating with the B.S. degree in engineering. As shown in Figure 1, projections for the future show a decrease for 1976 and only a slight increase to about 41,000 by 1982. Other estimates have been even more pessimistic with one survey showing a low point of 34,500 graduates in 1978.

At the same time demand for engineers is increasing rapidly. The U. S. Bureau of Labor Statistics says there will be 73,700 engineering job openings each year until 1985. Of these, 27,000 are assumed to come from retraining or hiring of previous graduates and the remaining 46,700 are to come from the supply of newly graduated engineers.

However, if we allow for the fact that some engineering graduates go into fields other than engineering, and for the impact of the energy crisis and related federal programs, the number of graduates needed each year to satisfy technical manpower requirements appears to be over 60,000. Of course, technology graduates will fill a few of these jobs, but the large majority will need to be filled by the B.S. graduate in engineering.

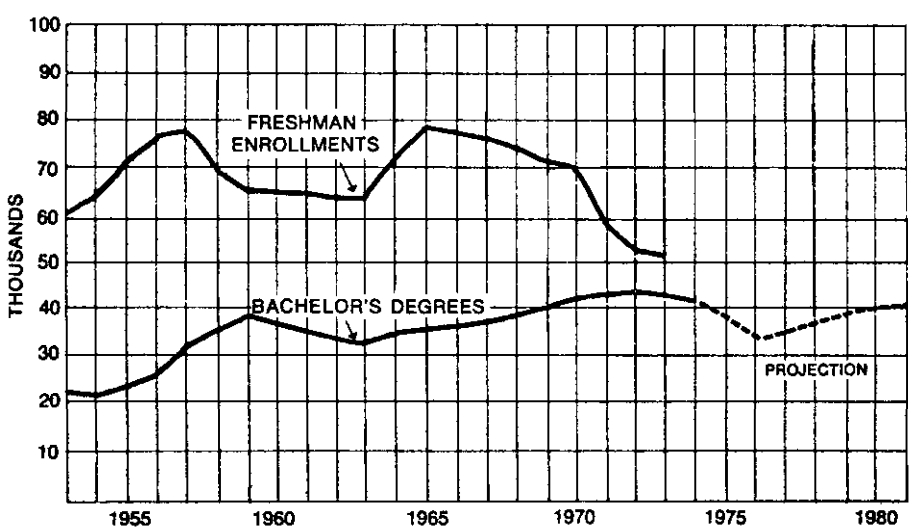
This shortage of engineering manpower is resulting in a bonanza for the engineering graduate and a nightmare for many companies attempting to hire

(Continued on Page 8)

TABLE 1. Engineering Degrees, All U. S. Institutions, 1963-1974

Year Ended June 30	Bachelor's	Master's	Doctor's
1974	41,407	15,674	3,362
1973	43,429	17,152	3,587
1972	44,190	17,356	3,774
1971	43,167	16,383	3,640
1970	42,966	15,548	3,620
1969	39,972	14,980	3,345
1968	38,002	15,152	2,933
1967	36,186	13,887	2,614
1966	35,815	13,677	2,303
1965	36,691	12,056	2,124
1964	35,226	10,827	1,693
1963	33,458	9,635	1,278

FIGURE 1. Freshman Enrollments and Bachelor's Degrees in Engineering



Source: All data from 1953 through 1966 are from U. S. Office of Education except as noted. Data from 1967 through 1974 are from E.M.C. annual surveys. Degree figures from 1975 through 1982 are projections by the National Center for Educational Statistics with bachelor's of technology graduates excluded from the bachelor's degree totals. Enrollments are for fall of the year indicated. Degrees are for the school year ending in June of the year indicated.

[1] Professor of Mechanical Engineering and Director, Division of Continuing Engineering Education, Louisiana Tech University.

Employment

(Continued from Page 7)

them. Starting salaries are again up dramatically with $1,200 per month about average and $16,000 per year not at all uncommon. Fringe benefits are also being increased as the competition becomes more intense.

One prospective graduate said, "Companies politely ask how much you've been offered and then politely offer a couple of hundred dollars more."

"It's nice to be wanted," said another.

The College Placement Council reported that engineers again led the list of practically all occupations in salaries offered to new graduates last year. It would certainly seem that this will continue to be the case for the foreseeable future.

Total enrollment in U. S. engineering colleges was up slightly in the fall of 1974 as can be seen in Table 2. The largest increases were in the freshman classes, so the future is looking a little brighter. However, we must realize that it will be four years before the increase is reflected in larger graduating classes; and, even then, supply will not meet the projected demand.

Enrollment figures for Louisiana engineering schools are shown in Table 3. These figures follow the national trend with some dramatic increases in the freshman classes being reported. Louisiana schools also report a slight decrease in the number of full-time graduate students with most students electing to take advantage of the seller's market. This also seems to be the trend nationally.

One side effect of the current engineering demand seems to be a more favorable press. A few years ago during the aerospace layoffs the national press was full of gloom and doom and was highly critical of the engineering profession. Now it is full of praise and is urging young people to enter engineering as a career.

The current situation might appear to provide an exciting time for the engineer. Indeed, it is providing higher salaries and more opportunities for many people; but there may also be more serious consequences of an engineering shortage that will

TABLE 2. Engineering Enrollments in Fall 1974 Compared with Earlier Years, All U. S. Engineering Schools

Engineering Students	Fall 1967	Fall 1968	Fall 1969	Fall 1970	Fall 1971	Fall 1972	Fall 1973	Fall 1974	Change from 1973
Freshman Year, Full-Time	77,551	77,484	74,113	71,661	58,566	52,100	51,925	63,700	+22%
Sophomore Year, Full-Time	56,975	55,615	52,972	53.419	47,948	42,272	40,519	45,900	+13%
Junior Year, Full-Time	50,483	50,274	50,039	49,855	48,543	45,874	41,673	43,020	+ 3%
Senior Year, Full-Time (4 and 5 year)	52,140	55,869	56,406	56,795	55,768	54,481	52,588	48,400	- 7%
Total Full-Time Undergrads	237,149	239,242	233,530	231,730	210,825	194,727	186,705	201,020	
Part-Time Undergraduates	NA	20,754	20,984	18,445	18,222	14,149	15,692		
Master's Degree, Full-Time	34,231	24,469	20,014	23,216	22,405	22,877	22,588		
Doctor's Degree, Full-Time	15,376	15,768	14,298	14,802	14,100	13,460	11,904		
Total Full-Time Graduate Students	49,607	40,237	34,312	38,018	36,505	36,337	34,492	34,200	- 1%
Part-Time Graduate Students	NA	27,246	32,645	30,802	27,302	24,940	26,114	28,600	+ 9%

TABLE 3. Total Enrollment, Louisiana Engineering Colleges, 1970-1974

School	Fall, 1970		Fall, 1971		Fall, 1972		Fall, 1973		Fall, 1974
	Undergrad.	Grad.	Undergrad.	Grad.	Undergrad.	Grad.	Undergrad.	Grad.	Undergrad.
LSU, Baton Rouge	1485	254	1427	240	1360	210	1315	177	1515
UNO	312	0	323	18	325	24	338	24	579
Louisiana Tech	1018	84	882	94	758	88	689	70	739
McNeese	294	10	229	13	198	11	180	10	229
Southern	202	0	228	0	230	0	221	0	293
Tulane	465	167	467	198	437	174	427	165	502
USL	582	33	561	27	523	36	510	40	504
Totals	4358	540	4117	590	3831	543	3680	486	4361

certainly affect corporate enterprise and perhaps the future of this country. Problems of great urgency, such as the energy crisis, may not get solved in the near future. Needed products may not get designed and foreign competition may be able to gain a larger share of the market. Profits not made by industry affect the welfare of the country. Also, the large supply of technical talent which moves into management would be sharply decreased. Of course, industry will be forced to make adjustments to alleviate the situation.

It seems probable that extensive supplementary education and retraining for existing engineers will be necessary and desirable to help reduce the undesirable effects of the supply-demand gap. Industry can do some of this "in-house," but the larger part will and should be done by the universities. Most universities have divisions or departments of continuing engineering education and they are well qualified to provide this needed service at a reasonable cost.

While the continued shortage of engineering manpower does provide some short-term benefits to individuals and to the profession, in the long run we see that this can be detrimental to the best interests of our society and our country. Therefore, we in LES and the profession in general need to redouble our effort to inform the young people of the challenging and exciting nature of engineering work and the excellent opportunities available in the profession. By informing them, but not overselling, perhaps we can accelerate the trend toward larger enrollments in engineering, which has already started, and close the supply-demand gap sooner than predicted.

The net result is certain to be beneficial to society, to our country, and to the engineering profession.

European Trip Postponed

It has been decided to postpone the Louisiana Professional Engineers delegation to Europe from 1975 to 1976. Factors affecting this decision were primarily conflicts with other trips plus the current economic situation and the present poor monetary exchange.

Forward any suggestions that should be considered in planning the 1976 trip to James S. Janssen at 225 Bellaire Drive, New Orleans, La. 70124. These recommendations might concern timing (spring, summer, fall), location (North sea oilfield area, East or West European nations, or other) and duration (two or three weeks).

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Olin Corporation's Lake Charles Complex

Fred M. Smallwood

In 1933, during the middle of the depression, Olin Corporation chose Lake Charles for a plant site, initiating the area's great growth as an industrial center and marking a new era, too, in the growth of Olin. The corporation has sometimes been called "the father of the Lake Charles chemical industry" and has been credited with starting Lake Charles on its way to becoming one of the major centers of industry on the Gulf Coast.

The corporation in 1934 constructed at Lake Charles a plant to produce soda ash and caustic soda, two important basic chemicals of the alkali group essential to the operations of many other industries. In the intervening years, the plant has added facilities for making ammonia, nitric acid, sodium nitrate, hydrazine, urea and TDI. Production of caustic soda was discontinued at this location in 1965.

All of the chemicals produced by Olin at Lake Charles are basic to the nation's economy and find their way into a wide range of industrial applications. They are themselves resources which attract other industries.

Lake Charles was selected as an industrial chemicals plant site by Olin (then Mathieson Alkali Works, Inc.) after an exhaustive search for a suitable location to supplement the company's original chemical operations at Saltville, Virginia, and Niagara Falls, New York. At the time, the Southwest and Middle South were just becoming industrialized and showed great potentialities for growth. Building of the Lake Charles plant marked the first major expansion by the company in several decades. It has been followed by continued expansion until today Olin has become one of the nation's major diversified industries.

Lake Charles's suitability for Olin's needs lay in an almost inexhaustible supply of salt of high quality from the West Hackberry salt dome, ample calcium carbonate in the form of reef shell deposits nearby, and an abundant supply of natural gas for fuel. An additional factor was the excellent transportation facilities offered by the area, both by water and overland, for moving the plant's products to industrial markets throughout the South.

The manufacture of soda ash as carried out by Olin at Lake Charles involves the chemical reaction of carbon dioxide with purified ammoniated salt brine. The carbon dioxide is produced by burning oyster shells in large rotary kilns fired by natural gas. Brine is obtained by pumping water into the West Hackberry dome to dissolve the salt. The brine is then pumped through a pipeline to the plant where it is purified, ammoniated and mixed with the carbon dioxide in large towers. The resulting crude sodium bicarbonate is calcined to light soda ash and bagged or shipped in tank cars and trucks and by barges.

Early in World War II, Olin was requested by the United States government to construct a plant for the production of synthetic ammonia for military uses, and again Lake Charles was selected as the site. This plant was purchased by Olin after the war and produced ammonia for use in the manufacture of nitrogen fertilizers and numerous industrial chemicals until it was shut down in November 1967, after the new plant came on stream. After the war, facilities were added for converting part of the ammonia output into nitric acid and sodium nitrate. These plants continue to operate.

Soda ash is of such wide importance in industry that its rate of consumption has long been recognized as a major index of industrial activity. The largest single consumer is the glass industry, where soda ash is an essential ingredient of the glass formula. Another large consumer is the chemical industry itself, which uses an enormous tonnage of soda ash in the manufacture of other chemicals. Important quantities of ash are also used in the manufacture or processing of detergents, pulp and paper, textiles, soap, iron and steel, aluminum and other nonferrous metals.

Sodium nitrate is widely used in industry in the manufacture of explosives, cigarette paper, pigment colors, porcelain enamel, matches, glass, red lead, dyestuff intermediates, metal fluxes, heat treating salts, drainpipe cleaners and boiler cleaners, and for the preservation of foods and to improve the burning quality of tobacco. In the agricultural field, it is an important fertilizer chemical.

In July 1953, another new installation—the first of its kind in the country—was completed for the manufacture of hydrazine, used as a rocket fuel and in the manufacture of other chemical products.

A new era in ammonia production began in 1964, when Olin announced its intention to construct a 1,400 ton-per-day anhydrous plant in Lake Charles. Ammonia from this plant is of exceptional purity. The ammonia is shipped

(Continued on Page 12)

*"The engineering mind is nothing if not ingenious."**

80 YEARS
Of Engineering In Louisiana*

(CONTINUED) It was the pipeline business that led to the establishment of the firm's second Louisiana facility, in 1931—its impressive division in Monroe that over the years has become probably the largest engineering service facility in the state of Louisiana.

Power generation and pipelines however were not the firm's only projects in Louisiana. Other engineering assignments ran the gamut from a "muscrat census" for Louisiana's Acme Land and Fur Company that encompassed some 124,000 acres of swampland (the final estimate was "a gross harvest of 1,440,000 skins"), to feasibility studies and construction projects such as New Orleans' original Lake Pontchartrain Bridge and Causeway.

Elsewhere in the United States, the formulation of Atlantic Aircraft Corporation, the predecessor firm of North America Aviation Corporation (the Dutch aeronautical engineer A.H.G. Fokker used to work for Ford, Bacon & Davis), the Easy Washing Machine Company and the Smith and Corona Typewriter Company, and the rebuilding and electrification of the cable car system in San Francisco after the Earthquake were included in the scope of "engineering" projects. Not confined necessarily to the United States, the firm was also engaged abroad in diverse projects that ranged from building street railways in Portugal, to evaluating a Santo Domingo banana plantation.

In Louisiana meanwhile, the Interstate Pipe Line which ran through the state's vast swamplands, led to the firm's invention of the FB&D Cathodic Protection Method which utilized multiple anodes to decrease the flow of electric current from the soil, thus retarding the corrosion that was seriously deteriorating the steel pipe. This was the inception of an entire new technology in the prevention of this type of corrosion, and FB&D's basic cathodic principle is widely used today in a broad range of applications, including ship hulls. *(Continued next issue.)*

* From *For Human Needs*, a history of the first 80 years of Ford, Bacon & Davis

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Olin Complex

(Continued from Page 10)

in tank cars and by barge. Part of it is further processed at the plant location to make nitric acid and sodium nitrate.

In February 1966, a plant was completed for the manufacture of urea, a nitrogen fertilizer produced principally from ammonia. It also has a great number of industrial uses and is used as a high-protein feed for cattle.

The latest addition to the Lake Charles complex occurred in 1971 when construction of plants to manufacture tolylene diisynate (TDI) and tolylene diamine (TDA) was started. These plants, which produce materials for urethane foams and coatings, began production in 1973. The flexible foams are used in furniture, transportation upholstery and safety padding, bedding, apparel, carpeting and packaging. Rigid urethane is used chiefly for insulating refrigerators, freezers and buildings and for flotation and salvage systems. TDI also is used in urethane paints and varnishes, in elastomers, sealants and adhesives.

In addition to the manufacturing facilities at the Lake Charles complex, Olin has established a Southwest Regional Engineering & Technical Center at the location. This technical center includes Southwest Regional process and development, process engineering, project engineering and purchasing. These regional groups support the manufacturing efforts at the Lake Charles complex as well as other plants located within the Southwest Region. The establishment of this technical center at Lake Charles indicates the confidence top management has in the future growth of the Lake Charles complex. The technical center has brought approximately 100 scientists and engineers to Lake Charles from other Olin locations and other companies.

What is now Olin Corporation was formed in August 1954, by the merger of Olin Industries, Inc. and Mathieson Chemical Corporation. Both companies were founded in 1892 and both had expanded operations and diversified in the years before and after World War II. The two were about the same size at the time of the merger.

Today Olin is a diversified, yet closely integrated company which serves its customers with a wide variety of products, including industrial and agricultural chemicals, hydrocarbon chemicals, cellophane, polyethylene film, industrial explosives, brass and other nonferrous alloys and fabricated metal parts, sporting firearms, sporting ammunition, cigarette paper and other fine specialty papers, powder-actuated tools and fasteners, irrigation equipment, and many others.

In addition to the Lake Charles complex, Olin has also in Louisiana a sulphuric acid plant in Shreveport.

Olin is presently again expanding its facilities at the Lake Charles complex and anticipates it will become one of the largest, if not the largest, Olin chemical complex.

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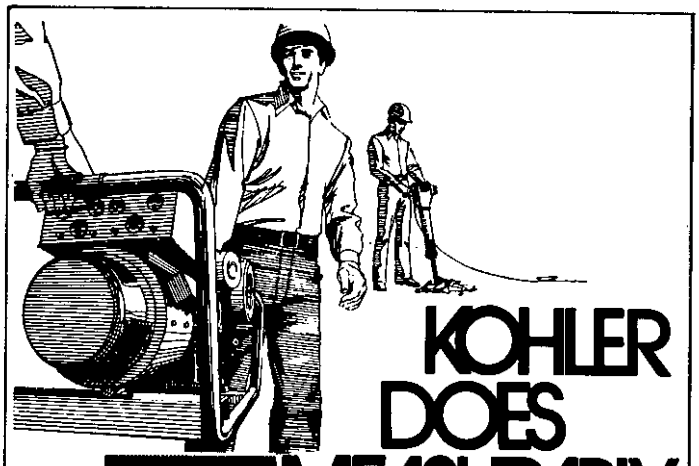

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ASCE National Convention in New Orleans



National Convention Committee General Chairman J. Bres Eustis (left) is shown with A. D. Kaufman, W. T. Taylor and Robert H. Clement (right).

Allen Johnson

On Thursday, March 20, 1975, a small news item appeared in the upper left-hand corner of Section Five, Page Three of the New Orleans "Times-Picayune." Tucked away among the department store ads was a small hint of things to come: "All aspects of structural engineering will be reviewed at the Fairmont Hotel April 14-18 during the National Structural Engineering Convention and Exposition sponsored by the American Society of Civil Engineers."

From April 14 to 18, the engineers made headlines as 2,000 "Civils" poured into New Orleans from all over the world with speeches, papers on new ideas, techniques and developments in construction and engineering.

Council President James A. Moreau, Jr., greeted the engineers at their opening luncheon with Robert Clement of the U. S. Department of Transportation as the featured speaker. Arthur J. Fox, Jr., president-elect of the ASCE, described the profession as "the application of math, science and economics to the planning, designing, and construction of bridges, roads, transportation systems, and buildings of all kinds."

He said: "The explosion of technical science has moved civil engineering into the realm of nuclear power plants, offshore drilling and docking facilities and land based structures related to space exploration."

Fox, editor of "Engineering News Record" in New York, added that the ASCE has demonstrated concern for preservation by designating some 40 civil engineering landmarks around the country under its historical and heritage programs. The nation's interstate highway system will be the next engineering feat to be so recognized, he added.

Convention sessions of special interest to Louisianians included floodproofing, hurricanes and typhoons, long-span bridges, and foundation observations on the Louisiana Superdome.

An added attraction to the convention was an exposition of the latest in construction equipment, products, materials, designs and methods. The exposition, first of its type in ASCE history, supplemented information disseminated at the technical sessions.

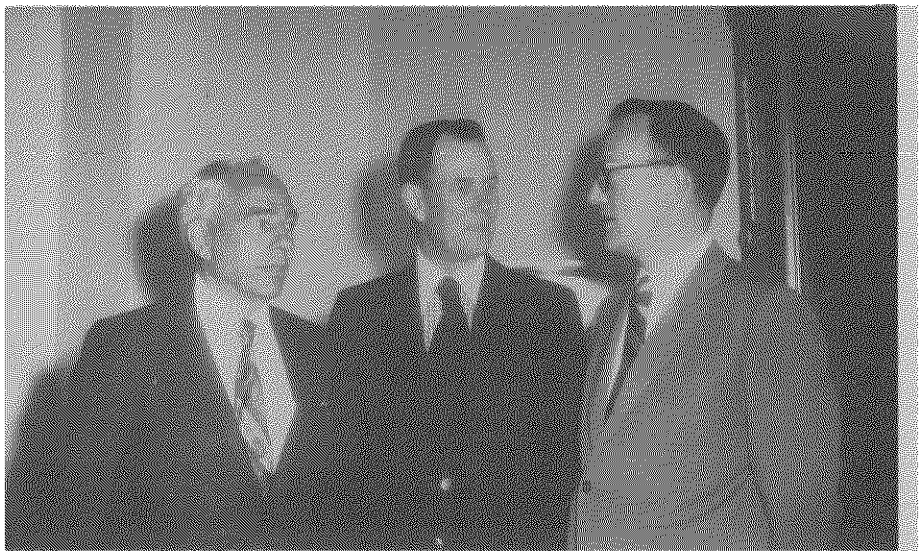
Among the distinguished guests was Fazlur R. Khan, a Chicago structural engineer who designed the world's tallest building, the 110-story Sears Tower in Chicago. Khan and members of his firm, Skidmore, Owings, and Merrill, stopped at 1,450 feet only because aviation regulations there set this limit for height. His construction system was quick. The tower's design was based on prefabricated cruciform units, "put one over the other, like an erector set." The tower was completed in a year and a half.

Bridge Maintenance Engineer Albert Dunn of the Louisiana Department of Highways discussed the cost of maintaining safe highways, roads and bridges. Dunn said such maintenance

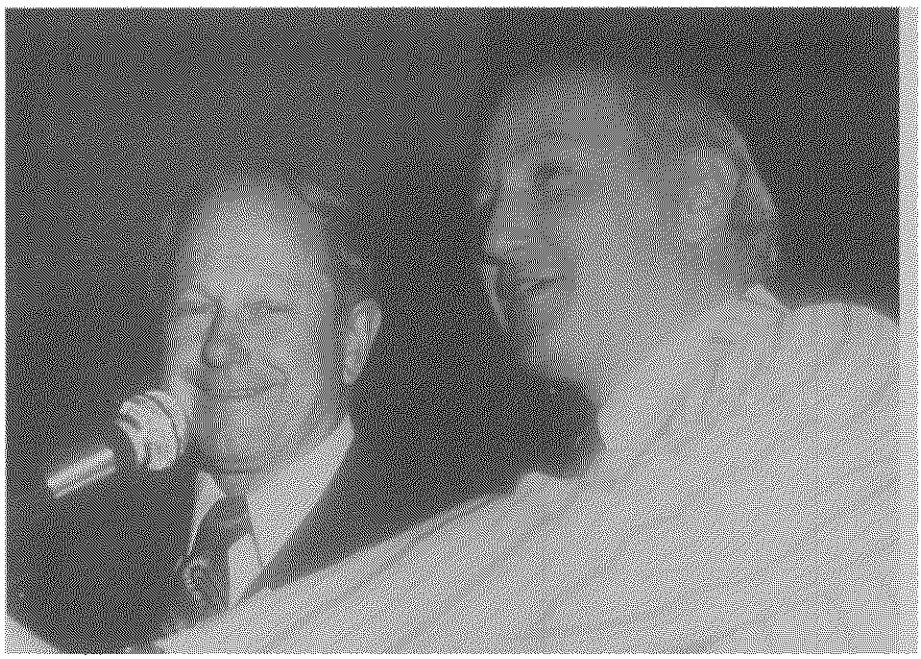
(Continued on Page 14)



National ASCE President William H. Sangster is shown (right) with national ASCE Executive Director Eugene Zwoyer at Fairmont Hotel in New Orleans.



New Orleans Council President James A. Moreau, Jr. (left) extended greetings to convention. He is shown with W. T. Taylor, Director, Louisiana Department of Highways (center), and guest speaker Robert Clement, Washington, D. C., Deputy Undersecretary of Transportation.



Walter Blessey, Tulane University engineering professor (left), introduces Dr. Samuel Hulbert, dean of engineering at Tulane, at ASCE luncheon.

ASCE Convention

(Continued from Page 13)

costs $65 million a year. Bridge maintenance in the southern part of the state costs more than in the north because of more traffic, he said, but added that steel and concrete bridges in the north are subject to rapid deterioration, "especially where salt is used for de-icing."

Bridge Designer David Huval, also of the Louisiana Department of Highways, said the Luling cable-stay bridge under construction 20 miles north of New Orleans represents a new concept in long-span bridge building. Huval said the bridge, to be completed in 1980, will fill its four lanes with 6,000 vehicles daily and will serve as "part of a segment of I-410 tying I-10 west of the International Airport with U. S. Highway 90 at Boutte."

Dr. William Sangster, president of the American Society of Civil Engineers and Dean of the College of Engineering at the Georgia Institute of Technology, said no flood control plan can provide "100 percent insurance against flooding," but assured New Orleans residents that engineers have devised a protection system that best fits the local geography.

Sangster spoke as Army engineers were preparing to open the Bonnet Carre Spillway to reduce the rising tides of the Mississippi.

"Levees and spillways are New Orleans' best defense because of the topography," said the prominent engineer.

In the convention's final ceremonies, Fox presented Hugh J. McKay, III, senior civil engineer and representative for Duke Power Company, the award for "Outstanding Civil Engineering Achievement for 1975."

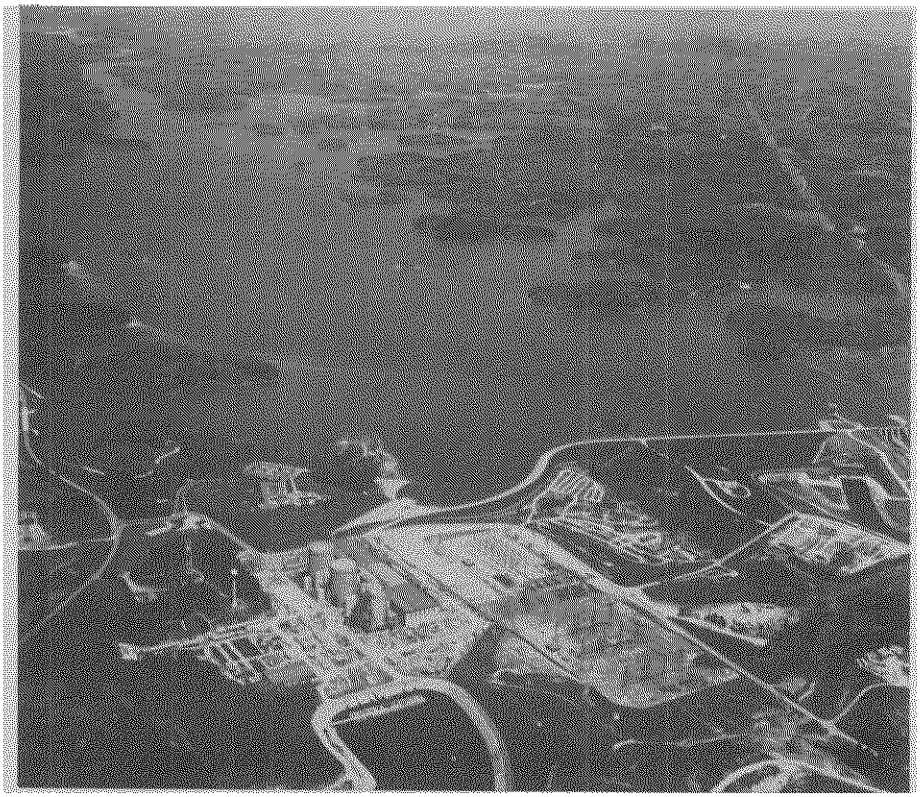
McKay accepted the award on behalf of Duke Power Company for the Keowee-Toxaway Project, a $700-million power generating complex in the Carolinas. Included in the complex are two hydroelectric projects and a major nuclear generating station, which all work together to generate more than 3.4 million kilowatts.

The project, unique because the nuclear station is combined with both a hydroelectric station and a pumped storage station, has developed no problems so far. The project includes two lakes, separated by a dam, with one higher than the other. The nuclear station located on the lower lake harmonizes with the existing environment.

A. D. Kaufman of the Louisiana Department of Highways and president of the Louisiana Section of ASCE, participated in the convention events.

A unique feature of the meeting was the reading of separate papers by a father-son engineering duo. Waldemar S. Nelson, a Fellow in ASCE, read a paper relating to the New Orleans sewage treatment plant, and his son Charles, now working in The Hague after graduate study at the University of Florida in Gainesville, read a paper having to do with offshore nuclear power plant construction.

The convention closed April 18.



Aerial view of the Keowee-Toxaway Power Generating Complex, a combined hydro and nuclear power facility in South Carolina which generates over 3.4 million kilowatts. It was an award winner in the competition to name the Outstanding Civil Engineering Achievement of 1975. The national contest is held by the American Society of Civil Engineers, a 70,000-member national organization.

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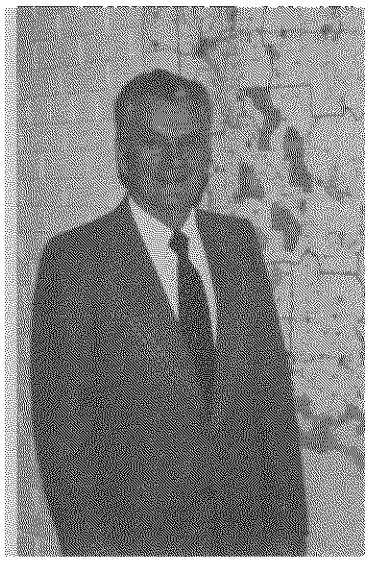

Potpourri

From Your
Executive Secretary
R. C. "DOC" SPEARS

LES Opposes Land Surveyor Legislation

On May 20, the House Commerce Committee held a hearing on H.B. 33, a bill sponsored by the Louisiana Land Surveyors Association, to add a 10th member to the State Board of Registration for Professional Engineers and Land Surveyors. Representative Jimmy D. Long, Natchitoches, presented the bill and recommended adoption. Leo M. Odom, P.E., member of LES and the State Board of Registration, testified against the measure. The committee voted unanimously for approval of the bill. It now moves to the consent calendar.

LES and the State Board oppose the bill on the grounds that the land surveyors are fully represented under present law and, from the standpoint of "protection of the public," adding a 10th member would serve no useful purpose. No complaints or charges have ever been filed accusing the board of negligence or incapability of carrying out its prescribed duties.

Of the 3,299 land surveyors licensed to practice in 1974, 3,038 were also licensed as professional engineers. Only 261 were licensed solely as land surveyors. The total number of registered professional engineers in Louisiana in 1974 was 11,596.

Five members of the present Board of Registration are registered land surveyors, and, in accordance with the present law, one of them is actively engaged in the field of land surveying. Having five land surveyors on the board is a coincidence, but past records indicate at least three civil engineer-land surveyors have been members of the Board of Registration for many years.

LES believes the land surveyors have been and will continue to be fully represented by the present nine-man State Board of Registration.

LES Automobile Insurance Program

The LES-sponsored automobile insurance program is receiving enthusiastic response from the members. In the three months since the inauguration of the new program carrier, over 300 members have had their automobile insurance compared with the LES program.

Fifty-six members now have their automobiles insured through the LES program. The average savings realized by members using the LES program compared with other plans amounts to about $25 a year, the cost of annual LES dues.

This is a service program for LES members. Will it pay you to change? It costs a 10-cent stamp to find out. Use the coupon in the advertisement in this issue of the LOUISIANA ENGINEER.

Entry of Merit Presented John C. Copes, P.E.

An entry of merit with an honorarium of $100 was awarded John C. Copes, P.E., for his participation in the 1974 James F. Lincoln Arc Welding Foundation contest. Copes' entry in the $50,000 Lincoln Foundation program was a movable rubber belt conveyor-barge sugar loading facility.

The award program judges entries on ingenuity of idea, practicability results achieved, contribution of arc welding and the conciseness and clarity of the entry. The movable belt facility designed and installed by Copes alleviated personnel and equipment problems and proved very successful during last year's sugar season in Jeanerette, Louisiana.

Copes, a long-time member of LES and NSPE, has a consulting firm in Baton Rouge. He is well known in the area for his participation in vintage automobile shows and rallies. LES congratulates him for this outstanding recognition.

CEC/L Silver Anniversary

The Consulting Engineers Council of Louisiana, Inc., celebrated its silver anniversary on May 17 with a banquet at the Prince Murat in Baton Rouge. R. Dale Hodges, P.E., President, welcomed the more than 170 engineers and guests to the gathering. He introduced Edwin W. Edwards, Governor of Louisiana, who spoke to the group. The lovely first lady and former U. S. Senator, Mrs. Elaine Edwards, accompanied the Governor.

Monroe J. Rathbone, Past President of the Exxon Company, who has been living in Baton Rouge since his retirement, was made an honorary member. The CEC/L Engineering Excellence Award for 1974-75 was presented to Barbay Engineers of Baton Rouge.

Hodges relinquished the gavel and presidential responsibilities to John J. Guth, P.E., the CEC/L President for 1975-76. Guth is President of the Shreveport Chapter of the Louisiana Engineering Society and heads the consulting engineering firm of John J. Guth and Associates, Shreveport.

LES salutes the Consulting Engineers Council of Louisiana on its 25th birthday.

American Ingenuity: 200 Years of Engineering

The National Society of Professional Engineers, sponsor of the annual National Engineers Week observance, has announced the 1976 theme in connection with the U. S. Bicentennial. The February 22-28 Engineers Week will herald "American Ingenuity: 200 Years of Engineering."

The profession's Bicentennial celebration will kick off Engineers Week and carry through the remainder of 1976. A special kit distributed by NSPE will offer a variety of local action-oriented suggestions and projects to be carried out by engineering chapters in their communities. These projects will put engineers in the mainstream of local Bicentennial activities and call attention to the important contributions made by engineers in the past 200 years.

NSPE Annual Meeting

NSPE's 41st annual meeting will be held July 21-26, 1975, at the Radisson Hotel in Minneapolis. The Practice Division meetings will be held Monday, Tuesday, and Wednesday, July 21, 22 and 23. The NSPE Board of Directors meet Thursday and Friday.

Full details on the meeting are carried in the May issue of the "Professional Engineer."

LES-NSPE Membership

LES presently has two national NSPE directors, authorized on the basis of one director for each 500 members or fraction thereof. According to the April 30, 1975, membership status report, LES has 983 NSPE members. We need 18 new NSPE members to get a third national director.

NSPE has excellent programs at the national level. All professional engineers should join LES and NSPE. We encourage those eligible to become members of NSPE. They deserve your support. The monthly magazine, "Professional Engineer," which comes with NSPE membership, keeps you informed on many worthwhile matters. A third NSPE director and three votes for LES are well within our grasp. Let's pull together for more representation at the national level.

Important Dates to Remember

July 31-August 2, 1975—LES/MES Annual Meeting, Broadwater Beach Hotel, Biloxi, Mississippi

September 11-13, 1975—LES Planning Conference, Sheraton Inn, Alexandria

October 2-3-4, 1975—Southwestern Regional Meeting, Christopher's Inn, Denver, Colorado

Bovay Interviewed by Baton Rouge Radio Station

During a recent visit to Baton Rouge, Harvey Bovay, P.E., President-Elect of the National Society of Professional Engineers, taped a 53-minute radio interview with Baton Rouge station WIBR. The interview was aired Sunday, May 11, starting at 9 a.m. Bovay covered many engineering subjects with special emphasis on energy, the national energy policy and competitive bidding.

Have You Voted?

The ballot for voting on 1975-76 officers of LES and a proposed dues increase was mailed to all voting members on May 16.

All the nominees are excellent candidates. Vote your choice, and put that "X" for the proposed dues increase. Your society needs additional income for better recognition, more involvement and better programs for the advancement of the engineering profession.

Check your files and get that completed ballot to the state office prior to 9 a.m. Monday, June 30.

1974 Outstanding Engineering Achievements

The top 10 outstanding engineering achievements of 1974 in the United States have been named by NSPE with energy, water treatment and control, and space exploration dominating the list.

The outstanding achievements receiving recognition were:

NASA's Mariner 10
The St. Louis Energy Recovery System
The Air Force's YF-16 Lightweight Fighter Prototype
The Rosemount Advanced Wastewater Treatment Plant in Minnesota
The Indian Bend Wash Greenbelt Flood Control Project in Arizona
The Head Attached Television System for hospital surgery
The Manchester, New Hampshire, Water Treatment Facility
Chicago's Sears Tower
Insulation Systems for the Alaska Pipeline
Raccoon Mountain Pumped-Storage Plant of the TVA

Unemployment Insurance

Unemployment compensation contributions paid by Louisiana employers in 1972 were $39 million. By 1973 they were $56 million; in 1974 the total climbed to $72 million and the projection for 1975 approaches $95 million.

This has a very serious impact, and six associations in Louisiana have been cooperating in the sponsorship of U.I. seminars across the state to better equip employer-members to administer unemployment insurance within their businesses.

Baton Rouge Chapter Annual Taste Fair

The Baton Rouge Chapter's Woman's Auxiliary held its annual taste fair benefit on March 19 at the Woman's Clubhouse in Baton Rouge. Proceeds from this event go to the engineering scholarship fund for 1976. In 1975, two scholarships of $500 were awarded to Miss Marie LeBlanc and Michael Carter.

This year's fair carried out a circus theme. The tables held delicious food, all prepared by members of the auxiliary. Mrs. John C. Graves, president, the executive board and members of the auxiliary participated in making this an outstanding event. About 300 guests attended.

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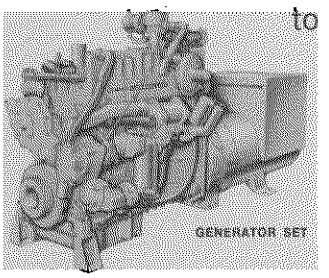

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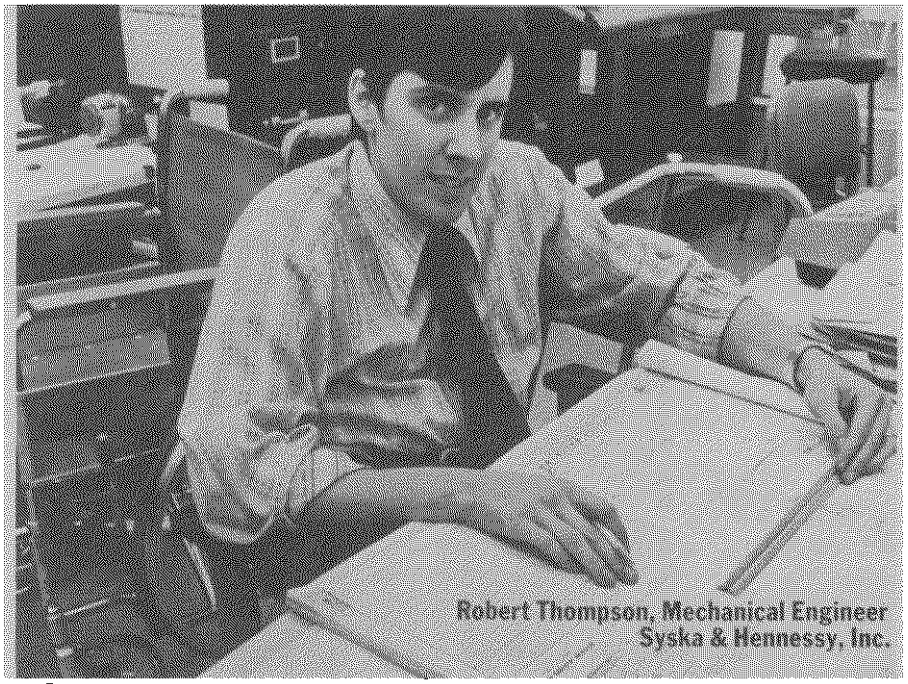

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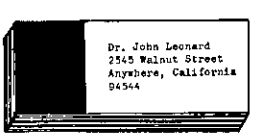

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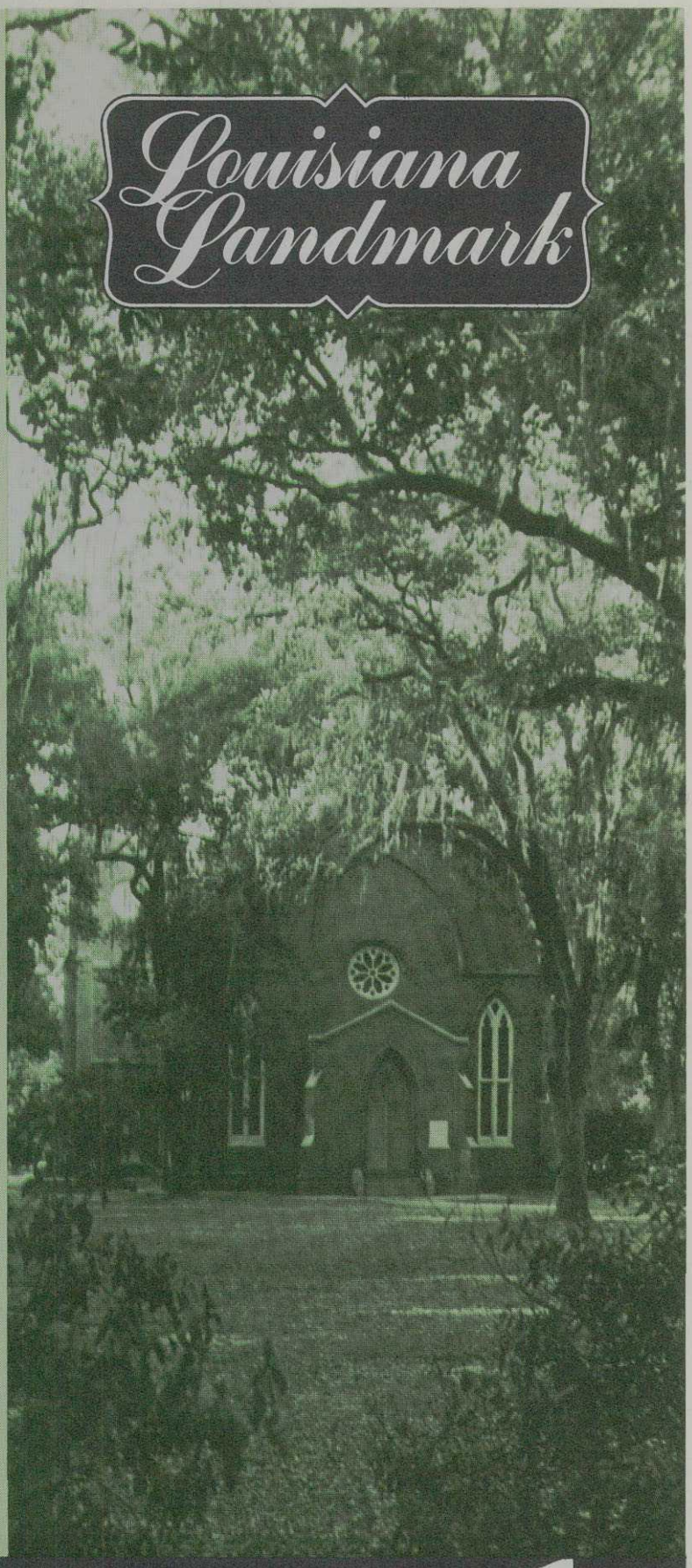

How did it come to pass that the body of a Union Commander would lie within the small cemetery outside the scarred walls of the very church he attempted to destroy?

It wasn't that the parishioners of Grace Episcopal Church allowed a single one of the original 300 square feet to be overrun by Union soldiers. Both the church and the town of St. Francisville had been staunchly defended. And for good reason.

By the time of the Civil War several generations of St. Francisville Episcopalians had more than tithed their meager wages toward the improvement of the church. Their persistent devotion began with small gifts: In the beginning, the late 1820's, the congregation provided a bell for the tower, a silver communion service, a cast-iron fence and an organ. And on the eve of the Civil War, the parishioners saw fit to erect a second building to house its growing numbers. The new sanctuary was completed in 1860.

Only two years had passed when the new church was threatened by Union gunboats. Commanded by Lieutenant Colonel Jon E. Hart, vessels steamed up the sleepy bayous, now strategic waterways for the business of war, and hurled destruction on the town and on the beloved walls of the modest, provincial church.

In the conflict Commander Hart, too, became a victim, his last utterance aboard his flagship was to request burial with full Masonic Rites. A Mason of nearby Bayou Sara honored Hart's last request. This Northern soldier was buried alongside the Southern shadowy bayou and in the sanctuary of Grace Episcopal Church.

The war years passed; the battered church was rebuilt. And in the century since, Grace Church has several times been reborn, refurbished, and improved, always with romantic rememberances of its colorful past. Carpeting has been added, but the now soft, soundless aisles lead still to the rare antique manual pipe organ, now again in perfect working order.

Today, Grace Episcopal Church is a recognized historical shrine. To the people of St. Francisville it symbolizes, in its simple elegance, the transcendence of compassion over hatred and prejudice even in time of war. It makes the simple statement that whatever part we play, or side we take, we all meet death and have a human need for Grace.

The heritage we have from our forefathers we are building for our children today. Patterson-Redmond builds it strong, by serving well those who build for business, industry, education, health and home.

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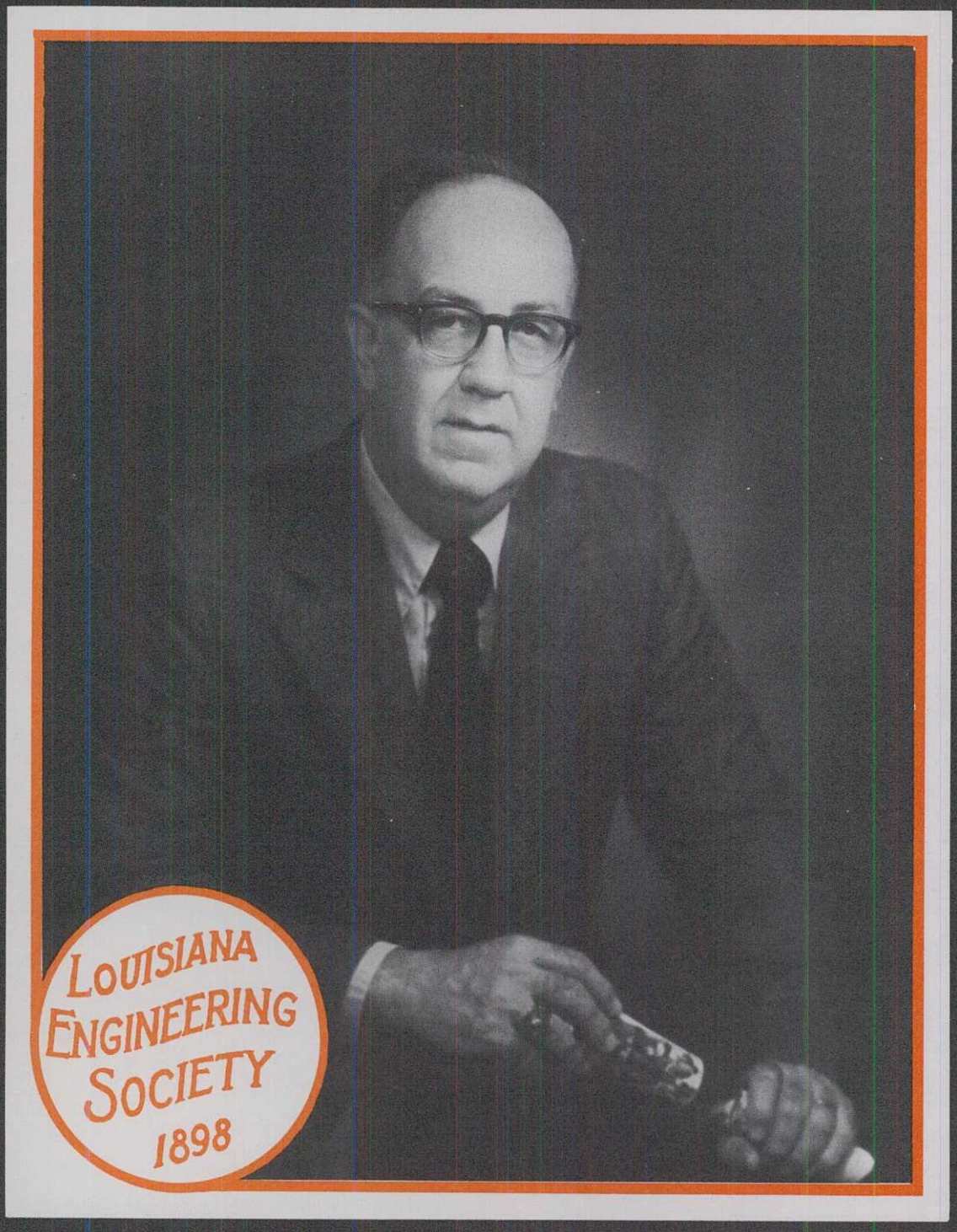

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Typical of the projects was Route 75 in Frederick County, on an old 15′ wide macadam pavement with a high crown. The 2½′ shoulder on each side was excavated and graded to the proper slope and depth. Six inches of Full-Depth asphalt concrete base course was placed in one lift on the subgrade. A wedge course averaging 2″ was placed to reduce the road crown. Wedge courses also were used where needed for superelevation on curves to meet design speed requirements. A 1½″ asphalt concrete overlay was then placed across the entire road, bringing the completed width to 20′.

A limited number of shoulder drains were installed where needed. With this minimum investment, the modernized roadway will safely handle growing traffic needs for years to come.

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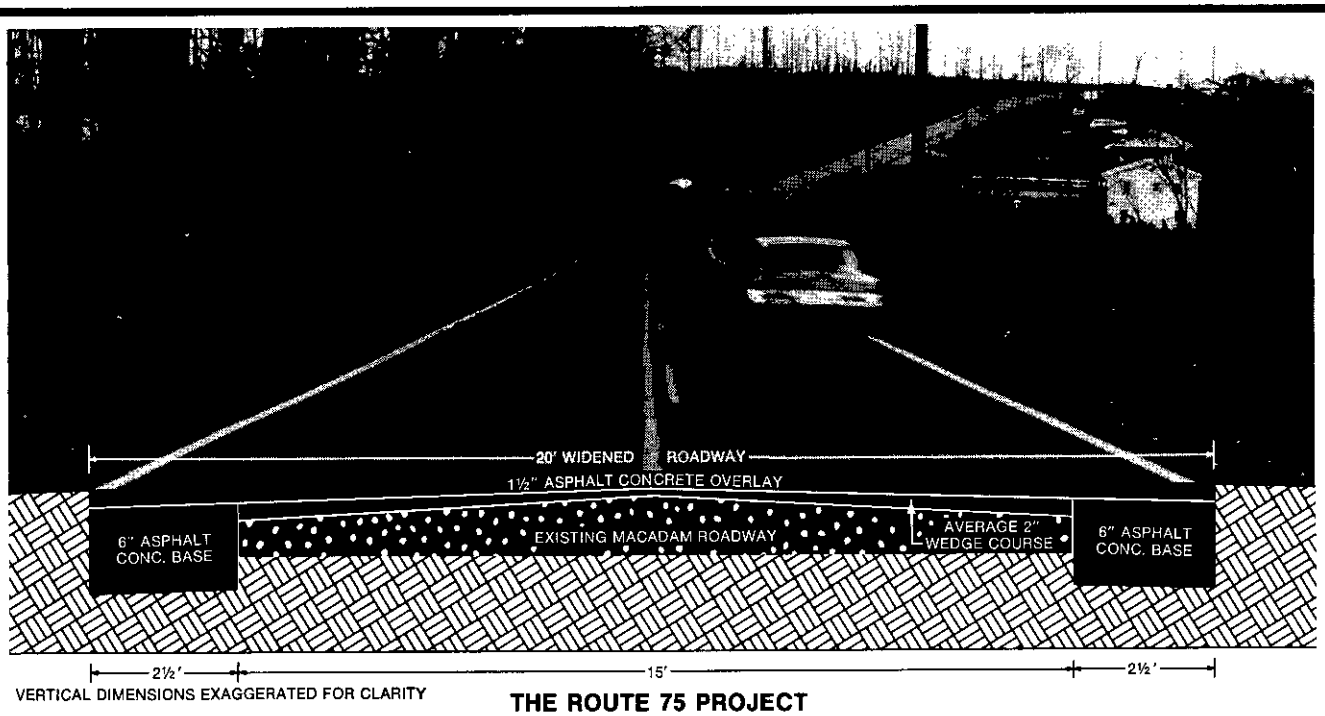

VERTICAL DIMENSIONS EXAGGERATED FOR CLARITY

THE ROUTE 75 PROJECT

LOCATION: From Route 26 to the north end of Johnsville

TYPE: Two-lane rural highway, widened from 15′ to 20′ with 6″ Full-Depth asphalt construction. An average 2″ wedge course and a 1½″ overlay across the full two lane width were added.

LENGTH OF PROJECT: 4.10 miles

TERRAIN: Gently rolling.

CLIMATE: Average temperature range 87°F (July) to 29.4°F (Feb.)

TRAFFIC: Light to medium.

ROADWAY: Macadam, built up over the years by a number of surface treatments.

SURFACE: 1½″ overlay, placed full width.

DRAINAGE: Shoulder drains where needed.

COMPACTION: 95% min lab density

ASPHALT CONCRETE BASE AND SURFACE: 85-100 pen.

Malcolm L. Hurstell Elected LES President

Malcolm L. "Mac" Hurstell, new president of the Louisiana Engineering Society, is a lifetime native of New Orleans. His public school education there culminated in graduation from high school in 1944. After his first year at Louisiana State University he served a year with the Navy in the South Pacific.

He returned to LSU in 1946, receiving the Bachelor of Science degree in electrical engineering in 1948. Joining New Orleans Public Service at that time as an assistant engineer, he held positions of increased responsibility in the Electric System Planning Division of the Engineering Department. In April of this year, he was promoted from Manager of the Electric System Planning Division to Vice President, Engineering.

"Mac" has always given freely of his time in utility-industry and professional organizations. He is a past president of the New Orleans Section of the Institute of Electrical and Electronics Engineers, Inc.; past president of the New Orleans Chapter, IEEE Power Engineering Society; past president of the New Orleans Chapter, American Public Works Association; past president of the School Board of the Archdiocese of New Orleans; and a past president of the Engineers Club of New Orleans.

He has served on the Membership Committee of the IEEE Power Engineering Society and on the EEI Electric System Planning Committee. Since 1973, he has been a member of the US-USSR Working Group on Energy and has just toured Russia as a member of a joint exchange group to study mutual energy problems.

His involvement in LES activities since joining in 1948 has few parallels. He has served in every office of the New Orleans Chapter. At the state level, he has served on the committee which formed the Professional Engineers in Industry practice group. He has held virtually every elected office in this society.

"Mac" is married to the former Mary Fitzpatrick and has five sons and three daughters.

*"The engineering mind is nothing if not ingenious."**

80 YEARS Of Engineering In Louisiana*

(CONTINUED) In the early 1930's, after the repeal of Prohibition, Ford, Bacon & Davis was engaged in a number of engineering and construction projects for breweries and distilleries, largely based upon a wealth of plant data that the firm had accumulated from pre-Prohibition days.

On the other end of the engineering spectrum, the Securities and Exchange Act of 1933 had a far-reaching impact on many industries, especially energy utilities, and a great part of the firm's work entailed assignments for rate-making evaluations, property appraisals, and registration proceedings under the new law. Clients included utilities in Louisiana, Arkansas, Ohio, West Virginia, Alabama, Tennessee, and Washington State.

Notable among the firm's appraisal and management engineering work was a comprehensive study for the United States Steel Corp., which was a result of two studies that the firm had done for a U. S. S. tin plate works and a cement plant. The Steel project entailed a complete and thorough study of the entire corporation, and all of its subsidiaries' phases and operations, and the completed assignment finally became one of the largest management study projects ever to be executed in American industry—a total of more than 200 separate reports when the job was completed in 1938.

As the decade ended, the firm was working on a series of large design and construction projects for, among others, Union Carbide, and its petro-chemical plant at Texas City. Originally contracted at $10-million, the new concept of processing petroleum derivatives proved so successful that $120-million was eventually invested.

Projects like the Carbide plant had a direct effect on the growth of the firm's Monroe engineering and construction facility, and Ford, Bacon & Davis personnel in Louisiana were being dispersed more and more to other job assignments that ranged from process plant construction and pipelines to the engineering, design, construction, and operation of the U. S. Army's $25-million Arkansas Ordinance Plant at Jacksonville. Ford, Bacon & Davis provided the initial architect-engineer services and supervised the construction, which at the peak period involved more than 13,000 carpenters, plumbers, electricians, riggers, and other craftsmen. (*Continued next issue.*)

* From *For Human Needs*, a history of the first 80 years of Ford, Bacon & Davis

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August, 1975

LOUISIANA ENGINEER

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Malcolm L. Hurstell, P.E.
1975-1976 LES President

About the Cover

New LES officers, headed by Malcolm Hurstell, assumed office in July. For a pictorial introduction of all the officers see Pages 12-13.

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Presidential Privilege



Malcolm L. Hurstell, P.E.
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One of the greatest honors that an individual can experience is to be placed by his peers in a position of trust. I want to thank the membership for the confidence they have placed in me, for the opportunity they have given me to serve them, and I petition every member to help me to further the goals of this great organization.

No organization can truly succeed without attempting to achieve noble goals; however, there are two basic asumptions upon which the setting of goals depends:

1. The goals must be realistic, i.e., they are attainable.
2. The goals are worthy of the effort required to reach them.

Past administrations have set goals that remain worthwhile. Yet, despite the substantial progress made towards fulfilling those goals, more remains to be accomplished. These goals which tie this administration to every past administration are:

1. Preservation and expansion of membership.
2. Cultivation of deserving legislative programs.
3. Realization of fiscal reliability.
4. Advancement of young engineers in LES activities.

This administration shall address itself, too, to these goals; in addition, we plan to establish an Engineering Scholarship Program to assist worthy high school seniors. These goals, then, will become our targets for "putting it all together for the engineer!"

The NSPE Scholarship Program

The National Society of Professional Engineers, in conjunction with national corporations and universities, has 27 scholarships available. These scholarships provide LES with an opportunity to offer worthy high school seniors excellent assistance. I shall propose to the LES Board of Direction the establishment of a committee whose responsibility shall be the administration of the Engineering Scholarship Program in Louisiana. Each chapter should appoint a committee to provide contacts with high schools in its area to distribute to them the material on the program. This will be an excellent means of involvement for the Professional Engineering Educators in your chapter.

Membership

Membership is of vital interest to us, for it is the lifeblood of the Society. Therefore, we must determine answers to the following questions:

1. What can we as an organization do to retain existing members?
2. How can we provoke the vast numbers of engineers within the state to join LES?

The answers to both of these questions must come from a self-examination of each chapter, because greater than 90 percent of a member's contact with LES is at the local level.

Are your meetings a challenge to your chapter members?

You are aware how easy it is to justify your presence somewhere else if nothing is gained from attendance at a chapter meeting. Therefore, we urge you to make your meetings not only interesting, but controversial as well.

Have you made a conscientious effort to put your members to work?

Nothing can inspire members to be more active than giving them responsibility. This is of particular importance in relation to new members and especially to young engineers.

The answers to the second question are not simple. Year after year we hold membership contests; yet, despite the fact that many of our chapters reach and exceed their new membership goal, too many of the state's engineers remain outside of the fold. It is incumbent upon every LES member to accept the challenge of recruiting at least **one new member.** We shall rely upon each LES member to sell our Society to friends and associates alike.

Young Engineers

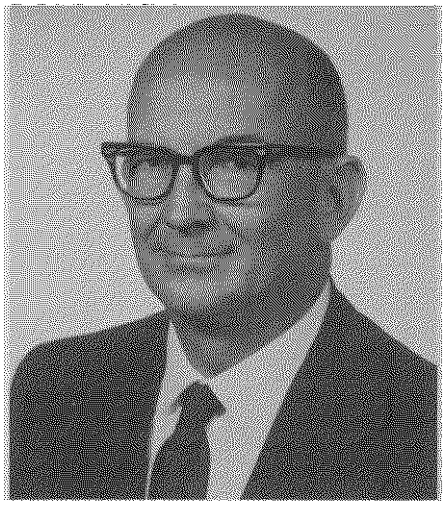
To promote LES with the young engineer, we must first ensure that their academic environment has provided the necessary exposure to the concept of the Professional Engineer. Therefore, every engineering school in the state should have a viable student chapter, and every LES chapter must support and promote the student chapter in its area. This is an especially rewarding activity for your Professional Engineering Educator members. Have you offered the student chapter your help in its programs? The student member is eager to learn and will listen to any of your Practice Division members concerning the challenge of one or more of their projects. This is a chance to "tell it like it is." Use it!

Legislative Programs

Over the years, the vigilance and dedication of those serving on the Legislative Committee, along with "Doc" Spears, have done an outstanding job in furthering the image of the Professional Engineer. Much constructive legislation has been adopted; conversely, many pieces of legislation which would have been injurious to the profession have been thwarted. We must remain receptive to the needs of the

(Continued on Page 18)

Two Engineers Win National Awards



Waldemar S. Nelson



Leo M. Odom

Two of Louisiana's most prominent engineers who have served the state a combined total of more than 37 years as members of the Louisiana Board of Registration for Professional Engineers and Land Surveyors have been honored for their outstanding contributions in the area of safeguarding the public welfare through promotion of engineering registration.

Leo M. Odom, a principal in the consulting engineering firm of Pyburn and Odom, and Waldemar S. Nelson, a principal in the consulting engineering firm of Waldemar S. Nelson and Co., Inc., will be honored by the National Council of Engineering Examiners (NCEE) during formal awards ceremonies held August 12 at the NCEE annual meeting at the Statler Hilton Hotel in Boston.

Odom has the distinction of being a recipient of the NCEE Distinguished Service Certificate for the second time. He is one of only four individuals who have been so honored. He first received the award in 1963. He had received the NCEE Southern Zone Distinguished Certificate in 1962.

The two-time recipient has served the state as a member of the professional engineers and land surveyors regulatory board for more than 30 years. He served as one of four national directors of NCEE from 1956 through 1958.

In recognition of his leadership in maintaining and improving the standards of his profession, the Louisiana Engineering Society in 1972 established the "Leo M. Odom Award for Professional Services" and named him as the first recipient. He has also received the Society's Charles M. Kerr award.

He is a past president of the Louisiana Engineering Society and the Louisiana Section of the American Society of Civil Engineers.

Nelson has been a member of the Louisiana regulatory board since 1969 and has made many substantial contributions in matters concerned with budget, legislation and public relations. He has held every office on the board, including the post of chairman.

In 1974, he received the Distinguished Service Certificate of the Southern Zone of NCEE. At present, he and Odom are working jointly to assure the best possible status for the board during the reorganization under the new state constitution.

Nelson, also a past president of the Louisiana Engineering Society, is a civil, electrical and mechanical engineer registered in 26 states. He is a recipient of the L.E.S. Charles M. Kerr Award for Public Relations.

Both men are members of numerous professional organizations and have served NCEE in many positions.

NCEE, having been formed in 1920, stands as one of the oldest public protection organizations in the United States. It was organized to serve the existing state boards of engineering registration and currently serves the 50 state and five other legal jurisdictions of engineering and land surveying registration.

The service organization has its national headquarters in Seneca, South Carolina, and has as a primary function the preparation of examinations administered by a majority of the registration boards throughout the nation.

Correction

In the June 1975 issue of the LOUISIANA ENGINEER, page 13, the photograph listed Robert H. Clement (right). This gentleman is John F. Marshall. On page 15, A. D. Kaufman is not with the Louisiana Department of Highways, he is Engineer-in-Charge of the Baton Rouge office of Howard, Needles, Tammen and Bergendoff, Consulting Engineers.

BALLOT TO ELECT LOUISIANA ENGINEERING SOCIETY MEMBERS TO ENGINEERS SELECTION BOARD

Please tear along this line

Senate Bill 64 in the 1975 session of the Louisiana legislature was passed into law. This Act supersedes Executive Order 76 that previously set up an Engineers Selection Board.

The Act amends Chapter 10 of Title 38 of the Louisiana Revised Statutes of 1950 by adding thereto a new Part VII, Selection of Professional Services for Public Contracts. Three Boards—Architect, Engineer and Landscape Architect Selection—are authorized under this Act. Each Board selects persons or firms to perform certain professional services for public contracts.

The Act refers to the Louisiana Engineering Society, specifying the following: The Louisiana Engineers Selection Board shall be composed of seven members. Two members shall be named in an election conducted by the Louisiana Engineering Society at which all properly licensed engineers residing in the state of Louisiana may vote for the positions to be filled. LES has two positions to fill this year, one with term ending June 30, 1976 and one ending December 31, 1976.

The LES Board of Direction nominates Robert C. Freeman, P.E., West Monroe, for the June 30 position and Joseph J. Cefalu, P.E., Morgan City, for the December 31 position.

Each Louisiana registered professional engineer working and living in the state is eligible and urged to VOTE. Space on the ballot is provided for write-in candidates. A write-in candidate must be a Louisiana registered professional engineer and must have agreed to serve if elected. No member or firm of which a member is an associate, employee, or stockholder shall be eligible to receive agency contracts during the term of his service, and for a period of two years thereafter.

LES ENGINEER SELECTION BOARD BALLOT

1. Mark and return to LES, P. O. Box 2683, Baton Rouge 70821, by noon August 29, 1975. LES is not responsible for late delivery of mail.
2. Make sure your name and address is on the envelope that forwards the ballot to LES. Ballot signature is not required.

Vote for One Candidate in Each Position

POSITION ONE (Term ending June 30, 1976)

☐ Robert C. Freeman, P.E.

☐ _____

For write-in

POSITION TWO (Term ending December 31, 1976)

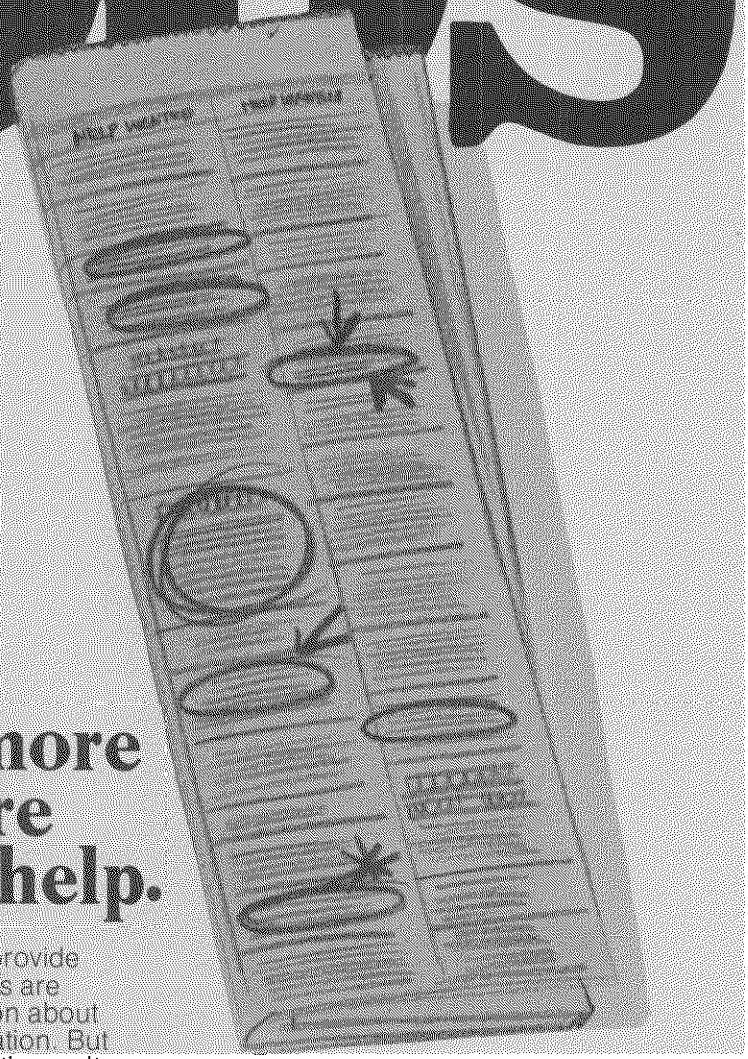
☐ Joseph J. Cefalu, P.E.

☐ _____

For write-in

PLEASE VOTE. RETURN TO LES, P. O. Box 2683, Baton Rouge 70821 prior to August 29, 1975.

Jobs



Louisiana needs more of them. And we're doing our best to help.

Louisiana needs jobs and new industry can help provide them. That's why our teams of industrial specialists are regularly talking to prospects throughout the nation about new sites available for plant expansion and re-location. But new industry means more than just jobs for our citizens. It means helping present industries and services. It means improving our communities and building new ones. It means boosting our overall economy and helping our state grow and prosper through additional taxes.

We have plenty of the natural and human resources necessary to attract new industry here. But among the basic necessities are additional supplies of electric energy to power new industries in the most efficient way. And your investor-owned electric companies of Louisiana are planning ahead and building the facilities to handle these demands.

New jobs are important to our area if we are to progress economically, and we're helping all we can.

YOUR FIVE LOUISIANA INVESTOR-OWNED ELECTRIC COMPANIES

Central Louisiana Electric Company...Gulf States Utilities Company...Louisiana Power & Light Company...New Orleans Public Service Inc....Southwestern Electric Power Company

The Year in Review



Fred C. Culpepper, Jr., P.E.
Immediate Past President, L.E.S.

The affairs of the Louisiana Engineering Society moved forward in 1974-75. We increased our membership and became involved in many activities. There were disappointments, but overall it was a good year for the Society.

Highlights of 1974-75:

1. The membership increased from a total of 2,495 in July of 1974 to 2,800 in July of 1975. This increase includes 137 student members, who do not improve the financial condition but are very important to LES goals and objectives.

2. LES picked up 138 new NSPE members during the 1974-75 year, bringing our total NSPE membership to 1,020. LES finished second in the NSPE Group IV membership contest with a net gain of 77 new members. The NSPE contest runs from March 31 to March 31 and our gain of 138 members from July to July gives us a good start in the 1975-76 NSPE contest.

3. Financially, member contributions of $3,228 made it possible to end the year with a small surplus. The 1974-75 budget was adopted with a $2,900 deficit.

4. The greatest disappointment was the failure of the two proposed dues increase ballots. In October 1974, the dues increase failed by .04 percent, or about 22 votes. In July 1975, the margin was even closer—.003 percent or about four votes. We desperately need the increased dues to compensate for inflation and to finance much-needed legislative and other programs. The new administration plans to repeat the request for a $5 contribution with 1976 dues. Your support is strongly solicited.

5. A disappointment was our apathy in the 1975 legislative arena. We introduced no bills, but the monitoring efforts during the 1975 legislative session could have been much better. No fault or blame is pointed at anyone, but LES is mandated to protect and promote the professional interests of engineers in the state legislature. It is essential that all engineers speak in a strong voice for the things that we want; otherwise, we shall lose our identity and professional status.

6. Over 170 LES and MES members attended the Fourth Annual Joint Meeting at the Royal Sonesta in New Orleans July 25-27, 1974. A panel discussion on energy was well received. Harry Bovay, P. E., President-Elect of NSPE, was the principal speaker and the NSPE Southeastern and Southwestern Regional Vice Presidents assisted him in installing the 1974-75 Mississippi and Louisiana societies' officers.

7. The Chapter Officers Training and State Planning Conference was held in Alexandria September 12-14. Seventy-seven officers, committee personnel and practice division representatives attended and became better prepared to conduct LES activities during the year.

8. Governor Edwin Edwards announced the appointment of Fred C. Culpepper, Jr., P.E., to the Louisiana State Board of Registration for Professional Engineers and Land Surveyors last October, replacing Calvin T. Watts, P.E., whose nine-year term expired.

9. Governor Edwards signed Executive Order No. 76 on November 15, setting up the Engineers Selection Board to depoliticalize the selection process of engineers for state work and to provide assurances of fair treatment both to the engineering profession and to the citizens and taxpayers of Louisiana. LES was authorized to appoint two members to the five-man Board. Arthur DeFraites, Jr., P.E., Houma, and Curtis Freeman, P.E., Monroe, were appointed. The Board has met a number of times and prepared rules of organization and rules of procedure. The term of the Board's first chairman, Arthur DeFraites, expired on July 1. Joseph Cefalu, P.E., Morgan

City, has replaced him on the Board. Legislation enacted in the 1975 session will alter the composition of the Board.

10. LES honored Governor Edwards with a proclamation and certificate December 13 in New Orleans at the opening of the new Hayne Boulevard. The Governor was commended for his cooperation and promotion of the engineering profession in Louisiana.

11. An LES ad hoc committee chaired by James L. Meyer, P.E., was appointed in February 1974 to study pay scales for engineers in government. This committee's study helped the Civil Service Commission to prepare General Circular 372 which brings the engineer salary ranges more in line with NSPE-recommended salary ranges. Favorable action by the state is expected in this month or next. The committee was changed to a standing LES committee for 1975-76 to continue its study.

12. The governor's proclamation, various mayor's proclamations, chapter banquets, noted speakers and student activities highlighted the 1975 Engineers Week February 16-22 throughout the eight chapter areas of Louisiana using the theme, "Engineering . . . Exploring New Energy Frontiers."

13. The annual spring meeting in Monroe April 11 and 12 was a huge success with 106 engineers registered. Five outstanding engineering students, one each from USL, Tulane, LSU, Louisiana Tech, and Southern, presented interesting and well prepared papers. Senator Bob Jones, a candidate for governor and member of LES, spoke on governmental reform and reorganization. The Society honored six outstanding engineers:

* Charles A. Killgore, P.E.
  Andrew M. Lockett Medal for Distinguished Civic Service by an Engineer
* Farrell W. Adams, P.E.
  Leo M. Odom Award for Distinguished Service to the Engineering Profession in Louisiana
* J. Alvin Badeaux, P.E.
  F. Hugh Coughlin Young Engineers Award
* Walter E. Blessey, P.E.
  James M. Todd Technological Accomplishment Medal for Distinguished Service by an Engineer for Technological Advancements
* William McCollam, Jr., P.E.
  A. B. Paterson Medal for an Engineer with Distinguished Service in Engineering Management
* Waldemar S. Nelson, P.E.
  Charles M. Kerr Public Relations Award

14. LES and PEPP co-sponsored an EPA construction grants seminar on May 13 in Baton Rouge. Over 137 engineers attended. Steps 1, 2 and 3 procedures of the program were presented by an EPA panel. Overall the seminar was a well received, productive undertaking.

15. The six issues of the LOUISIANA ENGINEER appearing in August, October, and December of 1974, and February, April and June this year published some outstanding features. Among them were:

LES Year in Review 1973-74
J. J. Thigpen, P.E.

Creative Design Projects at USL
Walter E. Red, PhD.

Louisiana Engineers in Indonesia
Edward McNamara, P.E.

Louisiana Engineers in Europe — Subways and Smoked Sturgeon
James S. Janssen, P.E.

Amax Nickel Refining in Louisiana
Staff

Annual Report of the Louisiana State Board of Registration
Daniel H. Vliet, P.E.

LES Honors Outstanding Engineers
Staff

Employment Opportunities and Engineering Enrollments, 1975
Grover J. Trammell, P.E.

Olin Corporation Lake Charles Complex
Fred M. Smallwood

16. Advertising revenue for the LOUISIANA ENGINEER improved considerably from $8,671 for the six issues of 1973-74 to $12,082 for the six issues of 1974-75. We still need your help in getting more advertising.

17. We are particularly pleased to welcome the new Student Chapter at McNeese State University and the 95 new student members from the University of Southwestern Louisiana.

18. LES was recognized as a primary source of engineering expertise in the state by federal, state and local agencies. In addition to the highlights reported above, the General Service Administration invited LES to nominate an engineer to serve on the Region VII Public Advisory Panel; the Louisiana Department of Public Works requested a review of its rules and regulations for water-well registration in the state; the services of the Alexandria Chapter were requested in a study of the engineering needs of the Parish, resulting in the establishment of an LES-Rapides Parish committee; LES officially opposed the Outer Continental Shelf Order No. 8, published in the Federal Register, which seemed to impugn the professional integrity of registered engineers; LES submitted names to the governor for an appointment to the Louisiana Fire Code Board of Review; LES participated in an AGC-EPA statewide seminar in Alexandria; the U. S. Army requested LES to review an environmental impact statement on the upcoming change of mission at Fort Polk military reservation; LES prepared a list of firms available to prepare EPA plans regarding a spill-prevention control on request from the Louisiana Oil Marketing Association; and LES nominated an engineer to the Louisiana Air Control Commission.

Gulf States Utilities' First Coal-Fired Unit

R. G. Chapman, P.E.[1]

The generation of electricity by Gulf States Utilities has traditionally been accomplished by the use of natural gas as a boiler fuel, but recent events have dictated a change in fuels. This change is to oil, coal and nuclear power as energy sources for the generators. An extensive modification program is in progress on some of the company's existing gas-burning units, with engineering and design underway on nuclear and coal-burning facilities to be added.

The engineering and design of Gulf States' first two coal-fired generating units is to be a massive project, unique in many ways to the firm's normal operating procedures.

The units are to be constructed adjacent to the existing Roy S. Nelson Station, located five miles northwest of Westlake, Louisiana. The first of the two units, Nelson No. 5, is scheduled to go into commercial operation in the fall of 1979, with Unit No. 6 following five years later in 1984. The design of each unit is based on a single - turbine, single - boiler installation, with a net generating capability of 551 MW.

Low sulphur (.48 percent by weight) sub-bituminous coal will be delivered from the Thunder Creek Region of Wyoming to the site by 110-car unit trains. Each coal car will have a capacity of 100 tons and will be equipped with swivel couplings to accommodate a rotary car dumper operation. The unit train will be operated on a constant delivery schedule throughout the year.

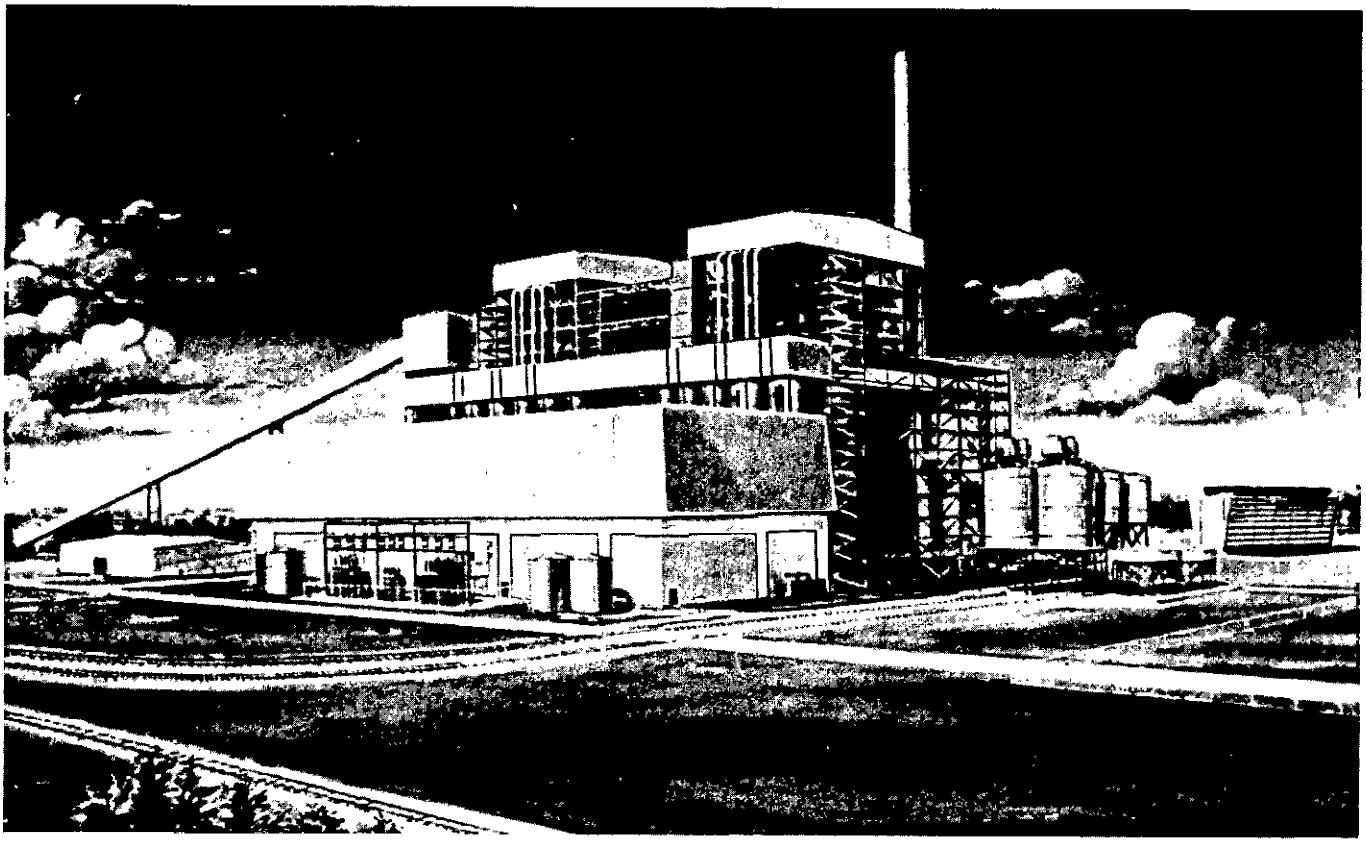
The rotary dumper will be designed to position, rotate, and upright a coal car in a maximum time period of two minutes. Each coal car will be unloaded by the dumper into a 150-ton-capacity underground storage hopper. Vibratory feeders located under the hopper will deposit the coal on a collection belt conveyor, which will transport the coal over a belt scale to the inlet of the active coal storage hopper.

The coal can then be transferred to a stackout conveyor for stackout in the inactive storage area or to the active storage distribution conveyor for storage in the active storage hopper. The active coal storage hopper will be sized for two days' storage with both units at maximum continuous load.

Coal will be reclaimed from the active storage hopper by a rotary plow feeder and transported via an active storage reclaim conveyor to a transfer station located at the outlet end of the active storage hopper. The coal will then be transferred to a plant feed conveyor system which will deposit the coal into the common two-unit plant surge bin.

From the plant surge bin, coal will be fed to storage silos by a twin cascading conveyor system. Six storage silos with a storage capacity of six hours will be provided for each unit. Gravimetric

[1] Electrical Design Engineer, Gulf States Utilities Company, Beaumont, Texas.



feeders will feed the coal from the silos to the pulverizer, which will take the coal—sized from two inches and smaller—and grind it into a powder fine enough to be conveyed into the boiler by air. The coal burn rate will be 336 tons per hour per unit.

The inactive coal storage area will be sized for 60 days' storage with both units at maximum continuous load. Mobile equipment will be used to store, compact and reclaim coal from the storage area. A primary reclaim hopper and conveyor system will be provided to reclaim coal in inactive storage. This system will convey coal to the inlet of the active storage hopper for stackout to active storage. A secondary reclaim hopper and conveyor system will be provided and will convey coal directly to the plant feed conveyor at the outlet of the active storage hopper.

A single chimney with two liners, one for each unit, will be 500 feet above grade with a bottom diameter of 50 feet and a top diameter of 22 feet.

Two 50-percent hot precipitators will be provided for each unit to collect particulate matter in the flue gas. The precipitators will be located between the economizer outlets and air preheater inlets and installed in a stacked configuration. Collection efficiency will be 99.5 percent.

An ash-handling system will be provided to remove fly ash from the precipitators and bottom ash from the furnace hoppers.

The fly-ash system will collect and pneumatically convey, in a pressurized pneumatic system, fly ash from the precipitators to fly ash storage silos. From the storage silos the ash will be transferred by truck to an onsite disposal area.

Bottom ash will be conveyed from the furnace hopper to dewatering bins, and the decanted water will be recirculated in a closed loop recirculating system. From the dewatering bins the bottom ash will be transferred by truck to an onsite disposal area.

Environmental considerations for the plant will include the precipitator for removal of particulate in the flue gas, liquid waste disposal system for processing the plant's liquid waste before discharge, and retention ponds for coal-pile rainwater runoff and ash-disposal-area rainwater runoff.

Coal dust control will include dust suppression and collection systems. The rotary car dumper and active storage areas will be covered. The conveyor system will be enclosed in walk-through galleries. Coal dust control will satisfy the environmental requirement that no coal dust be visible when viewed from the plant's perimeter property lines.

When completed, the complexity of equipment will require an operating and maintenance work force of some 80 additional people to keep both units running. Coal-fired plants are complex, but they are essential in view of the fuel situation as it exists today. The Nelson No. 5 and No. 6 units will play important roles in the future of Gulf States Utilities and its customers.

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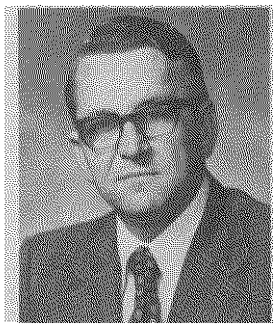

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Manager, Pipeline
Services Department
Ford, Bacon & Davis,
Monroe



President
Malcolm Hurstell, P.E.
Vice President,
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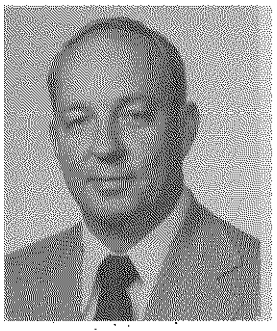

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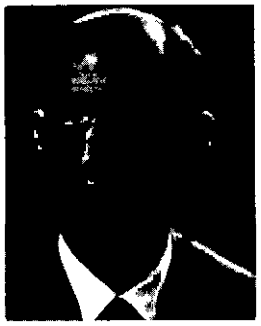

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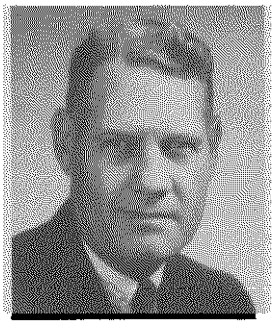
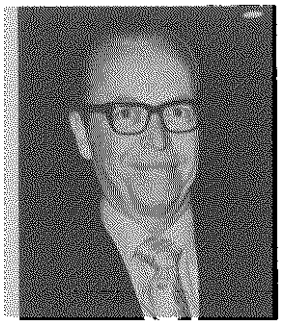


National Director
John F. Vogt, P.E.
Vice President,
Engineering &
Operations, Middle
South Services,
New Orleans



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Domingue, Szabo &
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Lafayette



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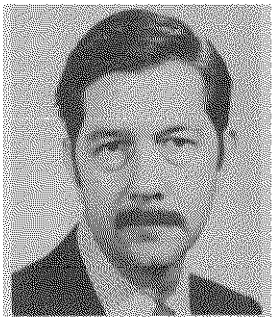

State Director
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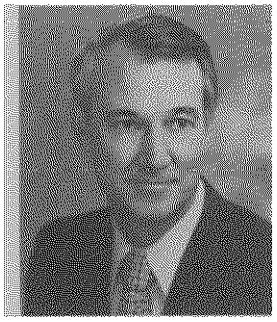
Dean, College of
Engineering, USL
Lafayette



State Director
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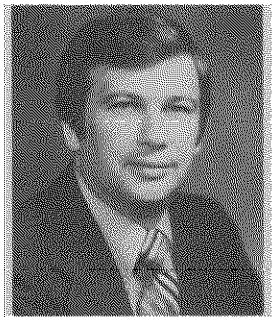

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State Director
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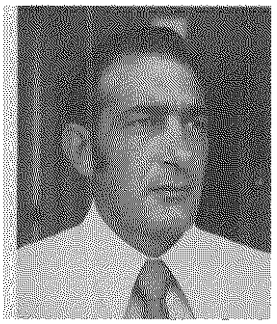
Gulf South Engineers,
Houma

New Chapter Presidents and Practice Division Chairmen

CHAPTER PRESIDENTS Chapters are the foundation of the Society's organization. Chapters are located in Alexandria, Baton Rouge, Lafayette, Lake Charles, Monroe, New Orleans, Shreveport and the Bayou serving Morgan City, Houma, and Thibodaux areas.



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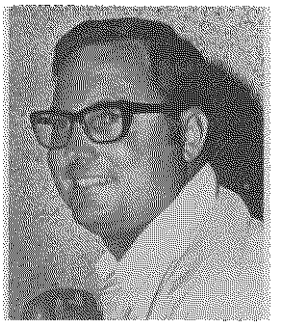
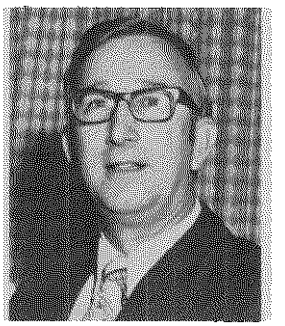
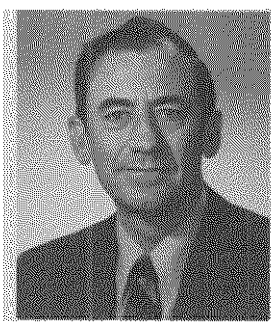
Baton Rouge



Harold P. LeRay, P.E.
Bayou
Sales Engineer,
South Louisiana
Electric Cooperative
Association, Houma



Irving Manuel, P.E.
Lafayette
SW Louisiana
Electric Membership
Corporation



James B. Boulet, P.E.
Lake Charles
Staff Engineer
Cities Service
Oil Company



A. Webb Hart, P.E.
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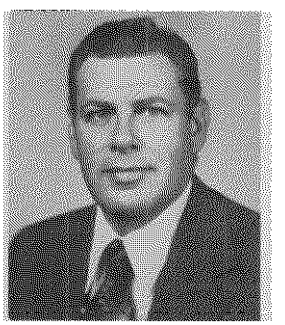

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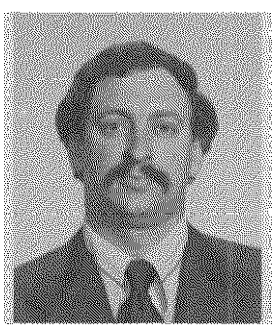

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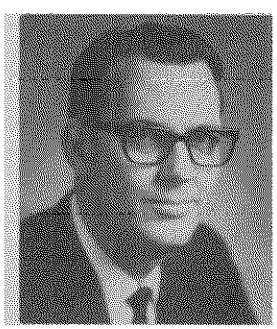

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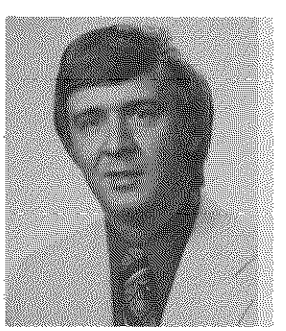

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On the Feasibility of Coal-Fired Power Stations

Dr. J. F. Mullen
Director
Advanced Power Research

Introduction

The recent discovery of coal (black, fossilized plant remains) in a number of places offers an interesting alternative to the production of power from fission. Some of the places where coal has been found indeed show signs of previous exploitation by prehistoric men, who probably used it for jewels and to blacken their faces at religious ceremonies.

The power potentialities depend on the fact that coal can be readily oxidized, with the production of a high temperature and an energy of about 10×10^{-8} Megawatt day per gramme. That is, of course, very little, but large amounts of coal (perhaps millions of tons) appear to be available.

The chief advantage is that the critical amount is very much smaller for coal than for any fissile material. Fission plants become, as is well known, uneconomical below 50 Megawatts, and a coal-driven plant may be competitive for small communities (such as small islands) with small power requirements.

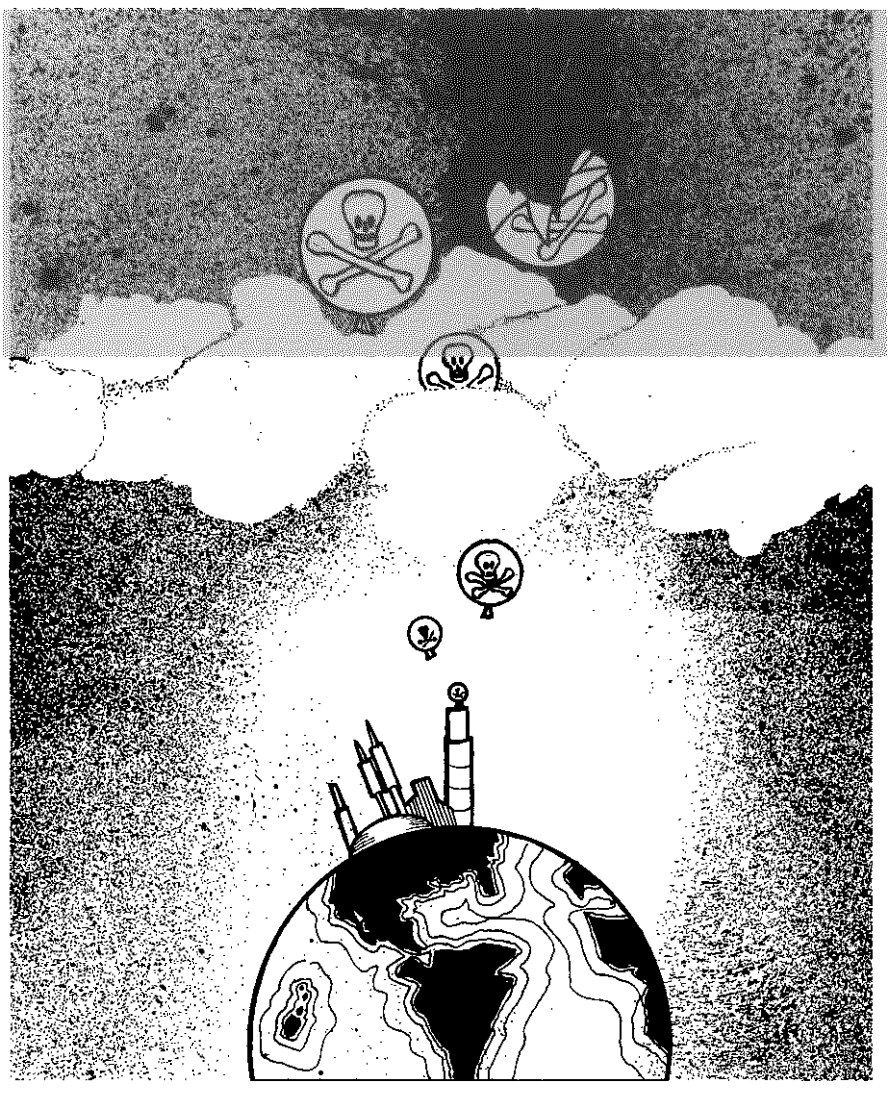
Design of a Coal Reactor

The main problem is to achieve free, yet controlled, access of oxygen to the fuel elements. The kinetics of the coal-oxygen reaction are much more complicated than fission kinetics, and not yet completely understood. A differential equation which approximates the behavior of the reaction has been set up, but its solution is possible only in the simplest cases.

It is therefore proposed to make the reaction vessel in the form of a cylinder, with perforated walls to allow the combustion gases to escape. A concentric inner cylinder, also perforated, serves to introduce the oxygen while the fuel elements are placed between the two cylinders. The necessary presence of end plates poses a difficult but not insoluble mathematical problem.

Fuel Elements

It is likely that these will be easier to manufacture than in the case of fission reactors. Canning is unnecessary and indeed undesirable, since it would make it impossible for the oxygen to gain access to the fuel. Various lattices have been calculated, and it appears that the simplest of all—a close packing of equal spheres—is likely to be satisfactory. Computations are in progress to determine the optimum size of the spheres and the required tolerances. Coal is soft and easy to machine; so the manufacture of the spheres should present no major problem.



Oxydant

Pure oxygen is, of course, ideal but costly; it is therefore proposed to use air in the first place. However, it must be remembered that air contains 78 percent nitrogen. If even a fraction of that combined with the carbon of the coal to form the highly toxic gas cyanogen, this would constitute a grave health hazard (see below).

Operation and Control

To start the reaction one requires a fairly high temperature of about 988°F; this is most conveniently achieved by passing an electric current between the inner and outer cylinder (the end plates being made of insulating ceramic). A current of several thousand amps is needed, at some 30 volts, and the required large storage battery will add sub-

stantially to the cost of the installation.

There is the possibility of starting the reaction by some auxiliary self-starting reaction, such as that between phosphine and hydrogen peroxide; this is being looked into.

Once the reaction is started, its rate can be controlled by adjusting the rate at which oxygen is admitted; this is almost as simple as the use of control rods in a conventional fission reactor.

Corrosion

The walls of the reactor must withstand a temperature of well over 1,000°F in the presence of oxygen, nitrogen, carbon monoxide and dioxide, as well as small amounts of sulphur dioxide and other impurities, some still unknown. Few metals or ceramics can resist such gruelling conditions. Niobium with a thin lining of nickel might be an attractive possibility, but probably solid nickel will have to be used. For the ceramic, fused thoria appears to be the best bet.

Health Hazards

The main health hazard is attached to the gaseous waste products. They contain not only carbon monoxide and sulphur dioxide (both highly toxic) but also a number of carcinogenic compounds such as phenanthrene and others. To discharge these into the air is impossible; it would cause the tolerance level to be exceeded for several miles around the reactor.

It is therefore necessary to collect the gaseous waste in suitable containers, pending chemical detoxification. Alternatively the waste might be mixed with hydrogen and filled into large balloons which are subsequently released.

The solid waste products will have to be removed at frequent intervals (perhaps as often as daily) but the health hazards involved in that operation can easily be minimized by the use of conventional remote-handling equipment. The waste could then be taken out to sea and dumped.

There is a possibility—although it may seem remote—that the oxygen supply may get out of control—this would lead to melting of the entire reactor and the liberation of vast amounts of toxic gases. Here is a grave argument against the use of coal and in favor of fission reactors which have proved their complete safety over a period of several thousand years. It will probably take decades before a control system of sufficient reliability can be evolved to allay the fears of those to whom the safety of our people is entrusted.

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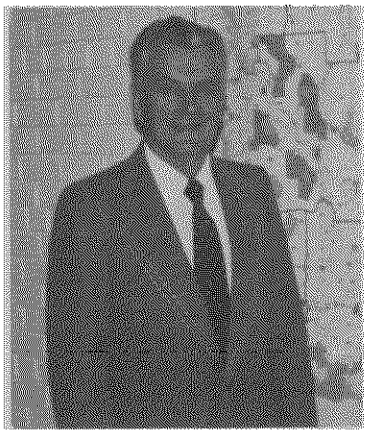

Potpourri

From Your Executive Secretary

R. C. "DOC" SPEARS

1975 Training Session

The Chapter Officers Training and State Planning Conference will be held at the Sheraton Inn in Alexandria on September 11, 12 and 13. LES chapter officers, practice division representatives and all committee members should attend these most important indoctrination sessions.

Farrell W. Adams Transferred

Farrell W. Adams, P.E., outstanding Shreveport member and recipient of the 1975 Leo M. Odom Award, has been transferred by the United Gas Pipe Line Company to Houston, Texas. Farrell will be missed. Fortunately, he has requested out-of-state membership status.

Membership Statistics

The membership audit of June 11, 1975 shows moderate growth in all categories of members from last year's audit. Total membership is 2,800 with 1,020 NSPE members. LES should be authorized three NSPE national directors based on one director for each 500 members or fraction thereof.

Member Category	LES	(NSPE)
Members	1,878	(787)
Junior Members	311	(151)
Affiliate Members	175	(22)
Life Members	219	(22)
Privileged Members	66	(23)
Student Members	151	(15)
Totals	2,800	(1,020)

Legislative Report

The 1975 Louisiana legislature adjourned July 14 after a very active 85-day session. LES had no bills introduced. However, a few bills discussed and passed will affect engineering.

☆ SB 64, the Architect-Engineer Selection Board bill, was passed on July 13. This law differs from Executive Order 76 in that:

1. The Engineers Selection Board will have seven members: two elected by CEC/La., two elected by LES, two appointed by the governor, and one appointed from the government agency having the work.
2. Members of the Board will be barred from seeking government work for two years after serving one year on the Board.

☆ HB 33, adding a 10th-member Land Surveyor to the State Board of Registration, was passed. Amendments to have LES recommend the land surveyors to the Board and to make changes in generic wording of the bill were both defeated by a conference committee.

☆ HB 1000, the reorganization bill to consolidate the executive branch of the government into no more than 20 departments, was passed into law. The State Board of Registration remains in the Department of Transportation and Development.

NCEE Awards to Odom and Nelson

Congratulations to Leo M. Odom, P.E., and Waldemar S. Nelson, P.E., on receiving the National Council of Engineering Examiners (NCEE) Service Certificate for their outstanding contributions in the area of safeguarding the public welfare through promotion of engineering registration. Note the detailed story in this issue.

Nominees for Louisiana Air Control Commission

Lee Castagnos's four-year term on the Louisiana Air Control Commission expired July 29. As required by Louisiana Revised Statute 40:2203, one member of the Air Control Commission is a registered professional engineer selected by the governor from a panel of at least three nominees submitted by the Louisiana Engineering Society.

Engineers nominated to the Governor on July 15:

Howard C. McAfee, P.E., New Orleans
Ernest Levingston, P.E., Lake Charles
Delmar Crowson, P.E., New Orleans
Houston K. Huckabay, P.E., Ruston
Frank Groves, P.E., Baton Rouge

It is the purpose of the Air Control Commission to maintain purity of the air resources of Louisiana consistent with the protection of the health and physical properties of the people, maximum employment, and the full industrial development of the state.

Engineers Selection Board—Executive Order 76

The Engineers Selection Board authorized under Executive Order 76 held its last meeting on July 14 in the Division of Administration office, State Capitol, Baton Rouge. Senate Bill 64, passed by the legislature, sets up a new Board with different membership and procedural requirements. Interface between the Board under the Executive Order and that of the new act is an unknown quantity at this time.

The E. O. Board elected Nash Ogden, P.E., chairman, and Curtiss Freeman, P.E., vice chairman. Two new members, Joseph Cefalu, P.E., and Warren Moses, P.E., attended their first meeting. A discussion of the new law absorbed most of the meeting.

LES Automobile Insurance Program

The LES-sponsored automobile insurance program is getting good response. In the six months since the inauguration of the new carrier, 408 members have had their auto insurance rates and coverage compared with the LES program.

Sixty-five members now have their cars insured through the LES program.

The insurance representative plans to announce a full line of life, hospital, accidental, disability and medical insurance programs later this year.

The automobile and forthcoming full insurance programs are services for LES members. We urge your cooperation and hope you will advise the state office if you have complaints or compliments regarding the car insurance program. For information on the automobile insurance program, write EIR, P. O. Box 3616, Baton Rouge 70821.

New NSPE Scholarships

On June 30 the Educational Foundation of NSPE announced the addition of eight new engineering scholarships, bringing total student grants to 40 for the 1976 academic year.

The new scholarships include two four-year scholarships, each worth $1,500 annually, in any field of engineering at Stevens Institute of Technology, Hoboken, New Jersey; a four-year, $4,000 scholarship at Ohio State; four $1,000 scholarships to be awarded annually at Hofstra University; and a four-year $4,000 grant at Brown University.

More than 5,000 students apply each year at state and local levels for NSPE scholarships. LES submitted two Louisiana high school student applications in 1973 and one student won the Boston University scholarship. Six were submitted in 1974, with no winners. The obligation to give Louisiana students an opportunity to participate in these scholarships affords the LES Educational Committee and the chapters an excellent means for community involvement in 1975-76.

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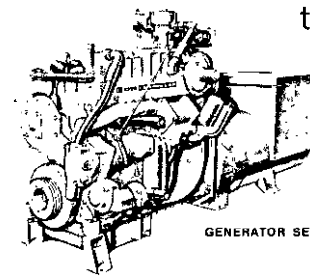
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PRESIDENTIAL PRIVILEGE

(Continued from Page 5)

membership and, more importantly, we should continue to recognize the responsibility we bear for the well-being of the public we serve. Your personal contacts with legislators in your area is imperative for this program to be successful.

Fiscal Responsibility

We cannot ignore the effects of the economy on LES operations. In your businesses, as well as your personal affairs, you are aware of the effect of inflation. Yet again and again, proposed dues increases have failed to be approved by the required two-thirds of the voting membership. In fact, only once in 10 years has a dues increase been approved, and the most recent proposal to increase the dues by $5 failed by a mere four votes. Because the additional dues are so badly needed, I shall request that every member voluntarily contribute $5 so that we will not need to curtail services to the membership.

Perhaps the most distressing aspect of the failure of the dues increase to pass is the fact that only 41 percent of the eligible voting members cast their ballots. This apparent apathy on the part of 59 percent of the membership is of immediate concern and is a reflection of the interest in LES. We exhort every chapter president to take the necessary steps to reverse this negative attitude.

Unity of Purpose

We shall endeavor to bring unity to our profession. In today's society, it is becoming increasingly difficult to classify engineers as mechanical - electrical - petroleum-civil or some other class of engineer. Nor are we "engineers in industry," "consulting engineers," "construction engineers," or the like. We are not engineers from New Orleans or Shreveport or Lake Charles. We are first and foremost engineers—professional people who apply the laws of nature and physics for the common good of mankind in the most practical, economic way.

It is time that we begin to act as professional engineers. You can do your share by actively participating in LES activities, regardless of your opinion on individual items. With your unselfish giving, LES will become an ever greater force in your career, your community, your state!

Help me!

Help yourself!

"Put it together for the engineer."

Fall 1975 Engineering Management Courses

FACULTY

The courses will be taught by regular faculty members of the LSU Colleges of Business Administration and Engineering or by able, qualified professors from other universities in the State.

CERTIFICATE

Upon completion of four acceptable courses the participant will be awarded a Certificate in Engineering Management by the Division of Continuing Education. Under certain conditions college credit also may be earned for the courses.

COST

The registration fee per participant is $110 for each course including the cost of textbooks. The program is fully self-supporting.

REGISTRATION

To insure that each student will have an opportunity to participate in discussion, enrollment in each section will be limited to 30 students.

Class sessions will be held in the University Medical Center at New Orleans, on the Baton Rouge campus, and in other cities throughout the state where there is adequate demand. To preregister for the classes complete the attached form and return with $10 preregistration fee. Fee is applicable toward the $110 total registration fee and will be refunded if class chosen is not offered.

AVAILABLE COURSES

Course A — Concepts of Modern Management
Course B — Economics for Engineering
Course C — Engineering Economy
Course D — Financial Decision Making
Course E — Operations Research for Engineers
Course F — Basic Engineering Statistics
Course G — Theory, Methods and Use of Accounting

Please complete the following form and return it with the $10 fee to the address below if you are interested in the Fall of 1975 Program. (Classes will begin during the week of September 8, 1975.)

Name _____

Address _____ **Phone** _____

City & State _____ **Zip** _____

MAIL FORM TO:
Dr. Thomas G. Ray
Mechanical, Aerospace & Ind. Engineering Dept.
Louisiana State University
Baton Rouge, Louisiana 70803

I wish to preregister for the course indicated. (Please show your first choice with a **1**, *second with a* **2**, *etc. Show a single location choice only.) I understand if my first choice is not offered, I can request a refund of the $10 preregistration fee. This condition also applies if the class is scheduled on a night I cannot attend.*

Courses Offered	Locations
____ Management	____ Baton Rouge
____ Economics	
____ Engineering Economy	____ New Orleans
____ Finance	____ Shreveport
____ Operations Research	
____ Engineering Statistics	____ Alexandria
____ Accounting	____ Monroe

I cannot meet on the following nights:
M_____ T_____ W_____ Th_____

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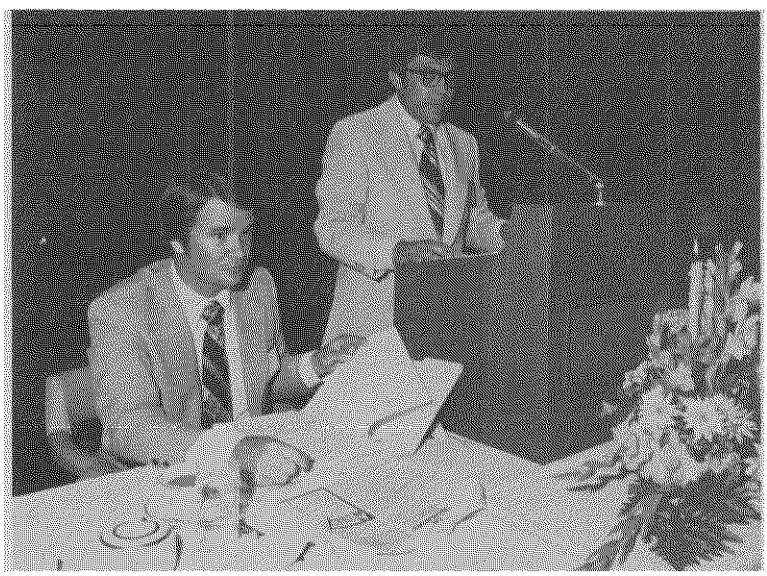
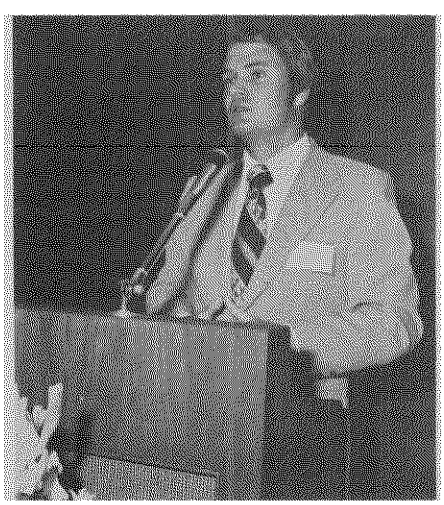
New officers installed by the Lafayette Chapter June 27 are, left to right, Irving Manuel, P.E., President; Richard A. Dupuis, P.E., Treasurer; J. L. Andrus, P.E., Secretary; Larry F. LeFleur, P.E., Second Vice President; Robert L. Bright, P.E., First Vice President.



Ray DesOrmeaux, P.E., right, and Congressman John Breaux



Fred C. Culpepper, P.E.
LES President



John Breaux, U. S.
Congressman, 7th District

Officer Installation At Lafayette

Over 125 engineers and guests attended the Lafayette Chapter's dinner meeting June 27 at the Petroleum Club in Lafayette. Fred C. Culpepper, P.E., President of LES, installed the 1975-76 chapter officers: Irving Manuel, P.E., President; Robert L. Bright, P.E., First Vice President; Larry F. LeFleur, P.E., Second Vice President; J. L. Andrus, P.E., Secretary; and Richard A. Dupuis, P.E., treasurer.

Ray DesOrmeaux, P.E., acted as master of ceremonies and introduced Congressman John Breaux, who gave the group a report on recent action in the U. S. Congress.

N. O. Auxiliary Elects Officers, Awards Scholarships

At the annual meeting of the Woman's Auxiliary to the New Orleans Chapter of the Louisiana Engineering Society May 20, the following officers were elected for 1975-76:

President

Mrs. L. C. Grundmann, Jr.

(Continued on Page 20)

EngiNEWS

(Continued from Page 19)

President-Elect
Mrs. Robert B. Anderson
Vice President
Mrs. George W. Webb
Honorary Vice President
Mrs. J. Robert Rombach, Jr.
Recording Secretary
Mrs. Gary R. Jacob
Corresponding Secretary
Mrs. Harold N. Ford
Treasurer
Mrs. Ernest Bonnoitt
Financial Secretary
Mrs. L. L. Denson

This year six scholarships totaling $5,288 have been awarded by the Auxiliary. Four of these scholarships are provided through the bequest to the Auxiliary by the late Mrs. Samuel McCain Young, in memory of her late husband, to provide undergraduate scholarship support for engineering students from the New Orleans area studying civil engineering.

Recipients were John Guillot of Louisiana Tech, Robert Wright of Louisiana State University, Carlos Gonzalez of Tulane University, and Kenneth Moore of University of Southwestern Louisiana.

In addition, the Founder's Scholarship was awarded to David John Carden of Tulane and a fellowship award went to Lansing B. Evans, also of Tulane.

Shreveport Chapter Wins '74-'75 Membership Title

The Shreveport Chapter has won the annual LES membership contest in 1974-75. The Bayou Chapter, winner of the contest for the past five years, dropped to second place but had a fine showing. Congratulations to John Guth, P.E., Shreveport Chapter President, Don Richardson, P.E., Shreveport Chapter Membership Chairman, and the entire Shreveport Chapter membership for this outstanding accomplishment. Final standings in the 1974-75 contest are shown in the accompanying table.

LES Membership Contest Standing as of July 11, 1975

Position	Chapter	Chairman	Quota	Applications	% Quota	NSPE	Percent of Year: 100 Net	Contest	Student
1	Shreveport	Richardson	19	43	226.32	22	65	342.11	
2	Bayou	Peterman	10	20	200.00	8	28	280.00	
3	Lake Charles	Brassette	11	19	172.73	11	30	272.73	36
4	Lafayette	Deal	17	28	164.71	11	39	229.41	95
5	Monroe	Ray	19	26	136.84	14	40	210.53	4
6	Baton Rouge	Blanche	47	63	134.04	35	98	208.51	
7	Alexandria	Moore	15	15	100.00	5	20	133.33	
8	New Orleans	Riorda	88	79	89.77	36	115	130.68	2
			226	293	129.65	131	435	192.48	137
	Non Resident			20		7	27		

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Aichele, Erwin Oskar
Middlesex, NJ—Civil

Alford, Woodrow Ellis
Metairie, LA—Civil

Allain, John Carroll
B. Rouge, LA—Mechanical

Aplin, Jr., Perry H.
Aimwell, LA—Civil

Beatty, Samuel Stewart
Héflin, LA—Civil

Beebe, John Scott
Atlanta, GA—Civil

Birkett, Harold Sydney
B. Rouge, LA—Chemical

Brown, Larry Allen
Bogalusa, LA—Mechanical

Brown, Tony Ray
Lafayette, LA—Petroleum

Bruce, Richard Earl
Natchitoches, LA—Civil

Cain, Jr., Sam Oliver
Natchitoches, LA—Elec.

Cox, Clyde Harold
Houston, TX—Civil

Creighton, Bruce Paul
Metairie, LA—Electrical

Davis, Lloyd Robert
Houston, TX—Electrical

deBlanc, Jr., Francis Xavier
Gretna, LA—Mechanical

Dolby, Alton Jay
Chicago, IL—Mechanical

Elguezabal, Domingo Juan
Metairie, LA—Civil

Elliott, Dennis Ray
Lake Charles, LA—Mech.

Ezelle, Jr., Ralph Wayne
Magnolia, AR—Civil

Ferris, James William
Metairie, LA—Civil

Grossnickle, Donald Emerson
Houston, TX—Civil

Guilbault, Jr., Robert Paul
N. Orleans, LA—Mechanical

Gupta, Joginder Mohan
Skokie, IL—Civil

Hawes, William John
Lisle, IL—Civil

Hebert, Jr., James Oliver
Starkville, MS—Electrical

Hernandez, Ronald Dale
Shreveport, LA—Mech.

Hilliard, William James
Miami, FL—Mechanical

Hoenerhoff, Richard Biar
Baton Rouge, LA—Civil

Jackson, John Clinton
B. Rouge, LA—Electrical

Jarrett, James Ralph
St. Albans, WV—Mech.

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Leawood, KS—Civil

Kirby, Richard Copeland
Metairie, LA—Electrical

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Houston, TX—Civil

Leeton, Felix Batts
Greenwell Springs, LA—Mechanical

Mader, Charles Timothy
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Shreveport, LA—Electrical

Newman, Frank Hodges
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Framingham, MA—Civil

Paxson, George Eugene
Gretna, LA—Petroleum

Pepple, John Jeffrey
Slidell, LA—Industrial

Price, Charles Edward
New Orleans, LA—Mech.

Reddy, Dermot
Westfield, NJ—Mechanical

Reynolds, James Wesley
Harvey, LA—Chemical

Rich, John Edwin
Monroe, LA—Civil

Salz, Larry Bernard
Gretna, LA—Civil

Shoudy, Charles Allen
Monroe, LA—Mechanical

Stelly, Raymond
Baton Rouge, LA—Civil

Stevens, John Belmont
Baton Rouge, LA—Civil

Stone, William Harland
Houma, LA—Petroleum

Swartz, Charles Harris
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Thomas, Jerry Paul
Shreveport, LA—Civil

Toub, Samuel George
Dallas, TX—Mechanical

Wagner, Boyd Clinton
Leesport, PA—Mechanical & Electrical

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Westwego, LA—Civil

Wise, William Thomas
Monroe, LA—Electrical

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Angelico, Michael John
Kenner, LA—Electrical

Arnold, Gregory Dean
Metairie, LA—Civil

Ball, John Edward
Bryan, TX—Civil

Bankston, Sr., John Michael
Baton Rouge, LA—Civil

Barnett, Lawrence McBride
Shreveport, LA—Mechanical & Civil

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N. Orleans, LA—Electrical

Bell, Ronald Louis
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Brakebill, Cecil A.
New Orleans, LA—Civil

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Bridges, Charles Kenneth
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Gretna, LA—Civil

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Sunnyvale, CA—Electrical

Jongputisiri, Kitti
Baton Rouge, LA—Civil

Khedekar, Rajanikant
Flushing, NY—Civil

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Alexandria, LA—Petroleum

Konecni, Ronald Ray
Gretna, LA—Petroleum

Lane, James William
Jackson, MS—Electrical

Lembeck, Jr., Henry George
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Lindsey, Bobby Thomas
Artesia, MS—Civil

Loh, Chow Shin
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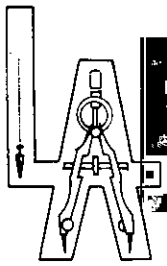

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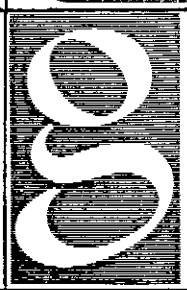

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The dark old structure stands before the bayou, proudly displaying the eight columns of the most photographed private home in America. The visitor who walks around colorful gardens and lovely live oaks feels instinctively that The Shadows was not merely built, but "grew" without man's help.

A man did build The Shadows, however — a determined seven-foot Scotsman named David Weeks who came to the small settlement of New Iberia in 1830. He decided to build his home directly on Bayou Teche, a thriving commercial artery of South Louisiana.

The two-story house was built with sturdy cypress timbers, handmade brick and picturesque galleries on both floors. A giant man, with a huge family of 8 children, he made the rooms 30' square and the ceiling 16' high, and on May 17, 1834 moved into the newest home on the Teche.

On May 22, Weeks left for a business trip north from which he never returned. He died later that year in New Haven, never again setting foot in the home he had lived in only five days.

Week's widow occupied the home until the Civil War when Union soldiers, on the march to Opelousas, commandeered The Shadows as their headquarters. Mrs. Weeks banished herself to a second floor room in despair, and died of grief almost a year later.

After the war, the mansion deteriorated steadily from lack of use and care, until in 1922, Weeks Hall, great-grandson of David Weeks, returned from Paris. After one look at the old mansion, he knew what his life work would be; he would bring new light and life to The Shadows.

A bachelor with no family ties, he devoted every minute to his only love. The priceless silverware, furnishings, paintings and other relics were kept spotless. The entire home and surrounding grounds were renovated under his loving direction to create new grace in the old setting.

The house bloomed with life, as Hall brought writers, painters, actors, producers, explorers and statesmen as his guests. Before leaving, each guest would sign the sitting room door, and although the names were once all mistakenly scrubbed off by well-meaning servants, Hall managed to get his friends to return and sign again.

Hall always feared his beloved Shadows would be turned into cheap commercial venture after he was gone. A few years before his death, he wrote the National Trust for Historic Preservation, asking their help in preserving his home.

Only four days before his death in 1958 he received a telegram from the Trust, accepting his home as an historical site.

The Shadows, symbol of a family's determined love, and of one man's love for all things beautiful, is today treasured as a landmark of the beauty and strength man can create. It is admired by visitors from all parts of the world.

The heritage we have from our forefathers we are building for our children today. Patterson-Redmond builds it strong, by serving well those who build for business, industry, education, health and home.



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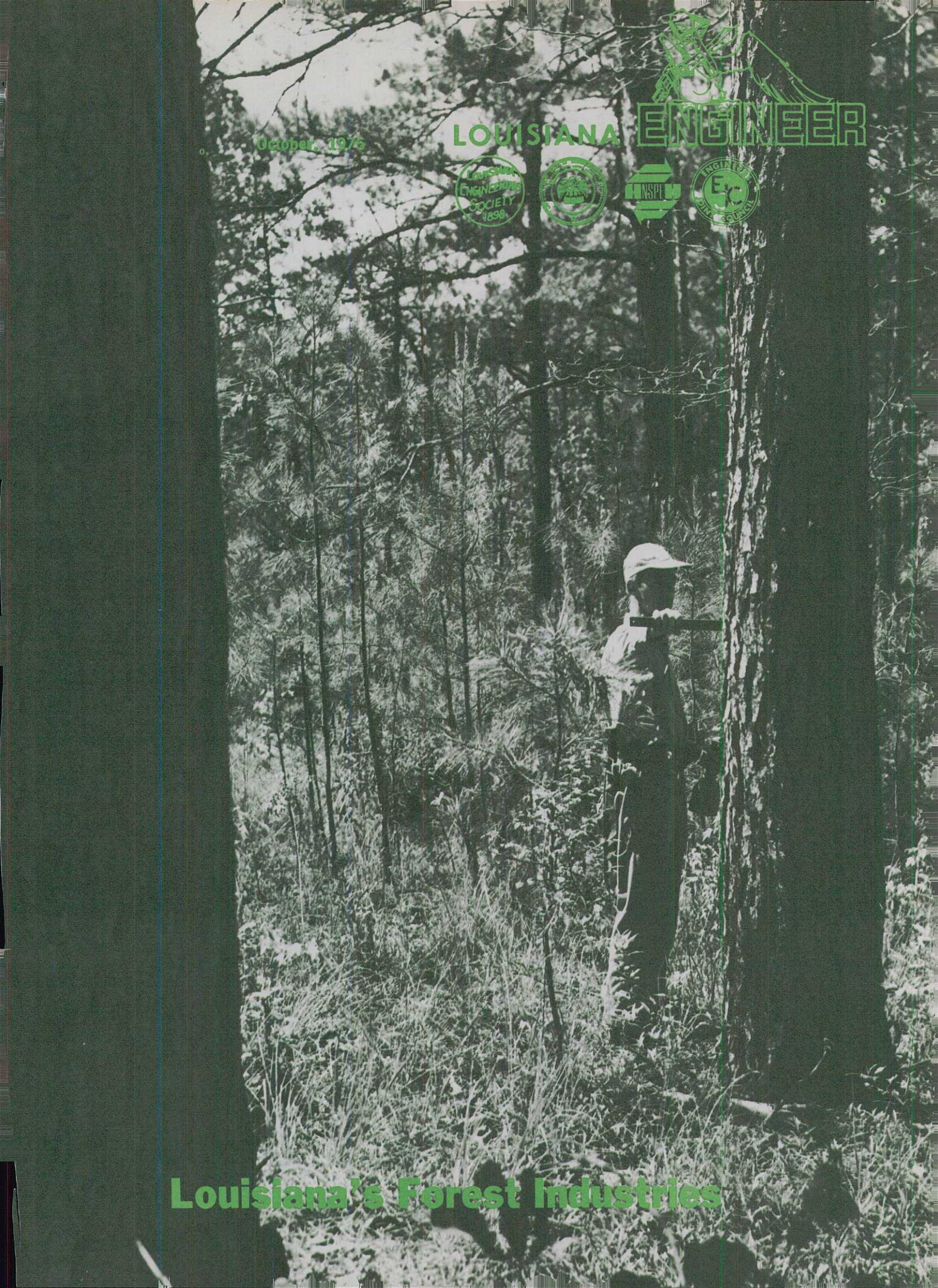

LOUISIANA ENGINEER

October, 1975

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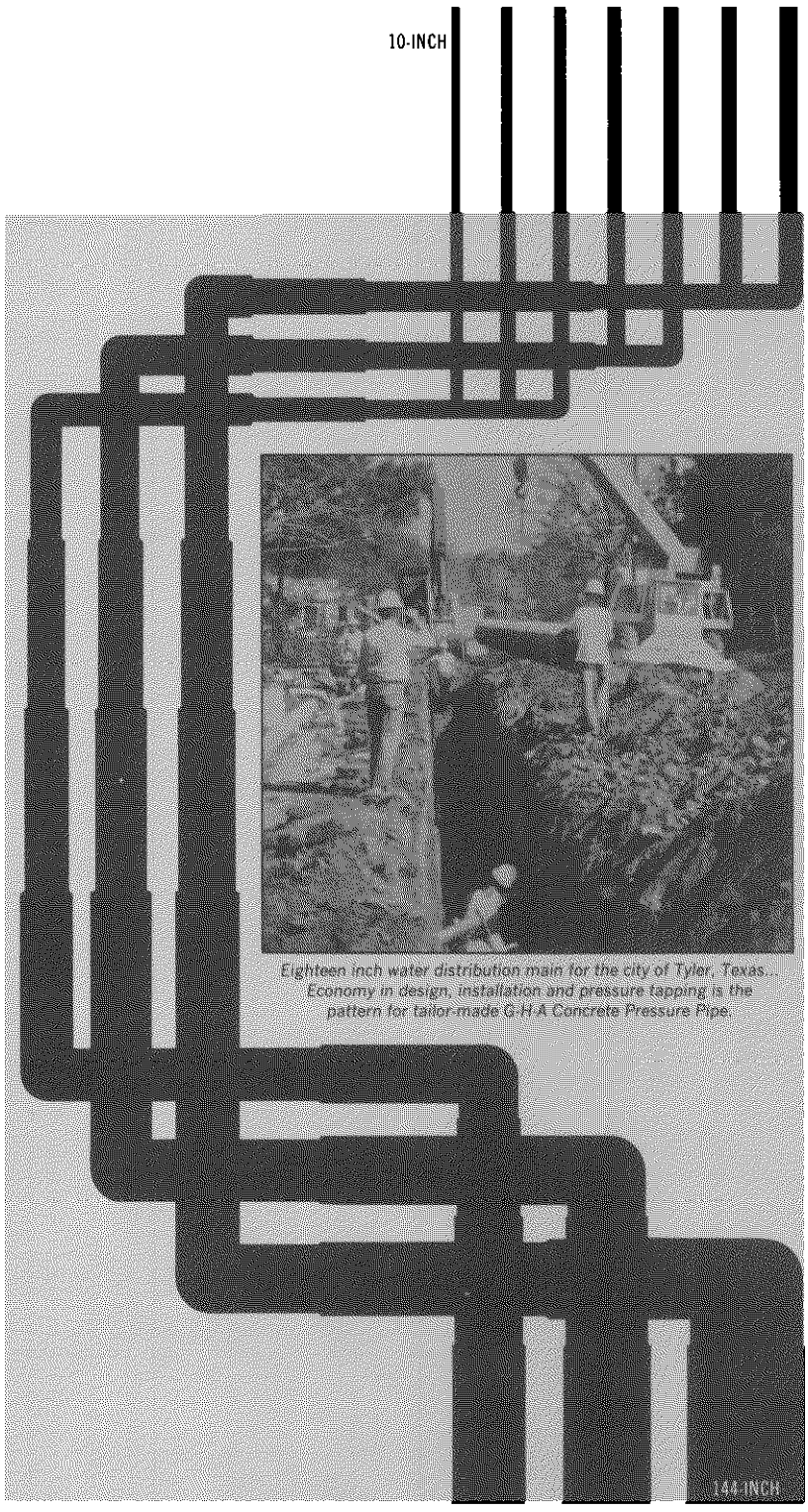

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If new services and laterals are required later, G-H-A Concrete Pressure Pipe can be tapped... easily and economically...without interrupting service. The step-by-step tapping procedures are fully explained in G-H-A's new Bulletin T-1.

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President, L.E.S.

While checking out of the motel at the recent training conference in Alexandria, I noticed a periodical, "Le Papier," published by the Chamber of Commerce of the Alexandria-Pineville area. I want to share with you the lead article.

The Rewards of Apathy

Apathy has a lot going for it.

It is easy to catch and is painless. You can ignore it and nothing happens. The stronger it gets the less you feel you need to do about it.

It becomes most noticeable when it begins to spread over a large area. When it does, the individual usually feels it belongs to someone else.

Another appealing thing about apathy is the warm glow of nothingness it gives.

The temptation is to leave it alone and it will go away. With this attitude it may stay.

Apathy demands a special treatment for it will not go away alone.

The treatment starts with a good dose of involvement followed by long periods of action.

It may be hard to get a confirmed apathetic to take the cure. And then it isn't permanent.

Action must be rewarded while apathy is to be condemned. Since it is easier to condemn than to praise, it stands to reason that apathy is here to stay. It is needed by those who would rather condemn than act.

Apathy has a lot going for it, but action is more fun. It must be. Have you ever heard anyone say, "Let's go where the apathy is"?

The LES training conference was clearly an event where apathy was difficult to find! Rather than apathy, action was made manifest by the splendid lectures given by committee chairmen from all parts of the state on topics designed to aid the new Chapter officers and committeemen. The who, what and why of program planning, engineering education, membership development, public relations, legislative efforts, liaison with the State Board of Registration, ethics, Engineers' Week and practice divisions were well explained to an attentive audience. Only one thing detracted from the conference—the failure of all Chapter committee chairmen and vice chairmen to take advantage of this annual session, which is designed specifically to provide incoming Chapter officers and committeemen with the tools needed to do their job.

In his presentation to the attendees, R. C. "Doc" Spears reviewed the responsibilities and operations of the state office.

You may be interested—in fact, you are entitled—to know how LES money is spent. The total LES income of $113,500 is allocated as follows:

Item	Percent
Salaries and Benefits (State Office and Contract Personnel	25.7
State Office Operation, Supplies	17.2
Publication of the LOUISIANA ENGINEER	19.5
NSPE Rebates	26.2
Chapter Rebates	7.1
Meetings	3.1
Awards and Miscellaneous	1.1

This projects two topics to the forefront—finances and memberships. Your Society needs additional funds if it is to provide the services that **you**, as an LES member, need and deserve. The days of $25 dues per year per LES member are as out of date as the nickel candy bar. It is time that we all cast off our cloak of apathy and **actively** support a dues increase. Only **you**, the member at the Chapter level, can bring about this needed dues increase. As I implied in the last issue of the LOUISIANA ENGINEER, we must not permit operation of LES to be governed by lack of participation. Chapter presidents must **actively** encourage their members to support fiscal responsibility!

Since you have disposed of your apathy, why not do your share in the recruitment of new members? This is a task which is a monumental one for your Chapter's membership chairman. Alone, he cannot be truly effective. But you can help by giving him names of prospective members, by carrying a membership application in your pocket for instant use in case you meet a prospect, and by championing at every opportunity the benefits of LES membership. In this way each and every one of us can generate the type of enthusiasm needed for LES's growth in membership.

Finally, a word about Young Engineers. What are you doing for the future leaders of LES? Do you make a special effort to have them attend meetings? Are they on your committees? Are they greeted warmly at meetings and made to feel welcome? Do you listen and encourage their participation? Perhaps any one of these may seem trivial, but to a young engineer every one is meaningful. Do not neglect him or her or you may become guilty of having sown the seeds of apathy!

Remember! Nobody ever says or hears, "Let's go where the apathy is."

October, 1975

LOUISIANA ENGINEER

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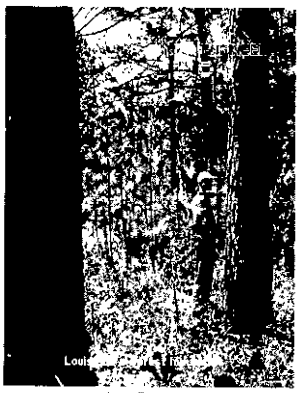

About the Cover

Few Louisiana citizens realize the important contribution to the state's economy made by the forest products industry. Please turn to page 10 for a report on forestry in Louisiana. Photographs accompanying the article, including the cover, were provided by the Louisiana Forestry Commission.

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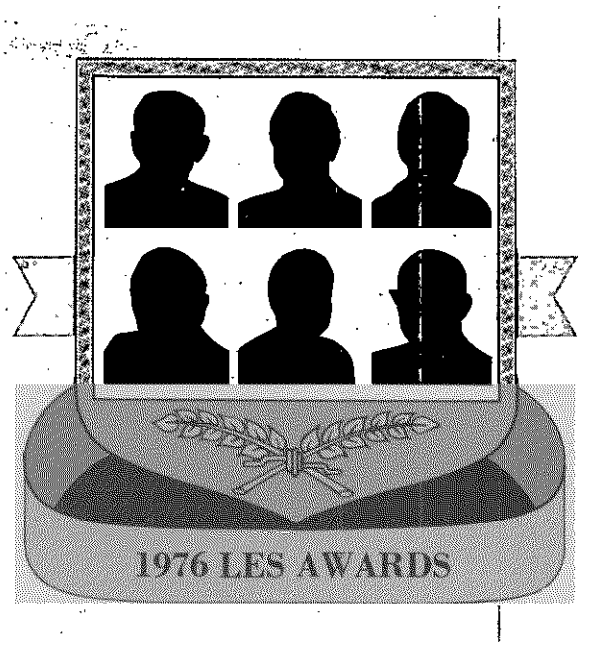
LES AWARDS PROGRAM

J. J. Thigpen, P.E., Chairman

Honors and Awards Committee

Recognition of fellow engineers has always been an important program of the Louisiana Engineering Society. It is the Society's feeling that honors and awards should be given deserving members so that public recognition of their attainments will inspire others.



The Society has six basic awards:

- The Andrew M. Lockett Medal for Civic Activities
- The A. B. Paterson Medal for an Engineer in Management
- The Charles M. Kerr Public Relations Award
- The James M. Todd Technological Accomplishment Medal
- The F. Hugh Coughlin Young Engineer Award
- The Leo M. Odom Professional Service Award

Nominations for recipients of the six basic awards may be made by:

- Any elected officer of the State Society or one of the Chapters.
- By the Board of Direction of the Society.
- By the Executive Committee or equivalent body of the Chapter.
- By three or more members of the Society.
- By the individual Chapter Honors and Awards Committee.

Nominations may be submitted to a member of the Honors and Awards Committee, or to the Honors and Awards Committee in care of the State Office, no later than December 1, 1975. Nominations for the awards must be submitted on the appropriate form. These forms were mailed to each Chapter on September 16. The nomination forms should be supported by:

1. A full statement of the formal academic training, experience, progress, and notable technical or engineering contributions made by the nominee.
2. A statement of the basic reasons for submitting the nomination, and for believing that the nominee is eligible for the honor.
3. Such other information and references as may be of assistance to the Board of Direction in considering and acting upon the case.
4. It is essential that such documentation carry the present title and company connection of the nominee, and set forth clearly and concisely why he should be named for the award recommended.
5. A photograph of the nominee.

It is time for the Chapters to screen and select worthy candidates. Nominations for the awards must be in the hands of the Executive Secretary by December 1, 1975.

Awards will be presented during the Society's spring meeting in April scheduled for Hodges Gardens in Many.

Chapter Officers' Training and State Planning Conference



The Chapter Officers' Training and State Planning Conference held in Alexandria at the Sheraton Inn September 11-13 was attended by 67 engineers and 32 ladies. Were you there? If not, you should have been to enjoy a very successful meeting. A little mix-up occurred with the ladies' program, but the Alexandria Auxiliary under the guidance of Joy Meyer did a great job of correcting the situation.

At the Friday morning session of the training conference, LES President Malcolm Hurstell introduced various officers and speakers who reported on all aspects of LES operations and procedures for the benefit of new and returning officers. Hurstell indicated some major goals for LES in 1975-76:

- Retain our membership and increase the membership by offering worthwhile programs.
- Prepare and implement desirable legislative programs.
- Achieve fiscal responsibility for the Society.
- Encourage young engineers to get involved.
- Establish and maintain a scholarship program.

Practice division and committee meetings were conducted Friday afternoon. Each practice division and committee discussed its organization and responsibilities, and proposed many activities for involvement:

- The Membership Committee will distribute a list of all registered professional engineers in the state to the Chapters so they may solicit new members.
- The Education Practice Division desires voluntary funds to help run its activities. The other four practice divisions are receiving voluntary contributions via the annual dues notice. PEE wants to be added to the annual dues notice for a contribution.
- The Education Committee proposed resolutions and stressed the formation of more student chapters in LES. The resolutions concerned committee assignments to work on matters in engineering technician and technology programs. The committee desires a study of engineering technology similar to the 1971 LES educational study.
- The Honors and Awards Committee stressed the importance of all Chapters making nominations of worthy candidates for LES's six basic awards. All nominations are due in the state office by December 1.
- The Legislative Committee needs suggestions from all Chapters and individual engineers for formulation of a legislative program. The committee will work with the State Board of Registration on legislative matters that they may wish to propose.
- The engineers in construction, industry and private practice formulated plans to send representatives to the NSPE southwestern regional meeting in Denver October 3 and 4.
- A program to have "year" seals placed on membership certificates was planned, to start in 1976.

No head count at the "dutch treat" early-bird dinner at Grandmaw's was made, but the turnout was good. The peanuts, liquid refreshments, fish and fellowship were very enjoyable. The 110 engineers and guests enjoyed a delicious meal at Harold Miles Park Friday evening, rain and all. Francis Roy entertained the group with a few Cajun stories. For example, a Cajun was asked to compose a poem using the word Timbuktu for entry through the pearly gates:

Tim and I a walking went
We met three maids in a tent
Since they were three,
And we were two,
I buck one, and Tim buck two.

Our sincere thanks are again extended to Louisiana Industries, Inc., Alexandria, for hosting the pre-dinner refreshments.

A Society breakfast was attended by 62 engineers and wives on Saturday morning. Buddy Moncla, 1974-75 membership chairman, presented a portable podium to Louis McGee, President of the Shreveport Chapter. The Shreveport Chapter won first place in the 1974-75 LES membership contest. Francis Roy continued his excellent entertainment with a Cajun story about a sway-back race horse.

Were you there? It was great. Be sure and come next year.

Announcement

The Louisiana State Board of Registration for Professional Engineers and Land Surveyors has announced an increase in fees effective December 31, 1975. The renewal fees for professional engineers will be increased from $7.50 to $10 and for engineers in training from $2 to $4. Even with this increase the renewal fees for Louisiana engineers will be among the lowest in the United States.

During the 10 years since the renewal fee for professional engineers was last increased, the costs have risen at about the same rate as income. Last year was different. For the fiscal year ending June 30, 1975, the Board experienced a net loss of $18,432. The cost of printing the Yearbook jumped from $13,000 to $19,000. After Christmas the cost of first-class postage will increase 30 percent and the cost of the examinations the Board uses will rise 50 percent. Unless there is a dramatic change in the rate of inflation there will be further increases in renewal fees in the near future.



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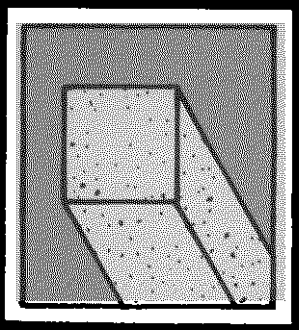

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Installed as officers of LES for 1975-76 at the meeting in Biloxi were, standing left to right, James W. Reeves, P.E., state director; A. J. Szabo, P.E., national director; Carl H. Thomas, P.E., secretary-treasurer; Arthur DeFraites, P.E., state director; Larry Grundmann, P.E., state director; seated left to right, E. E. Moncla, P.E., second vice president; Malcolm Hurstell, P.E., president; and James L. Meyer, P.E., president-elect.

Biloxi Meeting Successful Despite Inclement Weather

The Louisiana and Mississippi Engineering Societies' Joint Meeting in Biloxi July 31 through August 2 was attended by 173 engineers including 82 from Louisiana. With the exception of normal difficulties with rooms and abnormal difficulties with weather, it was a very successful meeting.

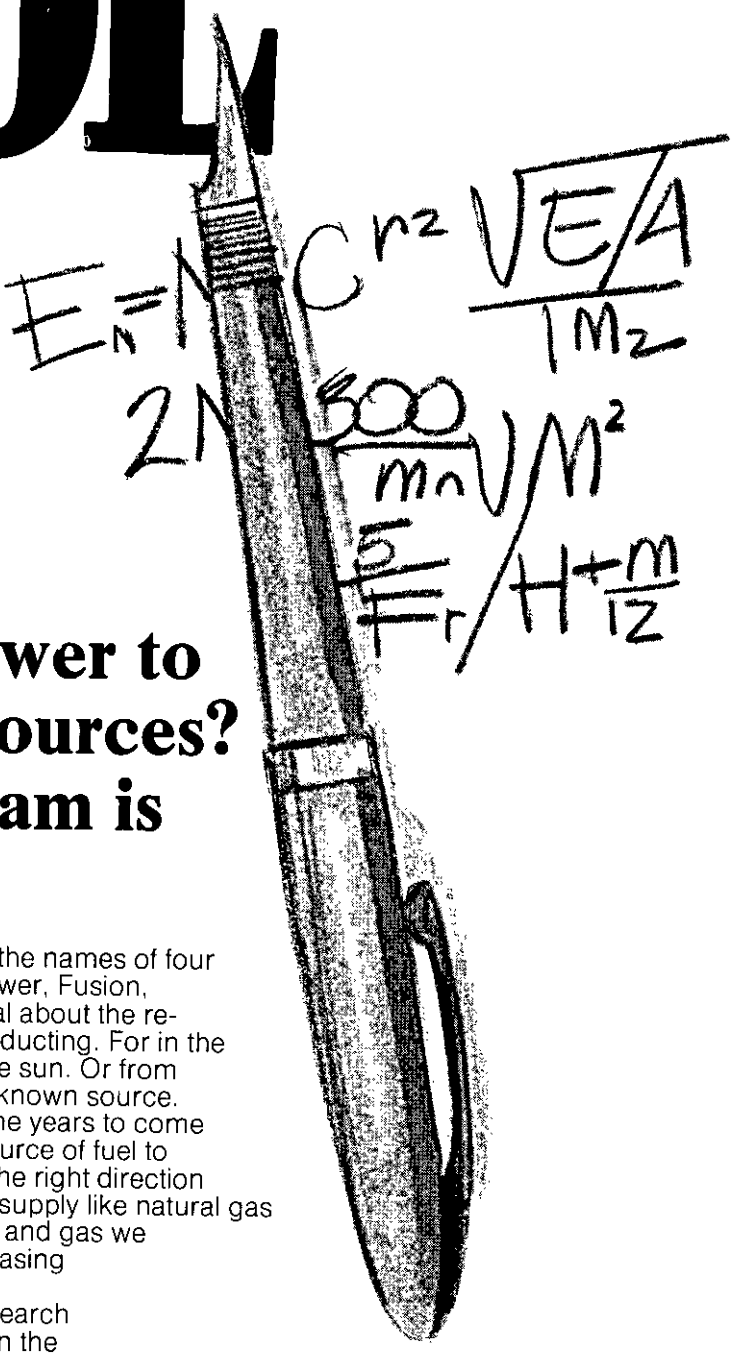
Harry Bovay, P.E., President of NSPE and President of Bovay Engineers, Inc., Houston, Texas, told the banquet crowd on Friday evening a few of the Cajun stories for which he is noted. He was then joined by Robert M. Scholtes, P.E., Vice President of NSPE's Southeastern Region, for the installation of the 1975-76 LES and MES officers.

If the weather had cooperated the sessions would have received higher marks; however, it was an excellent meeting. LES and MES have extended their joint meeting plans for another two years after the 1976 meeting scheduled in Baton Rouge next July 8-10.



Harry Bovay, P.E., NSPE president, at the podium installing officers of the Mississippi and Louisiana Engineering Societies.

THERFU-FISOL



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Electricity will become increasingly important in the years to come and it is obvious that we cannot rely on a single source of fuel to provide this electricity. Nuclear power is a step in the right direction in that it lessens our dependency on fuels in short supply like natural gas and oil. But along with nuclear power and coal, oil and gas we must find new sources of energy to meet the increasing needs for the home, business and industry.

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Louisiana's Forest Industries

Charles L. Rand, Jr., P.E.[1]

Louisiana is rich in history, natural beauty, fertile soil, mineral resources, water resources and navigable waters. This combination provides the state with a very diversified economy with vast economic and employment opportunities. We are all aware of the important contribution to our economy by agriculture, the chemical industry, oil and natural gas production, tourism and transportation sectors of our economy; however, few of our citizens realize the important contribution to our economy by the forest products industries.

Because of the time required to collect, compile and disseminate information and statistics on this large and diversified industry, much of the information presented here is from the 1971 through 1974 period.

The contribution of the forest industries to the Louisiana economy is very important. As can be seen from Figure I, almost all areas of the state have manufacturing plants. Sawlogs and pulpwood are harvested throughout the state. The southern states are almost twice as dependent upon the forest industries for manufacturing jobs as is the nation as a whole. Of the southern states, Louisiana is most dependent with 26,000 workers out of a total of 161,000 workers employed in manufacturing jobs. The lumber and wood products segment employs 11,000 workers, and 15,000 workers are employed by the paper and allied products segment. In 1971 these workers earned a payroll of $62 million and $143 million respectively, a total of $205 million.

The value of all shipments by Louisiana manufacturing industries in 1971 was $9.334 billion. Of this total, $1.025 billion was from the forest industries. Lumber and wood products contributed $299 million, and paper and allied products contributed $726 million.

The base for this industry is, of course, our forest resources. Fortunately, this is a renewable resource. With proper forest management we can expect continuing and increased yield from our forest. The forest currently supplying timber is referred to as the South's "Third Forest." The "First Forest" was the vast virgin forest that supplied timber from the 1600s until about 1944. Our "Second Forest" (1945-1968) was the regenerated forest which supplied the growing population that enjoyed an increasing standard of living after World War II with building materials, furniture, paper and other wood products. Methods of reforestation, fire control, and forest management were developed along with our "Second Forest."

Establishment of government agencies, manufacturers' associations and forest management departments of industry have contributed greatly to the development of our Second and Third Forests and the continuing management of this resource. Some of these agencies and associations are the Forest Service Department of the U. S. Department of Agriculture, Louisiana Forestry Commission, Southern Forest Products Association and the American Forestry Association.

Louisiana forests supplied more than 561 million cubic feet of roundwood to forest industries in 1973. Softwoods, mainly pine, made up more than three-fourths of the total. Pulpwood and sawlogs were the major products, accounting for 79 percent of the harvest. Veneer logs added almost 18 percent, and the remainder was made up mostly of poles and piling. At present there are over 200 wood-using plants in operation in Louisiana.

The commercial forests of Louisiana cover approximately 14,526,600 acres. Louisiana is divided into forest resource regions as

(Continued on Page 12)

[1] Chief Engineer, Ford, Bacon & Davis Construction Corporation, Monroe.

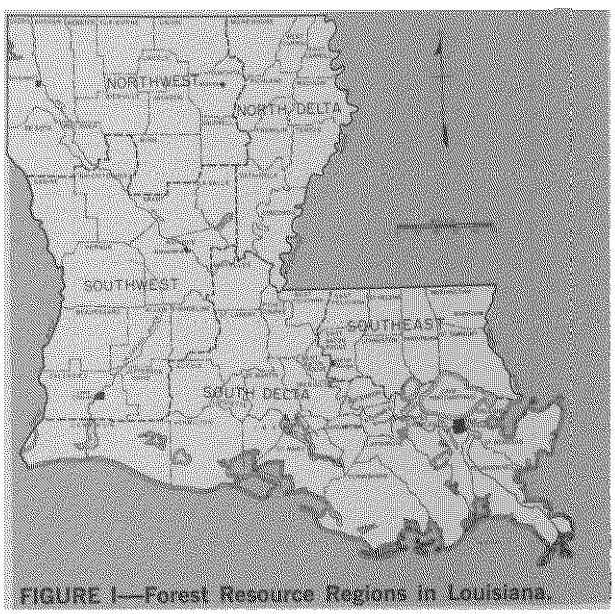

FIGURE I—Forest Resource Regions in Louisiana.

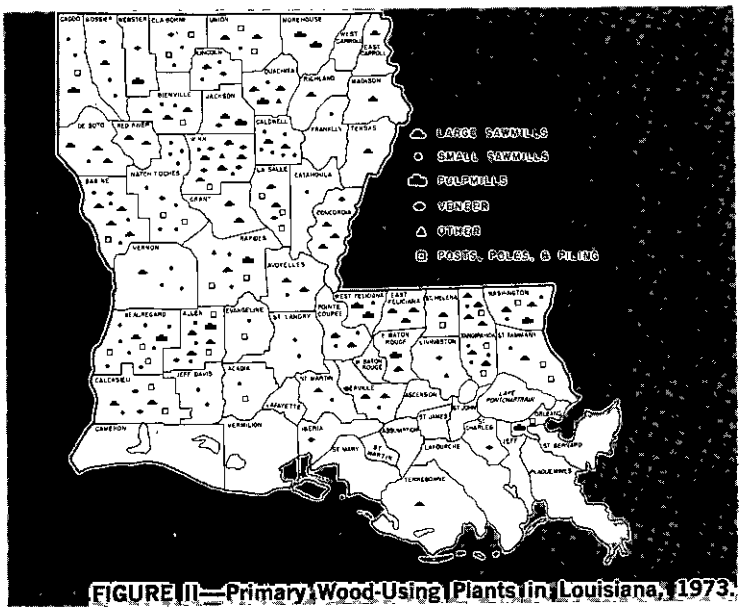

FIGURE II—Primary Wood-Using Plants in Louisiana, 1973.



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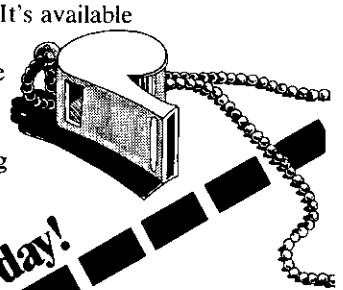

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Forestry

(Continued from Page 10)

shown in Figure II. Commercial forest area by region is as follows:

Delta—3,751,500 acres
Northwest—4,450,400 acres
Southwest—4.538,400 acres
Southeast—1,786,300 acres

Commercial forest land in Louisiana is classified by six types of forest. These forest types and the area each covers are as follows:

Longleaf—Slash Pine
1,022,600 acres
Loblolly—Shortleaf Pine
4,073,400 acres
Oak—Pine
2,207,600 acres
Oak—Hickory
1,725,500 acres
Oak—Gum—Cypress
4,956,600 acres
Elm—Ash—Cottonwood
540,900 acres

From this tabulation it can be seen that our forests include both softwood and hardwood resources.

Ownership of Louisiana's commercial forest land is as follows:

National Forests
579,500 acres
Other Public
442,500 acres
Forest Industries
3,761,400 acres
Farmers
2,096,800 acres
Miscellaneous Private
7,646,400 acres

Louisiana's many lakes, rivers and bayous along with its vast areas of forest have earned for the state the title of "Sportsman's Paradise." The agencies and associations cited above, working and cooperating with the Louisiana Wildlife and Fisheries Commission, the Louisiana Stream Control Commission, and the forestry departments of industry, deserve much credit for developing and maintaining the many recreational opportunities available.

Lumber

The lumber industry in Louisiana has experienced several cycles of growth and decline. Initial growth of the industry began around 1900 when the railroads connected the southern forest areas with the northern markets.

The virgin forests of Louisiana and other southern states provided most of the nation's lumber requirements through the 1920s. The industry declined rapidly during the Great Depression. During the 1930s paper companies acquired much of the property owned by the lumber industry.

In the 1930s and 1940s small mills operated throughout Louisiana. The postwar boom in the late 1940s provided the stimulus for another period of growth. Soft markets in the 1950s and shipments of west coast and Canadian lumber into the South and Northeast caused a decline of this industry which continued until about 1960.

During the 1960s and early 1970s Louisiana's lumber industry again experienced a period of growth. Factors contributing to the growth during this period include the general economic growth in the South and improved technology. Technological improvements include increased

*"The engineering mind is nothing if not ingenious."**

80 YEARS
Of Engineering In Louisiana*

(CONTINUED) In 1940, at the beginning of the World War II era, there were some 35,000 people on the Ford, Bacon & Davis payrolls—in the Monroe construction division, in the headquarters office in New York, at various plant sites, and in completed plants that were under the firm's management. Then came Pearl Harbor.

Defense work in ever-increasing volume had poured into Ford, Bacon & Davis' offices. The firm designed and constructed one of the original "blackout" defense plants, the 8,000-employee Pratt and Whitney aircraft engine production facility; the 1,276-mile Plantation Pipeline from Louisiana to the Eastern Seaboard; the Arkansas Ordnance plant at Jacksonville, the Longhorn Ordnance plant at Karnack, Tex., and similar explosives facilities in Terre Haute, Springfield, Ill., and Marion, Ohio.

The successful completion of such projects lead to the firm's assignment to construct and manage the original atomic bomb facility at Oak Ridge, Tenn.—the super-secret Manhattan Project.

The post-war period found Ford, Bacon & Davis with a lot of catching up to do. During the next two decades, the firm constructed some $100-million worth of facilities, including the giant Commercial Solvents Corp. plant at Sterlington; converted the Big-Inch and Little-Inch oil pipelines to transport natural gas from the vast Louisiana fields; designed and built the Union Carbide carbon black plant at Franklin and the Ormet Corp. alumina plant at Burnside.

It pulled its crews off a pipeline job at Cameron and turned the men to rescue work after Hurricane Audrey struck the Gulf Coast, it designed and constructed the wood shavings board plant for the Crossett Lumber Co., modernized and expanded the Olin paper mill in West Monroe, and the storm drainage and sanitary sewer system and the nation's largest (at that time) combined cycle power plant, in its home city of Monroe.

Elsewhere the firm was building railroads in Australia, mines in Canada, part of the N.A.S.A. manned space center in Houston, and its engineers were handling assignments in some 30 other countries.

(Continued next issue.)

* From *For Human Needs*, a history of the first 80 years of Ford, Bacon & Davis

Ford, Bacon & Davis
Engineers.
MONROE • BATON ROUGE
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mechanization, new debarking and chipping methods and installation of dry kilns.

In 1973 Louisiana had 138 sawmills. These sawmills produced over 1.1 billion board feet of lumber. Softwoods, mainly pine but including some cypress and red cedar, accounted for 761 million board feet and hardwoods, 348 million board feet. Over half of the hardwood lumber produced was oak.

Plywood

The South's first pine plywood plant began operation in Arkansas in 1963. Louisiana's first pine plywood plant began production in 1965. During the past decade the state's pine plywood industry has increased to 13 plants producing over 1.2 billion square feet (three-eighths inch basis). Louisiana is now the nation's third leading producer of softwood plywood. This place of national prominence has been achieved in only 10 years. As by-products, these plants convert 99 percent of their coarse residues into pulp chips and produce 58 million board feet of studs from veneer cores.

In addition there are four plants producing flat or face veneer and two producing container veneer.

Particle and Insulating Board

Production of particle board and insulating board has increased rapidly in recent years. Louisiana has also participated in the growth of this segment of the forest industries.

Particle board was introduced in the early 1950s. The rapid growth in production of particle board can be attributed to improved product characteristics, expanded supplies of wood chips (mostly as by-products of lumber and plywood operations) and rapid changes in technology which allowed increased production at lower prices. This improved product found new markets and displaced plywood in some applications because of its lower price. Although Louisiana had no particle board plants in operation until 1970, the three plants now in operation produce over 230 million square feet (three-fourths inch basis). Of the southern states only Mississippi produces more particle board than Louisiana.

Production of insulating board has also grown over the last decade but at a much slower rate than that of particle board. Only one insulating board plant is in operation in Louisiana; however, this plant produces approximately 450 million square feet (three-fourths inch basis) to lead all southern states in its production.

Post, Pole and Piling

The long, straight stem of the southern pine makes this tree ideal for production of posts, poles and piling. The southern states produce 76 percent of the nation's pole supply, 70 percent of the timber piling and 84 percent of the treated fence posts.

Thirty-two plants producing posts, poles and piling are in operation in Louisiana. In 1973 these plants converted approximately 800,000 trees into poles and produced over seven million

(Continued on Page 14)

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Louisiana's well-managed forests have helped earn the state the title of "Sportsman's Paradise."

Forestry

(Continued from Page 13)

linear feet of piling. Pole and piling production accounted for about three percent of the total timber harvest. The remaining one percent goes into the manufacture of posts, handle stock, cooperage and miscellaneous wood products.

Pulp and Paper

Continuous growth of the paper industry has created a high demand for pulpwood. In 1973 Louisiana forests produced 3.2 million cords of pulpwood, which accounted for 46 percent of the state's timber harvest. Softwood (pine) comprised 76 percent of the total pulpwood harvest and hardwoods comprised 24 percent. In addition, approximately 1.2 million cords of by-product chips from lumber and plywood plants were used.

At present there are 15 pulp mills producing wood pulp. Several of these mills have been in operation since the 1920s. Louisiana's newest mill began operation in 1974. Louisiana also has one mill producing pulp and paper from bagasse (the crushed juiceless remains of sugar cane). This is the only mill in the United States using this raw material in the production of paper.

Table 1 shows the prominent place Louisiana occupies nationally in pulp production (third place), paper production (sixth place) and paper board production (second place).

The variety of paper products produced in Louisiana mills is too great to allow discussion in this article.

Summary

The State of Louisiana and its citizens benefit from the purchase of timber and raw materials, payroll for timber harvest and plant employment and taxes paid by the forest products industries. Much of the forest land owned by the forest industries is open to the public for hunting, camping and other outdoor activities.

Table 2 shows a summary of the volume of industrial timber harvested in 1973.

TABLE 1—Top Six States in 1973 Production of Pulp, Paper and Paperboard

Pulp produced in 1973 (short tons)		Paper produced in 1973 (short tons)		Paperboard produced in 1973 (short tons)	
Georgia	5,254,605	Wisconsin	3,044,871	Georgia	3,402,735
Alabama	4,068,971	Maine	2,767,644	Louisiana	2,085,825
Louisiana	3,725,928	Alabama	1,861,708	Florida	1,970,221
Washington	3,673,937	Washington	1,641,206	South Carolina	1,681,416
Florida	3,257,767	New York	1,627,107	Virginia	1,597,592
Oregon	2,911,891	Louisiana	1,452,564	Oregon	1,282,217

Source: U.S. Dept. of Commerce, Bureau of Census

TABLE 2 — Volume of Industrial Roundwood, 1973

Product	Standard units	Volume in standard units: All species	Softwood	Hardwood	Roundwood volume: All species	Softwood	Hardwood
					M cu. ft.		
Saw logs	M bd. ft.[1]	1,109,289	760,887	348,402	181,767	123,340	58,427
Veneer logs	M bd. ft.[1]	642,136	626,595	15,541	98,853	96,245	2,608
Pulpwood	Std. cords	3,230,501	2,463,287	767,214	260,903	199,526	61,377
Piling	M linear ft.	7,078	7,078	—	6,120	6,120	—
Poles	M pieces	777	777	—	11,373	11,373	—
Posts	M pieces	2,232	2,232	—	1,253	1,253	—
Misc. products[2]	M cu. ft.	879	77	802	879	77	802
Total					561,148	437,934	123,214

[1] International 1/4-inch rules.
[2] Includes handlestock, cooperage, miscellaneous dimension, and other industrial products.

Source: U.S. Department of Agriculture, Forest Service

Annual Report of Ladies' Advisory Committee

In July 1965, at the request of the Louisiana Engineering Society, the Ladies' Advisory Committee was formed to serve as a focal point of information and assistance to both the LES and the Ladies' Auxiliaries throughout the state.

A brief summary of the activities of each auxiliary follows:

Membership

New Orleans	300
Alexandria	36
Shreveport	55
Lake Charles	45
Lafayette	64
Baton Rouge	133
Bayou	36
Monroe	61

Educational Activities

New Orleans — Four $1,000 Samuel McCain Young scholarships awarded. Two Fellowship and Founders scholarships awarded. Two student loans issued.

Alexandria — $600 scholarship for engineering major.

Shreveport — $400 grant to Louisiana Tech for technical equipment for the engineering school.

Lafayette—$250 scholarship given to junior engineering student at Southwestern. $12.50 to NSPE woman engineering student.

Lake Charles — $175 cash award given to junior engineering student at McNeese.

Baton Rouge — $1,000 in scholarships awarded to two Louisiana State University engineering students.

Bayou — $125 scholarship to Nicholls State University engineering student.

Monroe — $200 to Louisiana Tech engineering student.

Fund Raising

Shreveport — Style show and luncheon — $155.

Alexandria — Raffle and covered dish supper — $695.45.

Lafayette — White elephant sale —$473.62.

Baton Rouge—Taste fair—$766.35. Cookbooks—$237.45.

Bayou — Benefit bridge luncheon —$250.

Assistance to LES

Shreveport — Telephone Committee for LES. Decorations for engineering banquet.

Alexandria — Telephone Committee for meetings and social events. Decorations for social events.

Lafayette — Telephoning, decorating and making arrangements.

Lake Charles — Serving refreshments after LES meetings. Decorations for engineering banquet.

Baton Rouge — Assistance with LES Christmas party. Telephoning for LES events.

Monroe — Telephoning, decorating and assisting in joint meetings. Ladies' program for state meeting.

Bayou — Planning and arranging for Christmas party. Telephone Committee for LES.

Civic Activities

Alexandria — Christmas party at Central Louisiana State Hospital.

Baton Rouge — $450.54 from sales and raffles will finance a Baton Rouge Bicentennial project.

Social Activities

New Orleans — Style show and dinner theater.

Shreveport—Style show and luncheon. Fall dinner meeting.

Alexandria — Newcomer's coffee. Wine tasting party at state planning conference.

Lafayette — Covered dish supper.

Lake Charles—Tea given to select queen and court for McNeese Engineering Student Ball.

Baton Rouge — Guest Day luncheon, style show and handiwork.

Monroe — Barbecue and boat ride at spring conference.

Bayou — Christmas party.

New Officers

In accordance with the rules of the committee for the Ladies' Auxiliary Advisory Committee, the new officers for 1975-76 are:

Chairman—Mrs. Truitt A. Brassette, Lake Charles

Vice Chairman — Mrs. Larry F. Lafleur, Lafayette

Secretary—Mrs. Samuel Helfman, Baton Rouge

Members—Mrs. Asa M. Ray, Monroe; Mrs. Lee Castagnos, Jr., Bayou; Mrs. L. C. Grundmann, Jr., New Orleans; Mrs. Wayne Staton, Alexandria; Mrs. J. E. Mambourg, Shreveport.

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- Gas Compression and Liquefaction
- Liquefaction and Storage of LNG
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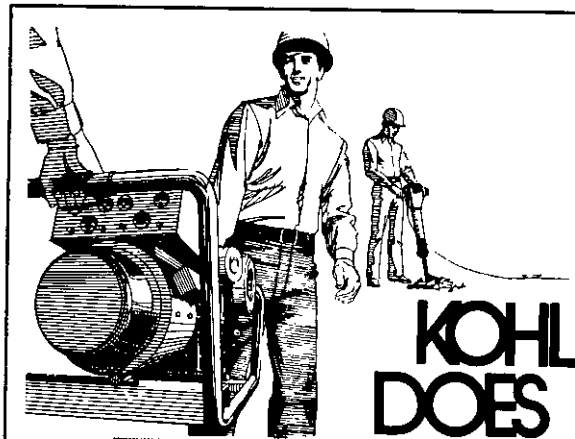

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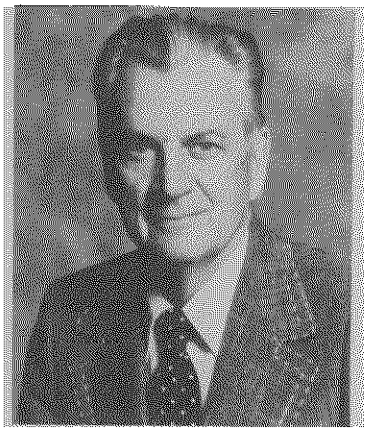

Potpourri

From Your
Executive Secretary
R. C. "DOC" SPEARS

LES Spring Meeting—Hodges Gardens

The 1976 LES spring meeting is tentatively scheduled for April 8-10 at Hodges Gardens, near Many, Louisiana. Hosts will be the Shreveport, Alexandria and Lake Charles Chapters.

Hodges Gardens is an all-season garden with a wildlife refuge, inn, pools, golf and tennis. Highlights of our spring meeting are the awards luncheon and presentations of student papers. Mark these dates now. Let's beat the attendance of 106 registrants at Monroe last year.

Freeman and Cefalu Elected to Engineers Selection Board

In accordance with Act 721 amending Chapter 10 of Title 38 of the Louisiana Revised Statutes of 1950, two members of the Engineers Selection Board shall be named in an election conducted by the Louisiana Engineering Society at which all properly licensed engineers residing in the state of Louisiana may vote for the same number of candidates as there are positions to be filled.

The Louisiana Engineering Society mailed ballots to every registered professional engineer living in the state on August 11, 1975. The Society placed two nominations on the ballot and provided space for write-in candidates. All registered professional engineers living in the state were requested to mark and return their ballots by August 29.

As a result, the two engineers elected by the Louisiana Engineering Society are: Robert C. Freeman, P.E., West Monroe, for the term ending June 30, 1976, and Joseph J. Cefalu, P.E., Morgan City, for the term ending December 31, 1976.

Hall of Honor

Membership in the Louisiana Good Roads Hall of Honor is awarded to individuals who have made extraordinary contributions to Louisiana's highways and streets program in the areas of safety, engineering, design, invention or legislation. The program was inaugurated in 1974 with the induction of Huey Long, Harry B. Henderlite, Thomas L. James, Sr. and Norman E. Lant.

The 1975 inductees to the Hall of Honor are Robert B. Richardson, Baton Rouge, and the late Neville Levy, New Orleans. Richardson's career with the Louisiana Highways Commission and Department of Highways is almost a parallel history of the development and growth of a modern highway system in the state. Neville Levy spearheaded the concept and realization of the Greater New Orleans Bridge and the Lake Pontchartrain Causeway through service as chairman of the New Orleans Chamber of Commerce's Bridge and Causeway Committee and as first chairman of the Mississippi River Bridge Authority.

Both gentlemen were inducted into the Hall of Honor on September 24 at a ceremony held at the Louisiana Department of Highways, Baton Rouge.

Career Fair—LSU

The Mayor-President's Council on Youth Opportunities and the East Baton Rouge Parish school system will coordinate a "Career Fair" for high school seniors in East Baton Rouge Parish on November 13 at the LSU Assembly Center.

The Baton Rouge Chapter of the Louisiana Engineering Society will join other organizations in making some 6,000

graduating seniors aware of job opportunities available to them. Practicing engineers will be on hand to answer questions.

The Career Fair exhibits are scheduled from 10:30 a.m. to 1:30 p.m. on November 13.



New Orleans Engineer President of Society of Women Engineers

Carolyn F. Phillips, P.E., has begun her second term as President of the Society of Women Engineers for 1975-76.

Miss Phillips earned her B.M.E. degree in mechanical engineering from Pratt Institute and her M.C.E. degree in sanitary nuclear engineering from New York University. She has completed course requirements for her Ph.D. in Environmental Health at NYU.

She joined Shell Oil Company, Public Affairs, as Regional Industries Hygienist, Department of Occupational Safety and Health, in December 1974. Headquartered in New Orleans, her region includes the states of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Oklahoma and Texas.

The Louisiana Engineering Society congratulates Miss Phillips and hopes her many activities with Shell and other societies will not prevent her joining the Louisiana Engineering Society. We would welcome her participation.

Hurstell Hung in New Orleans

Malcolm L. Hurstell, P.E., was honored on Friday, September 5 at the Engineers Club in New Orleans for his service as president of the Engineers Club. The ceremonial hanging of the immediate past president's portrait on the "hanging wall" is a tradition of the club.

Over 70 engineers and wives enjoyed the cocktails, hors d'oeuvres and comments from the old and new presidents of the club.

LES Jewelry

Samples of the official LES jewelry emblems were on display at the Alexandria meeting. Every member of the Society should have a lapel pin to wear to all meetings. The state office is taking orders for lapel pins with screw post attachment, $2; tie tacks with emblem, $3; and cuff links with emblem, $4.

Delivery will take six to eight weeks during our start-up period. Use the coupon below to place an order.

LES Names Third NSPE National Director

With the concurrence of the Board of Direction, James S. Janssen, P.E., New Orleans, was appointed September 13

(Continued on Page 18)

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Potpourri (Continued from Page 17)

by Malcolm L. Hurstell, P.E., LES President, as LES's third NSPE national director. A. J. Szabo, P.E., Lafayette, and John F. Vogt, P.E., New Orleans, are the other current LES national directors.

State societies are entitled to one national director for each 500 NSPE members or fraction thereof. LES had 1,008 NSPE members according to the NSPE membership status report of July 31, 1975. A number of additional members have been processed since that time.

Jim Janssen has been very active in LES and NSPE for many years. He is a past president of the Society. He is an excellent representative and communications link for the Louisiana Engineering Society with NSPE.

Hixson Nominated for GSA Panel

T. Dudley Hixson, P.E., Alexandria, was nominated by the LES Board of Direction for possible selection to the five-man General Services Administration's Region 7 advisory panel.

The GSA, Region 7, has reqested LES to nominate an engineer to serve on the 1976 GSA Regional Public Advisory Panel on Architectural-Engineering Services. This panel advises on selection of architect-engineers for particular projects. Region 7 is composed of the states of Louisiana, Arkansas, Oklahoma, Texas and New Mexico.

Environment Assessments and Impacts

The Louisiana Water Pollution Control Association is sponsoring a seminar, "Environment Assessments and Impacts," in Baton Rouge on October 21, at the Prince Murat Inn. Program participants include representatives from the Environmental Protection Agency and consultants from the Louisiana Stream Control Commission and the Louisiana Environmental Health Group. The one-day event will be held from 8 a.m. to 5 p.m. Details are being mailed to all LES-PEPP members.

NSPE Board OK's Trial Newspaper

In a move designed to improve communications between NSPE Headquarters and Society members, the NSPE Board of Directors approved publication of a monthly newspaper, tentatively titled NSPE News, to be sent to each of the Society's 72,000 members. The newspaper will replace the five existing practice division newsletters and the Legislative Bulletin.

The action was prompted by the desire to create a communications device to complement Professional Engineer magazine and to eliminate unnecessary duplication of news items, which now occurs under the present five-newsletter system.

NSPE News will be a four-page, tabloid-size newspaper. Publication is scheduled to begin this fall. It will carry NSPE news of interest to all members as well as news of the activities of the practice divisions.

In Memoriam

It is with sorrow that we note the death of George O. Phillips, who retired in 1970 as president of Ford, Bacon & Davis Construction Corporation in Monroe. He died of a heart attack on August 27 in Monroe.

National Fire Protection Association Visual Aids Catalog

Now available on request from the National Fire Protection Association (NFPA) is the new Publication and Visual Aids Catalog for Fall/Winter 1975-76. Described, priced and usually illustrated in the current 52-page NFPA catalog are more than 600 items, books and booklets, films, training courses, posters, speakers' aids, educational materials for the general public of all ages and the current edition of the NFPA standards and code.

To obtain a free copy of the 1975-76 catalog, send a request to the NFPA Publication Sales Department, 470 Atlantic Ave., Boston, Mass. 02210.

(Continued on Page 21)

EngiNEWS

IN MEMORIAM
Fred N. Shutts
February 8, 1890 - August 3, 1975

Fred N. Shutts, eldest son of Frank Shutts, one of the early Civil Engineers of Louisiana, died August 3 in Lake Charles. He had spent all of his adult life as a Civil Engineer.

Born February 8, 1890 in Lake Charles, he was educated in the public schools of Lake Charles and the Georgia School of Technology.

He acquired a Civil Engineer's license at an early age and had been continuously licensed since, holding State License No. CE 79. He was also licensed in Texas, Mississippi and Alabama.

He was Parish Engineer for Calcasieu Parish from 1912 until 1948 and was appointed by the Governor as Parish Surveyor during that time. He planned and supervised one of the very early good road programs in the state.

He was the senior member of the firm of F. Shutts' Sons, Civil and Consulting Engineers, with his two brothers. The firm was responsible for the construction of the port facilities in Lake Charles, the Lake Charles Army Air Base in World War Two, the New Iberia Naval Auxiliary Air Station and many other engineering projects.

He was a leading consultant to the State of Louisiana in its offshore boundary dispute.

Mr. Shutts was an early member of the Louisiana Engineering Society, the Masonic Lodge, the National Society of Surveying and Mapping; the Lake Charles Country Club and the Pioneer Club. He was a Shriner and Knight Templar. He was an active member of the Episcopal Church of the Good Shepherd in Lake Charles, serving as a member of the Vestry.

Mr. Shutts was preceded in death by his wife and is survived by two daughters, five grandchildren and one great-grandchild.

Communications Seminar

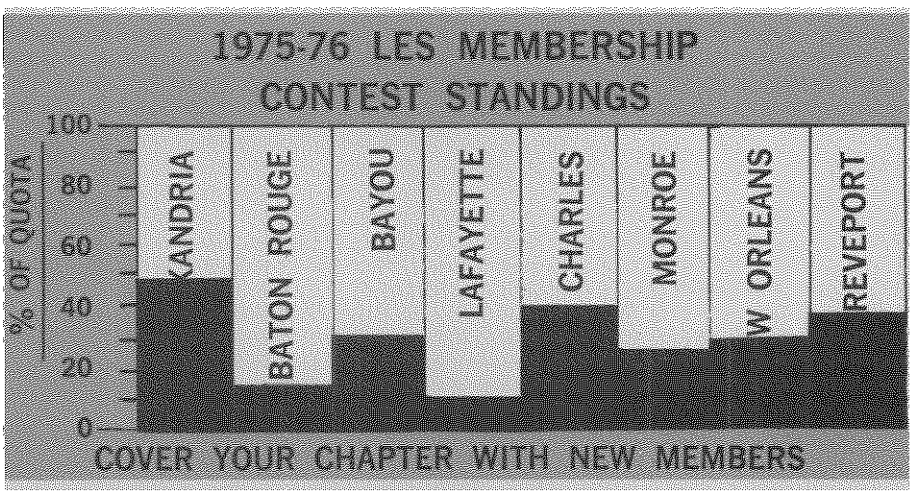
Louisiana State University is offering a special seminar-workshop on communications in November that all engineers, technical managers, and other professionals should find very useful.

The course is being coordinated by Dr. Olin K. Dart, Jr., P.E. of LSU's civil engineering department and is sanctioned by the Baton Rouge Branch of ASCE and the Baton Rouge Section of the Louisiana Engineering Society. It is scheduled for November 15, 16 and 17 at LSU's Pleasant Hall. Sessions will run from 8:30 a.m. to noon and 1 to 4:30 p.m. daily.

The course is comprised of lectures and workshops in how to organize for any written effort, munications. This material can be put to use immediately. In fact, class assignments can be fulfilled by using the participant's own job activity. This means that em- including the use of clear, direct language. Each participant is given several assignments in writing which are discussed and analyzed toward improving written com- employers can receive an immediate return on their investment of $125.

The instructor is M. D. Morris, P.E., a civil engineer with vast experience in the communications field. He is a consulting editor for John Wiley and Sons, Inc. and adjunct assistant professor of communications technology at Fairleigh - Dickinson University. In addition to two previous visits to LSU, he has presented this seminar-workshop over 200 times at various universities like MIT, Cornell, Texas Tech, Florida, and UCLA, as well as for many industrial concerns like RCA, Union Carbide and General Cable.

For further information, contact the LSU Office of Short Courses and Conferences at Pleasant Hall, 504/388-5276, or Dr. Dart at 504/388-2361.



Notice To All Engineers In Private Practice In Louisiana

Your participation and support is needed in your PEPP practice division at both the state and national levels. We are generating input for many items of interest to all consulting engineers.

There is no better way to voice your concerns and to promote the interests of the profession.

The LES state office receives numerous and varied requests from potential clients regarding qualifications of firms in Louisiana to perform specific professional services. The state office will henceforth refer all inquiries for listings of qualified firms to the professional listing prepared and distributed by NSPE-PEPP.

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New Registrations

JULY 8, 1975

Engineers

Nesbit, Jr., Wilbur Daniel
B. Rouge, LA—Electrical
O'Brien, James Walter
Forest Hill, TN—Mech.
Ponder, Russell James
Harvey, LA—Civil
Prewitt, Benny Lee
Homestead, FL—Civil
Roach, Jerry B.
Friendswood, TX—Chem.
Roark James Truman
Carrollton, TX—Mechanical
Ross, Russell Harrison
Covington, LA—Mechanical
Sabathier, Coulter David
Gretna, LA—Civil
Sallis, Jack B.
N. Orleans, LA—Electrical
Satija, Kanwar Sain
Somerdale, NJ—Mechanical
Simone, Anthony Joseph
Kansas City, MO—Mech.
Sloan, Charles Raymond
B. Rouge, LA—Chemical
Southerland, Jr., Wm. Hyden
Charlotte, NC—Mechanical
Stalc, Francis Carl
Houston, TX—Civil
St. Cyr, II, William Warren
Slidell, LA—Civil
Steigerwald, Thomas Gerald
Aruba, Netherlands Antilles—Civil
Stevens, James William
Lake Charles, LA—Mech.
Suthar, Shashikant Manilal
Metairie, LA—Civil
Tarbell, Jr., Lawrence Carroll
College Park, MD—Elec.
Taylor, Robert Andrew
Bay St. Louis, MS—Mech.
Tejani, Purushottam V.
Monroe, LA—Civil
Turner, III, Alvin Emmett
Lafayette, LA—Civil
Vivien, Lucien Eugene
N. Orleans, LA—Electrical
Wicks, Donald Charles
N. Orleans, LA—Mechanical
Wilbourn, James Phillip
New Orleans, LA—Civil
Wrage, George Edward
Amityville, NY—Electrical
Young, Ronald Alton
Euless, TX—Civil
Angelico, Michael John
Kenner, LA—Electrical
Barnett, Lawrence McBride
Shreveport, LA—Mechanical & Civil

AUGUST 10, 1975

Engineers

Bachmann, Gregory Dexter
Kenner, LA—Civil
Bailey, Edmond Ira
Midland, TX—Mechanical
Britt, Robert Earl
Clinton, MS—Petroleum
Calongne, Daniel Thomas
Baton Rouge, LA—Electrical
Chabaud, Jr., Russell Antoine
Gretna, LA—Petroleum
Day, Jr., William Arthur
Baton Rouge, LA—Electrical
Gonzalez-Rivas, Jose F.
Houston, TX—Mechanical
Grantham, Jesse Alonzo
New Iberia, LA—Industrial
Hannon, Jr., Harrison Joseph
Bossier City, LA—Civil
Harson, Jr., Leslie Morris
Port Sulphur, LA—Mechanical
Hughes, Gregory Kemp
New Orleans, LA—Chemical
Kelly, James Michael
Pineville, LA—Mechanical
Maldonado, Luis Fernando
Chinandega, Nicaragua—Mech.
Marcombe, Gery John
Lafayette, LA—Mechanical
McConnell, Camden White
Slidell, LA—Civil
Simpson, Donald Wayne
Baker, LA—Civil
Strickland, Harold Gene
Baton Rouge, LA—Electrical
Tracy, Ronald Glenn
Tulsa, OK—Civil
Vanderweil, Jr., Raimund G.
Hingham, MA—Mechanical

SEPTEMBER 10, 1975

Engineers

Ashbrook, John Marcus
West Monroe, LA—Civil
Beall, Ronnie Taylor
Shreveport, LA—Civil
Beckers, Thomas Francis
Baton Rouge, LA—Mining
Betzold, Nicholas William
Arlington Hts, IL—Civil
Blackmon, Julius Lemay
Deland, FL—Civil
Bowers, Carlton Lee
New Orleans, LA—Civil
Butler, Sr., David Sylvester
Jackson, MS—Mechanical
Chibas, Guido Luis
Ft. Pierce, FL—Mechanical
Christian, Earl Dean
Texarkana, AR—Civil
Chung, Wing Kwai
Glendale, CA—Civil
Cole, William Edgar
Metairie, LA—Electrical
Comiskey, Jr., Patrick T.
Covington, LA—Chemical
Cosse, Jr., Roy Edward
Houston, TX—Electrical
Cowan, Michael Norman
Metairie, LA—Mechanical
Cox, Jr., Prentice Linwood
Bellevue, WA—Mechanical
Crockford, Lloyd Arther
Baton Rouge, LA—Civil
Driggers, Robert Edwin
Monroe, LA—Mechanical
Dunlap, Jr., Nathaniel Wilson
Mauldin, SC—Mechanical
Fallis, John Sherman
Lafayette, LA—Mechanical
Faust, William David
N. Orleans, LA—Electrical
Feindel, Gary Mark
N. Orleans, LA—Electrical
Folk, Thomas James
Baton Rouge, LA—Civil
Garrett, II, Arthur Richard
L. Charles, LA—Petroleum
Harrison, Patrick William
Missouri City, TX—Mech.
Hartman, Jr., Herman Joseph
Harvey, LA—Electrical
Hays, Jr., Almond Jasper
Austin, TX—Civil
Hazen, Harold Paul
Stratford, NJ—Civil
Heiberg, III, Elvin Ragnvald
Metairie, LA—Civil
Hightower, Charles Melvin
Slidell, LA—Petroleum
Hockensmith, II, Edward H.
Lake Charles, LA—Civil

Jackson, James Carson
Baton Rouge, LA—Mech.
Jumper, Jacky Jay
Dubai, U.A.E.—Civil
Kirwin, Francis George
Baton Rouge, LA—Mech.
Kozak, Karl Michael
Acton, MA—Mechanical
Ladner, Cloviece Charles
Lake Charles, LA—Civil
LeMay, Jr., James Luther
Friendswood, TX—Chemical
Little, Jr., Tracy Preston
Jackson, MS—Petroleum
Lockwood, Harry
Atlanta, GA—Mechanical
Marsalone, Lynn Anthony
Metairie, LA—Civil
McBrayer, James Harold
Meridian, MS—Civil
McDonough, Ranney Wray
Houston, TX—Civil
Memler, Robert Willard
Kennesaw, GA—Mechanical
Menaker, Eugene
No. White Plains, NY—Civil
Morehiser, Mervin Bolyard
New Orleans, LA—Civil
Naomi, Alfred Charles
Metairie, LA—Civil
Nieser, Donald Earl
Metairie, LA—Mechanical
Oltmann, Harold Dean
B. Rouge, LA—Chemical
Parrish, III, James Lamar
Jacksonville, FL—Civil
Potts, Jr., John Thomas
Jacksonville, FL—Civil
Provenza, Vincent Charles
Kenner, LA—Chemical
Puyper, H. Patrick
Houston, TX—Mechanical
Ratliff, Tommy Joe
River Ridge, LA—Civil
Richard, Jr., Allen Robin
L. Charles, LA—Mechanical
Robinson, John Hamilton
Shawnee Mission, KS—Civil
Rothrock, Phillip Marion
Lenoir, NC—Mechanical
Sas, Louis Joseph
Middletown, NJ—Mech.
St. Romain, Charles Michael
Baton Rouge, LA—Civil
Sinclair, Henry Lee
B. Rouge, LA—Chemical
Spears, Jr., James Joshua
Greenwell Springs, LA—Chemical
Storment, John Worrell
Shreveport, LA—Industrial
Sutter, Jr., Edward Harold
Atlanta, GA—Chemical
Swendsen, James E.
Minneapolis, MN—Civil
Swilley, Johnny James
Raceland, LA—Civil
Turner, James Randolph
Baton Rouge, LA—Civil
Vasko, John Joseph
Elmhurst, NY—Civil
Watson, Dennis Paul
Oklahoma City, OK—Civil
Williamson, Herschel Bruce
B. Rouge, LA—Mechanical
Willis, William David
Beaumont, TX—Chemical
Wyatt, Charles William
Bossier City, LA—Civil
Zimmerman, Martin
Wheaton, IL—Petroleum

Land Surveyors

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Shreveport, LA—Land Surv.
Edwards, Jr., Roy Charles
Holden, LA—Land Surveyor
Hebert, Morris Peter
Houma, LA—Land Surveyor
Martin, Myron Michael
Houma, LA—Land Surveyor
Miller, James Justiss
Monroe, LA—Land Surv.

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PS Form 3526 (Page 1)

Potpourri (Continued from Page 18)

An OSHA Checklist for the Construction Engineer

A seminar sponsored by the Professional Engineers in Construction, a practice division of the National Society of Professional Engineers, will be held December 11 and 12 at the Marriott Hotel, New Orleans. Instructors thoroughly familiar with the Occupational Safety and Health Act will stress "checklist"-type procedures to comply with the confusing rules. Included will be a special section on what design engineers need to know about OSHA.

The seminar will run from 1 p.m. Thursday until 5 p.m. Friday. Registration fee of $120 ($110 for NSPE members) includes the training manual, lunch the second day and coffee breaks. A hotel reservation card will be sent upon receipt of registration.

Detailed information will be mailed to all Louisiana PEC members later in the fall. If you desire to register early for the seminar, call 202/331-7020 or write NSPE/PEC, 2029 K St. N.W., Washington, D. C. 20006.

Alaska Pipeline Report

Denver Patton, P.E., liaison with Alaska Pipe Line Company for Texas Eastern, et al, will make a presentation at the Baton Rouge Chapter meeting on October 16 at the LSU Student Union Ballroom. Patton's job since the start of construction in the Alaska pipeline has been to do the preliminary planning for construction of a future line to the continental United States.

All engineers and the public are invited to attend.

1974 Mississippi River Flood Report

The Post Flood Report on the 1974 Mississippi River flooding is available from the New Orleans District of the U. S. Army Corps of Engineers.

The report includes a summary, history and description of the flooding in the 47,000-square-mile New Orleans District, emergency activities resulting from the flood, and the economic effects of flood control works. Meterological and hydrological data are also contained in the report.

Order from U. S. Army Engineering District, New Orleans. Attn: LMNED-S, P. O. Box 60267, New Orleans 70160. Cost: $7.50, with money order or check made payable to the Treasurer of the U. S.

Contracting Guide and Directory Published

"The First Step in A-E Contracting with the Federal Government" and the "U. S. Congressional and Executive Directory" are titles of two recent publications offered by the American Consulting Engineers Council (ACEC).

"The First Step" serves as an excellent aid to the practitioner who is seeking federal architect-engineer work. Copies of the 60-page pamphlet are $1.50 each prepaid. Order No. 46.

The Congressional Directory is a pocket size handbook listing U. S. congressmen and senators, alphabetically, by state and committee. Copies are 75 cents each prepaid. Order No. 23.

Order from ACEC, Document and Mailing Department, 1155 15th Street, N.W., Washington, D.C. 20005.



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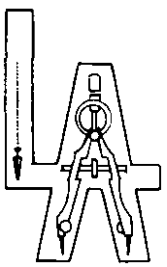

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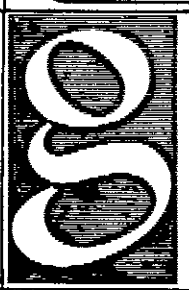

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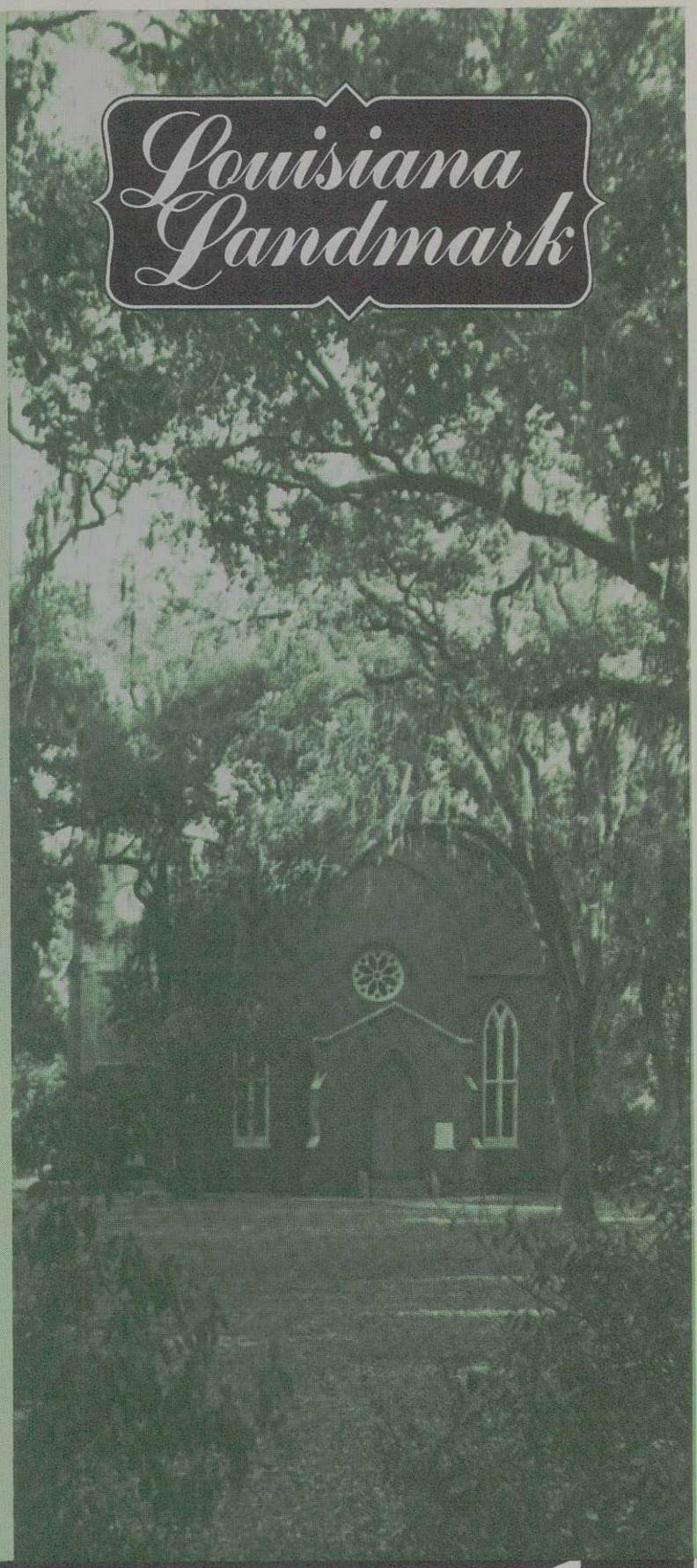

How did it come to pass that the body of a Union Commander would lie within the small cemetery outside the scarred walls of the very church he attempted to destroy?

It wasn't that the parishioners of Grace Episcopal Church allowed a single one of the original 300 square feet to be overrun by Union soldiers. Both the church and the town of St. Francisville had been staunchly defended. And for good reason.

By the time of the Civil War several generations of St. Francisville Episcopalians had more than tithed their meager wages toward the improvement of the church. Their persistent devotion began with small gifts: In the beginning, the late 1820's, the congregation provided a bell for the tower, a silver communion service, a cast-iron fence and an organ. And on the eve of the Civil War, the parishioners saw fit to erect a second building to house its growing numbers. The new sanctuary was completed in 1860.

Only two years had passed when the new church was threatened by Union gunboats. Commanded by Lieutenant Colonel Jon E. Hart, vessels steamed up the sleepy bayous, now strategic waterways for the business of war, and hurled destruction on the town and on the beloved walls of the modest, provincial church.

In the conflict Commander Hart, too, became a victim, his last utterance aboard his flagship was to request burial with full Masonic Rites. A Mason of nearby Bayou Sara honored Hart's last request. This Northern soldier was buried alongside the Southern shadowy bayou and in the sanctuary of Grace Episcopal Church.

The war years passed; the battered church was rebuilt. And in the century since, Grace Church has several times been reborn, refurbished, and improved, always with romantic rememberances of its colorful past. Carpeting has been added, but the now soft, soundless aisles lead still to the rare antique manual pipe organ, now again in perfect working order.

Today, Grace Episcopal Church is a recognized historical shrine. To the people of St. Francisville it symbolizes, in its simple elegance, the transcendence of compassion over hatred and prejudice even in time of war. It makes the simple statement that whatever part we play, or side we take, we all meet death and have a human need for Grace.

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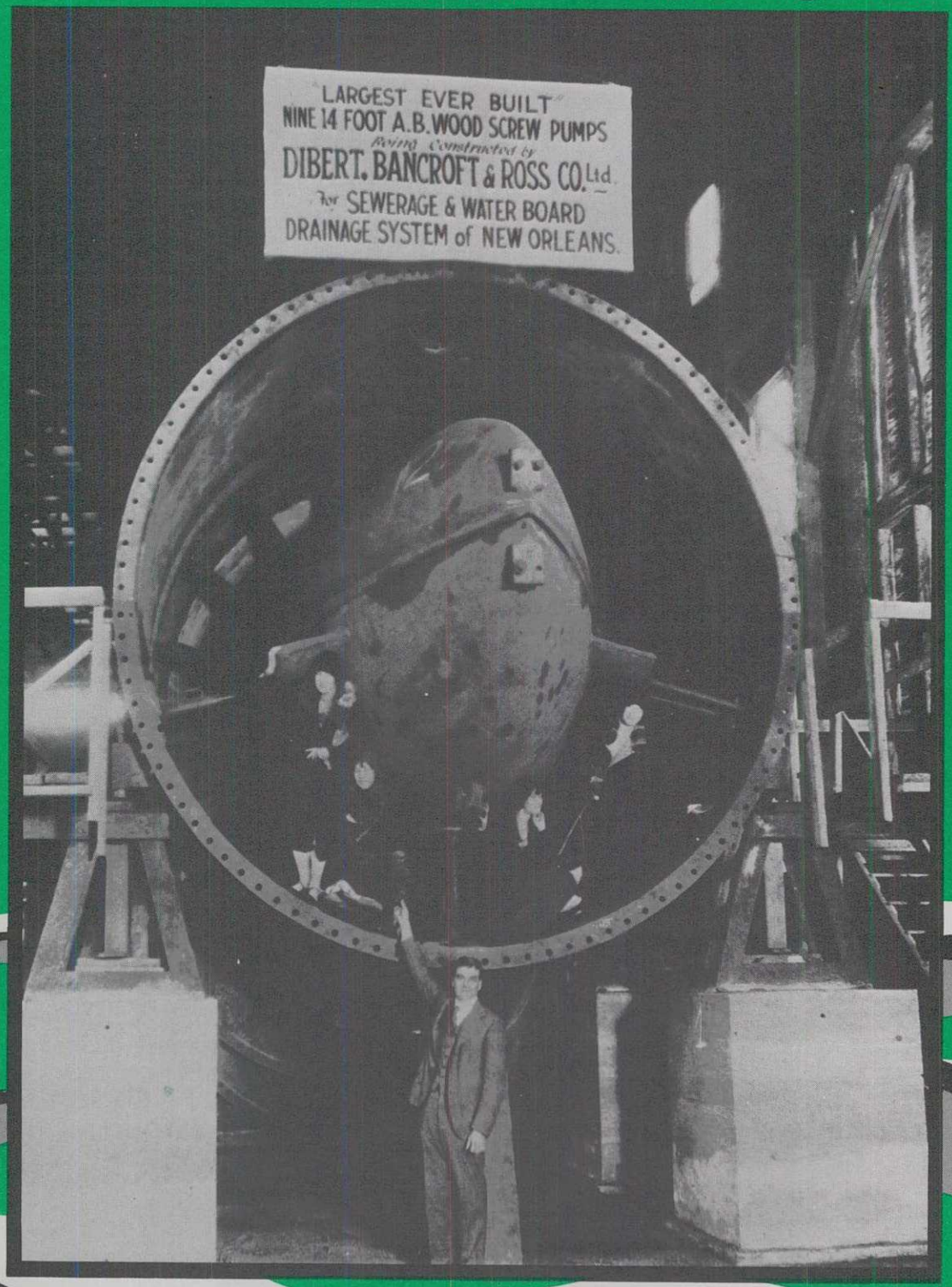

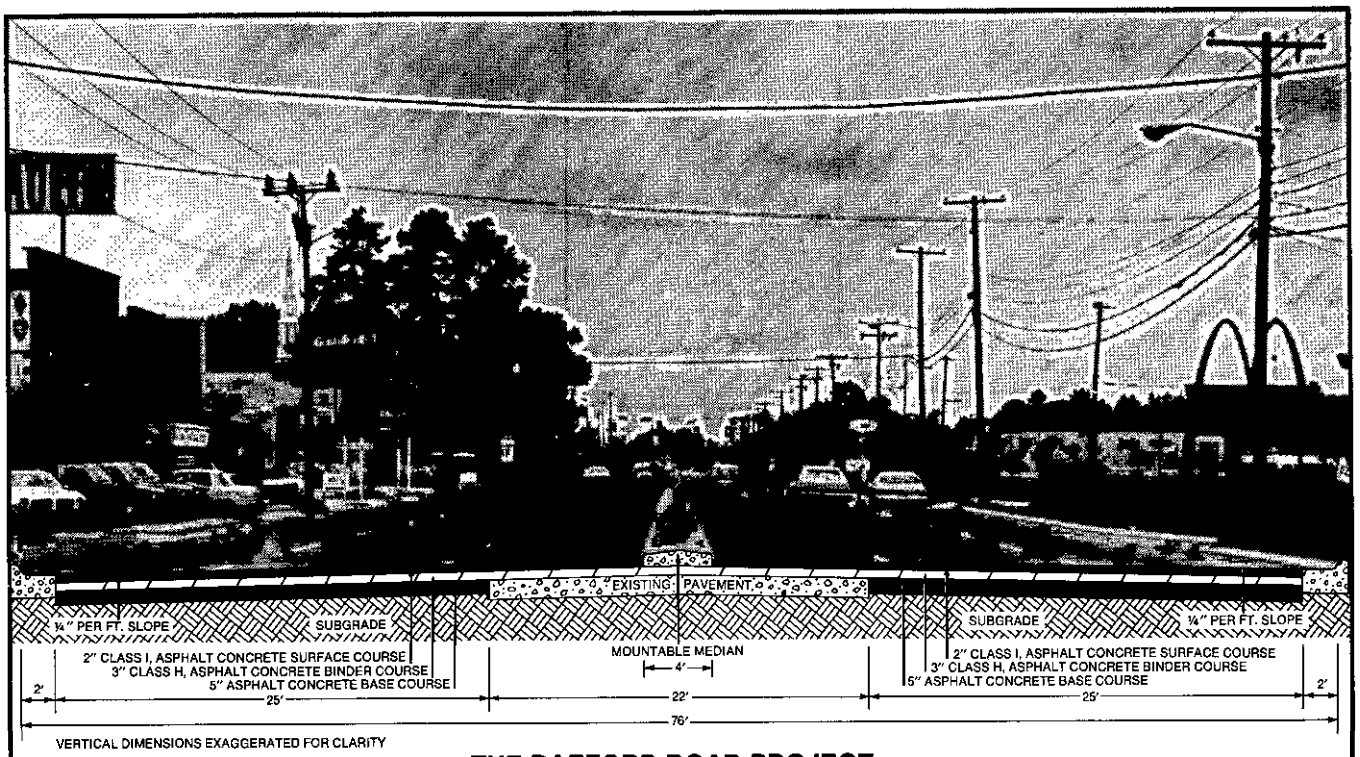

THE RAEFORD ROAD PROJECT

LOCATION: Fayetteville, N.C. (Cumberland County)

TYPE: Two-Lane, portland cement concrete highway widened from 22′ to 72′ with Full-Depth asphalt construction. Overlaid full-width with Asphalt Concrete surface. PCC curb and gutter.

LENGTH OF PROJECT: 5.757 miles

TERRAIN: Flat

CLIMATE: Moderate

TRAFFIC: 29,000 VPD

ROADWAY: Approximately 2.8 miles of three travel lanes in each direction; balance of project two lanes in each direction.

COMPACTION: Asphalt concrete base course was compacted to minimum of 90% maximum theoretical density. The Type H binder was compacted to a minimum of 94% lab density, and the Type I-2 wearing surface was compacted to 95% minimum lab density.

ASPHALT CONCRETE BASE AND SURFACE: Pavement in the widened area, consists of 5 inches of (North Carolina) Type HB asphalt base, 3 inches of Type H binder and 2 inches of Type I-2 wearing surface across the entire pavement width. For improved safety the pavement lanes are divided by a 4-foot-wide mountable concrete median strip placed directly on top of the binder course.

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North Carolina widens two lane road to six using Full-Depth® construction.

In 1964 Raeford Road in Fayetteville, N.C., was a little road trying to do a big job. The surrounding area had boomed in the preceding years. New homes, shopping centers, schools, and a hospital had been built. Service trucks, commuter traffic, emergency vehicles and daily local traffic all combined to heavily overload the two-lane, 22-foot road.

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Louisiana Professional Societies

The list of engineering societies and related groups in Louisiana is included as a convenience to our members and others and to promote intersociety cooperation and communications on professional, technical, social and other matters of mutual concern. It is recommended that chapters invite local members of the societies listed to participate in their activities. Programs in which these society members could participate with great success include National Engineers' Week, legislative activity, public relations, joint publications, combined meetings and community programs.

A letter was mailed on September 5 to all organizations listed in the February 1975 issue requesting updated information for the new listings. The only ones responding are carried below. Organizations wishing to be listed in the future should contact the LES office: P. O. Box 2683, Baton Rouge, La. 70821. or call (504) 344-4318.

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December, 1975

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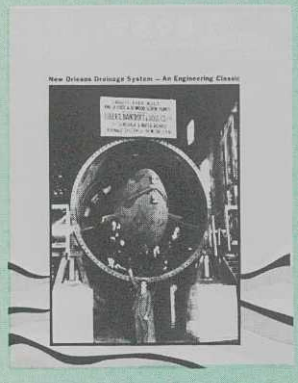

About the Cover

Although New Orleans is one of the older American cities, its emergence as a modern city with a high degree of livability and a capability to grow and prosper dates back only to 1897 when the old New Orleans Drainage Commission began its task of providing the community with its first soundly engineered drainage system. See page 6.

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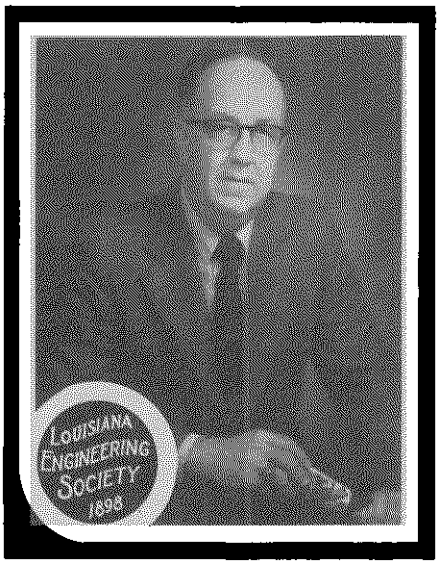
Presidential Privilege



Malcolm L. Hurstell, P.E.
President, LES

One of the fundamental qualities of a profession is that its members continue to learn and to grow throughout their careers. To remain in place is to lose ground. Some of this growth can come from experience, but far more growth is derived by contact with other professionals who share not only their experiences and solutions to problems but also their approaches to people and to ideas.

To provide an efficient vehicle for accomplishing these worthwhile activities, people in similar professions join together in professional societies. Thus, physicians have the American Medical Association, attorneys have their Bar Associations and manufacturers have the National Association of Manufacturers. We engineers in Louisiana have the Louisiana Engineering Society.

The engineering profession in Louisiana has been represented by the Louisiana Engineering Society (LES) since 1898. It is a society embracing all engineers, whether they are licensed or not. In addition to having those purposes mentioned above, LES has been created by Louisiana engineers to speak for them in one united voice on legislative, ethical, economic, and social matters relating to the practice of engineering.

The citing of these goals should be sufficient to influence every engineer in Louisiana to belong to, and **actively participate in**, LES. But many do not, for reasons which are hard to fathom, and it is not the intent here to define why those engineers suffer this attitude. The fact remains, however, that in a state with approximately 10,000 practicing engineers, 5,600 of whom are Registered Professional Engineers, only 2,800 belong to the one engineering society, LES, which represents them all.

The Positive Approach

From the above level of participation it is clear that we have considerable work to do before we can say authoritatively that LES represents the engineer in Louisiana. Note that I said "We have considerable work. . . ." Gaining new members is not a task reserved for chapter officers or membership committeemen. Of course, LES has routines for soliciting newly registered engineers, recent graduates and the like. But by far the most vital link to increased membership is you!

Because the individual who will make the first step towards becoming an LES member is a very rare bird, you must get his favorable attention first and then find some point that will interest him. Many of these advantages are mentioned above.

Combatting the Negative Approach

Occasionally, an engineer will volunteer his reason for **not** joining. Some of the common reasons are listed below, with appropriate rebuttals:

1. "I have too many other things to do."

While family, civic and recreational activities are important to a well-rounded life, a professional man cannot afford to let his professional development lag. To insure his future, he must devote some of his time to outside activities which will tend to improve his capabilities and his standards. LES offers this opportunity through all its Chapters and activities.

2. "Membership is too expensive."

Considering all the benefits and opportunities for development which the Society offers to its members, its dues are reasonable. This is especially true for the young junior member who receives the same benefits as a member for only two-thirds of the cost. Most of us spend a good deal more for luxuries (such as tobacco, liquor, restaurant meals, or golf green fees) than this investment in our professional future. And dues are deductible from your income tax.

3. **"I am not interested in most of the subjects presented at meetings."**

Every meeting cannot deal with a subject of immediate and vital interest to every member. It is a mark of discerning minds, however, to be able to pick out valuable information from subjects not connected with one's primary interests. Besides, none of us should confine ourselves within narrow limits without regarding what goes on in the rest of the outside world. Even if the speaker seems to have no information of interest, the personal associations at the meeting will be of value.

4. **"I already belong to a technical engineering society."**

Most technical societies on the local level provide information in one technical area only. Neither the professional standards nor the wide range of professional information from many disciplines are provided as is done by LES. Each has its place.

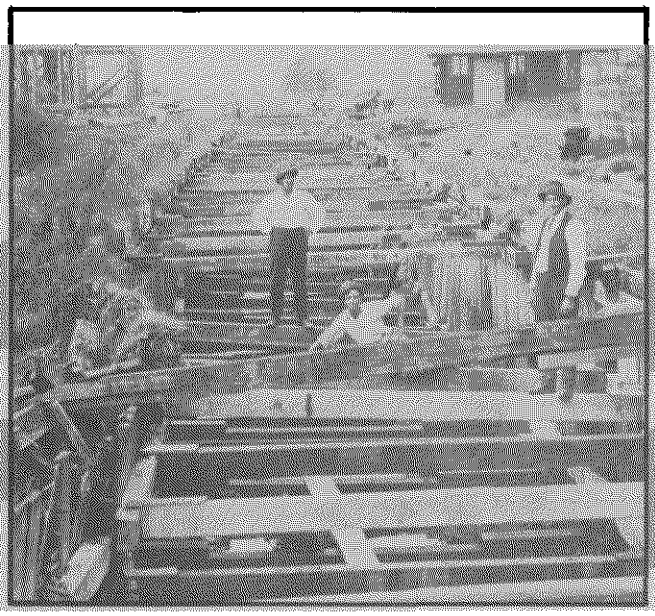
5. **"I am no longer doing engineering."**

Aside from your personal ability and efforts, your training as an engineer has probably helped put you in your present management or executive position. You may feel that you would like to help repay the profession which gave you a successful boost. Your opinions on management type matters can be invaluable to your fellow engineer. Your membership provides the evidence of solidarity and respect you still have for your original profession, and lends financial support with your dues.

(Continued on Page 14)

New Orleans Drainage System — An Engineering Classic

G. Joseph Sullivan, P.E.[1]



Construction of a major tributary canal in unstable soil along Lowerline Street is shown on September 24, 1914, as part of the New Orleans drainage system.

EDITORIAL NOTE: The building of the drainage system of the City of New Orleans is one of the engineering classics. We had asked Joe Sullivan, P.E., a native of New Orleans who became General Superintendent of the Sewerage & Water Board in January 1972, after many years experience in construction, to write the story for the Louisiana Engineer. In researching the history Sullivan found in the 1915 report of George G. Earl, a former General Superintendent, the following graphic account of experience with the drainage system during the hurricane of September 1915 which hit New Orleans shortly after the system was built. It is a fitting introduction to the story of the construction of the system itself.

"GENTLEMEN—The hurricane of September 25, 1915, bringing great rainfall, high winds and high tides, put all of the systems operated by the Sewerage and Water Board to the most severe tests. . . . .

"At 7 a.m. on the 29th the drainage system was operating normally, and as the rain increased the Central Power Station was able to operate all of the pumps necessary to take care of the water as it reached the various pumping stations. The first indication of trouble was at 10:50 a.m., when heavy short-circuits occurred, and the pumps operating at Station Nos. 1, 3 and 7, and a few moments later at 6, went out of step. . . .

"From 10:50 a.m. the drainage system was operated under increasing difficulty. Power was sent out into the transmission lines constantly until 5 o'clock p.m., and the pumps at the various stations were operated as best they could be, but were repeatedly put out of step by short-circuits caused by wires and trees falling across the transmission lines, which in turn caused interruption in the operation of the pumps. . . . .

"At 4:45 o'clock p.m. the top 50 feet of the 175-foot steel stack of the Heine boiler battery at the Central Power Station broke off and fell through the roof of the boiler room, tearing down roof trusses and small steam and water pipes, but fortunately missing the main steam line by a few inches and falling in the space reserved for future boiler installations, so that none of the boilers were damaged and only the Heine boilers put out of commission. . . . .

"During the day frequent advices were received of small overflows of various of the levees. Three of these were in the locality of the various pumping stations and were taken care of by the Sewerage and Water Board forces or by Sewerage and Water Board contractors working in the neighborhood. . . . .

"On Thursday morning the lake level still maintained its Maximum elevation, and there were numerous points along the various navigation and drainage outfall canals and on the rear protection levees where lake water was entering the city in large amount. The overflow from these sources, added to the average of about 7¼ inches of rainfall, was a most discouraging feature on this day's development, and added materially to the delay in getting all parts of the city free of water. . . . .

"By Friday night (October 1st) the area between the two navigation canals was practically free of water, and by Saturday night most of the water had been removed from the large low area above the New Basin Navigation Canal, and back of Clara Street. . . . .

"In view of the very great severity of the hurricane of the 29th ultimo, and of the unprecedented succession of subsequent rainfalls and their intensity, it is safe to say that no city anywhere in the world could have withstood these conditions with less damage and less inconvenience than has New Orleans, and the feeling on the part of those in the most responsible positions in the Sewerage and Water Board service is entirely one of gratitude and satisfaction that the city as a whole and the Board's service have all escaped with only a little inconvenience and a relatively insignificant amount of minor damage, which soon can be fully restored.

Respectfully,
GEO. G. EARL,
General Superintendent."

In no other city in the United States is drainage more important than in New Orleans.

The city's survival, in fact, depends upon how well it is able to dispose of an average annual rainfall of 58 inches that dumps more than 11.1 billion cubic feet of water weighing nearly 347 million tons on 55,000 acres of developed land.

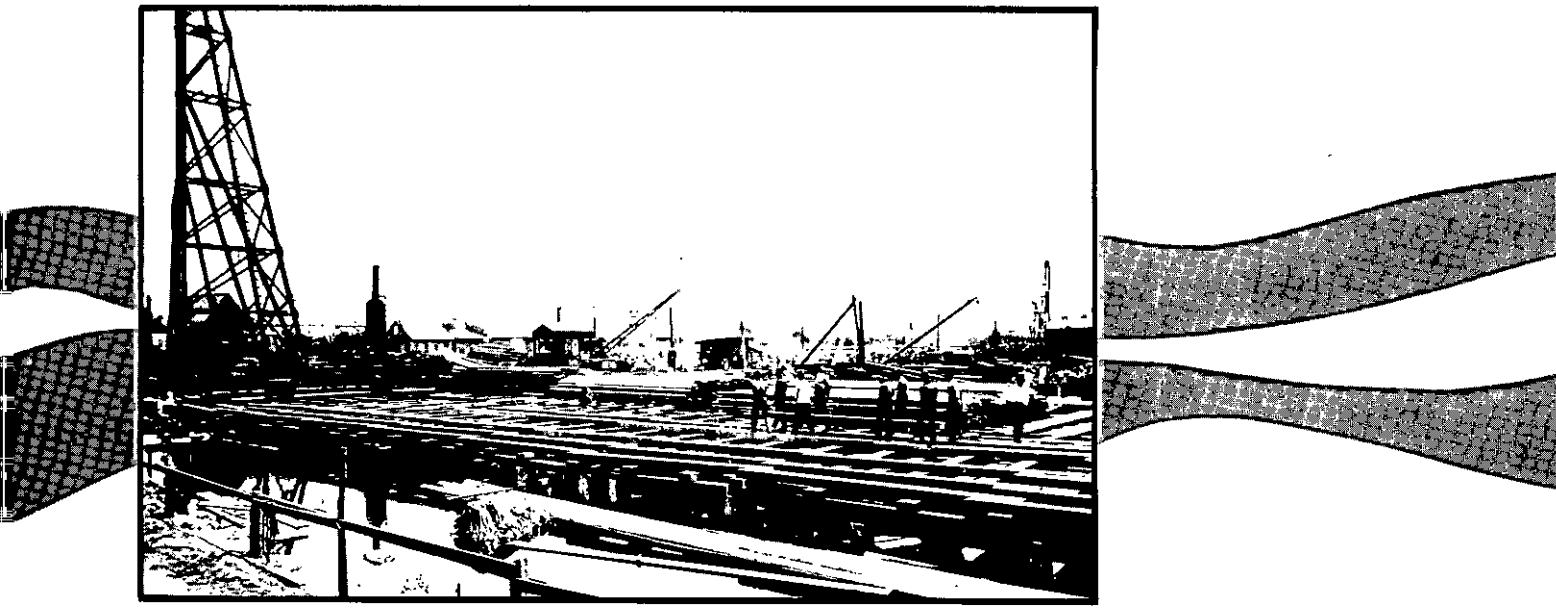
The heavy rainfall, which is exceeded in only one other metropolitan area in the country, is not of itself, however, the reason that adequate drainage is so vital to New Orleans.

What the unusual precipitation does is to compound the city's basic drainage problem that stems from the fact that most of the city is at or below sea level and that it is bounded by water at higher elevations than most of the land area and is ringed by levees for protection against floods.

Water falling on such a saucer-like topographical configuration can do nothing but create a quagmire; and, in fact, most of the interior area of the city was until the turn of this century an impenetrable swamp.

For New Orleans to become what it is today, it was necessary to eradicate the swamp. This was finally accomplished, after numerous trials and errors, by the design and construction of an artificial drainage system unique to the United States and in pumping capacity unsurpassed by any other city in the world.

[1] General Superintendent, Sewerage & Water Board of New Orleans.



Construction site of Drainage Station No. 2 at the intersection of Broad and St. Louis streets, where a young Tulane University engineer named A. B. Wood was hired to inspect the pump installation.

The magnitude of this drainage system is evident from the fact that the replacement value of its component facilities, all installed since 1897, is estimated to be in excess of $1.3 billion.

New Orleanians today are inclined to take drainage for granted, and only the more historical-minded appreciate conditions in the city at this time in comparison to what they were before an adequate drainage system was installed.

The inhabitants of the city in the 18th and 19th centuries not only were unable to cope with the great swamp but found that its presence made drainage difficult for what loosely could be described as the high land of the city—the alluvial land along the banks of the Mississippi River and the Metairie and Gentilly ridges in the interior created by overflows of the river and bayous Metairie and Gentilly.

As a result, water posed a never-ending problem for the community. There was water in the streets, water in homes and business places, water in the soil, and a very unstable soil at that. The water and mud, and the unstable soil, hampered the development of effective sewage disposal, checked the development of the city, and even had a deleterious effect on the drinking-water supply.

Most dramatically, the absence of adequate drainage was a principal contributor to the yellow fever and malaria scourges the city experienced even into the early part of the 20th century.

The city lived with these conditions for nearly 200 years before a sound approach to a solution of the problem was devised. The turning point was in the 10-year period between 1893 and 1903 when various studies were made and groups formed that finally resulted in establishment of the Sewerage & Water Board of New Orleans as we know it today.

New Orleanians know what kind of city they now live in, but it is necessary to take a look at the past to better appreciate what has been accomplished in this century and to better understand problems that to this day must be coped with.

Benjamin Henry Latrobe, famed architect of the early 1800s, wrote in his diary in 1819 that "the mineralogist is completely baffled in this country," meaning New Orleans.

"Mud, mud, mud," Latrobe wrote. "It is a pity, as to the mere expense of building, that this is a floating city, floating below the surface of the water on a bed of mud . . . a pick could with difficulty penetrate the crust of the road, so exceedingly hard is the clay or mud which after three or four days of dry weather is compacted. But two feet, six inches below the surface, the blunt handle of the pick could easily be pushed down up to the blade, and the water follows it when drawn out."

A New York visitor to New Orleans in 1851 remarked that the soil of the city "in the driest time of the seasons is filled with humidity, and under favor of rain showers soon overflows."

"Shunning the city," the New Yorker wrote, "the choking gutters send their burdens swamp-ward, littering the angles of pavement with clumps of cotton and wool, heads of barrels, broken paper boxes, bits of pasteboard, twine and bagging rope, all of which the ever-thirsty swamp licked, in due course of time, into its capacious maw."

The visitor noted that "full three-fourths of the walks are of ill-burnt brick which, on loose, slimy soil, are treacherous feet supporters."

"Even on sunny days," he continued, "the layers of mud are 10 times worst in pedestrian effect than Gothamic or Bostonian deposits of snow and ice; particularly this in the Creole portions of the city, where the inhabitants seem tainted with hydrophobia, and grow spasmodic at the sight of water. Each alternate brick is a dandy trap. Down goes the unsuspecting foot, and up flies on face and trousers a treacherous fluid, for which mud or slush are too generous terms."

Even in the early 1800s, the problem of adequate sanitation was related to the need for drainage. The swamp, the open gutters, stagnant accumulations of water in yards and by-ways, and open earthenware water jars—all of these contributed to mosquito breeding on a fantastic scale.

Benjamin Latrobe, himself a victim of yellow fever, complained of rainfalls that filled "all hollows with water throughout the city and country, and providing breeding places for (mosquitoes) over the whole surface of the land."

"As soon as the sun sets," he wrote, "the *muskitoes* appear in clouds and fill every room in the house, as well as the open air. Their noise is so loud as to startle a stranger to its daily recurrence. It fills the air, and there is a character of occasional depression and elevation in it, like that of a concert of frogs in a marsh."

Believing the unhealthy conditions of the city were due to the intense heat and excessive humidity, the New Orleans Drainage Company was created in 1835 to drain land and cut trees to the rear of the city. By 1938, a natural drain to the rear of the city was deepened and broadened into what is now the Melpomene Drainage Canal.

Lake Pontchartrain was the ultimate point of drainage water discharge, and drainage machines were built along the Melpomene Canal and along Bayou St. John at Orleans, Hagan, and Marigny avenues. These machines of the New Orleans Drainage Company consisted of two drainage wheels ranging from 28.5 to 34 feet in diameter with faces of about four to seven feet, and delivered

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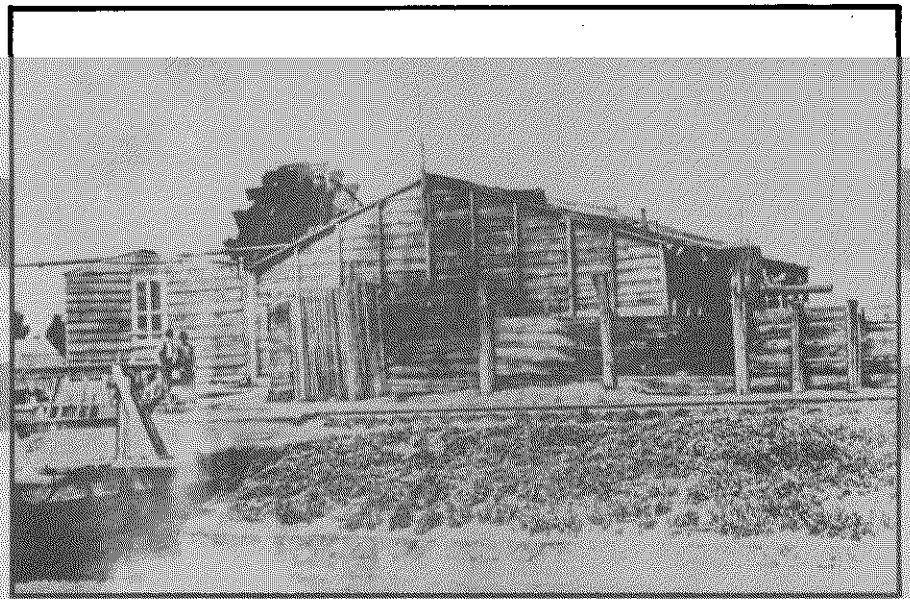

This 19th century steam-driven paddlewheel drainage station was located at Claiborne and Melpomene.

New Orleans Drainage

(Continued from Page 7)

approximately 240 to 300 cubic feet per second with a lift of five feet. Between 1846 and 1871, additional drainage machines were installed in the western portion of the area now comprising Orleans Parish. Capacities ranged from 140 cfs to 480 cfs.

The drainage machines were highly ineffective by today's standards. At maximum capacity, they could dispose of the runoff of 0.01 inch of rainfall in five minutes, or 0.12 inch in one hour. It was not uncommon that following heavy semitropical rains that often lashed the city, low areas remained flooded for days at a time.

In 1893, firm steps were taken for the first time to provide an overall and comprehensive plan for the drainage of the city. City Engineer L. W. Brown was authorized to make the first topographical survey of the city. At the same time, an advisory board of expert drainage engineers was appointed.

When these actions were being taken, the run-off of storm water was entirely by gravity, by means of gutters dug along the sides of the streets which discharged their flows into main canals. The water from these canals was discharged into tide-level leveed outfall canals which led to Lake Pontchartrain. The drainage machines on the outfalls employed steam-engine-driven wheels which, in effect, were undershot water wheels working backward.

These drainage machines were capable of lowering the water in the suction side of the canal some two or three feet below the surrounding land level, compared to the 15 or more feet that the modern pumps of the Sewerage & Water Board can accomplish. The system served fairly well for the removal of surface water in the areas adjacent to the river where there was a falling slope, but was of little use for the level plateau and low areas beyond the slope.

The advisory board on drainage, with the results of the initial topographical survey that confirmed the saucer-like terrain of New Orleans, addressed itself to the people of New Orleans in its 1895 report as follows:

"The drainage question of this city today applies principally to removal of rain water falling on the inhabited and built-up part of the city, which does not penetrate the ground, but runs off into the gutters, and then floods the streets and finally the low territory, causing more or less damage to property and interfering with travel and the transaction of business.

"It applies likewise to the removal of the ground water which at present saturates the soil, causing unsanitary conditions, besides preventing the usefulness of the territory, for one or another purpose as may be required in a large city.

"Many blocks in the city which are not now built-up because they are practically swamp, although within convenient distance of the business center, will likewise be benefitted by efficient drainage."

Such were the conditions in New Orleans in 1896 when the newly created New Orleans Drainage Commission, which in 1903 was to merge with the Sewerage & Water Board, was directed to improve by providing the city with a workable drainage system.

The present drainage system which the Drainage Commission began to implement is based on the 1893 topographical survey that showed that the city's highest land was near the banks of the Mississippi River. The high ground sloped away from the river for 6,000 to 9,000 feet with a drop in elevation of 13 to 14 feet. From the foot of the slope to Lake Pontchartrain, the surface was at or below sea level except for the approximately five-feet-high Metairie and Gentilly Ridges and a two-foot rise near the shores of the lake.

The founders of the modern-day drainage system agreed that storm water had to be lifted in stages and pumped out of the saucer-like city. Lakes Pontchartrain and Borgne were decided upon as points of final water disposal since the lifts to the lakes were considerably less than that to the river.

The master drainage plan called for construction of a main canal in the lowest depression between the river and the ridges. This canal extends along Broad Street from Melpomene to Florida Avenue and along Florida Avenue to a point near the headwaters of Bayou Bienvenue, which empties into Lake Borgne.

Today, in accordance with the plans devised by the advisory board of engineers in 1895, storm water runoff from the river slope flows into the Broad-Florida canal by gravity through miles of tributary canals and pipelines. The main canal also receives water from the lakeward sections of the city in a similar manner. Pumping stations along the canal not only propel storm water at a rapid rate but lift the water in stages to the tidewater Bayou Bienvenue outfall into Lake Borgne.

Water from heavy rainstorms, which would tax the capacity of the Broad-Florida canal system, is diverted to Lake Pontchartrain through a system of three outfall canals situated in Orleans and London Avenues and along the Orleans-Jefferson parish line. The water is pumped to the outfall canals through additional miles of tributary and relief canals and pipelines and finally discharged into the lake through powerful pumping stations situated on the outfall canals.

Separate drainage systems are maintained for Algiers on the West Bank and for that portion of the city east of the Industrial Canal and north of the Mississippi River-Gulf Outlet and Intracoastal Waterway. Drainage problems, however, are similar to those in the older section of the city—low-lying areas, unstable soil conditions, and levees—and storm runoff must be pumped and lifted to tidewater.

The Sewerage & Water Board carried to completion the original drainage plan of its predecessor, the New Orleans Drainage Commission, and has expanded upon it considerably as the city developed to a much greater extent than was envisioned by those who led the fight for good drainage in the 1890s.

The original drainage plan for the city called for construction of 95 miles of canals, of which 30 miles would be lined and covered. The primary storm water collection system of today's drainage system is 227 miles in length, of which 83 miles are covered canals, 57 miles are large pipelines, and 87 miles are open canals. In addition, there are 1,258 miles of subsurface drain pipes to transmit the water runoff from the streets into the primary canal and pipeline system.

The old New Orleans Drainage Commission planned for a pumping system of eight drainage stations with a total

(Continued on Page 10)

Profits



A two-way street that helps power America.

Like any other form of private enterprise, investor-owned utility companies have to be financially sound. We have to make a reasonable profit. And this profit is put back to work to make sure our customers will have the electric energy they need. Now and in the future.

How do we put our profits to work? Some of it helps in building new generating stations and distribution centers to provide energy. In constructing transmission and distribution lines to carry the increasing load. In improving our existing community facilities and building new ones to more effectively handle our customers needs.

And, like other investor-owned companies, some of our profits go to pay dividends to our shareholders who are looking for a reasonable return on their invested dollars. But profits are only part of the story. Profits also enable utilities to be in a financially sound position in order to borrow hundreds of millions of dollars needed to finance our on-going construction programs.

Building for the future takes money. And the costs for providing energy for your future are rising every day. Profits help. And as we said, this is a two-way street that helps us to power America.

YOUR FIVE LOUISIANA INVESTOR-OWNED ELECTRIC COMPANIES

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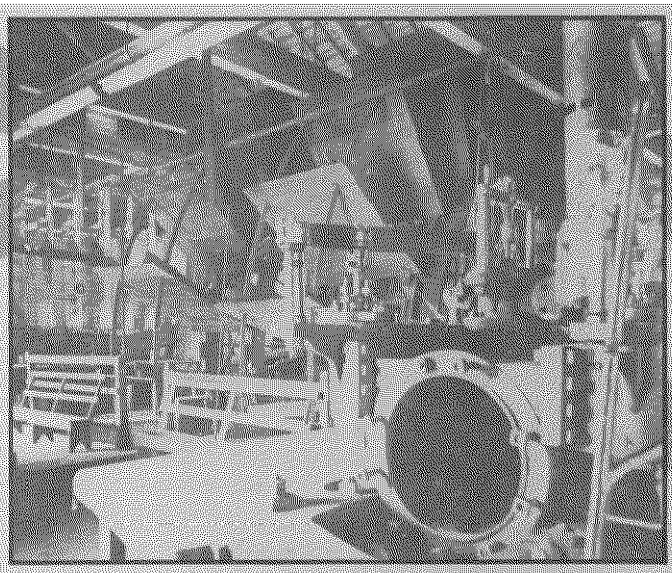
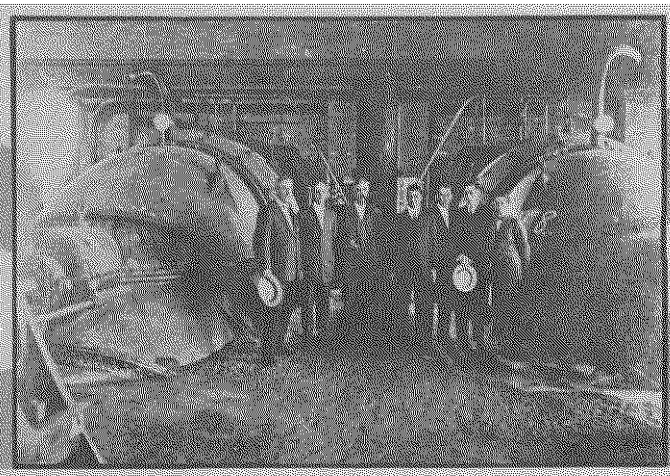


A steam-driven 19th century paddlewheel-type drainage machine was constructed and operated shortly after the Civil War.



Dedication of the 12-foot-diameter wood screw pumps at Drainage Station No. 1, at the intersection of Melpomene and South Broad Streets occurred in 1915. "Early Giants of the Sewerage & Water Board" in attendance (from left) were Alfred Theard, Alfred Raymond, George G. Earl, A. Baldwin Wood, S. G. Frank Haas, John E. Morrill, and Wade Barnett.

New Orleans Drainage

(Continued from Page 8)

capacity of 18,991 cubic feet per second, or 8,327,000 gallons a minute.

The present-day drainage system includes 18 large pumping stations and three smaller ones capable of removing more than 50,000 cubic feet per second or 22.5 million gallons of water every minute from the streets.

A tremendous amount of electric power is required to operate these pumping stations, which contain a total of 54 pumps ranging in size from 112,500 gallons-per-minute capacity to 450,000 gallons-per-minute capacity. Each pump is operated by electric motors ranging up to 2,000 horsepower.

The electrical energy to operate the pumping stations is supplied by the Sewerage & Water Board's own power plant in the Carrollton complex, which has a capacity of 61,000 kilowatts. Another 18,000 kilowatts of supplemental power is available from New Orleans Public Service, Inc., through Sewerage & Water Board-owned frequency changers.

Power is distributed to most pumping stations over the Board's own transmission system, most of which is underground for greater reliability. In outlying sections, a few stations are served by overhead power lines of New Orleans Public Service Inc., but these stations have standby diesel electric generating facilities in the event normal electric service is interrupted by wind or other damage.

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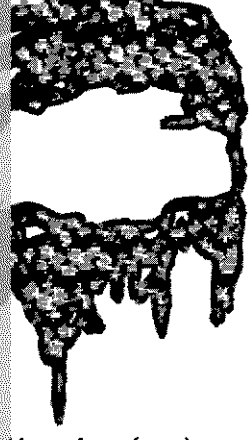

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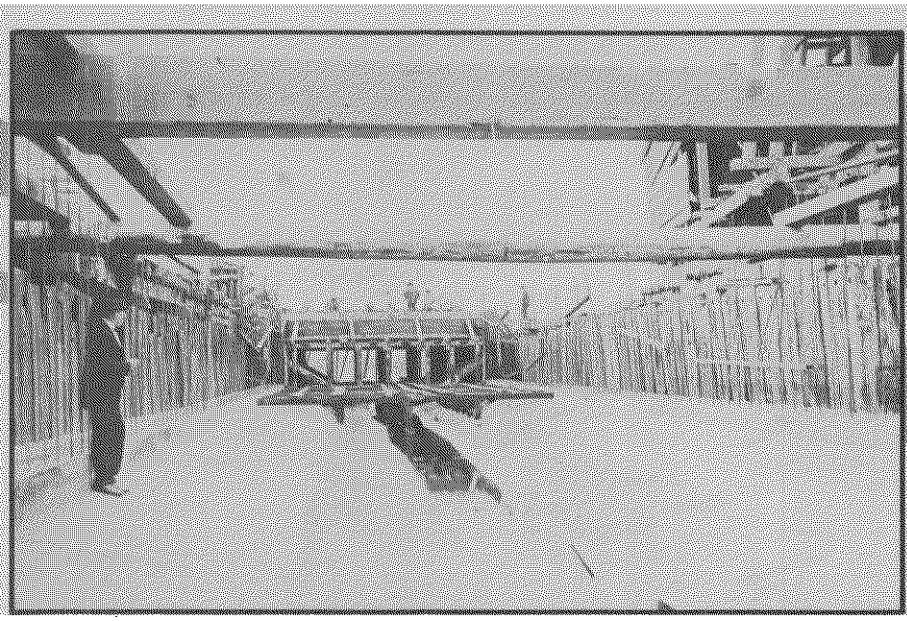
PEACE FROM A BEARDED OAK

Although New Orleans is one of the older American cities, its emergence as a modern city with a high degree of livability and a capability to grow and prosper dates back only to 1897 when the old New Orleans Drainage Commission began its task of providing the community with its first soundly engineered drainage system.

When we pause to consider what good drainage has meant to New Orleans, we might well recall a prophecy made in 1857 by Louis Pilie, the city surveyor, albeit tinged with some practical political considerations.

"When the drainage of our swamps shall be perfected," said Mr. Pilie, "the city will rank among the healthiest in the world. The growth and population of our city will rapidly appear, our commerce will be largely benefitted. Our population, far from seeking a residence during the summer and sickly months, will remain in the city and erect delightful residences along the lake shore, and upon the now swamp lands of our city, and thus a large amount of property, at present valueless, will amount to millions and swell our assessment rolls."



The main drainage canal on Broad Street looking downtown from Pumping Station No. 1, as it was on December 12, 1923.

Spring 1976 Engineering Management Courses

FACULTY

The courses will be taught by regular faculty members of the LSU Colleges of Business Administration and Engineering or by able, qualified professors from other universities in the State.

CERTIFICATE

Upon completion of four acceptable courses the participant will be awarded a Certificate in Engineering Management by the Division of Continuing Education. Under certain conditions college credit also may be earned for the courses.

COST

The registration fee per participant is $110 for each course including the cost of textbooks. The program is fully self-supporting.

REGISTRATION

To insure that each student will have an opportunity to participate in discussion, enrollment in each section will be limited to 30 students.

Class sessions will be held in the University Medical Center at New Orleans, on the Baton Rouge campus, and in other cities throughout the state where there is adequate demand. To preregister for the classes complete the attached form and return with $10 preregistration fee. Fee is applicable toward the $110 total registration fee and will be refunded if class chosen is not offered.

AVAILABLE COURSES

Course A — Concepts of Modern Management
Course B — Economics for Engineering
Course C — Engineering Economy
Course D — Financial Decision Making
Course E — Operations Research for Engineers
Course F — Basic Engineering Statistics
Course G — Theory, Methods and Use of Accounting

Please complete the following form and return it with the $10 fee to the address below if you are interested in the Spring 1976 Program. (Classes will begin during the week of January 19, 1976.)

Name _____

Address _____ **Phone** _____

City & State _____ **Zip** _____

MAIL FORM TO:
Dr. Thomas G. Ray
Mechanical, Aerospace & Ind. Engineering Dept.
Louisiana State University
Baton Rouge, Louisiana 70803

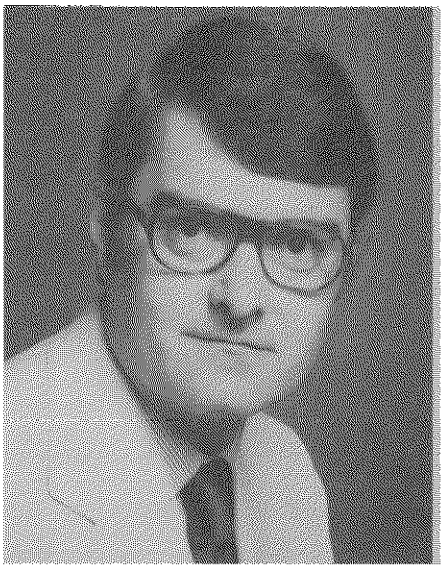
I wish to preregister for the course indicated. (Please show your first choice with a **1**, *second with a* **2**, *etc. Show a single location choice only.) I understand if my first choice is not offered, I can request a refund of the $10 preregistration fee. This condition also applies if the class is scheduled on a night I cannot attend.*

Courses Offered	**Locations**
____ Management	____ Baton Rouge
____ Economics	____ New Orleans
____ Engineering Economy	____ Shreveport
____ Finance	____ Alexandria
____ Operations Research	____ Monroe
____ Engineering Statistics	
____ Accounting	

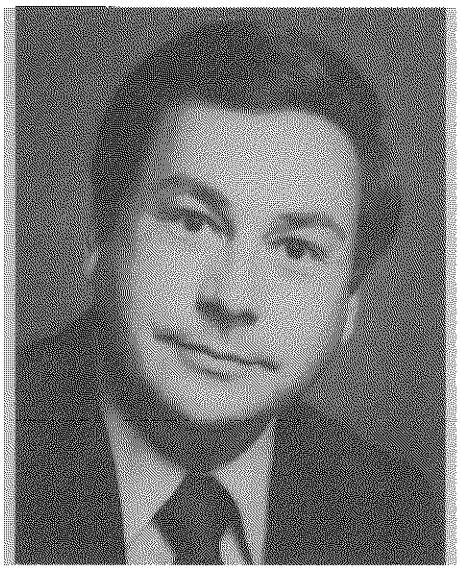
I **cannot** meet on the following nights:
M_____ T_____ W_____ Th_____

Co-sponsored by College of Business Administration, College of Engineering, LSU, and Louisiana Engineering Society

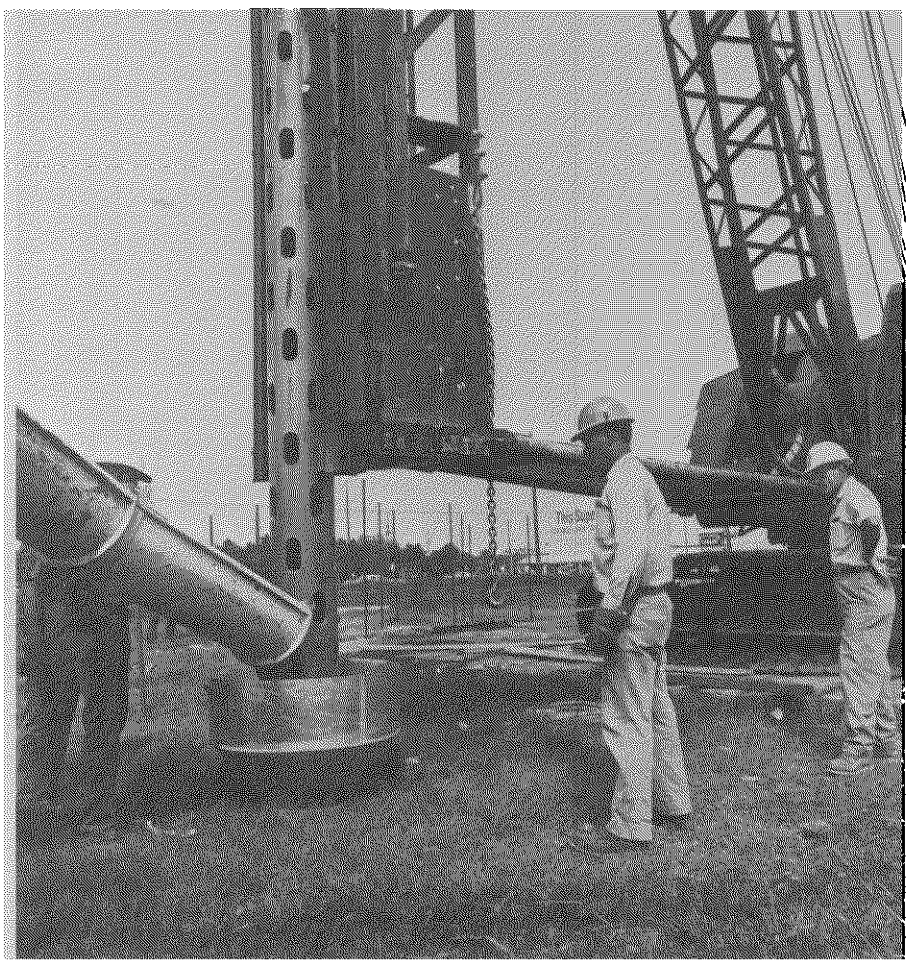
New Caseless Cast-in-Place Piling System Perfected in New Orleans



C. F. Dahlberg, Jr., P.E.



William R. LeCorgne, P.E.



Interpile mandrel, hopper and driving rig are required in fabricating caseless cast-in-place concrete pile.

Interpile USA, Inc., a New Orleans firm, has pioneered the development of a new cast-in-place caseless concrete pile.

Two Louisiana registered professional engineers have been instrumental in development of the pile, which is now being marketed extensively in this country. They are C. F. Dahlberg, Jr., P.E., and William R. LeCorgne, P.E., who serve as president and vice president, respectively, of the company. Both are natives of New Orleans, received their engineering degrees from Tulane University, and are members of the Louisiana Engineering Society.

The new system which they helped perfect is the result of many months of intensive research and has resulted in a superior foundation system which is applicable to a wide range of subsurface conditions. Interpile has been tested as a high-capacity pile and has been proven for loads up to 160 tons for a 12-inch diameter pile.

The company has 11 licensees capable of installing the pile anywhere in the United States. A pile-driving rig consisting of a crane, a set of leads, and a pile-driving hammer is required. Other equipment includes the Interpile mandrel, hopper and steel tips. The steel tips may be plates alone or plates welded to a short section of pipe. The mandrel is attached to the hammer and becomes a fixed part of the pile-driving rig.

Once a pile location is established, the steel tip and hopper are positioned over this location; next, the mandrel is aligned over the steel tip and lowered into place. Concrete is then introduced into the funnel-shaped hopper, and as the tip is driven, the concrete fills the hole. Concrete flows on the outside of the mandrel until the perforations reach the level of the concrete. Concrete flows

through the perforations and is then inside the mandrel. Driving continues until a refusal criterion or desired length of the pile is reached. The mandrel is withdrawn, additional concrete is added and the steel tip remains as part of the pile.

This new technology has been used under two office buildings, a large chemical plant, and the Marin County Exhibit Center in California, which was designed by the late Frank Lloyd Wright.

Lee and Praszker of San Francisco, California, were the foundation consulting engineers responsible for the selection of the Interpile system for the structure. Praszker said the system made possible variable length piling and eliminated the need for costly pile cut-offs. It also afforded a system that was economical and easy to install, he said.

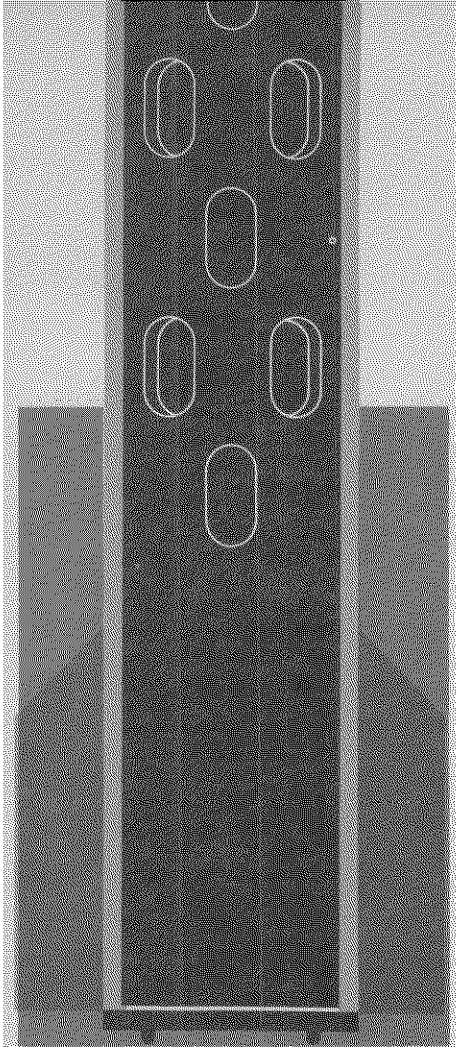
The pile lengths for the Marin County Exhibit Center varied by almost 20 feet and were driven to substantial resistance in decomposed shale and weathered sandstone. The piles were also reinforced to resist seismic forces.

In addition to these projects, the pile has been recommended for two paper mills, a large chemical facility, a public office building, a warehouse, a university classroom building and several other structures. The singular advantage of Interpile cast-in-place concrete piles is that they can be less expensive than other types of deep foundations.

Interpile participated as an exhibitor at the recent ASCE Convention held in New Orleans and was selected as one of the five most interesting of nearly 60 commercial exhibits there.

The company holds the exclusive worldwide commercial license for the caseless cast-in-place concrete pile-driving process and apparatus covered by the U. S. patents. Based upon such U. S. patents, the company has obtained patents in eight other countries and has filed or is in the process of filing patent applications in 34 other countries.

Response to the Interpile system to date has been enthusiastic, the firm reports.



*"The engineering mind is nothing if not ingenious."**

80 YEARS
Of Engineering
In Louisiana*

(CONCLUSION) There were a number of significant milestones for Ford, Bacon & Davis in the last ten years. Having occupied brand new premises on Jackson Street in Monroe, which for the first time combined all of the administrative offices, the engineering, drafting, and shop facilities, and a storage yard to handle the vast amount of pipeline and other construction equipment, the firm's continually expanding operations made it necessary to double and then triple the Monroe facilities to today's size of several square blocks.

It was in the mid-1960's that Ford, Bacon & Davis by acquisition became the successor to Tears Engineers, Inc., in Dallas, a highly-regarded and well-established firm that specialized in petroleum refineries. Under the direction of the Monroe office, the Texas operation itself has been doubled and redoubled, and still another expansion program is currently under way. Another engineering and construction operation was sponsored, this one in Sao Paulo, Brazil, for pulp and paper mills and electric power generating facilities, such as a state-owned utility at the headwaters of the Amazon River. The firm has also expanded its Sealants Department which provides a unique procedure for in-place sealing of underground gas distribution mains. In fact in the early Sixties this department pressure-sealed the gas mains in the vicinity of Audubon Park and Tulane University alongside the tracks for the St. Charles Avenue streetcar . . . the same transit system that Ford, Bacon & Davis converted to electric power in 1895.

The firm continued to construct pipelines for Louisiana Power and Light, Louisiana State Gas, and other companies, and continued its seemingly never-ending assignment to enlarge and modernize the Commercial Solvents Corp. plant at Sterlington and the PPG Industries chemical plant at Lake Charles. This too was the era when the firm established its pulp and paper mill division that within a brief five years accounts for a substantial 40 per cent of its business. Now the company is expanding into industrial power plants, estimated to account for another 30 per cent of the engineering manhours.

In its 80th anniversary year, the firm is justifiably proud of the honor that it received indirectly when its Monroe division president, Fred C. Culpepper, Jr., was chosen as the Louisiana Engineering Society president in 1975. *(Last of a series.)*

* From *For Human Needs*, a history of the first 80 years of Ford, Bacon & Davis

Ford, Bacon & Davis
Engineers.
MONROE • BATON ROUGE
1894

Vliet's Views

Daniel H. Vliet
Executive Secretary
Louisiana State Board of Registration for Professional Engineers and Land Surveyors

EDITORIAL NOTE: *Fred Culpepper, when President of the Louisiana Engineering Society, suggested that a column might be run in the* ***Louisiana Engineer*** *each issue telling of some of the activities of the Louisiana State Board of Registration for Professional Engineers and Land Surveyors. The Board adopted this suggestion at its November meeting, and the Board's energetic Executive Secretary, Dr. Daniel H. Vliet, agreed to write such a column. Appropriately enough, it is titled "Vliet's Views" and gives his personal observations, not necessarily those of the Board, on registration matters. Dr. Vliet is a registered Professional Engineer, a professor of electrical engineering at Tulane University, an ardent sailor, a licensed lighter-than-air pilot of World War II, and a native New Orleanian.*

* * *

Sometime in the future I may use this space to express "Vliet's Views"; however, for the present I believe that you will be more interested in learning of some of the activities of the Board of Registration that will affect the future registration of Professional Engineers and Land Surveyors.

To save time and money the Board has decided to hold six meetings a year instead of the usual ten. These will be held during odd numbered months, usually on the second Tuesday and Wednesday. The next meeting will be held on January 13 and 14, 1976.

Persons who qualify to become certified as Engineers-in-Training and Land Surveyors-in-Training are required to take examinations in the fundamentals of these professions. The Board recently increased the fee it charges for these examinations from $10 to $15 beginning in 1976. Since an applicant who has passed the examination receives a full refund of this fee when he becomes registered, the increase in income to the Board realized by this raise will only be temporary. In any case, before the plan could be put into effect, the National Council of Engineering Examiners announced that beginning in 1976 it will charge $15 for each examination.

For those interested, the dates on which these "bargain-priced" examinations will be offered are as follows:

April 10, 1976
November 6, 1976
April 16, 1977
November 5, 1977
April 15, 1978
November 4, 1978

Applications should be submitted to the Board at least 60 days in advance of the examination date. Qualified persons may elect to take the examinations at centers in the following cities: Baton Rouge, Lafayette, New Orleans and Ruston. To my knowledge all Registration Boards in the United States will recognize a passing grade in these examinations as fulfilling a requirement for registration.

A committee of the Board is active in reviewing the requirements for registration for Professional Engineers. I expect that the committee will recommend that after July 1, 1978 two eight-hour examinations will be required of all who qualify for registration on the basis of Graduation plus Experience. The effect of this increase in requirements will be to make it easier for Louisiana engineers to acquire registration in other states. If so, the committee may also recommend increasing the requirements for registration for those who apply on the basis of Examination and Long Established Practice. Consequently, I am encouraging all who can qualify for registration as Professional Engineers to submit their applications without delay.

Presidential Privilege

(Continued from Page 5)

6. "I am a Registered Professional Engineer. Isn't that sufficient?"

The fact that you are registered is an indication that you have a deep commitment to the engineering profession. You already receive THE LOUISIANA ENGINEER because you are registered. But membership in LES will expand your ability to provide direct input to those affairs which affect your profession.

7. "What is in it for me?"

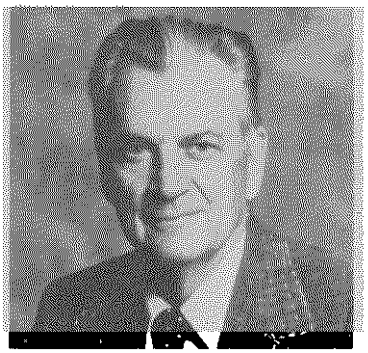
Nothing, if you are completely happy with everything you are doing. If there are some things you would like to see changed, however, LES can offer you something. It offers you an association with men who have the same engineering interest. It offers you a means of expressing your opinion on professional problems and hearing those of others. It offers you the strength of a respected voice on matters dealing with our Legislature. It offers you the chance to participate in the effort to gain public respect, appreciation, and recognition for your profession. It offers you standards of professional conduct through its Code of Ethics.

Follow Through

Once you have secured the interest of your prospect, be persistent. Get to know your Chapter membership chairman and enlist his aid. Turn over to him the name of your prospect and follow up with both him and your prospect. If you do not know your Chapter membership chairman, send your prospect's name to me, or better yet, to LES headquarters in Baton Rouge. They will see to it that contact is made.

Professional Responsibility

Engineers, now more than ever, must provide leadership if our way of life is to continue to grow. Preservation of the environment, reduction of pollutants, adequacy of energy, mass movement of people, economic use of our material resources—these and many more problems recognized by the man on the street cannot be solved by goverments, except with the expertise of engineers acting with professional responsibility. Your **active participation** in the Louisiana Engineering Society will provide you with the forum to further these goals.



Potpourri

From Your
Executive Secretary
R. C. "DOC" SPEARS

Engineering and Politics

At a meeting on November 18, the Baton Rouge PEPP section heard Edgar Watts, P.E., Baton Rouge City Councilman; Ted Heil, P.E., campaign coordinator for Senator Ken Osterberger's successful reelection to the Louisiana Senate; and Mike Tassin, P.E., candidate in the run-off for Democratic Central Committee, discuss their involvement as professional engineers in the political arena.

Some very revealing facts and interesting developments were brought out: the election participation of anyone is an expensive and time-consuming project; the Louisiana Campaign Practices Act and its effect was explained; engineers are apathetic in political campaigns; the planning for a political campaign is very similar to project engineering; and engineers should get more involved in politics.

D. A. Sanders, P.E., Baton Rouge-PEPP chairman, moderated the session. It was an excellent and well received program.

Common Situs Picketing

LES President Hurstell requested Senators Long and Johnston in a letter of November 13 to oppose the bill in the Senate that would legalize secondary boycotts.

Recently, the House of Representatives passed a bill to legalize secondary boycotts at construction sites (common situs picketing). Approval of such legislation would permit labor unions to legally strike and close down an entire construction site on the pretense that all separate employers at the site are engaged in a common venture. The U.S. Supreme Court ruled in 1951 that this practice is illegal and the labor unions are asking Congress to overturn this decision by legislation.

Our senators were asked to oppose this legislation and to keep us advised.

Planning Meeting for Coastal Resources Program

The State Planning Office has been directed by the governor to develop a Louisiana Coastal Resource Planning program. LES was invited to a planning meeting held on October 9. Chester Watson of Pyburn & Odom, Inc., Baton Rouge, attended the meeting for LES and reports the following items.

Pat Ryan of the State Planning Office conducted the meeting. Statements were presented by several private citizens and representatives of interested groups and governmental agencies. The program is now in the planning and formulation stage and will require approval of the Louisiana legislature and the U.S. Department of Commerce. Authorization and a portion of the funding for the program is being provided by the federal government as a result of the Coastal Zone Management Act. A purpose of the program is to handle that portion of the permitting system for activities occuring within the coastal zone which is now under the U.S. Army Corps of Engineers. Permit applications would be initially processed by the police jury for the parish in which the activity occurs.

Baton Rouge Chapter Meeting

More than 30 engineers at the Baton Rouge Chapter meeting on November 13 heard Dr. Louis J. Capozzoli, Jr., P.E., discuss his computerization and automation of soil and foundation projects. He has been the soil consultant for

(Continued on Page 16)

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- Industrial Water Treatment
- Fluid Handling Equipment, or
- Process Plant Control

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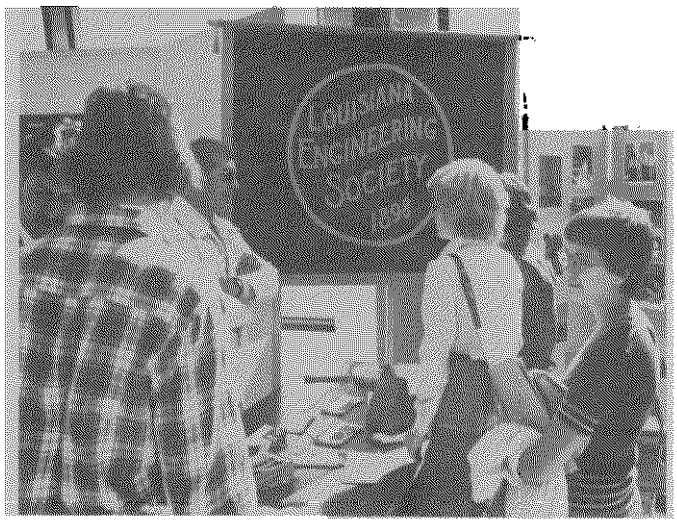
(Continued from Page 15)

thousands of soil and foundation projects along the Gulf Coast in the past 19 years.

The firm's computer applications are unique to the field and have proven very beneficial for Dr. Capozzoli's clients.



Career Fair

The Baton Rouge Chapter, under the direction of Glenn Gautreaux, P.E., set up an LES booth at the "Career Fair" on the LSU campus November 13. Some 5,000 East Baton Rouge Parish high school seniors visited the hundreds of exhibits designed to make them better aware of the job opportunities that are available to them. Many students showed an interest in engineering. Gautreaux, representing private practice, along with James C. Webb, P.E., government; Fred J. Zeretzke, P.E., private practice; and Michael Underwood, private practice, answered specific questions of the students.

It was a "good show" and the Baton Rouge Chapter is congratulated for a job well done.

NSPE Scholarship Program

NSPE is offering 65 scholarships and grants to high school seniors in the United States in 1975-76.

Thomas B. Metcalfe, P.E., Lafayette, is the chairman of LES's Vocational Guidance subcommittee and is the Society's scholarship chairman. The deadline for forwarding scholarship applications to the scholarship chairman or the state office was November 30.

After review by the committee, student applications will be mailed to NSPE by December 20. In the past, state societies have been restricted to one candidate for each named scholarship sponsor regardless of the number of scholarships offered by the sponsor. This year, two nominations may be sent for 10 sponsors and three may be sent for three sponsors, allowing the states much more opportunity to get worthy students into the competition.

The following scholarship applications are under review by the state scholarship chairman:

Lisette B. Johnson	Lafayette
Kirk M. Hoyer	New Iberia
Vernon Smith	Alexandria
David A. LaCaze	Alexandria
Keith O. Broussard	Alexandria
Charles E. Bass	Pineville
Gregory A. Thomisee	Pineville
Mary K. Broquet	Pineville
Rhonda I. Wilson	New Orleans
Katherine M. Hampton	Lake Charles
Joel H. Kieffer	Lake Charles
Michael D. Istre	Lake Charles

LES forwarded six scholarship applications to NSPE last year. We had no winners, but Andrew V. Wells of Alexandria

was presented an "Award of Excellence" certificate for participating in the NSPE scholarship program.

Shreveport Architect and Engineering Firm Win Architect Honor Award

Enabling patrons to enjoy the "Sport of Kings" in air-conditoned comfort through use of the latest design, engineering techniques and construction methods has brought major recognition to the Louisiana Downs Racetrack and Century A-E, architect and engineers of Shreveport and Houston, Texas, architects of the project.

The "Honor Award" certificate of recognition from Gulf States Region of the American Institute of Architects was presented to Dimitri Demopulos, AIA, president of Century A-E. The Shreveport office of Demopulos and Ferguson was responsible for structural and civil engineering design work and John Guth and Associates of Shreveport for design of the mechanical and electrical systems.

The "Honor Award" is one of the highest given by the Gulf States Region of AIA.

Outstanding Engineering Achievements for 1975

NSPE requests nominations for engineering achievement awards by January 9, 1976. Chapters are limited to two nominations each and must follow the specific format previously forwarded to each chapter.

Nominated projects must be completed (or concluded) during the 1975 calendar year. They are not limited to engineering accomplishments with a specific end product, such as a bridge. They may include significant contributions toward solving air, noise, water pollution or traffic congestion problems, industrial research and development, energy and conservation, or any other project that contributes to meeting a human need.

The Atchafalaya Basin expressway was selected as one of the 10 outstanding engineering achievements in 1973.

NSPE Winter Meeting

NSPE will hold its 1976 winter meeting at the Hilton Inn in Albuquerque, New Mexico January 19 through 24.

In addition to the professional meetings, many activities are scheduled:

Monday, January 19	—	PEI tour and dinner, Sandia Laboratory Research Atomic Reactor
Tuesday, January 20	—	Joint practice divisions luncheon
		PEPP dinner, Four Hills Country Club
		PEC dinner, Tiffany's in Old Cerrillos
Wednesday, January 21	—	Sandia Peak aerial tramway tour
		State of Society dinner
Thursday, January 22	—	Regional breakfasts
		Sandia Peak aerial tramway tour at sunset
		Tour of Indian Pueblo and historic Santa Fe
Friday, January 23	—	Government Professional Development Award luncheon
		Fiesta Grande

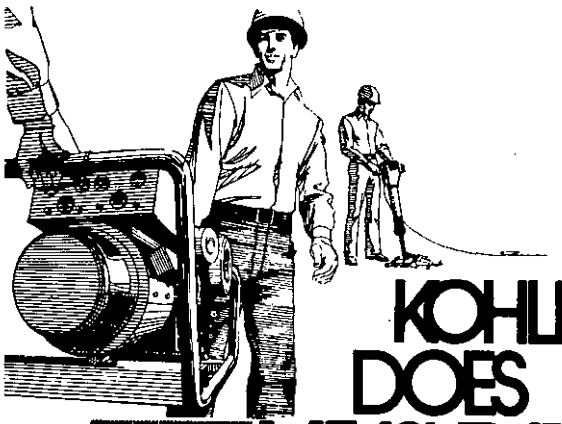
Ladies' Activities:

Tuesday	—	Seven-hour New Mexico heritage tour of artisans and crafts
Wednesday	—	Lunch, Old Town tour
Thursday	—	"Marguerita Party" in the scenic Sandia Mountains foothills
Friday	—	Lunch and fashion show

ASCE President-Elect

Leland J. Walker, Chairman of the Board of Northern Testing Laboratories, Great Falls and Billings, Montana; Boise, Idaho; and Gillette, Wyoming, was installed in Denver on

(Continued on Page 18)



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1. Design of Acceptable Once-through Discharge Systems for Power Plants. 2 Days. Thursday and Friday, February 19-20, 1976. Director: Dr. Barry A. Benedict.
2. Analysis and Design of Retaining and Earth Structures. 2 Days. Thursday and Friday, February 26-27, 1976. Director: Dr. Peter Y. Lee
3. Fire Safety in Building Design. 2 Days. Thursday and Friday, February 26-27, 1976. Director: Professor C. A. Peyronnin
4. Refresher Course in Engineering Fundamentals. (Prep for EIT Exam) TTh Evenings. Thursday, March 4 to Thursday, April 8, 1976. Director: Dr. Robert P. Chambers
5. Computer Methods in Structural Design. 2 Days. Thursday and Friday, March 11-12, 1976. Director: Dr. John L. Niklaus
6. Technical Report Writing. 1 Day. Friday, March 26, 1976. Director: Professor C. A. Peyronnin
7. Structural Design Fundamentals. Tuesday and Thursday Evenings. Thursday, April 1 to Tuesday, May 4, 1976. Director: John L. Martinez

1 2 3 4 5 6 7

Please make tentative reservations for courses circled above.

NAME _____

ADDRESS _____

Mail to: John L. Martinez, School of Engineering, Tulane University, New Orleans, La. 70118.

Dates are subject to change. All courses listed above will be held in New Orleans area unless otherwise indicated. Exact location and date will be on final program announcement, which will be mailed approximately six weeks prior to course starting date.

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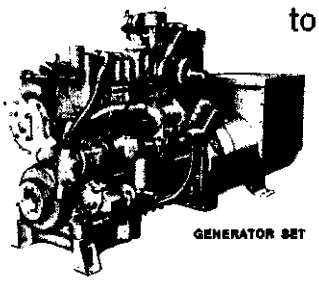

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Potpourri

(Continued from Page 17)

November 5 as president-elect of the American Society of Civil Engineers.

The ASCE is the oldest national engineering society, having been formed in 1852.

Offshore Platform Built at LSU

Louisiana State University has built an offshore oil production platform—not in the Gulf of Mexico, but right on its campus in Baton Rouge.

The first training facility of its kind, the model platform contains equipment identical to that of platforms offshore, although it covers a much smaller area with its units compactly assembled. It does not deal with the drilling aspects of oil.

"The facility is LSU's answer to safeguarding the environment from oil spills at a time when America's need was never greater for accelerating domestic petroleum production," said Dr. William J. Bernard of the LCU petroleum engineering faculty.

The LSU platform is being used in Dr. Bernard's laboratory course in petroleum production, required of all petroleum engineering majors, and will be used in workshops for industry workmen and government safety personel. Professor Murray F. Hawkins, Jr., head of the LSU department of petroleum engineering, said the facility is expected to play a significant role in the department's academic program at a time when enrollment is increasing in response to the national energy need.

Sedimentation Engineering

The American Society of Civil Engineers has announced publication of a 745-page book, *Sedimentation Engineering*. The book gives the engineer a better understanding of sedimentation problems, methods for their investigation, and practical approaches to solutions. As a textbook on sedimentation engineering, it covers the interrelated processes of erosion, sedimentation by water and air, and sediment deposition where problems are created. Also included are the legal and economic aspects of sedimentation.

Sedimentation Engineering is available for $30 from ASCE, 345 East 47th St., New York, N.Y. 10017. Schools and libraries may order it for $25, and ASCE members for $20.

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EngiNEWS

Soil Service Promotes Simmons



Malcolm E. Simmons

Malcolm E. "Gene" Simmons, an engineer for the Soil Conservation Service in Alexandria, has been named as leader of the SCS State Watershed Planning and River Basin Studies staff. His headquarters is in the SCS state office in Alexandria.

Simmons, a native of Avoyelles Parish, has worked for the SCS for more than 18 years. After graduating from LSU with an engineering degree he began his SCS career in Abbeville. He later worked as an engineer at Lake Charles, Winnsboro and Tallulah prior to moving to Alexandria in 1972.

Simmons earned merit recognition in 1972 and 1975 for outstanding work. He is a member of the Louisiana Engineering Society, the American Society of Agriculture Engineers, the Soil Conservation Society of America, and the Organization of Professional Employees of the Department of Agriculture. He served as chairman of the Louisiana Section of the American Society of Agriculture Engineers for 1974.



LES members pose with the NSPE president-elect at the Southwestern Regional Meeting held October 3 and 4 in Denver. From the left are LES Executive Secretary R. C. Spears; Herb R. Pourciau, P.E., of LES-PEC; E. S. Slowter, P.E., NSPE President-Elect; Regis Trumps, P.E., LES-PEI; and T. Dudley Hixson, P.E., LES-PEPP.



Coal and nuclear energy are America's "only hope for achieving energy independence in the foreseeable future," according to a petition signed by more than 25,000 engineers and scientists and presented November 14 to President Ford. The petition, sponsored by the National Society of Professional Engineers and the American Nuclear Society, was presented to Presidential energy adviser Frank G. Zarb, Administrator of the Federal Energy Administration, in a meeting at the White House. Shown left to right are NSPE President H. E. Bovay, Jr.; Paul Dragoumis, FEA's Director of Nuclear Affairs; Zarb; and ANS President Melvin Feldman.

(Continued on Page 20)

(Continued from Page 19)

IN MEMORIAM

George Peterkin Meade

George Peterkin Meade, a member of LES for 39 years, died October 23 at his apartment in the Pontchartrain Hotel in New Orleans at the age of 92.

The recognized dean of the sugar refiners of the world, he had been general manager of the Gramercy Refinery of the Colonial Sugars Company at the time of his retirement in 1956. Although retired, he remained active in many fields through elaborate correspondence and contributions to various scientific journals in the fields of sugar refining, herpetology and sports.

He was the author of the "Cane Sugar Handbook," the Bible of sugar technologists all over the world, which has been translated into Japanese and many other languages. He was associate editor of "The Sugar Journal" and contributed an interesting and informative monthly column which ran for 107 consecutive issues after his retirement. He was the author of the chapter on sugar in the Britannica and other encyclopedias as well.

Meade was valedictorian of the 1905 engineering class of New York University, graduating magna cum laude with the highest individual average ever registered in that school. He was NYU's first chemical engineering alumnus.

His first interest in sugar as a laboratory boy in the National Sugar refinery in Yonkers, New York, spanned a term of 70 years in the field. Meade was a member of the Board of Directors of Cuban-American Sugar Company, Honorary-for-Life Vice President of the International Commission for Uniform Methods of Sugar Analysis, former Vice President of the American Society of Icthyologists and Herpetologists, President of the St. James Parish School Board, and member of the National AAU Committee on swimming. He was also a former President of the Bone Char Research Project (affiliated with the United States Bureau of Standards), received the American Chemical Society's Sugar Division's Hudson Award and an honorary award for contributions to sugar refining from the Sugar Institute of Technologists, and was the Dyer "Sugar Man of the Year."

He was a member of Phi Beta Kappa, Tau Beta Pi, and Alpha Chi Sigma, and he held fellowships in the American Association for the Advancement of Science, the New York Academy of Sciences and the American Institute of Chemists. He had been in "Who's Who" since 1932, in "American Men of Science" since 1928, and in "World Biography" since 1942.

Tulane Offers New Program

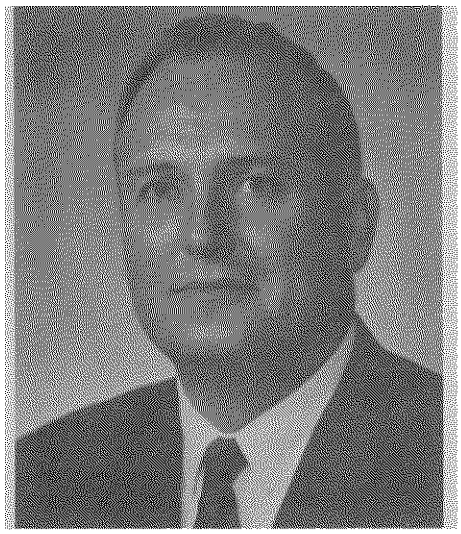
A new program at Tulane University has been designed to enable the fully employed engineer to obtain an ME degree in chemical engineering in a two-to-three-year period. The requirements for the degree are three credit hours of thermodynamics, six of transport phenomena, six of engineering mathematics, nine of technical electives, and six of independent studies for a total of 30 hours.

Six independent studies credit hours are given for industrial projects completed during the course of the ME program.

All required chemical engineering courses are offered in the evening in a regular sequence so the program can be entered at any time. Dr. Hanley will offer thermodynamics in a 1976 spring semester at 7 to 8:30 p.m. on Monday and Wednesday.

For additional information contact Dr. Duane F. Bruley, Head, Department of Chemical Engineering, Tulane University, New Orleans, LA 70118, or telephone 504/865-4181.

Brouillette Joins State Board

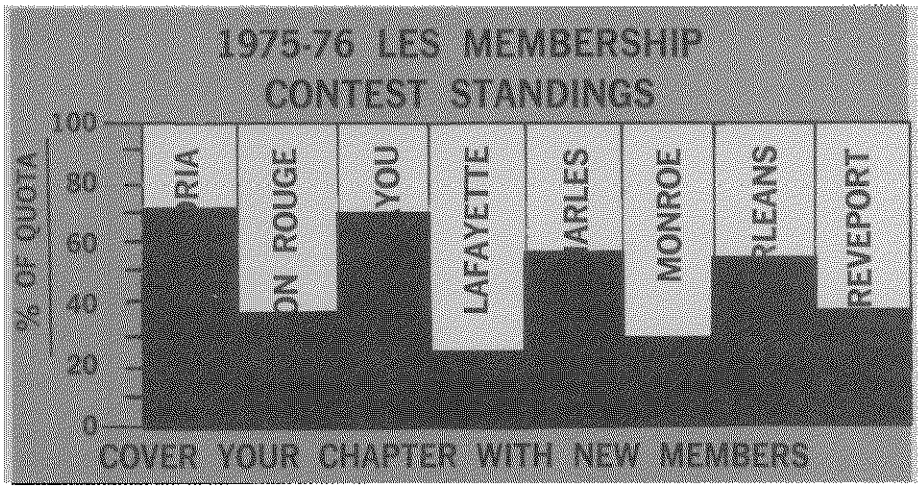


A. J. Brouillette

A. J. Brouillette of Natchitoches was recently appointed as the Land Surveyor member of the State Board of Registration for Professional Engineers and Land Surveyors.

Brouillette has been a Registered Land Surveyor since 1955 and is a charter member of the Louisiana Land Surveyors Association.

A former employee of the Louisiana Department of Public Works and the Freeport Sulphur Company, he has been in private practice as a Land Surveyor in Natchitoches since 1956.



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Belteau, George Alvin
New Orleans, LA—Mech.

Bierman, Eugene Sidney
Pleasantville, NY—Mech.

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Boudreaux, Carl Joseph
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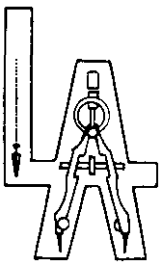

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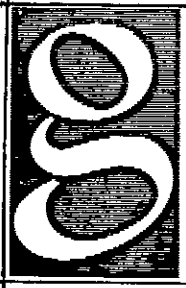

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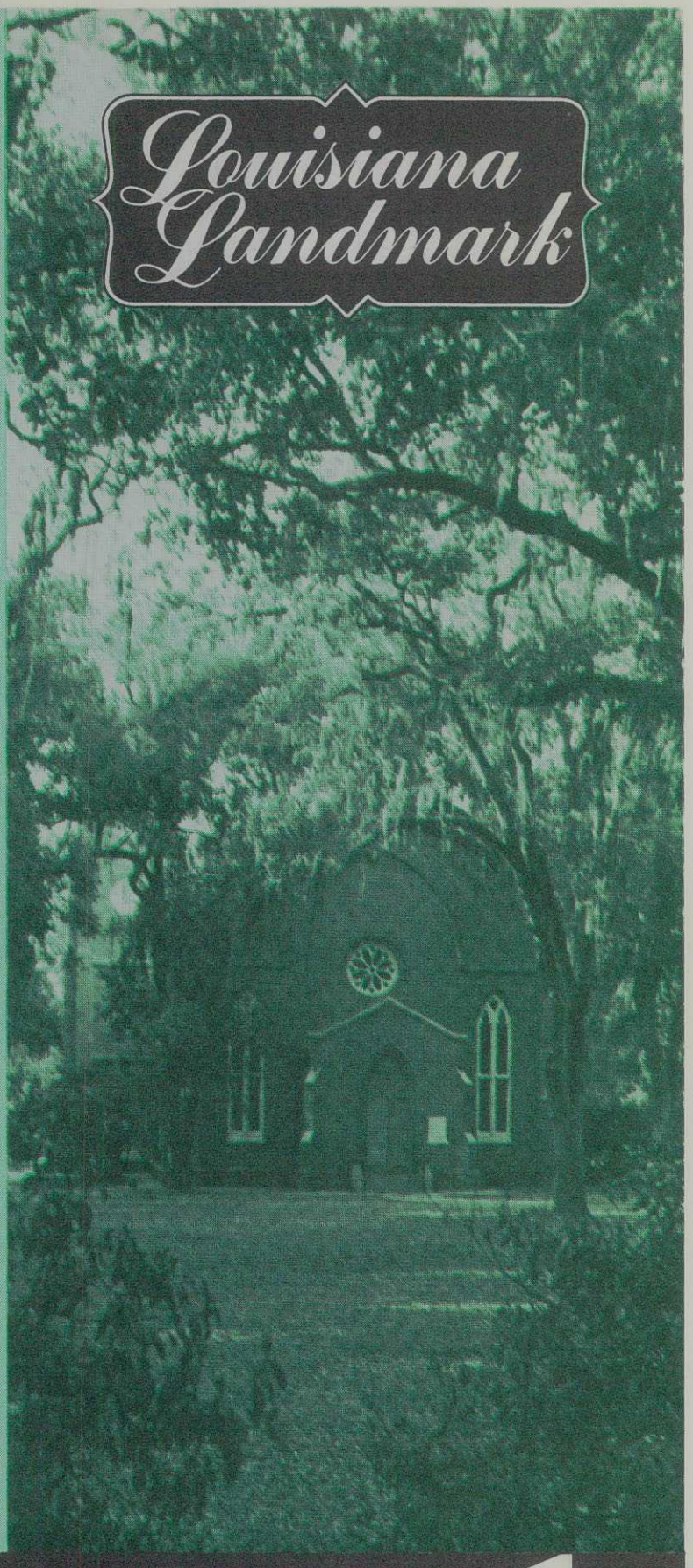
"Footsteps in History"

Louisiana Landmark



How did it come to pass that the body of a Union Commander would lie within the small cemetery outside the scarred walls of the very church he attempted to destroy?

It wasn't that the parishioners of Grace Episcopal Church allowed a single one of the original 300 square feet to be overrun by Union soldiers. Both the church and the town of St. Francisville had been staunchly defended. And for good reason.

By the time of the Civil War several generations of St. Francisville Episcopalians had more than tithed their meager wages toward the improvement of the church. Their persistent devotion began with small gifts: In the beginning, the late 1820's, the congregation provided a bell for the tower, a silver communion service, a cast-iron fence and an organ. And on the eve of the Civil War, the parishioners saw fit to erect a second building to house its growing numbers. The new sanctuary was completed in 1860.

Only two years had passed when the new church was threatened by Union gunboats. Commanded by Lieutenant Colonel Jon E. Hart, vessels steamed up the sleepy bayous, now strategic waterways for the business of war, and hurled destruction on the town and on the beloved walls of the modest, provincial church.

In the conflict Commander Hart, too, became a victim, his last utterance aboard his flagship was to request burial with full Masonic Rites. A Mason of nearby Bayou Sara honored Hart's last request. This Northern soldier was buried alongside the Southern shadowy bayou and in the sanctuary of Grace Episcopal Church.

The war years passed; the battered church was rebuilt. And in the century since, Grace Church has several times been reborn, refurbished, and improved, always with romantic rememberances of its colorful past. Carpeting has been added, but the now soft, soundless aisles lead still to the rare antique manual pipe organ, now again in perfect working order.

Today, Grace Episcopal Church is a recognized historical shrine. To the people of St. Francisville it symbolizes, in its simple elegance, the transcendence of compassion over hatred and prejudice even in time of war. It makes the simple statement that whatever part we play, or side we take, we all meet death and have a human need for Grace.

The heritage we have from our forefathers we are building for our children today. Patterson-Redmond builds it strong, by serving well those who build for business, industry, education, health and home.

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