

On the opposite page are scenes from the petroleum, mechanical and natural-gas engineering laboratories. William H. Carson, right, is director of all three schools. Shown in the scenes are: 1. P.E. building with pumping unit and oil well Christmas Tree in foreground; 2. unit for determining anti-knock qualities of gasoline; 3. general view of production and natural-gas laboratories; 4. oil well drilling slush pump with instruments in place; 5. a 450-horsepower 12-cylinder Curtiss airplane engine; 6. general view of internal combustion engine laboratory; 7. oil-gas lift laboratory; 8. a corner of the steam engineering laboratory; 9. insulated and uninsulated country type boilers of the M.E. laboratory.



## Petroleum Engineering

By W. H. CARSON, Acting Director

THE school of petroleum engineering, University of Oklahoma, has had a world-wide reputation almost from the time of its inception. Its reputation in the early days can be attributed to three things: It was the first school of petroleum engineering established in the Mid-Continent area, and if I am not mistaken, the first in the United States to offer a B.S. degree in petroleum engineering. Second, the faculty members had gained an enviable reputation in the petroleum industry previous to their affiliation with the University. Third, the original curriculum contained courses taught previously in a college of engineering, that had already an established reputation. This was back in 1924.

Our engineering training has taught us to realize that nothing reaches such a degree of perfection that it can not be improved, and the school of petroleum engineering is no exception. As time went on laboratory equipment was obtained, specialized courses were developed, and the enrollment in the school increased rapidly.

It was not long after the first graduates went into the industry that company officials began to realize the need of well trained petroleum engineers. The demand for our men increased until in 1930 there were at least ten jobs to each graduate. Our graduates were not only employed by companies operating in Oklahoma but some of them were going with companies operating in all parts of the world. During the depression the employment problem arose in all industries, including petroleum, however, we have not found it difficult to place our men.

The year 1935 finds us forging ahead. The graduates of former years have enhanced our reputation by doing their work with such a degree of excellency

that they can not be surpassed by men from other schools. The students, undergraduates, and graduates are cooperating with the faculty to maintain the high standards set by their predecessors. We are educating professional engineers with high ideals, who will some day take their place in the industry as executives.

During the past year we have installed several pieces of important equipment, among which is the Lufkin Pumping Unit, and the Christmas Tree set-up shown in the picture of the general laboratory views. A number of important research projects are in progress in our laboratories.

The petroleum production research is under the direction of Mr. Cloud and it includes the experimental study of the following major problems: (1) Flow characteristics of saturated and unsaturated crude oils through unconsolidated sands; (2) gas analyses of flow samples taken from primary and secondary oil and gas separators at various temperatures and back-pressures; (3) efficiencies of acid treatment of calcareous formations under various conditions of acid concentration, pressure, and quality of inhibiting agents; and (4) oil well plunger pump efficiencies under various conditions of plunger and pump valve design, plunger clearance, oil valve design, plunger clearance, oil temperature, pump submergence, sucker rod and plunger load, and length and frequency of plunger stroke. The latter problem, which has been made possible by the donation of a Lufkin electric motor-driven herringbone reduction-gear pump unit, cannot be completed in detail until an experimental well is drilled and cased to approximately 1000 feet.

Graduate students and seniors who are majoring in refinery technology in the petroleum engineering school are carry-

ing out research work under the direction of Dr. R. L. Huntington on several problems which are of interest to the industry.

(1) The study of entrainment in oil absorbers is being continued this year on a semi-commercial size tower. The effect of temperature, liquid rates, surface tension, and viscosity are being investigated in addition to plate spacing and vapor velocity.

(2) Heat transfer coefficients are being obtained for condensing steam, and several pure hydrocarbons on a vertical water cooled tube. The apparatus is unique in that the condensation can be observed through a large Pyrex tube which serves as the outer jacket.

(3) A comparative study is being made of flash and differential flash vaporization processes for the separation of gas from crude oil. It has been found that differential separation gives a higher gravity crude oil, but there are little quantitative laboratory data to show the various relationships for different temperatures, pressures, and gas-oil ratios.

A development research program in connection with the rotary drilling mud fluid is now under way at the University of Oklahoma. Investigations are being directed by I. F. Bingham, member of the petroleum engineering faculty. The importance of rotary drilling muds has increased rapidly with the advent of modern rotary drilling methods. Mud fluids now are recognized as one of the most important engineering problems to be dealt with in connection with development work. The aim of the investigators at the University is to standardize methods for quantitatively determining and controlling mud characteristics. The research program at the University has met with the finest response from the industry. Not less than

(TURN TO PAGE 152, PLEASE)

and models of famous ships, with pictures and pamphlets galore.

The phase of education to receive the greatest emphasis during recent years is that of giving the child visual and tactile experiences with the things about which he is studying in the classroom. That is the "why" of a Children's Museum.

As the museum grows, collections will be taken to each classroom in the city as they are needed, and when the teacher tells a child about an African tom-tom, or the queer way the Chinese write, presto, before his very eyes will be an example.

The museum is accepting loans of collections from persons as well as gifts. Each item is carefully labelled, classified and placed behind the glass of the locked cases.

St. Louis, Missouri, began a museum the year after the Louisiana Purchase Exposition in 1904 and now a building of 24 rooms is required for its mammoth collection of things any child would delight to see.

Mrs. Virgil Browne was appointed temporary chairman for formation of the society at this week's meeting. A constitution and by-laws will be drawn and officers elected on February 14. Those on the constitution committee include: Mrs. Edward Pallen, chairman; Mrs. S. A. Wilkinson, Mrs. N. Parnell, Mrs. Clarence Sale, Miss English, Miss Pearl Scales and Mrs. Smith.

Clubs with representatives at the first meeting included: City Federation of Women's clubs, Cosmopolitan Study club, En Evant, Ceramic Art, Daughters of the American Revolution, Bible Study club, Garden Flower clubs, Council of Jewish Women, A.A.U.W., New Century, State Writers, Kappa Kappa Iota, Rotary Anns, Town club and the Oklahoma City Geological society.

Scott P. Squyres, '24as, is editor of *Baton*, the national magazine of Kappa Kappa Psi, honorary band fraternity. Squyres makes his headquarters in Oklahoma City.

W. J. Bacon, '24as, is publisher of the *Daily-Headlight Journal* at Sayre.

1925

LeRoy Ritter, '25as, is operator of an independent news and correspondence bureau in Oklahoma City.

William Foster Harris, '25as, is doing free lance fiction writing and making his home at Norman. He has been selling stories to *Action Novels*, *Adventure*, *Argosy*, *Western Magazine* and other periodicals.

William Cunningham, '25as, is a faculty member at Commonwealth college, Mena, Arkansas. He also is manager of publications at the school.

1926

SCHUYLER-DAVIS: Miss Hazel Schuyler and Hale V. Davis, '26M.A., January 27 in Duncan. Home, 1933 Northwest 17th street, Oklahoma City.

PATRICK-BAILEY: Miss Wanda Lorraine Patrick and Louis E. Bailey, '26ex, February 4. Home, 826 Northeast 27th street, Oklahoma City.

Marvin E. Tobias, '26as, is president and head of the creative department of the Ridgeway Advertising agency in St. Louis, Missouri.

Robert W. Ingram, '26as, is sports editor of the *Herald-Post* at El Paso, Texas.

1928

BECKNER-RAY: Miss Emma Ruth Beckner, '28 ed, and Ralph R. Ray, recently. Delta Delta Delta. Home, 3416 North Robinson, Oklahoma City.

1929

LOY-BONDS: Miss Martha Loy and A. Camp Bonds, '29law, January 26. Phi Delta Theta. Home, 1220 West Broadway, Muskogee.

DEAN-LOCKHART: Miss Norma K. Dean, '29ex, and John Taylor Lockhart, January 25. Gamma Phi Beta. Home, Oklahoma City.

JAMIESON-HIERONYMOUS: Miss Ramona Jamieson, '29as, '30M.S., and Franz M. Hieronymous, January 27 in Ponca City. Pi Beta Phi. Home, Tulsa.

ROSSER-KEMP: Miss Louise Rosser, '29as, and John Page Kemp, January 30 in Muskogee. Pi Beta Phi. Home, El Paso, Texas.

NELSON-LEWIS: Miss Virginia Nelson, '29as, and Robert I. Lewis, January 17. Chi Omega. Home, Toledo, Ohio.

1931

Roy C. Jenkins, who was graduated from the college of business administration in 1931, recently was one of a select group of employees of the Real Silk Hosiery company who was given an award of merit for excellent service during 1934.

Jenkins, who started working for the company while he was still enrolled as a University student, has become college supervisor for the extensive Real Silk company.

The company's news organ, the *Realsilk News*, recently said of Jenkins:

Roy's record in Realsilk has been a most consistent one of advancement year after year. Each year he has enhanced his reputation not only from a box leadership standpoint, but also with his fellow workers. Roy has been in Realsilk seven and a half years, was the first man to be appointed a district supervisor while still in school, had the model school at the University of Oklahoma in 1931 and at Stanford university, California, in 1933.

He was a national college trip to mill winner summers of 1929 and 1930, has consistently been right up among the leaders or on top on every assignment, and receives the award of merit for the year ending September 15, 1934, for leading all college supervisors on sales, men employed, permanent men contributed and on every count.

1932

HICKS-SUMMERS: Miss Lucile Hicks, '34ex, and T. Marland Summers, '32ex, November 4 in El Reno. Gamma Phi Beta-Delta Tau Delta. Home, 216 Northwest 12th street, Oklahoma City.

BALLARD-BALDWIN: Miss Mariel Ballard, '32libsci, and Ralph E. Baldwin, February 5. Alpha Phi. Home, Oklahoma City.

Following is a short biographical sketch of Rowe Cook, '32law, Atoka, which was carried recently in the *Daily Oklahoman*:

The legislative son of a legislator ... is the record Rowe Cook holds in the house ... Twenty years ago I. L. Cook represented Atoka county ... Rowe's doing it now ... A political newcomer ... with 24 birthdays to his credit ... he is a member of the big young bloc in the house ... likes to orate ... and exercise his yen ... a young lawyer. He defeated three farmers for the seat ... and Atoka is an agricultural county ... Mixes politics with a frenzy ... and he says he doesn't need to "feel the pulse of the people" ... they left his votes up to him ... Cook already knows how his constituents feel about taxes ... is chairman of judiciary committee No. 2 and is having fun grinding out reports.

He was graduated from the University of Oklahoma in 1932 and they let him take the bar oath the next December ... got his relish for politics at the University ... and debates lured him, too ... is in the bachelor division of the house, despite his big blue eyes.

1933

HALLER-MAY: Miss Mary M. Haller, '33geol, and Russell D. May, '33ex, during the Christmas holidays. Home, Crane, Texas.

GEORGE-WOODS: Miss Zetta George and William Hunter Woods, Jr., '33ex, January 5. Home, San Diego, California.

BARKETT-ABOUSSIE: Miss Nafla Barkett and Mitchell Aboussie, '33ex, January 13. Home, Hollis.

1934

MARRS-JONES: Miss Virginia Marrs and Harold Gardner Jones, '34ex, December 29, 1934, in Guthrie. Delta Tau Delta. Home, 715 Northwest 30th street, Oklahoma City.

AMIS-MALONE: Miss Elizabeth Amis, '34home-ec, and Ross Lynn Malone, Jr., October 10. Kappa Kappa Gamma. Home, 208 West Alameda, Roswell, New Mexico.

STEWART-HARPER: Miss Harriet Stewart, '34 dram-art, and E. Winfield Harper, January 19 in Muskogee. Delta Gamma. Home, Oklahoma City.

1936

MADDOX-WOOLLEY: Miss Eulonda Dawn Maddox, '27, and W. W. Woolley, '36, January 24.

1937

SIKES-MRAZ: Miss Nancy Lee Sikes, '38, and Gerald Lincoln Mraz, '37, March 29, 1934. Home, Norman.

## THE FUTURE OF ARCHITECTURE

(CONTINUED FROM PAGE 130)

even in spite of the fact that there were few if any professional architects.

Today, it is possible for a student to secure a degree that labels him as a cultured gentleman. He is allowed to pass through an entire university without even hearing the word architecture spoken. The result is at once apparent. Never in the history of the world have so many architectural monstrosities been perpetrated. We are beginning to undergo a revival of art appreciation, after the limitations of our puritanical ancestors; with that artistic revival will come a realization of the necessity of beautiful buildings and with it an appreciation that an education in architecture will qualify one, not always necessarily, as a practicing architect, but to open one's vision to a broader, more beautiful and more useful life. In other words, such a course will be found to be as cultural, as diversified, if you please, as any degree that may be offered in any university of today.

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## PETROLEUM ENGINEERING

(CONTINUED FROM PAGE 133)

a dozen companies have pledged their full support and in several cases already have contributed to the advancement of work.

Six important drilling mud research problems are:

- (1) Evaluation of the colloidal content of drilling fluids.
- (2) The rate at which cuttings settle out in the pit.
- (3) Investigation of present methods for determining mud viscosities.
- (4) The effect of gas cutting of muds upon slush pump efficiencies.
- (5) The cause and correction for lowered viscosity as a result of adding cotton seed hulls.
- (6) Chemical treatment for the purpose of controlling the effect of fine grinding upon density, viscosity and colloidal content of drilling muds. Lowering of viscosity due to salt water contamination.

The members of the Petroleum Engineers club are very active and some good meetings have been held this year. At the January meeting the students voted to become affiliated with the American Institute of Mining and Metallurgical Engineers. We now have forty-five student members of the A.I.M.M.E., which makes O. U. the second largest student group in the United States.

In closing may I remind the alumni that we have about thirty-five men graduating the first of June. If you hear of jobs let us know about them.

When you are in the vicinity of Norman, don't fail to come in and see us.