

The dean of the College of Engineering offers a State of the Union report to graduates and former students.

# The College of Engineering, 1951

By W. H. Carson

Insofar as the College of Engineering is concerned, the big news during the past engineer's year, which traditionally ends March 17, is the completion of the new engineering library. The new library is located in the east wing of the main Engineering Building. There is a very noticeable contrast between the old library reading room and the one which will be used by future O.U. engineering students. The wood panel walls, acoustical ceiling, mottled-green tile flooring, and the beautiful furnishings will lend an environment of dignity which will be conducive to study and to developing a feeling of professional pride among students. Featured in the library is the fine collection of books made available by Susan Aycock Turnbull, '36 eng, through the Susan Aycock Turnbull Petroleum Industries Library Fund. Returning to O.U. to see this library should

be a must on the calendar of each alumnus.

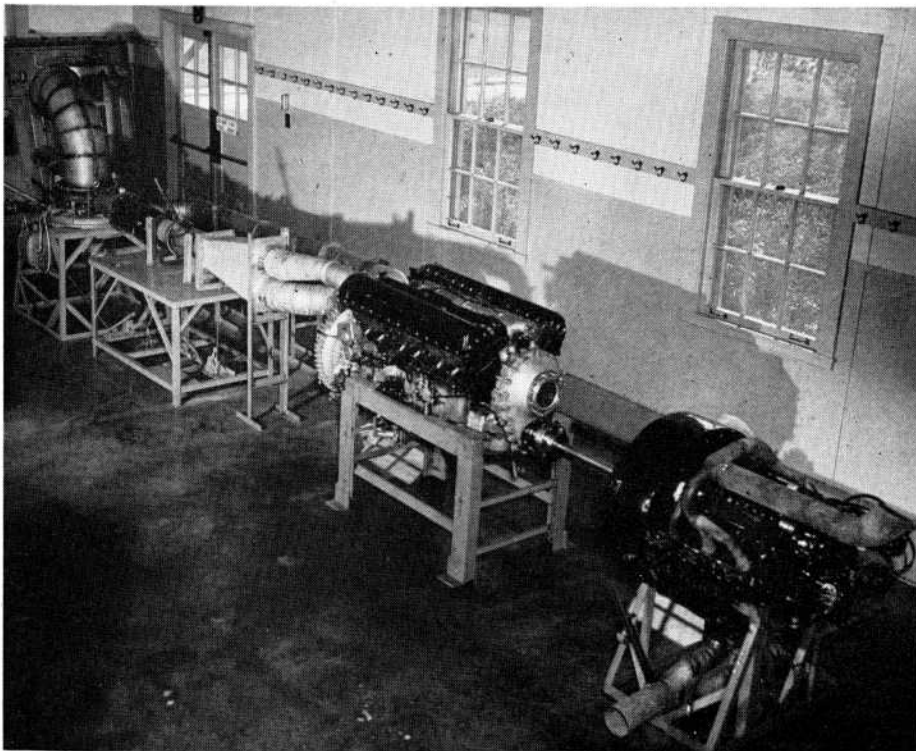
It is a pleasure to report that the College of Engineering at O.U. ranked fourteenth in point of enrolment among the 141 accredited engineering colleges or divisions in the country.

Enrolment in engineering curricula has been on the decline throughout the nation during the past two years. A reduction in the number of students majoring in engineering was expected as the G. I. students graduated; however, it was not expected that a similar rate of decline would be experienced on the freshman and sophomore levels. The number of freshmen enrolled in engineering this year has reached a critically low figure insofar as future national security is concerned.

The lack of interest on the part of high-school students in engineering may be attributed to a widely publicized statement



**W. H. CARSON**  
... Dean of Engineering

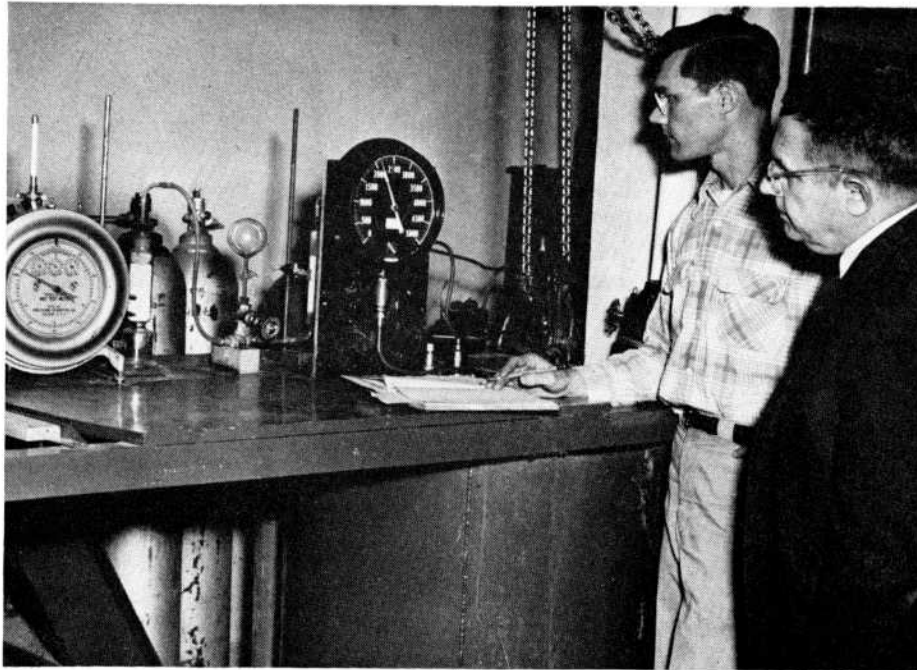


This equipment layout is used for studying jet engine fuels, nozzles, ignition and burners. Part of the equipment in the College of Engineering Department of Aeronautical Engineering, it is employed in laboratory projects by engineering students.

coming out of the Department of Labor to the effect that all fields of engineering were overcrowded and suggesting that students entering college should consider medicine and a few other mentioned courses of study. This statement was unfortunate, as the record graduating class of 1950 has been placed and there is already a shortage of engineers in the military services and in industry.

It is the opinion of most engineering educators that the 1950 graduates would have been placed even without the present industrial expansion. It seems that there are some people who do not realize that there has been a sizeable increase during the past thirty years in the number of engineers required per thousand industrial workers. A report from the U. S. Office of Education indicates that the engineering graduating class of 1953 will be only 38 per cent of the 1950 class.

The demand for graduates is reflected in the number of companies sending representatives to the College of Engineering in the interest of interviewing candidates for employment. Alumni of a number of years ago will recall that company representa-



C. W. Oxford, Maloney Crawford Fellow, and R. L. Huntington, professor of Chemical Engineering, watch an experimental run on n-heptane desorption in the laboratory.



Dr. Alfred Chatenever and Professor W. F. Cloud observe the operation of displacement equipment in the School of Petroleum Engineering A.P.I. project lab.

tives used to come to the campus during the latter part of the spring semester. In recent years interviewers have come to the University during the fall as well as the spring semester. The first semester of this school year set an all-time record for engineering interviews.

#### Several Curricular Changes

There have been several curricular changes during the past year. The most important and far-reaching change was the inclusion of 12 credit hours of advanced army, navy, or air science courses as elec-

tive work in the junior and senior years. This action was taken by the faculty of the College of Engineering because it is our opinion that the "service" courses are equivalent in value to the other elective courses of the curricula. A student enrolled in advanced R.O.T.C. courses should not be penalized in point of length of time required for graduation.

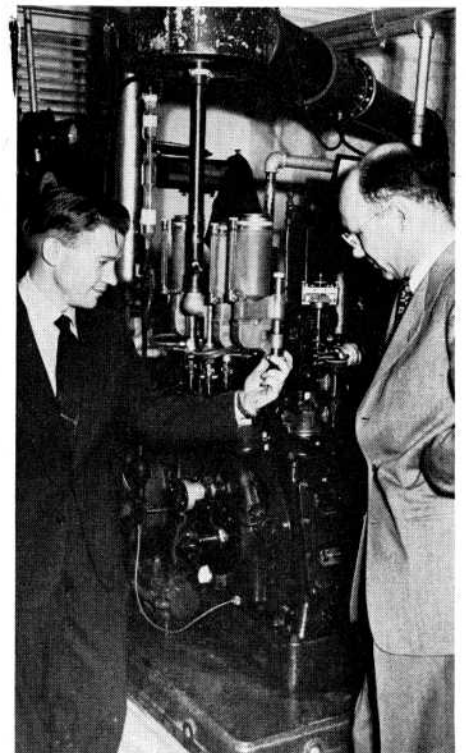
There have been a few changes on the faculty during the past year; however, some of the old-timers such as Professors Tappan, Brookes, Maxson, Dawson, Cloud, Smay, and James are still with us. These teachers along with those who joined our faculty more recently are continuing through a combined effort to offer a sound educational program for undergraduates and graduates alike. A testimonial to this statement is given in an excerpt from a letter written by a representative of a major company which employs engineers from several professional categories: "I should like to put in writing what I expressed to you verbally on our way to the airport. In several years of recruiting at various colleges and universities, we have yet to find a group of men that so nearly fitted our standards for educational achievement, personality and all-around good background as those men we interviewed at Oklahoma University. Any of the young men that we interviewed would make a very satisfactory addition to our organization if we had but a place to put them."

A new and larger Aeronautical Engineering center is now taking shape at the

University's Max Westheimer Air Field. The first large building to be constructed will replace the laboratory facilities destroyed in the April, 1949 tornado. This will include housing for the instruments and systems laboratory, the power units laboratory, and a new structures testing laboratory as well as a machine shop and model shop. In addition to this rebuilding program, two jet and piston engine test cells are being constructed. These sound-proof test buildings are for undergraduate and graduate laboratory class work covering the operation of all types of aircraft power plants.

Plans call for construction of a Jet-Propulsion Research Building for larger jet engines, ram-jet, and rocket motors. In this Research Laboratory experimental and development work will be carried out on all types of jet-propulsion power units. A four-inch ram-jet motor has already been constructed by graduate students and is ready for experimental testing. The design and construction of a small gas-turbine jet converted from a turbo-supercharger is in progress and should be ready when the jet test cells are completed.

A progressive research program is also being carried on in other branches of the College of Engineering. In many instances industrial fellowships have made it pos-



W. A. Hanson, Ethyl Gasoline Corp. Fellow at O.U. and E. M. Sims (right), professor of mechanical engineering, discuss octane ratings of fuels. The device in the background is used for fuel tests.

sible to carry on extensive additional research.

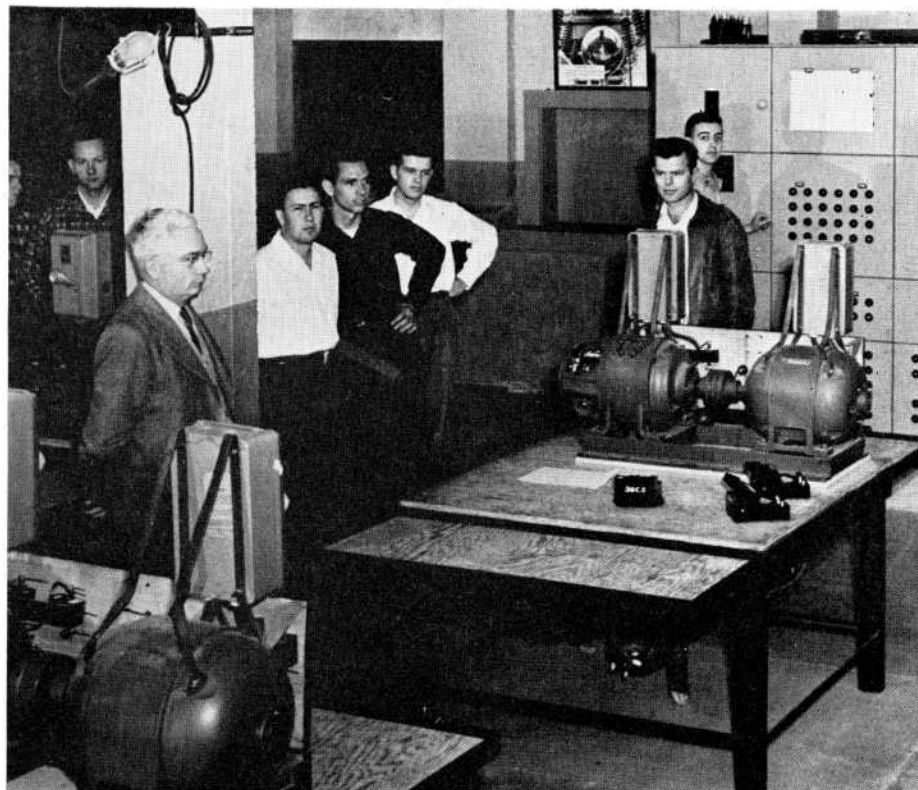
#### A Look at Fellowship Programs

There are six industrial fellowships assigned to graduate students in Chemical Engineering this year. The American Gas Association Fellowship is held by Leonard L. Melton of Oklahoma City. He is making experimental studies of the simultaneous flow of air, water, and kerosene through open conduits. The results of this work should be of interest to the oil industry if it is found that one large pipe can be used more economically than three smaller parallel lines.

The Black, Sivalls & Bryson Fellowship is held by Mark Townsend of Norman, who has selected for his doctoral thesis the study of phase equilibria between various glycols and natural gas. Gas companies are interested in the results which this work will produce, as it should aid them in the design of dehydration units.

The Gulf Oil Company Fellowship is held by John Campbell, '48eng, of Norman. Campbell has been working out a Ph.D. thesis through the study of the flow of heat resulting from the cooling and heating of natural gas and air as these fluids pass downward through beds of packing. This work will be of interest to designers of various reactor beds.

The Magnolia Petroleum Company Fellowship was held by Jimmie L. Huitt, '48



Professor C. L. Farrar (foreground), chairman of the School of Electrical Engineering, instructs a class in the new electrical power laboratory in the Engineering Building.

m.eng, of Norman, who has just completed an extensive investigation of the factors which cause a pressure drop in the flow of vapor through bubble caps. This work

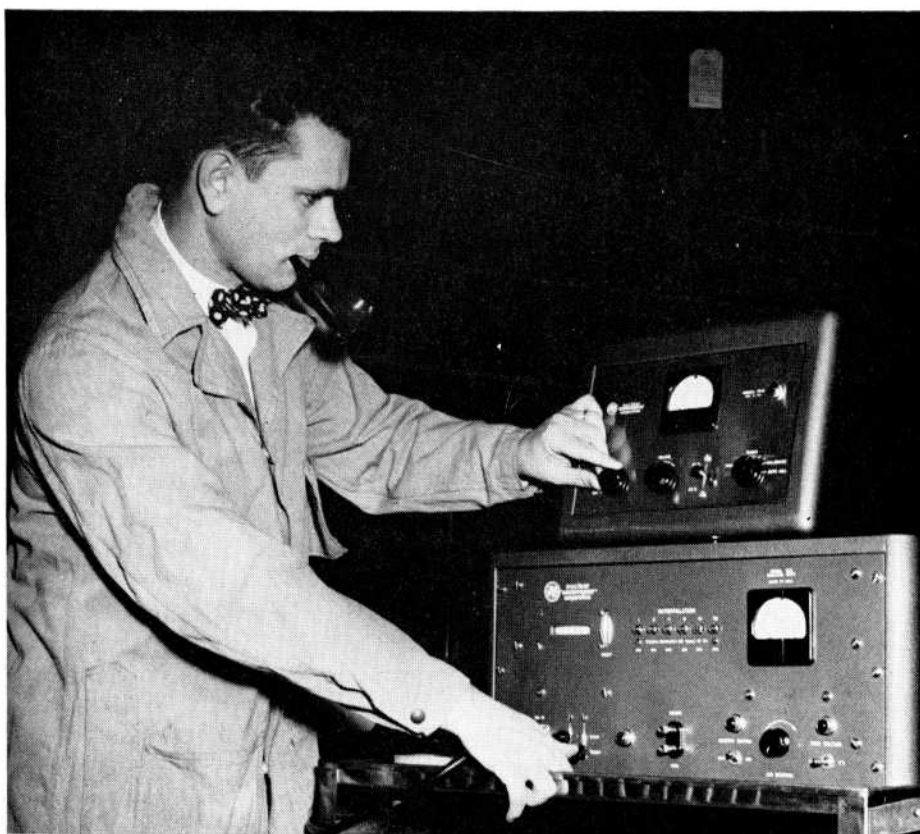
should give the designer of fractionation equipment some valuable information in the lay-out of trays, the most essential part of a fractionator.

The Maloney Crawford Tank and Manufacturing Company Fellowship is held by Charles W. Oxford of Fayetteville, Arkansas. Oxford has chosen for his doctoral thesis a study of the rate of desorption of normal hexane and normal pentane from a body of sand by nitrogen and natural gas. The results of this work should prove to be of value to producers of deep oil-condensate fields throughout the Southwest.

The Texas Company Fellowship is held by Granville Olds, '50eng, of Miami, Oklahoma. He has been studying heat transfer in a pebble heater. This new method of transferring heat for high temperature reactions is receiving considerable attention by a number of petroleum refiners.

For the third successive year the Ethyl Corporation has sponsored a Mechanical Engineering fellowship here. This year Wallace A. Hanson of Atlanta, Georgia, is the fellow. The research now in progress is in connection with the knocking characteristics of various hydrocarbon fuels as affected by intake and exhaust manifold pressures. The information obtained will be useful in the future design of internal combustion engines. It will also be of interest to those engaged in refining fuels.

The research program of the School of Petroleum Engineering is varied, and a part



Professor George W. Reid of the School of Civil Engineering checks apparatus for detecting radiation. The instrument is part of the School's laboratory equipment.

Continued page 33

admitted to the Oklahoma bar recently with the ceremony taking place aboard the USS Jason off the Japanese coast. Meyer was called to active duty with the United States Navy early in August and was therefore unable to take the state bar examination held in September.

John E. Heaney, '50ba, former Ponca City *News* reporter, recently resigned to accept a similar position on the Tulsa *World*. He will cover the 22nd Oklahoma legislature for the *World* and after adjournment will become a regular reporter in Tulsa.

**'51** Matt Rosenbaum, '51, Chicago, Illinois, who completed work for a degree in journalism in January, was recently employed as a reporter on the Bartlesville *Examiner-Enterprise*. While attending the University, Rosenbaum served as treasurer of Sigma Delta Chi professional journalism fraternity.

### College of Engineering . . .

of the research is made possible through industrial fellowships.

Peter A. MacQueen of Silver Creek, Colorado, holds a Sinclair Refining Company fellowship. The studies by MacQueen are on the effect of connate water saturation on the ultimate recovery of oil by water flood operations.

The Stanolind Oil and Gas Fellowship is held by Gustav Stoltz, Jr., Victoria, Texas. His research is the measurement of the capillary pressures of natural and artificial core plugs by various methods including the porous diaphragm, the mercury injection, and lowering vapor pressure. It is

expected that a further correlation of the factors involved and the absolute permeability of the core plugs can be obtained.

The Shell Oil Company Fellowship is held by David T. Oakes, '48eng, Norman, Oklahoma. He is carrying on an investigation of drilling fluid behavior for the purpose of establishing the effect of various electrolytes on the electrokinetic or particle potential, and the viscosity and water loss of Bentonite dispersions.

C. B. Gillespie, '50eng, Fort Worth, Texas, holds the Humble Oil & Refining Company Fellowship. His specific research is directed toward determining whether there is any fundamental difference between the flow in a capillary tube of a single fluid as compared with alternate slugs of different fluids.

### Research and Developments

The A.P.I. Research Project 47B has been continued in the School of Petroleum Engineering. A microscopic study of multiphase flow through synthetic porous media will be expanded since additional facilities have become available.

The research activity within the A.P.I.'s Research Project 47B at the University of Oklahoma, which has been devoted to a search for microscopic mechanisms of fluid behavior in porous media, has yielded several interesting developments to date and

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promises more in the future. Techniques have been worked out to the point where matrices can be set up to accompany heterogeneous fluid flow that may be observed visually.

A number of interesting flow phenomena have already been uncovered for these systems. Flow structures for particular matrices and fluids have been established. At least two flow regimes for the simultaneous flow of heterogeneous fluids have been noted. Flood fronts in displacement phenomena have been examined microscopically. As a consequence of these investigations, there are definite suggestions as to the geometry of flow structure in porous matrices upon which to base theoretical developments.

The latest addition to the School of Civil Engineering's research facilities is radiation detecting apparatus. At the present time this apparatus is being used to determine the base line radiation of natural surface and ground waters in the state of Oklahoma. It is hoped to develop along with this study a biological concentration that can be counted directly and thereby conserve time.

The faculty of the School of Civil Engineering is co-operating in these studies with the Oklahoma State Department of Health and the U. S. Public Health Service, as well as the Department of Zoological Sciences and the Zoological Survey.

Faculty members of the School of Electrical Engineering are doing research on antennas for the Air Force. This project is being done through the University of Oklahoma Research Institute. There are also several electrical engineering graduate research projects in effect.

The Engineering Physics staff is engaged in research for the government of a restricted nature.

There is a very active research program in progress which involves students working toward the master's degree in Geological Engineering.

The work of faculty and students of the Schools of Architecture and Architectural Engineering continues to bring recognition to that division of the University.

Considerable progress has been made in instrumentation research in the instruments laboratory of the Department of Mechanics and Engineering Metallurgy. One project is on automatic controls. The solution of the differential equations inherent in the Laplace Transformation has been verified in the laboratory.

Another important research project of the Department of Mechanics and Engineering Metallurgy is on pressure gasket ratios. This work is directed toward finding the answer to a problem of great importance to the petro-chemical and oil in-

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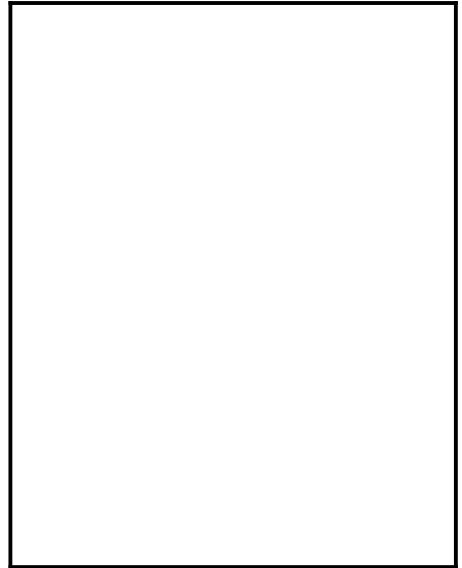


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dustries, the pressure ratio required to prevent any gasket surface from leaking.

In concluding this report, I should like to say that alumni are always welcome to visit the College of Engineering. I am sure it would be a revelation to many of our graduates to see the expansion that has been made on the campus and the many improvements in the facilities of the College of Engineering.

### **The University . . .**

picture magazine, recently credited the University with making the most striking advances in the field of race relations since World War II.

A picture story titled "Negro Students in White Dixie Colleges" carried the citation.

**Something New.** *Books Abroad*, international literary quarterly, is now in its 25th year of continuous publication. Established in 1927 by Dr. Roy Temple House, it is edited by Ernst E. Noth and published by the University Press.

A new format was adopted by the quarterly in its winter issue. There is a new cover, shorter lines in the article section, and a new arrangement of the reviews which gives more prominence to both the author and the title of the book and to the reviewer.

**Record High.** Following the tradition established by the class of 1948, the 1951 senior class decided to sponsor a book drive to finance memorial scholarships. Containers to collect used books were placed in each house on the campus with the goal of securing one book from each student in the University.

When the drive closed in the middle of February, students had turned in 1,400 books, the largest number received in any drive since the beginning of the project.

The memorial scholarship fund, created by the sale of donated books, contained \$7,243 before this year's drive began. Scholarships which are financed by the fund are available to outstanding students in need of assistance, regardless of classification.

**Time for Tears.** Yeghishe Avedissian, senior in petroleum engineering from Iraq, has made a literary splash with *Holiday for Tears*. His first novel, the book is the story of a romance between an Armenian boy and girl. Setting of the story is in Baghdad.

Born in Baghdad of Armenian parents, Avedissian received his education at the American missionary school of Baghdad. While still in highschool he sold short stories to American publications.

He came to the University to study engineering after World War II, and his book was published by the Exposition Press of New York. The jacket on the novel was awarded a certificate of special merit at the 11th New York Exhibition of Printing in January.