

*The main Engineering Building, where activities of the College of Engineering are centered*

## A vision of world leadership

**A** vision of making Oklahoma supreme throughout the world in the field of geological and petroleum engineering education and research is the guiding thought in the building request presented to the State Legislature this year by the University Board of Regents.

Oklahoma and its state university have a unique opportunity to assume world leadership in this one field. For a young state like this to attempt to outstrip older institutions in most of the academic fields would be preposterous, but in teaching the techniques of the oil industry, Oklahoma has a great many advantages.

If sufficient physical equipment and classroom space and laboratories can be provided, there is little doubt that the O. U. College of Engineering would be unsurpassed in geology and petroleum engineering.

That is why the University Board of Regents has asked \$350,000 in 1937-38 for a Petroleum Engineering building, and \$250,000 the next year for a new Geology building which would adjoin the present inadequate Geology building.

But the vision of world leadership is not just a selfish desire to give the University something to boast about. The plan to expand facilities in the College of Engineering is based largely upon the concrete fact that the demand for technically trained men is constantly increasing.

More and more, the oil and gas industry and also other industries are turning to colleges and universities and asking for men with specific and thorough technical training.

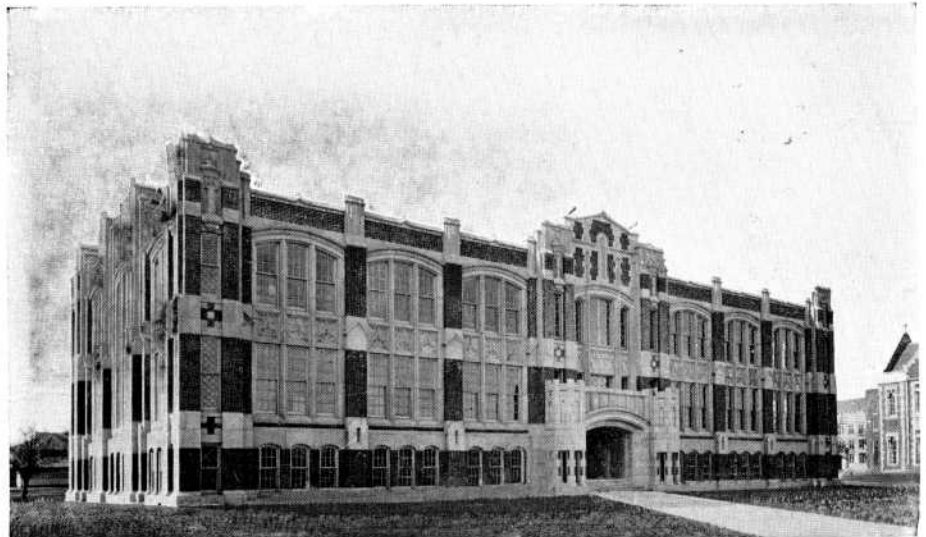
"The outlook for jobs and advancement in engineering is brighter today than at any period I have experienced during my 12 years of teaching at the University," says W. H. Carson, director of the School of Mechanical Engineering and acting director of the School of Petroleum Engineering.

"I read the other day where three hitch-hiking students told a State Representative that there is no future for the younger men under the capitalistic system, and that the only alternative for college students of this generation is for them to turn to communism," Mr. Carson said.

"The three young men could not have

been engineering students, because practically every day we have a request for a mechanical, petroleum or natural gas engineer. We have received letters, telegrams, telephone calls and personal visitations from companies who are eager to employ our men for the first time.

"I have checked our records very carefully and find that all of our graduates are now satisfactorily employed. It is indeed regrettable that more young men do not realize the advantage of enrolling in our Schools of Mechanical, Petroleum and Natural Gas Engineering, so that they might prepare themselves for a profession that offers an excellent opportunity of employment and advancement.



*The Geology Building, woefully inadequate for the present needs of the school*

"The men who graduated last year are doing exceptional well in the industry and many of them have been given responsibilities that normally come to a graduate only after he has been out of school three or four years. In several instances we have received letters from members of the 1936 class who have advanced sufficiently with their companies that they are now recommending men for employment in their departments."

In building the vision of a greater center of petroleum engineering and geological engineering education, University officials also emphasize the importance of research work for the benefit of the oil industry.

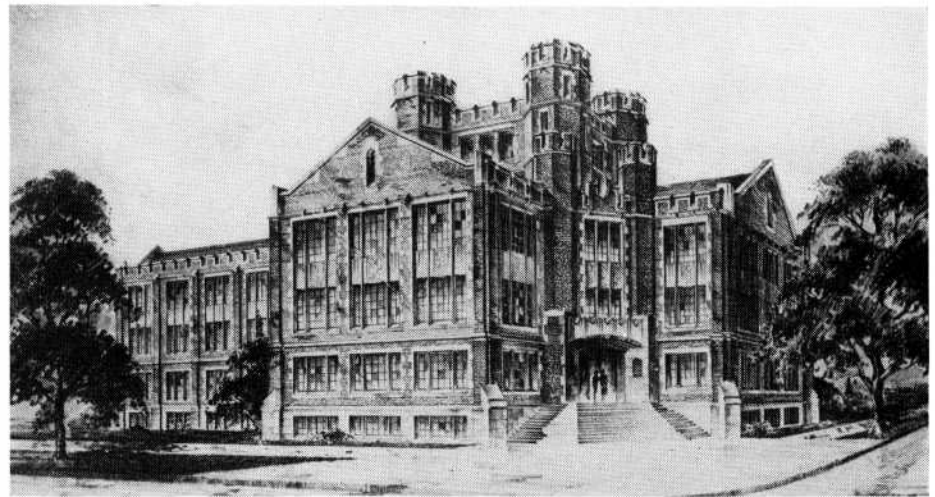
The College of Engineering is working on a number of applied research problems of vital interest to the oil industry, and could greatly increase the benefits of this kind of work if sufficient laboratory facilities were provided.

About two years ago an investigation was begun on the condensation of steam and hydrocarbons on vertical and horizontal water cooled tubes. The results of this work are to be published soon in some technical magazine. Further work is still being done on different phases of the same problem. Information of this type will be invaluable in the design of condensers for refineries, gasoline plants and power houses.

Two graduate students are making a study of the stage separation of oil-gas mixtures in order to determine how much gasoline is held in solution in crude oil as a result of several successive drops of pressure over that of a single flash liberation of the vapors.

The apparatus is so designed that both the entrance and exit streams of gas and oil can be accurately measured. It is already known in the field that stage separation offers big possibilities, but no thorough quantitative study has been made so that the effects of different variables such as gas-oil ratios and pressure ratios between the separators may be understood.

Graduate students are also working on an investigation of the steady and unsteady



*Tentative sketch of the proposed \$350,000 Petroleum Engineering Building*

flow of oil and gas mixtures through a tube packed with an oil sand. The results of this work will provide the engineers with a better understanding of the physical state of the oil reservoir and the nature of the changes which take place from time to time as the oil and gas are being produced.

Another phase of the same problem will be that of displacing the oil from the tube with different types of water in order to gain a better insight into the problem of water-flooding partially depleted oil reservoirs.

Data obtained last year on the 12-inch bubble cap column in the Petroleum Engineering Laboratory is now being prepared for publication. This study included the determination of froth heights and pressure drops with the counter-current flow of kerosene and air through a visible section of the tower. This information will throw additional light on the problem of entrainment in absorbers and fractionating columns.

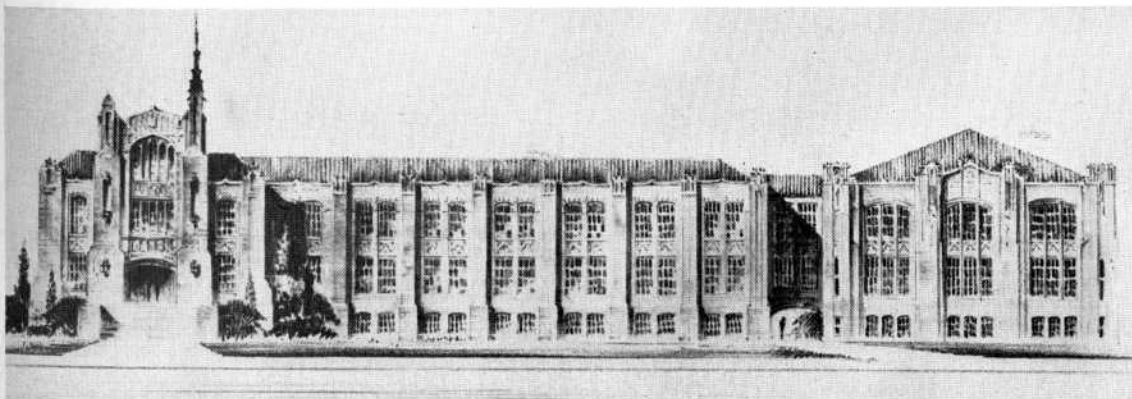
All of these problems are being carried out on a scale which will give results that can be readily translated into plant or field practice. The information which is being obtained is both fundamental and practical in value.

The investment which the state is being asked to make in providing a new building is likely to be repaid many times in a few years through the benefits from research projects made possible by the increased space.

For example, last semester an extensive study was made on the effect of various concentrations of various acids under different pressures on the permeability of oil through calcareous rocks. The results will be made public in the near future, and are expected to aid greatly in the acidization of oil wells which is an important method of increasing the flow of wells of a certain type.

New equipment has been designed and is being manufactured for determining oil sand porosity by the use of compressed air. The study of the heat of hydration and the strength relationships of various types of oil well cement is another of the many graduate research problems being carried on in the university today.

The School of Geology has accumulated a vast store of oil well cuttings and specimens of subsurface formations, as well as extensive records about oil and gas exploration in Oklahoma, but because of space congestion, it has been impossible to arrange them for convenient use.



*Drawing of the proposed \$250,000 Geology Building, with the old building shown attached on the right as a wing*