

Representative of the programs for excellence developing at the University is the School of Aerospace and Mechanical Engineering. Since its official birth four years ago, the school has shown a potential of becoming one of the best in the nation. Its success story began in July 1963 when the schools of Mechanical Engineering and Aeronautical and Space Engineering were merged. Prior to this consolidation, both schools had concentrated attention upon undergraduate education. There were no faculty members in either school holding doctoral degrees. Few scholarly articles had been published. Research facilities were few and in desperate need of new equipment.

Now, four years later, the school's new image is attracting wide educational and industrial attention. Eleven of its 18 faculty members hold doctoral degrees representing nine major universities. Within the past two years they have published more than 60 technical articles, a number which compares favorably with the largest schools in the country, says Dr. Tom J. Love, director of the school, which also has its own research center, completed in 1964, in the University's Swearingen Research Park.

The center was built at a cost of \$419,000 and was designed primarily to house laboratories. Its ultra-modern buildings are located near the Research Institute and adjacent to Max Westheimer Field on the North Campus. Approximately 24,000 square feet of floor space within the structures is divided among a library-conference room, 14 faculty offices, two classrooms, five large laboratories, and a repair and fabrication shop.

Dr. Love gives much of the credit for the school's success to increased governmental and public awareness of the need for such strong programs. "Our progress is part of the overall curriculum improvement being implemented by the

University, which in turn is coupled with a more favorable public and state government attitude toward higher education, especially on the graduate and research levels," says Dr. Love. "They have become more aware that Oklahoma's position as a leader in the Southwest and nation, capable of attracting both government and industrial installations and research dollars into the state, depends upon proof of our superiority. Because of this awareness, we have received support for many of our needs."

Since completion of this facility, the school has been able to expand research projects into many new areas. Among these programs are investigations of radiant heat transfer, by Dr. Love; studies of advanced aircraft building materials, by Drs. Gene M. Nordby and C. W. Bert, and W. C. Crisman, research engineer; methods of aerodynamic drag reduction by Drs. E. F. Blick and Bert (*Sooner Magazine*, July 1965); automatic aircraft landing control systems, by Dr. James A. Payne (*Sooner Magazine*, July 1966); oxidation-corrosion and thermal fatigue studies on "hot sections" of jet engines, by Dr. Bert, Prof. E. M. Sims and John D. Ray, research engineer; flow instability thresholds in liquid systems such as nuclear reactor and rocket fuel feed lines, by Dr. D. G. Harden; and influences of viscosity of flame front stability, by Dr. R. V. Kaser. Approximately 65 students working toward advanced degrees within the school are assisting with these and other projects.

Support for the school's active research program has come from many sources, including the National Aeronautics and Space Administration (NASA), National Science Foundation (NSF), and the armed services. The school's sponsored efforts have a combined value of more than a half-million dollars. Funds for the projects are ad-



Headquarters of the vital new engineering school is this brick building completed in 1964 at a cost of \$419,000 (*Sooner Mag.*, Jan. 1965).

Aerospace: Successful lift-off, all systems go

By JIMMY DIECKER

Photos by Robert E. Fields Jr.

ministered through the Research Institute. In addition, all of the school's faculty members are active in unsponsored research, in such areas as thermal fatigue and stresses of aircraft and missile structures, solid mechanics, structural and vibrational analysis, and vehicle dynamic environments.

Such a wide array of professional excellence among the school's personnel has not come about merely through acquisition of degrees. They are encouraged as well to acquire working experience. Faculty members of the school currently or recently working with industrial or government scientists include Dr. Franklin J. Appl at the Caterpillar Research Center, Peoria, Ill.; Dr. Bert at the Institute for Defense Analyses, Arlington, Va.; Dr. Blick at Lockheed Missiles and Space Co., Sunnyvale, Calif.; Prof. L. A. Comp, on sabbatical leave at Stanford University; Dr. Davis M. Egle at Langley Research Center, Hampton, Va., for NSAS; Dr. John E. Francis, at Ames Research Center, Moffett Field, Calif., for NASA; Dr. Harden at Argonne National Laboratory, Argonne, Ill.; Dr. Kaser at Lawrence Radiation Laboratory, Livermore, Calif., and Dr. Payne at Defense Research Corporation, Santa Barbara, Calif.

Many industries have been quick to note the school's expanding research interests and capabilities and are cooperating with it in a program which may be unique in college engineering circles (*Sooner Magazine*, Nov, 1966). Nine industries are furnishing engineers to act as teachers for small groups of students in a senior level design course. The industries are Aero Commander, Inc., Norman; Celanese Company, Bay City, Tex.; Corning Glassworks, Muskegoe; General Dynamics, Ft. Worth; Halliburton Co., Duncan; OCAMA, Tinker AFB; Oklahoma Gas and Electric Co., Oklahoma City; Phillips Petroleum Co., Bartles-

ville and Western Electric Co., Oklahoma City. Engineers from these companies receive assistance from the students in problems of current interest to industry, and the students receive invaluable practical experience.

However, the school has not neglected its nearly 500 undergraduate students. Since the creation of the school, undergraduate facilities have been renovated and the department has won three National Science Foundation matching fund grants for undergraduate laboratory equipment. As a result, the school now houses excellent laboratories in solid mechanics, fluid mechanics, heat transfer, energy conversion, and several wind tunnels, both subsonic and supersonic. In addition, the school offers an evening graduate program for engineers in the area, and teaches an average of three to four graduate level courses each semester on campus as part of the University's adult education program. It also participates through the University's Extension Division in Oklahoma's Technical Services Act, teaching professional and technical courses and giving lectures and seminars in towns and cities throughout the state.

Besides their other qualifications for teaching excellence, the faculty takes active interest in student professional and honor societies. Members are serving as faculty advisors for student chapters of the American Institute of Aeronautics and Astronautics, Society of Mechanical Engineers, Society of Automotive Engineers, Pi Tau Sigma, the mechanical engineering honor society; Sigma Gamma Tau, honor fraternity for aerospace engineers; Sigma Tau, national engineering honor society, and councils of the OU chapter of Sigma Xi, national scientific honor society, and Tau Beta Pi, national honor fraternity. END



Director of the school is Dr. Tom J. Love, shown here with some prospective students at a high school career day.