5200 students. Present undergraduate enrollment is about 3000. To carry out the program, the institute must acquire an additional $24.5 million in endowments and $8 million for the construction of new classroom and laboratory buildings. Also, it will be necessary to borrow, on a self-liquidating basis, several millions of dollars for the construction of living quarters for students.

In announcing the program, Livingston W. Houston, president of Rensselaer, defined the institution's stand on the question of expansion. This has been a controversial subject among educators, some of whom have held that accepting a much larger number of students would impair the quality of education. Houston said:

"The leading engineering schools cannot lower their standards. All of us are seeking quality. The real problem is not one of simply maintaining quality but of producing high-quality students in the quantity that industry must have. Bigness and quality are not mutually exclusive. If they were, many of our leading larger companies would have ceased growing long ago. . . . [However,] faculty and facilities—and funds to support them—will be of little avail unless there are adequate numbers of properly qualified high school graduates available to enter our engineering colleges."

Grants, Fellowships, and Awards

■ The National Science Foundation is inaugurating a program for the support of instrumentation for chemical research. The purpose of this program is to provide either a portion or all of the funds required to purchase certain equipment that is needed for research in chemistry departments of American colleges and universities and cannot be obtained from any other source.

Chemistry departments of institutions interested in applying for grants should submit proposals that provide the following information: (i) name and address of institution; (ii) description of desired equipment; (iii) description of research of staff members who will utilize the equipment; (iv) biographic data of staff members concerned; (v) arrangements to be made for care and maintenance of the equipment; (vi) related equipment on hand; (vii) budget (include statement of funds, if any, from other sources).

Fifteen copies of the proposal should be submitted to the National Science Foundation, Washington 25, D.C., attention Mathematical, Physical and Engineering Sciences Division. One copy should be signed by the chairman of the department and by an official authorized to sign for the institution. All copies should indicate the persons, with titles, who have signed the single copy. Proposals received *by 1 Dec.* will be considered for grants to be awarded by about 1 Mar. 1957.

■ The U.S. Atomic Energy Commission has announced the award of 50 unclassified life science research contracts in medicine, biology, biophysics, and radiation instrumentation. Ten of the awards, each of which covers a period of 1 year, are new projects; three are in medicine, six in biology, and one in radiation instrumentation. Forty contract renewals have been negotiated to allow for continuation of research already in progress; 19 of these are in the medical sciences, 16 in biology, three in biophysics, and two in radiation instrumentation.

■ Expanded aid to outstanding high-school physics, chemistry, and mathematics teachers has been announced by Shell Companies Foundation, Inc., New York. The foundation this year provided Shell Merit Fellowships for 60 high-school teachers at seminars conducted by Stanford and Cornell universities this past summer. This program was so successful that Shell plans to provide a significantly greater number of fellowships for 1957.

More than 2000 teachers from all parts of the United States applied for the fellowships available in 1956. Fellowship teachers received allowances for travel costs to Stanford or Cornell, tuition fees, living expenses, and $500 in cash to offset loss of potential summer earnings. Teachers attended lecture and laboratory sessions, had group discussions with leading specialists in their various fields, and visited nearby scientific installations.

Requests for fellowship applications should be sent directly to the two universities. Mathematics, physics, or chemistry teachers with 5 years of experience and known leadership ability are eligible. Teachers living west of the Mississippi should write the School of Education, Stanford University, Stanford, Calif. Teachers east of the Mississippi should write the Department of Education, Cornell University, Ithaca, N.Y.

■ During the years 1957–58 the Office of Naval Research will continue its modest program in support of basic research in astronomy and astrophysics. As in past years, the National Research Council Committee on Astronomy Advisory to ONR, with a membership of seven astronomers nominated by the council of the American Astronomical Society, will aid ONR in evaluating proposals received.

Applicants must submit proposals *by 15 Dec.* Ten copies of each proposal, which should include a full description of the project and a cost breakdown, should be addressed to: Chief of Naval Research, Department of the Navy, Washington 25, D.C., Attention: Code 430. Letters of recommendation will be helpful to members of the advisory committee in making their appraisal and should be sent by the writer directly to the above address.

It is expected that the advisory committee will again recommend a maximum overhead charge of 15 percent of the total budget. The cooperation of universities in approving overhead rates of this order will in no way prejudice negotiations of overhead for other contracts.

■ The Exploration Fund of the Explorers Club, New York, made its first grant to a nonmember of the club under its new unrestricted award policy when it recently voted to support the anthropological researches of Neville Dyson-Hudson and V. R. D. Dyson-Hudson in East Africa. The $1231 grant is to cover study of the hill tribes fringing the Karamoja plateau. The Exploration Fund was established by C. R. Vose and was open only to members of the club until this year.

■ The U.S. Public Health Service has reported that almost $1 million has been awarded to schools and individuals through a new public health training program. Under the program, which was authorized by Congress on 23 July, 261 public health workers are now enrolled for graduate training in 41 schools. Upon completion of their studies, most of the trainees will be employed in state and local health departments, thus helping to relieve the acute personnel shortage.

In the Laboratories

■ Last month the Westinghouse Electric Corporation dedicated the new Westinghouse Research Laboratories, which are located on a 72-acre site in Churchill Borough, Pa., 10 miles east of Pittsburgh. The three-story, L-shaped building houses the laboratories, offices, shops, and other requirements for a staff of more than 700 people. Included in these facilities are a technical library containing 30,000 volumes and subscribing to more than 500 periodicals; a complete metals processing laboratory for melting, annealing, rolling, and otherwise processing metals and alloys; an instruments laboratory; several machine shops; a glass blowing laboratory; a photographic and reproduction department; drafting facilities, and so forth.

Although the structure has just been completed, work has already begun on an additional wing that will increase its size by nearly 50 percent and will provide accommodations for the materials engineering department. In addition,

Westinghouse Research Laboratories in Churchill Borough, Pa.

plans for a nuclear reactor have been announced, the first to be built by a single industrial company for its own research. The reactor, which will be located near the new facility, will be in operation in about 2 years.

The departments that occupy the new building, and the respective department managers, are as follows: chemistry, R. W. Auxier; electromechanics, C. R. Hanna; electronics and nuclear physics, J. W. Coltman; insulation, J. Swiss; magnetics and solid state physics, J. K. Hulm; mathematics, M. Ostrofsky; mechanics, R. E. Peterson; metallurgy, J. H. Bechtold; physics, L. J. Varnerin; semiconductor and solid state physics, E. N. Adams; and technology, J. C. R. Kelly. During a prededication press tour of these departments a number of new developments were announced.

An advanced steam turbine for electric power generation was described. Steam, under a pressure of 16,000 pounds per square inch and a temperature of 1200°F, is being used to test the strength of the stainless steel casing that will house the pressure element of the new turbine. The turbine and the generator it drives will constitute a turbo-generator unit rated at 325,000 kilowatts, enough electric power to supply all the residential needs of a city of about 1 million people.

After a demonstration of electroluminescence (light by phosphors coated on a glass panel that is treated to conduct electricity) a room lighted by electroluminescence was unveiled. Some 112 glass panels, each 1 foot square in size and giving off a soft green light, are used to illuminate the room with shadowless, fixtureless light. Two control knobs, one for brightness and the other for color, make is possible to adjust for any level of brightness, and to create any color atmosphere, from varying shades of white to blue or red.

A new electronic brain, the Automex, was also described. The device has a "built-in intelligence," enabling it to distinguish between right and wrong decisions. It decides at every step whether the step just taken was correct or not; the next step is based on this decision and is the one most likely to lead to success.

Another instrument that was announced is a new type of gyroscope, the vibragyro, that is designed to stabilize aircraft in flight. It is the product of 2 years of research aimed at developing a unit lighter and more rugged that the conventional rotating-type gyro that is now generally in use.

A new, high-temperature, high-voltage insulating material is another development relating to aircraft that was exhibited. The insulation, a solventless silicone resin that was developed in cooperation with the Dow Corning Corporation, can be formed into thick sections of solid, heat resistant insulation for use in complex electrical equipment. By eliminating the solvent formerly necessary in other heat-resistant resins, it was possible to produce an insulation that is entirely free of air spaces, or 'bubbles.'

The Westinghouse Research Laboratories are devoted 90 percent to basic and fundamental research. Only 10 percent of the work in the new laboratory is in applied research. Fifty percent of the work is on what Westinghouse designates as basic research, the search for new knowledge in fields that relate directly to the company's business; 40 percent, at a cost of $2.5 million this year, is on fundamental research—work in fields of science basic to the electrical industry, but on specific projects that have little or nothing to do with the company's business as such. Over-all, Westinghouse is spending $150 million during the current year on its total technical effort, including both research and development.

■ The Helipot Division of Beckman Instruments, Inc. has announced completion of its move from South Pasadena, Calif., and its vicinity to temporary quarters in Costa Mesa in preparation for the occupation of a new $2-million plant in Newport Beach early next year. The move consolidates 16 Helipot facilities that were located in South Pasadena, Pasadena, Alhambra, and San Gabriel. Helipot, which manufactures precision components for electronic instruments and systems, will continue to direct plants and offices in Mountainside, N.J., and Toronto, Canada, from the new headquarters.

■ The Food Machinery and Chemical Corporation, New York, has announced the formation of the FMC Organic Chemicals Division, which will be responsible for the manufacture and sale of all plastics produced by FMC and of all organic chemicals that are not directly linked with the operations of one of the company's other chemical divisions. Henry S. Winnicki, formerly director of engineering and development for FMC Chemicals, has been named president and manager of the new division, which will have quarters in New York.

■ The St. Eloi Corporation, Newtown, Ohio, has prepared a brochure, which will be distributed free on request, that presents a tabulation of the physical properties of the lanthanide metals and oxides. The brochure also announces the inauguration of the company's pure rare earth metal production program, which will make the entire group of lanthanide elements available to industry and academic laboratories.

■ Experiments designed to utilize atomic radiation to create or improve petroleum products and processes will be centered in a new atomic radiation laboratory to be constructed by the Continental Oil Company in Ponca City, Okla., at a cost of approximately $500,000. The new laboratory, which is expected to be completed by March 1957, was designed by the Walter Kidde Nuclear Laboratories.