graduate study. Only 12 percent have the doctor's degree, and 62 percent stopped at the bachelor's level. Among women chemists, 26 percent have doctorates and 50 percent have no advanced degree.

Chemical engineers as a group seem to have an earnings advantage over chemists, the report indicates, but when chemists and chemical engineers hold comparable jobs they tend to receive about the same salaries. The report also showed that men chemists, throughout their careers, earn about 1½ times as much as women chemists.

Among the occupations most common among chemists and chemical engineers, the best paying is technical administration, with a median salary (disregarding experience and education) of $856 monthly for chemists and $898 for chemical engineers. Industrial research comes next—$638 for chemists and $647 for engineers. Lowest median salaries for the more prevalent occupational categories are found in college and university teaching ($517 for chemists and $637 for chemical engineers) and in analysis and testing ($473 for chemists and $520 for engineers). Of all occupations reported, secondary-school teaching paid least, with a median salary for chemists of $443 a month. The best-paid jobs, outside technical administration, were in nontechnical administration consulting and in law.

Search for Cancer Drugs

The U.S. Public Health Service has placed contracts with five laboratories for large-scale screening of chemical compounds in the search for drugs useful in treating cancer. The laboratories, which will begin the work at once, are Microbiological Associates, Bethesda, Md.; Wisconsin Alumni Research Foundation, Madison, Wis.; Southern Research Institute, Birmingham, Ala.; Hazleton Laboratories, Falls Church, Va.; and Stanford Research Institute, Menlo Park, Calif. Responsibility for supervising the contracts rests with the Cancer Chemotherapy National Service Center of the National Cancer Institute.

The laboratories are expected to examine approximately 2000 compounds by 1 July. Each compound will be tested against three different kinds of cancer implanted into various strains of mice under procedures for animal screening established by a panel of the Cancer Chemotherapy National Committee. This committee, representing the leading organizations and Government agencies in cancer research, was established last May to sponsor a national voluntary program of cooperative research and development in cancer chemotherapy.

State Conservation Programs

A survey of how each state is organized to give educational leadership in conservation and use of resources is being conducted under the direction of Richard L. Weaver, associate professor of conservation in the School of Natural Resources at the University of Michigan. The work is supported by a grant from the Horace H. Rackham School of Graduate Studies. Each state agency concerned with education about resources is being asked to complete an inventory statement covering such matters as leadership, state committees, program, financing, publications, cooperation, legislation, and problems or obstacles to progress.

The results of the inventory will be used by Weaver in scheduling visits to each of the states to interview the people responsible for the programs. It is expected that the results of the study will help professional organizations and foundations in their efforts to be of greater service nationally.

Code for Atomic Structure of Solids

A new code for describing the atomic structure of solids has been invented by A. L. G. Rees, assistant chief of the Division of Industrial Chemistry, at the Australian Commonwealth Scientific and Industrial Research Organisation. Rees described his new system of symbols on 5 Apr. at the Symposium on Crystallography that was held in Madrid, Spain. He pressed for universal adoption of the code, saying that it will enable scientists to set out their research results without ambiguity, which should lead to more rapid advances in many aspects of industrial research.

The code makes it possible to describe concisely the irregularities in the atomic structure of crystalline solids. These irregularities are of special industrial importance. They are important in photography, fluorescent lamps, TV screens, luminous watch dials, and transistors. They play an important part, too, in many processes of modern chemistry and metallurgy; for example, the catalysts that are used in the cracking of crude oil to produce gasoline depend on them for their activity.

News Briefs

■ A new laboratory animal, *Meriones libycus,* is being introduced into this country from England, where it has been bred for the past several years for use in studies on the Coxsackie virus. The animal is a species of desert rat found in Libya and North Africa that was originally imported into England in November 1951 by the late G. M. Findlay. He had obtained two pairs from Lapine of the Pasteur Institute in Paris.

■ The Library of Congress has agreed to prepare a continuing, annotated bibliography on air pollution for the U.S. Public Health Service. The bibliography will include references to the physical, biological, engineering, legal-administrative, and economic aspects of atmospheric pollution.

Last year, the Congress appropriated $1,785,000 for Public Health Service support of air-pollution research and technical assistance. In December it was announced that the Bureau of Mines, the National Bureau of Standards, and the Weather Bureau, would undertake research projects in air pollution for USPHS.

■ The Geological Survey has developed a new orthophotoscope that was displayed publicly for the first time at the recent annual meetings in Washington of the American Congress on Surveying and Mapping and the American Society of Photogrammetry. The device changes conventional aerial photographs, with all their distortions from camera tilt and changes in elevation on the ground, into the equivalent of distortion-free photographs. It produces a corrected photograph that is a true map or photomap of uniform scale. This development makes it possible for the first time to measure straight-line distances accurately on an aerial photograph.

■ Assistance in establishing a nuclear physics department at the Federal University of Karachi will be provided to the Government of Pakistan by the United Nations Educational, Scientific and Cultural Organization. Frans Barendregt, chief scientist at the new Dutch Nuclear Reactor Center at The Hague, is being sent to Karachi for this purpose. He is the first nuclear scientist to go on a mission under the UNESCO program designed to serve countries in fields not covered by the United Nations technical assistance program.

■ An albacore tuna tagged 1300 miles north of Hawaii on 5 Oct. 1954 by the U.S. Fish and Wildlife Service was recaptured near Japan, 2370 miles away, 471 days later. It weighed 15 pounds when it was tagged and 40 pounds when it was recaptured.

It is thought that the albacore tuna of the North Pacific may belong to a single population that migrates between the United States and Japan. However, this is only the second time that an albacore tagged by the U.S. has been taken

in Japanese waters. The first time was about 3 years ago when an albacore tagged off the California coast was taken near Tokyo. The tuna migration study is one of many being conducted by the Pacific Oceanic Fishery Investigation unit of the Fish and Wildlife Service.

Scientists in the News

LEONARD A. SCHEELE, Surgeon General of the U.S. Public Health Service, Department of Health, Education, and Welfare, took the oath of office for his third term, on 16 Apr.

MASANORI NAKAIDZUMI, who recently retired as professor of radiology at Toyko University, has been appointed associate director of the Atomic Bomb Casualty Commission, a field agency in Japan that is operated by the U.S. National Academy of Sciences–National Research Council and supported by the U.S. Atomic Energy Commission. The Atomic Bomb Casualty Commission was established to aid the survivors of the nuclear explosions that took place in Hiroshima and Nagasaki. The health studies being conducted by the commission will be continued as long as there remains any possibility that new knowledge may be obtained from them.

J. ROBERT OPPENHEIMER, director of the Institute of Advanced Studies, and DWIGHT H. MURRAY, president-elect of the American Medical Association, have received the first Dignity of Man awards from the Kessler Institute for Rehabilitation, West Orange, N.J. The awards were made on 11 Apr. at a dinner for Henry H. Kessler, founder of the institute, on his 60th birthday. Oppenheimer and Murray were selected for the first presentations in recognition of their "significant achievements and pioneering efforts on behalf of the dignity of man through their respective professions."

COURTLAND D. PERKINS, chairman of the department of aeronautical engineering at Princeton University, will replace H. GUYFORD STEVER as chief scientist of the U.S. Air Force. Perkins will be on leave from the university faculty while he holds the Air Force post.

The following awards were presented on 9 Apr. during the 129th national meeting of the American Chemical Society in Dallas, Tex.

WILLARD F. LIBBY of the U.S. Atomic Energy Commission received the ACS award for nuclear applications in chemistry, sponsored by the Nuclear Instrument and Chemical Corporation, ". . . for a succession of bold and original researches in sensitive instrumentation, natural radioactivity, and the chemistry of energetic atoms, that opened new fields for nuclear chemistry."

PAUL M. DOTY, associate professor of chemistry at Harvard University, received the ACS award in pure chemistry, sponsored by Alpha Chi Sigma Fraternity ". . . for significant and fundamental contributions to our knowledge of the size and shape of macromolecules in dilute solutions."

HAROLD W. WASHBURN, vice president and director of research for the Consolidated Engineering Corporation, Pasadena, Calif., received the Beckman award in chemical instrumentation ". . . for his perseverance, inventiveness, and scientific leadership in developing mass spectrometry as a field of instrumentation, and for his efforts through publications, lectures, and personal contacts in advancing the widespread application of mass spectrometry in chemistry."

SAMUEL R. HOOVER, assistant chief of the U.S. Department of Agriculture's Eastern Utilization Research Branch, Philadelphia, Pa., received the Borden award in the chemistry of milk ". . . for his systematic studies relating the properties of casein to its chemical constitution, particularly with respect to the water-binding capacities of many of the individual groups in the casein molecule, which are of importance in understanding the behavior of milk proteins and in indicating the conditions of water uptake by dried milk products."

HARVEY C. DIEHL, professor of chemistry at Iowa State College, received the Fisher award in analytical chemistry ". . . for his development of inorganic and organic chelation reagents of analytical importance, studies of oxygen-carrying metallic organic compounds, advancements in automatically controlled electrodeposition procedures, and refinement of polarographic, electrochemical, solvent extraction, and tracer techniques."

HERMAN PINES, director of the Ipatieff High Pressure and Catalytic Laboratory at Northwestern University, received the Fritzsche award ". . . for significant achievements in the application of catalysis and high pressure in the terpene field. His work has led to methods of preparation, to new techniques for the determination of structures, and to new terpene reactions, resulting in a better understanding and correlation of the chemistry of these compounds."

ALLENE R. JEANES, chemist in the Northern Utilization Research Branch of the Agricultural Research Service, Peoria, Ill., received the Garvan medal ". . . for her pioneering research on the chemistry of dextran produced by numerous bacterial strains, for outstanding contributions in advancing fundamental knowledge of the chemistry of carbohydrate polymers, and for her zeal and leadership in an extensive research program on the development of dextran as a blood plasma extender for national defense."

HARRY G. DRICKAMER, professor of chemical engineering at the University of Illinois, received the Ipatieff prize ". . . for significant contributions to the knowledge of the fundamental properties of matter, and for his development of novel experimental techniques for the investigation of the behavior of solids, liquids, gases, and solutions under extremely high pressures."

VICTOR K. LA MER, professor of physical chemistry at Columbia University, received the Kendall Company award in colloid chemistry ". . . for his many contributions to the science of colloid chemistry, especially for the formulation of the theory of the formation of monodispersed hydrosols and for improvements in the theory of the production and use of aerosols for military and other purposes."

ROBERT A. ALBERTY, associate professor of chemistry at the University of Wisconsin, received the Eli Lilly and Company award in biological chemistry ". . . for his fundamental contributions to enzyme kinetics. His studies have yielded useful relationships between the kinetics of the forward and reverse reactions and for the determination of the ionization constants of essential groups in enzymes. With these constants he has proposed a consistent reaction mechanism to give a structural basis for the behavior of the catalyst fumarase."

MERTON F. UTTER, associate professor of biochemistry at Western Reserve University, received the Paul-Lewis Laboratories award in enzyme chemistry ". . . for his outstanding and fundamental contribution showing that the oxalacetate carboxylase reaction is a major reaction in animal tissue, that net fixation of carbon dioxide can occur by this reaction, that the nucleoside phosphate acceptor inosine diphosphate or guanosine diphosphate must be added to promote net fixation, that nucleosides other than ATP can participate in phosphate transfer reactions, that the oxalacetate carboxylase reaction provides a mechanism for synthesis of phosphopyruvate thereby clarifying the pathway of carbohydrate synthesis."

MILBURN J. O'NEAL, JR., of the Shell Oil Company, Houston, Tex., received the Precision Scientific Company award in petroleum chemistry ". . . for outstanding achievements in the knowledge of the composition of petroleum. By ingenious research he opened up the field of high temperature mass spectrometry, was able to obtain mass spectra