Conn., on 21 July. It is 330 ft long, as compared with the 300 ft of the first atomic-powered submarine, the *Nautilus*. The *Seawolf* is expected to have a submerged cruising speed in excess of 20 knots.

In the prototype reactor at West Milton, the steam drives a turbine generator with a maximum rating of 12,500 kw. With more power being produced than is needed for studies of the *Seawolf* operation, General Electric contracted with the Niagara Mohawk Co. for the sale and distribution of excess amounts. The amount to be sold will vary, depending on the excess available, but will not exceed 10,000 w. Ten thousand watts is normal consumption for a city of 20,000 to 30,000 people.

The arrangement with the Niagara Mohawk Co. is temporary. Under existing law, public and cooperative power plants must be given first opportunity to purchase power generated in government projects. The Knolls Atomic Power Laboratory is an Atomic Energy Commission installation. Three such companies operate near West Milton and are eligible to receive the power.

Power is being sold at 3 mills/kw. The money goes to the Federal Government. Cost of production was not released, but it is greater than the 3-mill rate at which it is being sold. The reactor, however, was not built to be competitive with other sources of commercial power.

The throwing of the switch that for the first time made electricity from an atomic source available through the usual commercial channels was preceded by a program in which Francis K. McCune, vice president of General Electric and general manager of the company's Atomic Products Division, Senator Clinton P. Anderson, chairman of the Joint Congressional Committee on Atomic Energy, Douglas McKay, Secretary of the Interior, Ralph J. Cordiner, president of G.E., and Lewis L. Strauss, chairman of AEC, all spoke.

In concluding a series of brief talks that had given emphasis to the day's event as marking the beginning of new advances in the atomic age, Strauss commented:

"Before me stands a large two-way switch. If I throw its blade in one direction it will turn the propeller shaft of a military weapon.

"But when I throw it in the other direction, as I am about to do, it will send atomic electric power surging through transmission lines to towns and villages, farms and factories—power not to burst bombs or propel submarines, but to make life easier, healthier, and more abundant.

"This switch is a symbol of the great dilemma of our times.

"I throw it now to the side of the peaceful atom. . . ."

NIH Directorship Changes

WILLIAM H. SEBRELL, JR., director of the National Institutes of Health and Assistant Surgeon General, U.S. Public Health Service, will retire 1 Aug. He will be succeeded as director of the institutes by James A. Shannon, currently associate director. Sebrell has accepted a new position with the American Cancer Society.

Commenting on Sebrell's retirement, Surgeon General Leonard A. Scheele said: "His directorship has been invaluable in bridging a complex period of transition, not only in our own expanding research program but in medical research the world over. Doctor Sebrell, drawing upon a distinguished background of active research and administration, has been one of the Nation's leaders in the new research attack on disease, particularly the chronic diseases, such as heart disease, cancer, and mental illness."

Sebrell was born in Portsmouth, Va., in 1901. He received his medical degree from the University of Virignia in 1925 and entered the U.S. Public Health Service. In 1928 he joined the staff of the laboratory that was later to become the National Institutes of Health.

He earned a world-wide reputation as a medical scientist, particularly through his studies on the B vitamins. He was a member of the Public Health Service team that established in the 1920's the dietary origin, prevention, and treatment of pellagra, then one of America's most serious deficiency diseases. In the course of his work, Sebrell discovered the cause and cure of another vitamin-deficiency disease, ariboflavinosis. He has also received scientific acclaim for important findings in the dietary cause and treatment of liver disease, the effect of pantothenic acid deficiency on the adrenal glands, nutritional effects of the sulfonamides, and the cause and treatment of blood abnormalities. In 1950 he was appointed director of the National Institutes of Health.

Sebrell has taken a leading part in nutrition studies throughout the world. For his work in this field he holds the Legion of Merit. He has been honored for his achievements in the field of nutrition research with the Mead Johnson award of the American Institute of Nutrition, the Research medal of the Southern Medical Association, and the Goldberger award of the Council on Nutrition of the American Medical Association. He has written more than 100 scientific papers on nutrition and public health. In 1954 he was elected president of the National Vitamin Foundation and vice president of the American Board of Nutrition.

In his new position as research consultant at the American Cancer Society, effective 1 Aug., Sebrell will direct the society's institutional research grant program, which involves about half of the society's expenditure of $6 million for research this year.

James A. Shannon, the new director of the National Institutes of Health, has been associate director since November 1952. His principal responsibilities have included development of the NIH direct research program. He is also chairman of the Public Health Service's Technical Committee on Poliomyelitis Vaccine. Prior to 1952 he was associate director in charge of research at the National Heart Institute.

The heart institute is one of seven research centers comprising the National Institutes of Health. Other separate institutes cover cancer, neurological diseases and blindness, arthritis and metabolic diseases, mental health, dental research, and microbiology.

The NIH is the site of the Clinical Center, a new 500-bed research facility opened in 1953. Other major programs of the NIH include substantial financial support through research grants to investigators in non-Federal institutions and support of research fellowships and clinical traineeships.

Genetics of Extinct Species

That we need not always be ignorant of the genetics of extinct species has been demonstrated by a remarkable comparative study of the molar teeth of the present-day European brown bear (*Ursus arctos*), the extinct late Pleistocene cave bear (*U. spelaeus*), and other still older, early Pleistocene bears of Europe, including *U. etruscus*, the common ancestor of these bears. Björn Kurtén, of the Geological Institute of Helsingfors University, Finland [*Evolution* 9, 107 (1955)], finds that these teeth show allometric growth, according to the well-known equation $y = bx^k$. That is, they exhibit a constant differential growth ratio (k) between the height of the cusps, or paracones, on the tooth (y) and the length of the crown (x).

The ratio is different in the cave-bear samples from the ratio in the majority of recent and fossil brown bears, but some populations of the brown bear reveal the typical cave-bear kind of tooth growth. Both kinds of tooth growth are also present in the ancestral species *U. etruscus*.

There is some evidence that the two types of tooth growth differ by a single Mendelian factor, for the frequencies of the two types and an intermediate between them fit the expectations derived from the Hardy-Weinberg principle. Hence, it is possible to say that the mu-

tation that produced the characteristic type of tooth growth of the cave bear and is still present in some modern brown bears traces back through roughly a million years, where it may still be studied in the biometric variations of the fossil *U. etruscus.*

The fairly strong allometric growth in both types leads to a diminished fitness of the shape of the tooth crown as the tooth enlarges excessively in size, just as it did in the cave bear toward the time of its extinction. Very likely the existence of the two types of allometric growth of the teeth and the intermediate between them made it possible for bears of different sizes to possess teeth of the optimal shape.—B. G.

News Briefs

■ The State Department on 8 July issued a passport to Martin D. Kamen, former atom bomb project chemist and now an associate professor at Washington University, St. Louis. For the past 8 years, Kamen has been seeking a travel permit in order to accept speaking engagements abroad [*Science* **121,** 758 (27 May 1955)]. On 14 July the State Department formally withdrew its charges that Kamen is a supporter of Communism, and Kamen's suit to force issuance of a passport was dropped.

■ The areas in six southwestern states that are regulated because of the pink bollworm of cotton will be merged into a single continuous regulated area, instead of being divided as now into heavily and lightly infested areas, the U.S. Department of Agriculture has decreed. This change became effective 12 July. At the same time 20 Arkansas counties were added to the regulated area. Merging of the lightly and heavily infested pink bollworm areas became necessary because heavy infestations have been found sporadically throughout the entire regulated area. It was therefore no longer practicable to operate the quarantine on a two-area basis.

■ The Mediterranean fruit fly has been found in almost every part of Costa Rica, it has been announced by the Agriculture Ministry and United States technical aid authorities. The pest, which attacks many forms of ripe fruit, was first detected a few weeks ago by Harold Mowry, acting chief of the technical aid program. Subsequent spot checks have revealed many other infestations. Identification was confirmed by laboratory tests in Washington.

The infestations of Mediterranean fruit fly have not been serious in this hemisphere, except in isolated spots in southern Brazil, since the 1929 infestation in Florida, which did heavy damage to the citrus industry.

The Costa Rican government plans an eradication campaign. In an effort to prevent spread of the infestation, the government of Nicaragua has embargoed imports of Costa Rican fruits, plants, and seeds. Other control measures may be instituted in Costa Rica and elsewhere.

■ The National Society of Professional Engineers has urged a House committee to approve pending legislation that will give more liberal tax benefits to self-employed persons who wish to establish an individual retirement plan.

Paul Robbins, executive director of NSPE, in recent testimony before the House Committee on Ways and Means, stated that present tax rates "do not leave the average self-employed professional person enough to cover living costs and a residue for the relatively high payments which are required for an acceptable private pension plan." Pointing out that salaried employees can receive "substantial tax benefits under existing favorable tax law provisions," Robbins added that the professional man alone "stands in a position where high surtaxes prevent him from leveling his earnings to provide a stable income and retirement benefits."

Robbins testified that "in all fairness the laws should be written to permit those who earn their income by a personal practice of a profession to project some portion of their earnings into the future for tax purposes" and emphasized that the nation can ill afford to discourage young people "from embarking on professional careers by presenting them with a prospect of rewards not commensurate with the risks they are asked to run."

■ Proposed agreements for the exchange of atomic information for mutual defense purposes have been approved by President Eisenhower, signed by representatives of Canada, the United States, and the United Kingdom, and submitted to the Joint Committee on Atomic Energy of the U.S. Congress. According to the terms of the U.S. Atomic Energy Act of 1954, the proposed agreements are to lie before the Joint Committee for a period of 30 days before becoming effective.

Scientists in the News

AUGUST C. HELMHOLZ has been appointed chairman of the department of physics at the University of California. He succeeds RAYMOND T. BIRGE, who retired 1 July. Helmholz has been a member of the Berkeley staff since 1940. ERWIN L. HAHN, now with the I.B.M. Corp. at the Watson Laboratory, Columbia University, will join the Berkeley staff in September. Other departmental changes at Berkeley include the promotion to full professor of WILLIAM B. FRETTER, WILLIAM A. NIERENBERG, and CORNELIUS A. TOBIAS.

On 17 June at the commencement in Berkeley, Calif., the University of California awarded to RAYMOND THAYER BIRGE an LL.D. degree, thereby recognizing his long years of distinguished service as a scientist, teacher, and administrator. Birge retired as chairman of the department of physics on 1 July, 1955, having served in this position since 1933.

After completing his academic training through the Ph.D. degree at the University of Wisconsin, Birge served for 5 years on the physics staff of Syracuse University. In 1918 he came to the University of California as an instructor and rose rapidly to full professorship in 1926. Although he reached the retirement age in 1954, he was reappointed for the year 1954–55. During his period as chairman, the department grew in both numbers and eminence, and his guiding hand was largely instrumental in this rise.

Birge's research interests were originally in spectroscopy; he entered the field at the time that Bohr's quantum theory of the hydrogen atom was first published, and his researches did much to interpret the spectra of molecules in terms of this theory and developments from it. The use of intensities in the rotational structure of band spectra to measure the temperature of emitting molecules was introduced by him in 1921. He was one of the first to employ data on the vibrational and rotational states of diatomic molecules to determine the force law constants and to examine critically their interrelations. Soon after it was realized that the presence of isotopes in diatomic molecules was manifested in their spectra, he was largely instrumental in the discovery of the rarer isotopes of hydrogen, carbon and oxygen. The celebrated Birge-Sponer method of extrapolating vibrational energy levels to evaluate heats of dissociation was discovered in 1926 and has proved to be a powerful method of estimating these quantities for the more stable diatomic gases.

Through his interest in spectroscopy, Birge was led to examine the relationships between the constants of atomic physics—for example, in the Rydberg constant and the fine-stucture constant. In pursuing this line, he became, for many years, the leading authority on the best values of the whole array of general constants. His thorough investigations pointed up many discrepancies in the values of the physical constants then known and stimulated much important work in the resolution of these difficulties. In the course of this work, he developed an interest in the propagation of errors