great attention being paid to the preparation of specialists in the technical fields. These comprise approximately one-third of all postgraduate students. Second place goes to representatives of the physico-mathematical sciences and third, to the agricultural sciences."

Growth of scientific potential. "During the years of Soviet power the army of scientists has grown 24-fold and today comprises 240,000 people, more than 95,000 of whom have masters' or doctors' degrees. In 1956 alone the number of scientific workers increased by more than 15 percent. With each passing year the number of scientific establishments increases, and today there are some 3,000 of them."

Geographic distribution of establishments. "When we say that science in the USSR is developing on a broad scale, we have in mind not only the ultimate results but also the geographic distribution of scientific establishments. In Uzbekistan, for example, where before the Revolution only two percent of the population were literate, today there are 150,000 specialists with secondary technical or higher education. The republic has an Academy of Sciences and several scientific institutes which employ some 6,500 scientific workers. Before the Revolution there was practically no intelligentsia in the Kazakh Soviet Socialist Republic, whereas today there are more than 230,000 specialists with secondary technical or higher education in the republic, more than 5,000 of whom are employed by the republic's Academy of Sciences and various scientific and educational establishments."

New Standard of Length

The Advisory Committee for the Definition of the Metre, chaired by L. E. Howlett, director of the Division of Applied Physics, National Research Council of Canada, has unanimously agreed on a new standard of length—a wavelength of light—to be used instead of the platinum-iridium bar kept at Sèvres, France. The leading contenders as the source for light for the standard have been the following isotopes: mercury-198, krypton-84, krypton-86, and cadmium-114. One of the wavelengths of orange light emitted by krypton-86 has been selected as the standard, and the international meter will be defined as 1,650,763.73 times this wavelength. The resulting standard will be more than 100 times as precise as the present international meter.

Although in practice the new standard is already in use, several steps remain before the wavelength becomes officially recognized. The committee mentioned above will send its recommendation to the International Committee of Weights and Measures for consideration at its meeting in October 1958; when approved there, the recommendation will be presented to the International Conference on Weights and Measures, which will meet in 1960; at that time the standard will become the legal international standard.

Biological Science in Indonesia

The Gustavus and Louise Pfeiffer Research Foundation has recently made a grant to the department of biological sciences at the University of Indonesia in Jakarta. According to Gilbert Church, visiting chairman of the department who was sent to Indonesia as part of the University of California School of Medicine's Indonesia Project in Medical Education, the money will be used to encourage Indonesian students to continue their research in the various fields of the biological sciences, and for special equipment and supplies that may be needed but are not available in Indonesia. The research program in progress at the University of Indonesia is of special significance because heretofore almost no zoological research has been done in Indonesia.

IGY Meteorological Data

The World Meteorological Organization has announced the availability of microcards of International Geophysical Year meteorological data. The data recorded during the 18 months of the IGY will be published on approximately 18,500 microcards that will ultimately be sold in complete sets, partial sets, or individually at a price to be determined by the number of complete sets ordered. At present the estimated price for a complete set is $5990. All orders should be placed with the World Meteorological Organization, IGY Meteorological Data Centre, 1 Avenue de la Paix, Geneva, Switzerland.

Shortage of Engineers?

Fourteen young engineers recently took a room at the Statler Hotel in New York so that they could be available for employment interviews by members of the American Society of Mechanical Engineers. The society was holding its annual meeting at the Statler and at the nearby Sheraton-McAlpin Hotel.

The men, 30 to 40 years old, were laid off a month ago when the turbomotor division of the Curtiss-Wright Corporation in Princeton, N.J., was closed for lack of work. Salaries for the 14 men had ranged from $9000 to $15,000 annually.

S. Barron, a chemical engineer and spokesman for the group, reported that the group had received six or eight telephone calls a day. Some callers asked for more information, some asked for résumés, and some arranged interviews. However, no one was hired. When news of the employment predicament became known, the press commented on the sharp change in trend that it seemed to indicate and suggested that perhaps the current concern over a shortage of scientists and engineers was being exaggerated.

Proton Beam Brought Outside Accelerator

The University of Chicago's Enrico Fermi Institute for Nuclear Studies has announced that it has increased the research value of its 450-Mev synchrocyclotron by bringing a proton beam outside the accelerator and into a newly constructed underground experimental room. The beam, one of the most intense in the world and the first to have been brought outside an American accelerator, will permit use of the university's machine for physical and biological research not previously possible.

A meson beam, lighter and less powerful, was extracted from the atom smasher when it was first operated in 1951, but until recently studies of proton bombardment were limited to the 9-foot-square, 2-foot-thick vacuum chamber inside the cyclotron in which the protons are accelerated. With the new external beam, targets can easily be put in position and surrounded by the necessary detecting and recording equipment.

AAAS-Campbell Award

The first AAAS-Campbell award for Vegetable Research was given at the AAAS Indianapolis meeting to S. H. Wittwer and F. G. Teubner, Michigan State University horticulturists, for their joint work on flower formation and fruiting in the tomato. The award, which consists of $1500 and a bronze medal, was established in 1957 by the Campbell Soup Company. It is given for "an outstanding single research contribution, of either fundamental or practical significance, relative to the production of vegetables, including mushrooms, for processing purposes, in the fields of horticulture, genetics, soil science, plant physiology, entomology, plant pathology, or other appropriate scientific areas."

A panel of seven judges, six representing societies affiliated with the AAAS and the seventh representing the AAAS, nominated 15 scientists for the award,

and then selected the winners from the nominations. The award is based on research on the tomato that Wittwer and Teubner have carried out during the last three years. Their findings, which have led to increases in yield, have been applied to greenhouse-grown crops in Michigan, Ohio, and Indiana.

Wittwer was born at Hurricane, Utah, in 1917. He obtained the B.S. degree at Utah State College in 1939 and his Ph.D. in horticulture at the University of Missouri in 1943. Since 1946 he has been employed at Michigan State University. Teubner was born at St. Louis, Missouri, in 1927. He received the B.S. degree from the University of Missouri, Columbia, in 1949 and continued at that institution for the M.S. and Ph.D. degrees in horticulture, receiving the latter in 1953. Since then he has been at Michigan State University.

Satellite Design

Natural scientists at the California Institute of Technology have developed a cylindrical satellite that they hope will measure cosmic ray activity, temperatures, and meteoric impacts in outer space. William M. Pickering, director of the institute's jet propulsion laboratory, reports that the first flight will be made sometime between the first of the year and the end of March.

The satellite, 1 foot high and about 5 inches in diameter, will be fired in a multistage Jupiter-C rocket, under development at Redstone Arsenal, Huntsville, Ala. Incorporated in the satellite will be C.I.T.'s new "microloc" communications system, which permits transmissions over very long distances with very low power.

Grants, Fellowships, and Awards

Cancer. The American Cancer Society has announced that 1959–60 clinical fellowships at the senior resident level may be applied for by institutions accredited by the Council on Medical Education and Hospitals of the American Medical Association to give training in the following specialties, with emphasis on the diagnosis and treatment of cancer: internal medicine, malignant diseases, neurological surgery, obstetrics-gynecology, orthopedic surgery, otolaryngology, pathology, public health, radiology, surgery, and urology. The annual stipend, tax exempt, is $3600. Applications must be received before 15 February by the Director of Professional Education, American Cancer Society, Inc., 521 W. 57th St., New York 19, N.Y.

Educational Testing. The Educational Testing Service is offering a visiting associateship in science to a school or college teacher for the summer of 1958. The candidate should have a strong background in at least one of the physical sciences. The stipend is $700; transportation costs will be paid. Application forms must be received before 28 February by Mrs. W. Stanley Brown, Test Development Division, Educational Testing Service, 20 Nassau St., Princeton, N.J.

Mendeliana

The University of Illinois has acquired what are probably the only remaining letters, photographs, experiment notes, and personal papers of Gregor Mendel, founder of the science of genetics. The material was purchased from the widow of Hugo Iltis, biographer of Mendel, who assembled an extensive collection of Mendeliana at Brunn, Czechoslovakia, before fleeing the Nazis in 1939. The Mendeliana left behind in Czechoslovakia appear to have been lost or destroyed.

Mendel, a monk, published his laws of inheritance in 1865. Ignored and misunderstood, his epochal work was forgotten until his principles were rediscovered and acclaimed in 1900, and by then most of his scientific records had been discarded.

New Maser

A new amplifier that may extend the range of radio telescopes ten times farther out among the galaxies has been developed in the Gordon McKay Laboratory of Applied Science at Harvard University. This device, which may enable man to "hear" the radiation from hydrogen clouds in galaxies beyond the range of any present instruments, was operated in a laboratory test for the first time on 7 December. Scientists believe that the device will allow detection of signals 1/1000 as strong as those which can be observed now. The three-level solid state maser (the term *maser* was coined from the words *microwave amplification by stimulated emission of radiation*) was developed by Nicholaas Bloembergen, Gordon McKay professor of applied physics, who proposed the device in July 1956; J. O. Artman, research fellow in applied physics; and Sidney Shapiro, graduate student.

Thomas Gold, Harvard astronomer, reports that the Harvard College Observatory hopes soon to apply the maser to the radio telescope, with the assistance of the division of engineering and applied physics. The job cannot be done immediately because of the complicated and experimental nature of the device.

Census of Future Scientists

The U.S. Office of Education is conducting the first nationwide census of college juniors majoring in the sciences and mathematics. About 1100 colleges and universities have been invited to participate in the survey; more than 600 of these institutions have assisted in pretesting the questionnaire that is being used.

The count will provide a basis for estimating the number of new scientists and mathematicians with bachelor degrees who will be available 2 years hence, and of those with doctorates 6 years hence. Several months will be required for completion of the survey, which is to be conducted annually.

Science League

The Science League, a nonprofit association for amateur scientists who are also radio amateurs, has been founded by Nelson M. Griggs, R.D. 2, Old Baltimore Rd., Boyds, Md., for the purpose of organizing better communications channels between amateur scientists. Participants meet each evening on 3525 kilocycles at 6 P.M. E.S.T. and on 7125 kilocycles at 9 P.M. They relay information of a scientific nature to the various member clubs and individuals, and, in addition, act as a clearing house for such information as originates with them.

The Science League net in no way interferes with existing "ham" radio projects and radio nets that concern themselves with special projects. Founding members envision that the Science League will continue long after the International Geophysical Year is over. Membership is open to all.

News Briefs

The American Institute of Chemical Engineers will begin its golden jubilee year on 29 January 1958 with a commemoration of the first meeting. A golden jubilee celebration will be held 22–27 June. Both events will take place in Philadelphia, the birthplace of the institute.

* * *

A committee has been formed to establish, in honor of Samuel Brody, a lectureship memorial in agricultural science at the University of Missouri. Contributions may be mailed to the Samuel Brody Memorial Committee, Eckles Hall, University of Missouri, Columbia.

* * *

A Committee of the Section of Biochemistry, International Union of Biological Sciences, has recently been formed. It is essentially a coordinating