News of Science

Nobel Prizes

The Royal Swedish Academy of Science has announced that Nobel prizes of $36,720 each will be awarded to the following research workers by King Gustaf Adolf on 10 Dec.:

Medicine. Hugo Theorell of the Nobel Medical Institute, Stockholm, Sweden, for discoveries on the nature and action of oxidation enzymes.

Chemistry. Vincent du Vigneaud of Cornell University, for his work with oxytocin and vasopressin [*Science* **118**, 543 (6 Nov. 1953)]. His synthesis of oxytocin was the first synthesis of a pituitary hormone.

Physics. Willis E. Lamb of Stanford University and Polykarp Kusch of Columbia University, jointly, for their work in atomic measurements. The two men used different techniques to arrive at identical conclusions that amended calculations for the energy level of hydrogen atoms that had been made by the British Nobel prize winner, P. A. M. Dirac.

Science and the Humanities

I. I. Rabi of Columbia University called for a greater understanding between scientists and humanists to combat a growing mood of anti-intellectualism in an address delivered at Harvard University on 21 Oct. Excerpts from Rabi's address follow:

"An epoch in history, our own, which has produced one of the greatest achievements of the human race, may be passing into a twilight which does not precede the dawn. There is an incipient mood of rejection of the greatest and most characteristic achievement of the age. Science, the triumph of the intellect and the natural faculties, has resulted in the hydrogen bomb; the glib conclusion is that science and the intellect are false guides. We must seek elsewhere for hope and salvation, but, say the same people, while doing so we must keep ahead of the Russians. . . . Keep the fearsome fruits but neglect the spirit of science. . . . [This] mood of anti-intellectualism . . . can only hasten the destruction which . . . people fear. Anti-intellectualism has always been endemic in every society. . . .

"What people are really looking for is wisdom. . . . Wisdom . . . is knowledge plus a quality which is within the human being. Without it knowledge is dry, almost unfit for human consumption, and dangerous in application. . . .

"Certainly the humanities preserve and create values; even more they express the symbolic, poetic, and prophetic qualities of the human spirit to the highest degree. Without the humanities we would not be conscious of our history; we would lose many of our aspirations and the graces of expression that move men's hearts.

"The humanities discern a part, a vital part of the life of man, but that is not all by any means. Man is made of dust and to dust returneth; he lives in a universe of which he is also a part. . . . To learn to understand himself he must learn to understand the universe. . . .

"To my mind the value content of science or literary scholarship lies not in the subject matter alone. . . . It lies chiefly in the spirit and living tradition in which these disciplines are pursued. The spirit is almost always conditioned by the subject. Science and the humanities are not the same thing; the subject matter is different and the spirit and tradition are different. Our problem in our search for wisdom . . . is to blend these two traditions in the minds of individual men and women. . . .

"Wisdom is by nature an interdisciplinary quality and not the product of a collection of specialists. . . . The greatest difficulty which stands in the way of a meeting of the minds of the scientist and nonscientist is the difficulty of communication, a difficulty which stems from some of the defects of education. The mature scientist . . . can listen with pleasure to the philosopher, the historian, the literary man or even to the art critic. . . . He reads the newspapers, magazines, books, listens to music, debates politics, and participates in the general activities of an educated citizen.

"Unfortunately this channel of communication is most often a one-way street. The nonscientist cannot listen to the scientist with pleasure and understanding. Despite its universal outlook and its unifying principle, its splendid tradition, science seems to be no longer communicable to the great majority of educated laymen. . . . To his colleagues in the university the scientist tends to seem more and more as a man from another planet, a creature uttering profound but incomprehensible truths, or a creature scattering antibiotics with one hand and atomic bombs with the other.

"The problems are, of course, depressingly difficult. There are firstly the problems connected with the secondary schools—their overcrowding; their teachers, overworked and inadequately trained; the school boards; and not least the powerful clique of professional educators who form a society within our society. All that is unique and characteristic of science and mathematics is being crowded out of the curriculum and replaced by a fairy tale known as general science. The colleges and universities are in much better shape although the great wave of the rising waters of population increase is about to hit them, with the force of a New England hurricane, with masses of inadequately prepared students.

"Wisdom can achieve a hybrid vigor by crossing the scientist and the humanist through a more extensive and intensive interaction within the faculty. Why should not the professor of physics be expected to refresh himself every 7 years . . . by taking a course in esthetics, comparative literature, or the Greek drama? Why shouldn't the professor of medieval philosophy or the professor of ancient history take a course in modern physics and become acquainted with the profound thoughts underlying relativity and quantum mechanics? By taking in one another's wash, we might all become cleaner and more wholesome."

Pilot Project in Teacher Education

Arlington, Va., has offered itself as a model for a pilot study under which science and mathematics teachers will have access to supplementary training through a program initiated by the National Academy of Sciences–National Research Council. In addition, other school systems in the Washington, D.C., area have been invited to participate.

In Arlington, the school board, the Parent-Teachers Association, and civic groups will cooperate to raise a scholarship fund that will enable teachers to take graduate-level courses both in fundamentals and in recent developments in science and mathematics. Local universities, including George Washington University, the University of Virginia, American University, Georgetown University, Catholic University, Howard University, and the District of Columbia Teachers College, are cooperating to develop new courses in mathematics, physics, chemistry, and biology that will be offered jointly in the summer of 1956.

Further, the program will provide teachers with opportunities for summer

employment in nearby industrial and governmental scientific and engineering organizations. Additional plans call for the provision of aids to guidance and career counseling, seminars, invitational lectures for teachers and students by outstanding scientists and engineers, and gifts and loans of laboratory equipment.

Responsibility for the conduct of the new program will be assigned to a special board representing all areas of science, mathematics, and engineering. Staff assistance to the board is under the direction of John S. Coleman, executive secretary of the Academy-Research Council's division of physical sciences.

The Arlington County pilot study is to be carried out with the cooperation of the AAAS and with the encouragement of major groups in business and industry. John R. Mayor, director of the AAAS Science Teaching Improvement Program, is working closely with Coleman in the development of the study.

News Briefs

The ten astronomical highlights of 1955 as selected by Harlow Shapley, former director of Harvard College Observatory, are as follows:

1) Announcement that the U.S. Government would sponsor the launching of at least one small artificial satellite during the International Geophysical Year, which starts on 1 July 1957.

2) Detection of "thunderbolts of Jove" or some similar strong electric effect in the atmosphere of the planet Jupiter by Bernard F. Burke and Kenneth L. Franklin of the Carnegie Institution of Washington. They discovered the radio waves from Jupiter, the first to be found from another planet in the solar system, using a radiotelescope located at Seneca, Md. The radio signals have been verified by Australian observers.

3) Discovery of the star of smallest known mass—only one-twelfth that of the sun—by Sarah Lee Lippincott of Sproul Observatory, Swarthmore, Pa. Walter Baade of Mount Wilson and Palomar Observatories photographed the discovery, which is one component of a dwarf reddish double star, by aiming the 200-inch telescope exactly where Lippincott had calculated Ross 614-B would be.

4) Renewal of discussion, in connection with the satellite program, of who owns the upper air and who has the right of way in space beyond the upper air.

5) Conclusion of a 50-year research program by many Harvard astronomers on variable stars of the Magellanic Clouds. The analysis included 3000 variable stars, three-fourths of which are Cepheids. For 1220 of them, periods and light curves have been determined.

6) Positive identification of the strong yellow line in the sun's corona as that of calcium XV, caused by calcium atoms stripped by ionization of 14 of their 20 electrons. Identification was made by Walter O. Roberts and his associates at the University of Colorado's High Altitude Observatory, and by David Layzer of Harvard.

7) The report by E. C. Slipher of Lowell Observatory, Flagstaff, Ariz., on his 10,000 photographs of the planet Mars in red, yellow, and blue light, made during 1954, when Mars was relatively close to the earth, with the University of Michigan's telescope on Naval Hill, Bloemfontein, Union of South Africa. Also, a report by Audouin and Charles Dollfus on their photoelectric observations, made from a balloon 4.5 miles above the earth's surface, of the small moisture content of the Martian atmosphere.

8) Appearance of the first section of the two-color star and galaxy atlas, which was made with the 48-inch Schmidt telescope under the auspices of Mount Wilson and Palomar Observatories and the National Geographic Society, with important technical assistance from the Eastman Kodak Company's research laboratories.

9) Occurrence on 20 June of a solar eclipse with the greatest duration of totality, 7 minutes 7.8 seconds, since A.D. 717. It will be nearly 200 years before such a long eclipse occurs again.

10) An explanation by C. F. von Weizsaecker of the reason for the sphericity of globular clusters and their freedom from interstellar dust and gas. His theory is that dust and gas have been cleaned out by frequent passage of the clusters through nebulosities in the Milky Way.

■ Discovery of the bodies of insects some 60 million years old imbedded in samples of Alaskan amber has been reported by the Arctic Institute of North America. Although fossil impressions of older insects exist, the mummified Alaskan animalcules are believed to be many millions of years older than any other insect specimens extant.

The Arctic Institute was sponsor of the successful search for Cretaceous insect relics that was conducted by Robert L. Usinger and R. F. Smith, professors of entomology at the University of California. Bedrock sources of Alaskan amber had been discovered within the past few years by the U.S. Geological Survey, but it was not until last summer that Usinger and Smith, acting on information provided by the Survey, extracted pieces of amber for study and examination. The amber was found in the Colville River valley and along the Kuk River, on the northern slope of the Brooks Range about 150 miles north of the Arctic Circle.

Ancient insects have been preserved in amber over the centuries because they became trapped in the resinous matter from which amber is formed. All the great amber deposits of the world (with one exception) are from the Oligocene epoch of some 30 to 40 million years ago. But Alaskan amber, according to specialists of the U.S. Geological Survey, unquestionably dates from Cretaceous time, and any insect specimens it contains may contribute materially to entomology and to the general field of evolution. Detailed study will be required to determine the nature of the insects in the amber samples brought home by Usinger and Smith, but preliminary examination has revealed that they contain specimens in a fine state of preservation. The field work in Alaska was based at the Arctic Research Laboratory of the Office of Naval Research at Point Barrow.

■ In the 1 Sept. issue of *Umschau,* G. Jaeger of Degussa, Frankfort, Germany, presents a brief report of a new synthetic gem that simulates lapis lazuli. The material is made by sintering spinell that is colored blue by the addition of cobalt. The resulting synthetic gem has a much greater Mohs hardness, 8 to 8½, than a natural lapis lazuli and its color is not affected by either heat or light.

■ The Slovenian Academy of Sciences and Arts has released the second series of reports of the J. Stefan Institute of Physics in Ljubljana, Yugoslavia. The new institute, erected in honor of the Austrian physicist who first stated the law that the total radiation from a black body is proportional to the fourth power of its absolute temperature, is now equipped with a 31-Mev betatron, a 2-Mev van de Graaf accelerator, and a neutron generator that uses the deuterium-tritium reaction as a neutron source.

The institute also has the auxiliary instruments and facilities necessary for research in cosmic rays and nuclear physics, such as mass spectrometers, counters, and a nuclear-plate laboratory. In addition, work on physicochemical problems is in progress.

■ People in the farm states of the midwest live longer than those in other areas of the United States, according to a report by the Metropolitan Life Insurance Company. Expectation of life at birth in the West North Central area at midcentury was 67.8 years for white males and 73.3 years for white females. The next best record for males is found in New England—66.9 years—and for females, on the Pacific Coast—72.9 years.