News of Science

Controlled Fusion

In response to the report that news of British control of the fusion reaction is being suppressed [*Science* **126**, 1281 (20 Dec. 1957)], Lewis L. Strauss, chairman of the Atomic Energy Commission, released the following statement from Paris, where he was attending the NATO Conference:

"A report to the effect that the United Kingdom Atomic Energy Authority has suppressed announcement of success in control of the fusion reaction at my request is completely false.

"Research on this problem has been carried on in both countries independently for a number of years. In 1953 the United States greatly accelerated its research program on which we had been spending less than a half-million dollars a year and are currently spending an amount many times as large and, indeed, as much as the research teams have called for.

"Since 1956 we have shared results and information on the project with the United Kingdom as a means of more rapidly reaching the goal we both seek.

"Periodically it occurs that first one laboratory and then another will make a useful and illuminating advance. These advances have resulted in the production and maintenance of quite high temperatures in a plasma of light nuclei and the containment of such a plasma for very brief but nevertheless appreciable lengths of time. Much longer containment, however, must be obtained and much higher temperatures reached.

"During these experiments on both sides of the Atlantic the emission of neutrons has been observed. Whether or not these neutrons are produced under thermonuclear conditions will only be ascertainable as a result of elaborate and protracted experiments.

"At a joint meeting in the United States in October, attended by scientists from both British and U.S. laboratories, information was freely exchanged. It was agreed that, although the temperatures reached in both countries suggested the achievement of neutrons from thermonuclear reactions, more work would be required to establish this as a fact.

"The realization of the production of thermonuclear neutrons, if definitely established, would be an important step—but only a step—in the long-range efforts to develop thermonuclear reactors for the production of economic power.

"Dr. Arthur E. Ruark of the U.S. Atomic Energy Commission, who heads up the several projects in the United States, has just returned from meetings at Harwell, England, on the topic and reports that the current situation is substantially the one described above.

"Three weeks ago when Sir Edwin Plowden, Chairman of the United Kingdom Atomic Energy Authority, was in the United States, we issued a joint statement to the effect that comparative observations which had been published about U.K.–U.S. progress in this field were seriously misleading. To emphasize the degree of collaboration, we arranged for substantially simultaneous publication of reports from some of the British and U.S. laboratories following the necessary concurrences on a Joint Classification Guide. The date for this publication will be as early in the new year as the papers can be made ready.

"It may be important to restate that the development of economic thermonuclear power, although I am confident that it will be realized, is still remote. It will not, therefore, interfere with the necessary development of reactors for the production of electrical energy from the fission of heavy elements."

Soviet Spokesman Describes Graduate Studies

Some aspects of graduate science education as practiced in the Soviet Union are described in a brief public report by M. Kruglyanski of the Ministry of Culture. The report, which was released in English by the Soviet Embassy in Washington, stresses the assistance that the government gives to all students who possess the interest in and ability to do scientific research. Also emphasized is the wide geographic distribution of scientific establishments in Russia. Quoted below are some of the specific points that the report makes about the various aspects of graduate science education.

Admission to graduate schools. "All citizens of the USSR, regardless of social position and origin, sex, race or nationality, have the right to enter, provided they have a higher education, at least two years of practical experience and the ability for scientific work. Only as an exception, at the recommendation of a scientific council, is one allowed to enter a graduate course immediately after graduating from college. However, even such exceptions refer only to such theoretical subjects as mathematics, physics, mechanics, astronomy, theoretical chemistry and theoretical biology."

State scholarships. "All who have qualified for entrance exams get a month's leave with pay to prepare for them. Graduate students do not have to pay for their education and all receive state scholarships. In addition they receive annual grants of one month's scholarship for the purchase of scientific literature. They are free to use equipment, laboratories, and libraries, are sent on scientific missions, participate in expeditions, etc., on the same footing as the scientific workers and teachers in the colleges and research institutes. Every year postgraduate students receive two months' paid vacation."

Academic programs. "The basic method of training is through individual work according to a definite plan under the guidance of a science instructor. Toward the end of his course, which may not exceed three years, the postgraduate student reports to the scientific council of the college or research institute on the results of his scientific work. The graduate student may submit his dissertation only if the main results of his studies have been published.

"There are also correspondence graduate courses with a four-year term, and the students enrolled in them also have a number of privileges. These include a month's leave for entrance exams, annual additional paid leave, free access to equipment and material necessary for research under the scientific program.

"There are many specialists working at higher educational and scientific research institutions, at plants and factories, and collective and state farms who are preparing their dissertations in addition to their day-to-day work. These workers get additional paid leave for finishing their theses—three months for a master's thesis and six months for a doctor's thesis."

Number and distribution of students. "Figures reveal a constant increase in the number of postgraduates. In 1939, for example, there were 12,000 postgraduate students at the colleges and scientific institutions. By 1956 this figure had risen to some 30,000. Data on the distribution of postgraduate students according to the various branches of science show the