bill which would give the Atomic Energy Commission $2.68 billion for fiscal 1960. The bill must be reconciled with a House bill which appropriated $51 million less. Both bills provide less than the Administration requested, $2.69 billion. The Senate, which accepted the recommendations of its appropriations committee, called for the restoration of funds which the House had cut. The committee report said that the full budget estimates were necessary to carry out programs in reactor development and in applications of isotopes and nuclear explosives for civilian uses. The committee stressed its belief that the civilian program in these fields should now be supported by the government, although it recognized "that eventually industry should provide the major fund support." On 18 August the President signed an appropriations bill for $2.65 billion.

Also in Senate-House conference is a supplemental appropriations bill that will provide funds for the operation of the National Aeronautics and Space Administration. The House, which originates all money bills, had cut $68 million from the Administration's request for NASA. The Senate, acting on the same bill, restored the cut after T. Keith Glennan, administrator of NASA, said that any sizable reduction in the $530 million budget request would permit the U.S.S.R. to take undisputed leadership in the space technology field. Glennan also suggested that the country's man-in-space program—Project Mercury, would be retarded. At this writing no action has been taken on the reconciliation of the two bills.

Other Bills

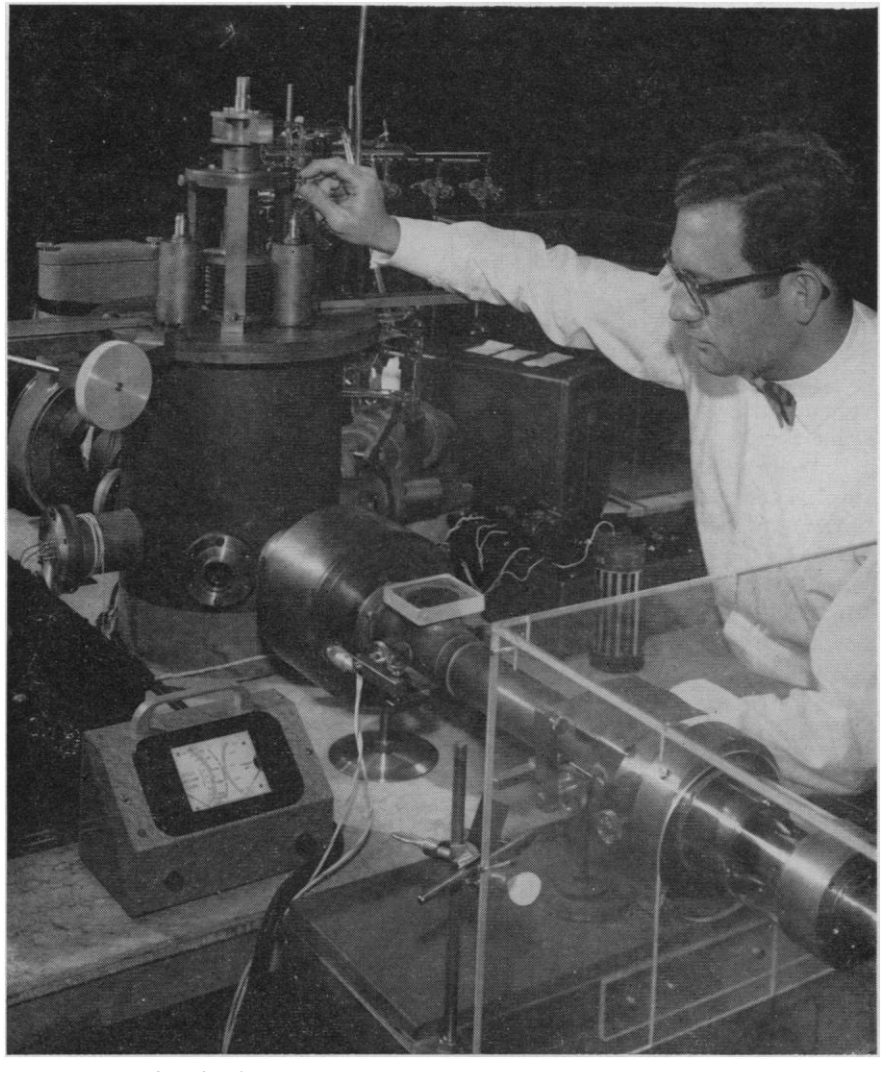
Other bills of interest to scientists, not related to appropriations, are also before Congress. Two conservation bills, one dealing with clean streams and the other with wilderness areas, may be acted on by the whole Congress before adjournment. Action on the wilderness bill, which would establish a national wilderness preservation system, was delayed by the Senate Committee on Interior and Insular affairs on 14 August. In the view of some observers, the bill, if reported out favorably, has a fair chance of being passed this session. The clean streams bill, sponsored by Representative John Blatnik (Democrat-Farmer-Labor-Minn.) has been passed by the House and is now pending before the Senate. The measure would amend the Federal Water Pollution Control Act to increase the authorization of construction grants for sewage treatment works at $100,000 a year over a 10-year period. Present annual allocations, which are generally held to be inadequate, total $45,000.

NBS Studies Trapped Radicals

To provide basic data on the properties and behavior of stabilized free radicals, the National Bureau of Standards, under the sponsorship of the Department of Defense, has made an extensive spectroscopic study of highly reactive atoms and excited molecules trapped in solids at low temperature. A number of methods are available for producing such electronically excited molecules and atoms in solids at low temperatures.

The Bureau employed primarily two techniques in order to present a consistent over-all picture of observations. In one aspect of the work, M. Peyron, guest research worker from the University of Lyon, collaborated with H. P. Broida and H. W. Brown of the NBS Free Radicals Section in investigating reactive fragments condensed from nitrogen gas passed through an electric discharge. In the other phase of the study, carried out by E. Hörl of the Bureau's electron physics laboratory, nitrogen atoms were produced by the electron bombardment of nitrogen condensed on a cold surface, as shown in the illustration. Analogous studies with oxygen were made by L. Schoen and H. P. Broida.

Free radicals have been known to exist for about 30 years but only lately have they become the object of widespread interest. The National Bureau of Standards is now engaged in a 3-year program of free radical studies.



Apparatus used in National Bureau of Standards studies of trapped radicals produced by the electron bombardment of nitrogen condensates. Electrons from the electron gun in foreground at right impinge on the helium-cooled, nitrogen-coated target inside the cylindrical cryostat. The spectroscope used in studying the emitted light is not shown.