RESONANCES

The Senate restored 10% of the funds cut from the NSF 1969 budget request by the House. NSF originally asked for $500 million, but the House approved only $400 million. In July the Senate voted $410 million, called for a Senate-House conference. With carryover funds, NSF would have a total of $461 million next year.

The Weston accelerator may yet receive $20 million in fiscal 1969 as Senate and House members come to its aid. In the middle of July the Senate appropriations committee recommended that amount, which is $5 million less than requested, as the minimum required for economical progress on the 200-GeV accelerator and for the expected full project authorization next year. In addition, Rep. Melvin Price (D-Ill.) submitted a special report compiled by the staff of his subcommittee of the Joint Committee on Atomic Energy that warned of a serious schedule disruption with increased construction costs, a probable loss of key staff members and a delay in recapturing the international lead in high-energy physics if the House-approved $7.1-million expenditure stands.

industry. He is helped by a government policy instituted by the Science and Technology Act of 1965, which had as its main purpose the setting up of the Ministry of Technology and the Department of Education and Science as the two bodies responsible for funding science in the UK. A subsidiary purpose of this act enabled UKAEA to undertake work outside its original mission, work not necessarily connected with nuclear-energy research. Wedgwood Benn (or "Benn the Wedge" as some frustrated scientists name him) is seen as considering himself a minister of economics with a duty to put British industry squarely on its feet by urging those scientific establishments that come under his ministry to direct their efforts more towards industrial applications. About ten major programs have already been started at Harwell under the new rules. Marshall considers the best known to be work on the desalination of sea water, similar to that done in the US by the Atomic Energy Commission at Oak Ridge. The general philosophy behind these projects is the application of Harwell's 20 years of experience in the nuclear field. Examples are an air-pollution study that employs staff and equipment originally set up for fallout work and a graphite-fibers program, that draws heavily on experience with graphite metallurgy in reactor moderators. Another division is developing ceramics of industrial value from original work on reactor design.

STAFFORD

The first problem following the 1965 Act was to advertise to industry that Harwell wanted to coöperate. In Britain there is no tradition of interaction between industry and pure scientific research (PHYSICS TODAY, January, page 54) and individual companies are often too small to carry out their own research. Now they can have Harwell do relevant work for them under contract. After a slow start, the number of enquiries has snow-balled; "The current rate is about 50 each week," Marshall told us, "but we still need more."

Culham. A few miles from Harwell, also in the Oxford-neighborhood, lies the UKAEA Culham laboratory and there we talked to the director, Rendel S. Pease. Emphasis at Culham is on fusion, with open-ended and closed plasma-confinement machines, in a program that grew out of original work at Harwell and Aldermaston in the 1950's. Since then other plasma-related work has been added to the basic containment effort.

The Minister of Technology has ordered a reduction in the professional staff on fusion of 10% per year over the next five years. Pease hopes that the laboratory will survive these cuts both by narrowing the broad front on which the fusion research has been conducted and by expanding research in areas of interest to industry.

"We envisage that our theory and computing division will stay at its present strength," said Pease, adding that he thinks plasma confinement is at a stage where useful advances can be made theoretically. "Experiments will concentrate on studies of micro-instabilities and enhanced diffusion across the lines of force with a concentration on our closed systems—for example our stellarators and CLIMAX, our toroidal quadrupole." He stressed that his decision is flexible enough that the open-ended experiments will not be run down immediately and could be reprieved if new developments increase their importance.

Culham maintains a strong plasma-spectroscopy division, and it has been successful in obtaining support from the Science Research Council, part of the Department of Education and Science, for the astrophysics part of this work. Since 1960 the laboratory has investigated the solar corona, flying UV spectroscopes in rockets. Now this work will be taken over by SRC, and reallocation of the division's 20 staff members and £300 000 ($720-000) annual budget takes care of the 1968–69 fusion cutback required by the Minister of Technology. The work will continue on the Culham site, setting a precedent for outside-supported research within the labs.

As at Harwell, Culham is being urged to take up contract-supported work for industry. Active solicitation of such work is in progress, but Culham is at an earlier stage than Harwell, which had a good lead thanks to a long record of coöperation with