

### Radio Astronomers Vie for National Telescope Funds

As the physics community recovers from the divisive strains of the 200-GeV rivalry, an equally intense competition is being waged among astronomers for a national facility as significant to astrophysics as the Weston machine is to particle physics. A National Science Foundation panel, headed by R. H. Dicke of Princeton, is now reviewing at least four major plans (and one minor one), including two big paraboloids and two extensive arrays, that range in cost between \$15 and \$59 million and take from five to six years to build. The expectation is that the panel will choose one or more of the proposals for possible inclusion in the fiscal 1969 budget (now under consideration).

**Proposals.** Northeast Radio Observatory Corp., sponsored by 13 institutions and headed by Jerome Wiesney of MIT, has proposed a 134-meter dish enclosed in a radome and operating at wavelengths down to 5 cm. The entire complex, including buildings and a radar-astronomy facility, would cost about \$31 million. Another large dish, 100 meters in diameter and fully exposed, has been advanced by Associates for Radio Astronomy (Cal Tech, Stanford, Universities of California and Michigan). The project would cost about \$16.5 million; the group would construct the telescope at Owens Valley, Calif.

Cal Tech has also proposed enlargement of the Owens Valley Observatory with addition of seven more 40-meter antennas to the one now under construction. The entire array would operate on railroad tracks in the shape of a T, about 2700 meters in the east-west direction and 4900, north and south. Cost would come to roughly \$15 million. Another very large array has been offered by the National Radio Astronomy Observatory at Green Bank, W. Va. (*PHYSICS TODAY*, June, page 59). Consisting of 36 paraboloids, each 25 meters in diameter, the array would move along 21-km arms of a Y. The facility would be

somewhere in the southwest and cost approximately \$59 million.

The panel is also reviewing one other proposal of smaller magnitude, sponsored by the Arecibo Observatory (Puerto Rico) and Cornell. This group would improve the quality of the Arecibo coarse-screen reflector with a fine surface capable of extending the usefulness of the instrument down to 10 cm. Such an alteration would cost about \$3 million.

**Funding.** Despite their fierce competition for federal support, radio astronomers point out that it is only coincidental and somewhat unfortunate

that the four major groups are seeking funds in the same fiscal 1969 budget. All four projects were recommended in the 1964 Whitford Committee report on ground-based astronomy, and their sponsors have developed the designs over several years. Optimally the Dicke panel would like to select a dish as well as an array since each excels at different tasks (*PHYSICS TODAY*, July 1966, page 28). With a suitable paraboloid, astronomers will extend their observations in the newly discovered field of radio spectroscopy; with an extensive array, they can do high-resolution, fine-structure work on

### RESONANCES

**A USSR-CERN five-year agreement** provides for counter experiments with the Serpukov accelerator beam, involving a mixed team of scientists. CERN scientists will also share in bubble-chamber experiments. In return CERN will supply a fast beam-ejection system and an rf beam separator to produce kaon beams up to 36 GeV/c.

**Most new US physics PhD's enter postdoctoral training**, according to a recent National Academy of Sciences study of postdoctoral education in the US. The study estimates 1600 physics PhD's are engaged in some form of post-PhD training lasting approximately two years. (Current US PhD production is about 950 per year.) The data also show that 13 universities have about half of all the postdoctorates, and five schools in California and Illinois have a quarter of the total.

... **meanwhile almost a third of new UK PhD's emigrate**, notes a recent sample of physics employment patterns in Great Britain. The study found that of 733 UK PhD's in experimental physics produced during 1960-65, 31.9% eventually went abroad, 41.2% entered universities and 10.8% went into industry. A 1961 study had found that 18% emigrated, 27% went to universities and 22% took jobs in industry.

**Cal Tech's eight-dish array should be funded** as soon as possible, says an NSF advisory panel (story left). The panel also asked that the Arecibo dish be upgraded and that at least 50% of the observing time at both facilities be made nationally available. Further support for the National Radio Astronomy Observatory design study of its 36-dish array was urged. The panel asked that the Northeast Radio Observatory Corp. (NEROC) dish be deferred and that the Associates for Radio Astronomy facility be declined because of "more revolutionary possibilities in the Arecibo and NERO concepts."