irradiation on the resistivity of binary alloys will begin as soon as the accelerator is in operation. The senior investigator is Arthur B. Lewis.

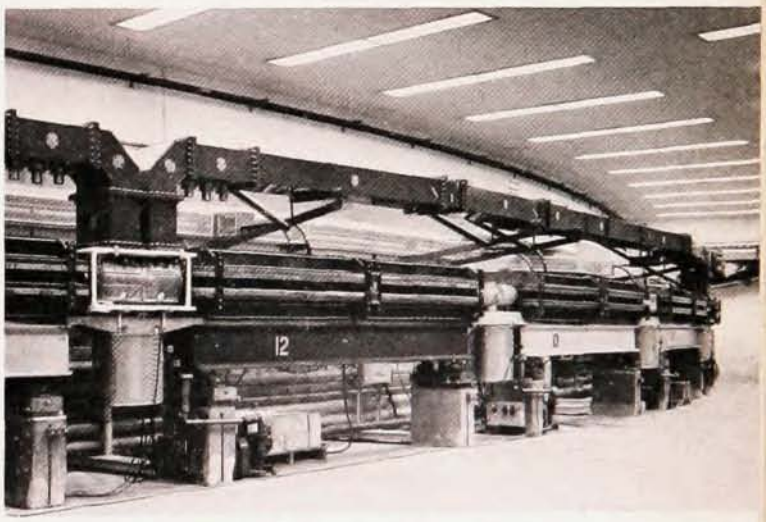
The Cambridge Electron Accelerator

On Wednesday, March 7, the first high-energy electrons were produced by the new electron accelerator which was designed, has been built, and will be operated in Cambridge, Mass., as a joint project of the Massachusetts Institute of Technology and Harvard University. In its trial operations, the machine produced a beam of 2.2-Bev electrons, and at that time it was expected that the maximum design energy of about 6-Bev would be reached within a matter of weeks. The instrument, a strong-focusing synchrotron featuring a number of sophisticated innovations, including a "choke" for storing magnetic energy which was suggested by E. M. Purcell of Harvard, is supported by the Atomic Energy Commission and was built at a cost of $12 million. (About six years ago, when the Commission formally announced having approved the construction of the machine, it was estimated that the cost would approximate $6.5 million and that it would be completed in about three and a half years.)

As the most powerful accelerator of electrons in the world, the MIT-Harvard synchrotron is of great potential interest because of its proposed use in exploring the internal mysteries of subatomic particles by means of extremely high-energy electron-scattering experiments. It is also powerful enough to create all of the known particles and antiparticles in relative profusion. Aside from its distinction of being a giant among giants, the machine is a welcome addition to the family of diverse accelerators now in research use in the Cambridge area. Harvard's 95-inch cyclotron, which has been producing 125-Mev protons since 1949, is located in a building connected with the new electron synchrotron. Five other particle accelerators are operated by MIT's Laboratory for Nuclear Science. They include a twelve-year-old 350-Mev electron synchrotron, a 10-Mev electrostatic generator, a 17-Mev linear electron accelerator, a twenty-two-year-old cyclotron which produces 7.5-Mev protons and 15-Mev deuterons, and a 5-Mev electrostatic generator.

Cambridge electron accelerator is directed by M. Stanley Livingston of MIT (center), shown with two members of the joint committee on accelerator operating policies, Norman F. Ramsey of Harvard and Martin Deutsch of MIT.

Experimental hall at Cambridge electron accelerator can accommodate as many as six simultaneous experiments, each involving a beam of high-energy electrons or photons.



A segment of the machine's 236-ft ring. Three of the 48 C-shaped magnets can be seen resting on numbered steel beams; at left is one of the 16 energy-boosting radiofrequency cavities.