

# Rutherford Laboratory

## Technical leaflet

### ACCELERATOR RESEARCH

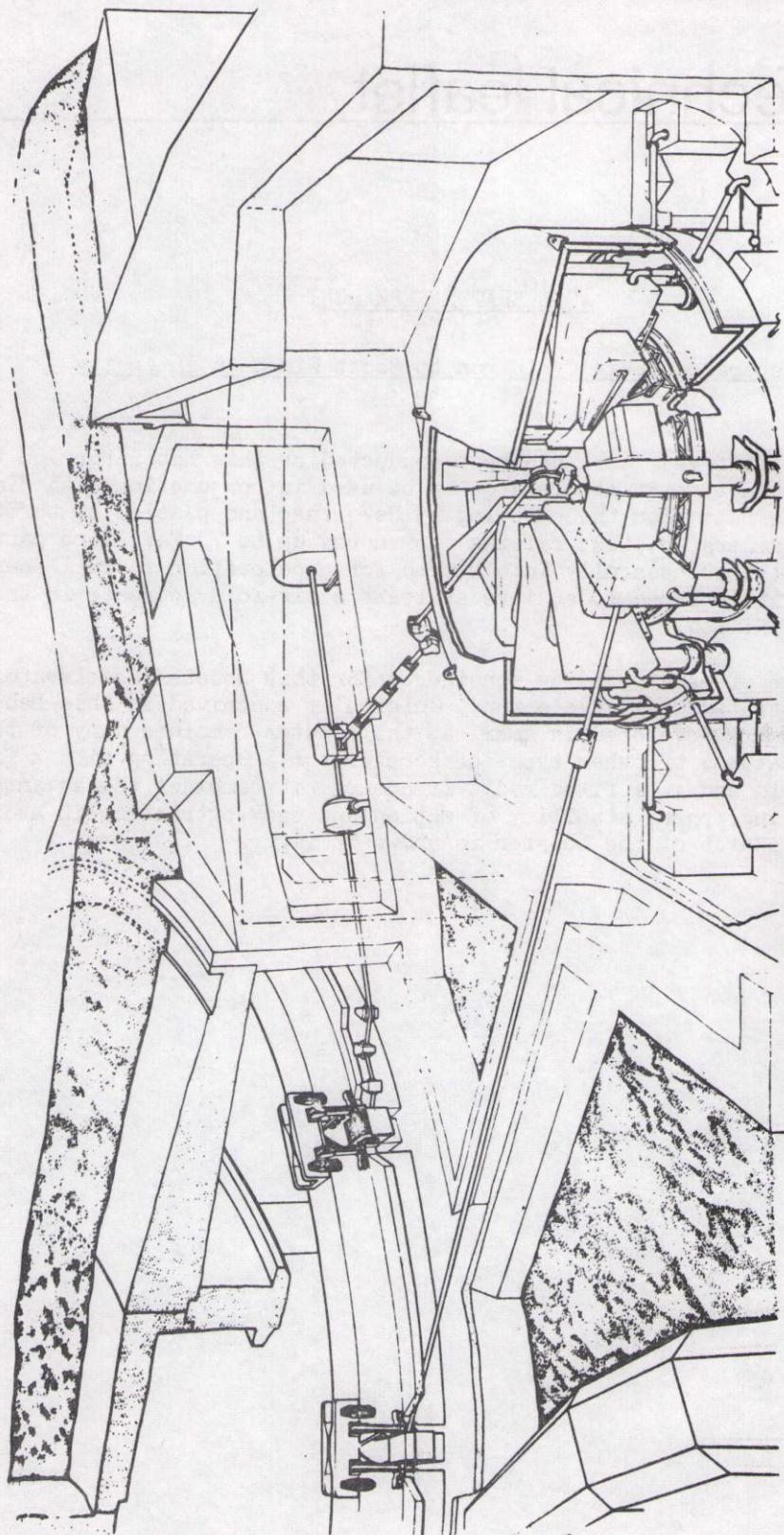
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#### Separated Orbit Cyclotron to Boost Nimrod's Intensity

For the past year work has been conducted at this Laboratory on the design of a new type of accelerator to be used in conjunction with Nimrod. By taking the beam from the existing 15 MeV linac and passing it through a booster accelerator, thus raising the energy up to 70 MeV, more particles can be injected successfully into Nimrod for acceleration to full energy. In this way it is hoped to achieve at least a six-fold increase in the intensity of Nimrod.

The type of machine being considered for this booster accelerator is called a Separated Orbit Cyclotron. Originally conceived at this Laboratory and subsequently developed in America, the booster combines many of the desirable features of other types of accelerator. Operating with a fixed magnetic field and at a fixed radio frequency, it combines the advantages of strong focusing, phase stability of motion and easy extraction in a compact machine. A sketch of the booster is shown in figure .





**"THE SEPARATED ORBIT CYCLOTRON, A BOOSTER FOR NIMROD"**