

**Fifty Years of Synchrotrons,** E.J.N.WILSON, CERN - The ring-magnet idea, fundamental to the synchrotron, appeared first in a proposal by Oliphant in 1943 and was followed by the simultaneous discovery of phase stability by MacMillan and Veksler in 1945. This opened the door to a demonstration of synchrotron acceleration to 8 MeV by Goward and Barnes in a converted betatron at Woolich Arsenal, UK. The event, which took place in August 1946 was followed only two months later by the operation of the General Electric Laboratory's 70 MeV machine at Schenectady, USA built by Blewett, Langmuir, Pollock et al. The fifty years that follow have seen projects spanning almost six orders of magnitude in energy. The phenomenal success of the synchrotron principle rests on two more important discoveries, that of alternating-gradient focussing and the use of colliding beams. This paper records these and other major landmarks in the history of the synchrotron.