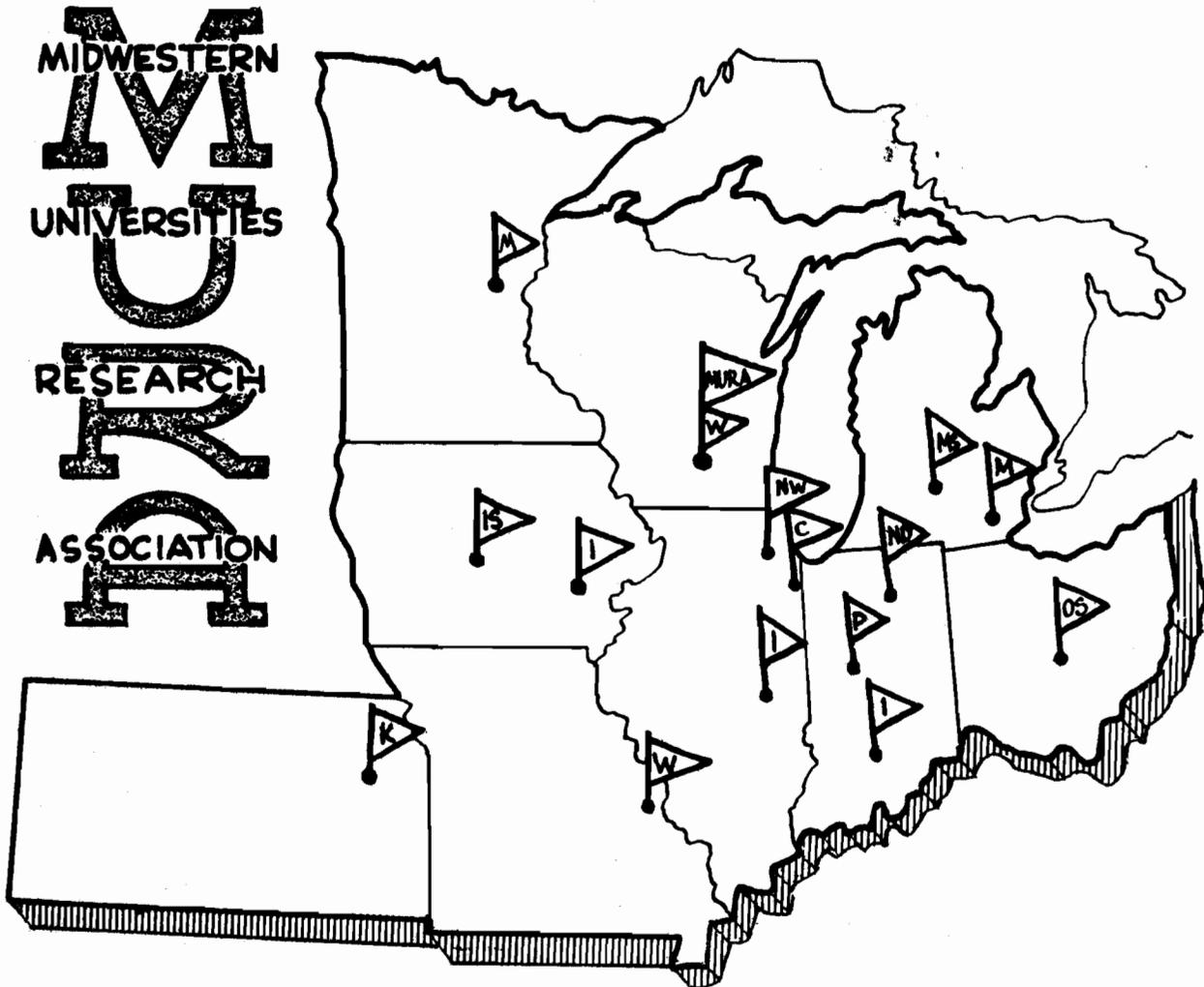




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MIDWESTERN UNIVERSITIES RESEARCH ASSOCIATION*

2203 University Avenue, Madison, Wisconsin

REPORT ON A VISIT TO HARWELL, ENGLAND

F. T. Cole, ** R. O. Haxby, + L. J. Laslett, ++ and K. R. Symon

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** On leave from the State University of Iowa.

+ On leave from Purdue University.

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The Rutherford High Energy Laboratory of the National Institute for Research in Nuclear Science is located on the grounds of the Atomic Energy Research Establishment, Harwell, England, just outside the fence. It was set up to provide a high energy facility for the use of the British Universities. The laboratory now has a 50 Mev proton linac and will have a 7 Gev proton synchrotron, which is now under construction. The director of the laboratory is Dr. T. G. Pickavance, who is also a member of the staff of A. E. R. E. Construction of accelerators at the Rutherford High Energy Laboratory is entirely carried out by the staff of A. E. R. E. with little or no participation by the universities. The completed accelerators are then to be placed at the disposal of scientists from the various universities.

The 7 Gev proton synchrotron, to be called NIMROD, will have a diameter of 160 feet. It is hoped that it will produce of the order of 10^{12} protons per second. Injection is at 15 Mev from a proton linac. One novel feature is the use of a double-walled vacuum chamber with the pole tips inside the outer vacuum chamber. The vacuum in the inner chamber is designed to be 10^{-6} mm Hg. A detailed list of parameters for NIMROD is given in references 1 and 2.

A group at Harwell including Walkinshaw, Lawson and others are maintaining an interest in FFAG and Budker-type accelerators. There is a continuing study under Lawson of FFAG cyclotrons with the view to possible conversion of the Harwell 110 inch synchrocyclotron to fixed frequency operation at a higher energy. At least two models are under construction, one an

electron model and the other a proton model of the inner portion of the cyclotron. This work however does not seem to be proceeding very rapidly.

REFERENCES

1. Cyclotrons and High Energy Accelerators, 1958, compiled by F. T. Howard, Oak Ridge National Laboratory, Report ORNL-2644.
2. Data Sheets and Status Reports on Accelerating Machines in the Energy Range 1 Gev and Above in Models of New Machines, CERN, 1959. Distributed at the International Conference on High Energy Accelerators and Instrumentation, September, 1959.