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NUCLEAR PHYSICS BOARD OF THE SCIENCE RESEARCH COUNCIL

Rutherford High Energy Laboratory

Heavy Liquid Bubble Chamber
Completion of Project

Note prepared by the Secretary and Members of the Project
Committee and submitted by L. B. Mullett

1. The General Purposes Committee of the National Institute for Research in Nuclear Science approved a design study for a large heavy liquid bubble chamber in June 1959 to be carried out by University College, London, as an extension of some studies previously financed by D.S.I.R. The eventual proposal for a 1.5 m chamber was approved by N.I.R.N.S., and Treasury approval was obtained for the scheme in May 1960. The work was carried out by engineers and physicists, substantially from University College but with considerable participation by Rutherford Laboratory Staff. The salaries of the bulk of the University College team and their research and development expenses were included in the grant for the project.
2. A Project Committee was formed in January 1960 to consider all major aspects of the design and construction programme and thereby to control the finances of the project. This committee was supported by the Finance Section and the Estimates and Sanctions Section of the Rutherford Laboratory and by a Technical Committee. At a final meeting of the Project Committee held in November 1965, outstanding technical and financial points were considered and it was agreed that with the excellent initial operation of the chamber the Committee's work was satisfactorily concluded. All further work on the chamber could rightly be regarded as either operation or development, requiring other approval. A copy of the minutes of this final meeting is shown in Appendix I.
3. The chamber was operated for the first time on 29th October 1965 and good pictures were obtained of cosmic ray particles. The chamber has since undergone further technical runs in a pion beam from Nimrod and will be used next February by a joint U.C.L./R.L. team to study the decay modes of the eta meson. A technical description of the chamber is given in Appendix II.
4. The original Treasury approval for the project was £420,000. In September 1963 approval was given by the A.E.A. for an increased estimate of £459,000 resulting from certain design difficulties and consequential extension of the time scale. In May 1965 approval was given by the Department of Education and Science for a final increase to a total of £474,000 arising mainly from the need to re-design the cameras and consequential changes. The total of commitments is £471,862 including known and agreed claims from contractors. No further commitments are to be made and no further claims are expected. The balance of £2,138 is confidently expected to cover minor adjustments in prices. Further details of the variation of estimates and approvals and of the assessed final costs are given in Appendix III.
5. It is, therefore, brought to the attention of the Nuclear Physics Board that the Heavy Liquid Bubble Chamber Project has been successfully completed and that the chamber is now ready for use in the Nimrod experimental programme.