

## HEAVY LIQUID BUBBLE CHAMBERS

Notes on an informal discussion at University College, London  
on 19th August, 1958.

Present: Professor H. S. W. Massey  
Professor C. C. Butler  
Dr. T. G. Pickavance

1. Tungsten hexafluoride is unpleasant and technically difficult to use; some doubts have been expressed as to the possibility of getting good tracks, and glass etching has been troublesome. It is suggested that this liquid should be dropped.
2. Various other heavy liquids needing moderate temperature and pressure are promising; examples are methyl iodide-propane mixture,  $\text{CF}_3\text{Br}$ ,  $\text{CF}_3\text{I}$ . Admixture with propane has the obvious advantage that, by varying the proportions, a general-purpose chamber can be designed.
3. The most promising line appears to be to study a large (e.g. 1.5 metres long) "interchangeable" chamber with an integral magnet capable of a high field ( $\sim 20$  kilogauss), and able to operate with proportions of propane from zero to 100%.
4. The practical problems are believed to be considerably less severe than those of the large hydrogen chamber, but are certainly different. A separate team would be required for design and construction, and experimental work (already in progress at University College) would have to continue for a while before design could be frozen.
5. It is suggested that Professors Massey and Dee, as the Heads of Departments most concerned, should continue to study the heavy liquid problem along these lines with the object of making detailed proposals to the D.S.I.R. Nuclear Physics Committee when there is sufficient knowledge of costs, manpower requirements, expected performance, etc.
6. It is suggested that a "bubble chamber policy committee", consisting essentially of members of the present "steering committee" but including both Professors Massey and Dee, could usefully meet on appropriate occasions to discuss broad policy on both the heavy liquid and the hydrogen projects, and on any other bubble chamber matters of general interest.

T. G. Pickavance

9th September, 1958.