# RAL

LEP AND HERA EVENT DISPLAY

The events created in our experiments are extremely complicated data structures. Each one is equivalent in content to approximately 1500 of these leaflets. Very complicated software suites are written to unpack and analyse these data. The paths of the particles are tracked through the detector and their energies are measured. When this has been done still further programs are used to extract the physics.

Following such complicated manoeuvres it is not only natural to wish to be able to 'see' what is actually happening but essential in order to be able to check the software. The human eye is extremely good at pattern recognition and is sometimes able to detect characteristics that the programs miss. The programs can be enhanced subsequently to include new features.

All large experiments, therefore, have programs to display the results of their software event reconstruction and analysis. In the case of the LEP experiments real data taken recently are used, since the HERA experiments will only begin data taking later this year they display simulated events which have been created to look as far as possible like real events.

DELPHI
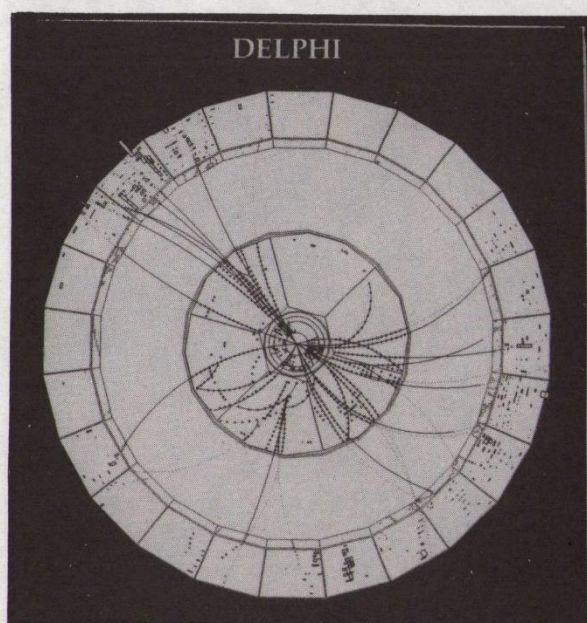
At RAL there has been a considerable investment of effort within the Particle Physics Department in preparing the software to unpack, analyse and display events from the LEP and HERA experiments. Particular emphasis has been directed towards understanding the equipment built at this laboratory.

At the start of the experiment the graphical displays are used mainly to understand the operation of the detectors and the software used for event reconstruction. In due course, and especially for events with complicated topologies, the displays become vital tools to help unravel the physics.