

MULLARD SPACE SCIENCE LABORATORY

Department of Physics, University College, London

The Mullard Space Science Laboratory, Department of Physics, University College, London, originated with a donation by Mullard in 1965 which enabled the College to purchase a country mansion at Holmbury St. Mary, near Dorking, Surrey.

The Laboratory houses the largest scientific space research group in Britain and is among the longest established and most experienced; it undertakes some 25 per cent of total British University space research. The six laboratories at Holmbury House provide facilities for 23 scientists and 7 research students. Other staff include 26 laboratory and workshop technicians and 11 administrative workers. Current annual expenditure is supported largely by a grant of about £150,000 per annum from the Science Research Council.

Pleasantly sited in 30 acres of ground 500 ft. above sea-level and with extensive views to the south, the laboratories and supporting services occupy a Victorian mansion built about 1850 and subsequently extended.

Although the full history of Holmbury House is unknown it is known that Gladstone was a frequent visitor and stayed as a guest on a number of occasions. The row of trees on the west side is still known as Gladstone's Walk. Among previous occupiers was the Hon. A. E. Guirness who lived there in the 1940's and the mansion was a home for handicapped children before being acquired by University College.

The alterations necessary for conversion to laboratories were extensive but have resulted in only minor changes in the appearance of the building and the character has been preserved. The costs of the conversion were met in part by the Universities Grants Committee, in part by the College.

The servants rooms are now three flats, occupied by maintenance and domestic staff; rooms are provided in the garage block for research students.

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The three principal bathrooms in the main house, all elegantly marbled, were removed and the space made available for offices. A number of alterations, including new floors, have taken place in the out-buildings which now house modern workshop machinery.

A small but modern self-service canteen has been installed but what is now the common room remains untouched except for new lighting and cleaning and re-waxing of the panelling. The panelled boudoir, now the design and drawing office, has been left untouched and the library is still used for its original purpose.

A prime necessity in conversion to laboratories was the provision of an adequate power supply and a 200 kVA system has been installed. Another requirement was a cooling system for the vacuum pumps and, because the mains water supply is insufficient, the ornamental ponds on the terraces are now used as local reservoirs from which water is pumped into the building for cooling purposes.

The consulting architects were Cusdin, Burden and Howitt and the Mullard Space Science Laboratory came into full use in October 1966.

The acquisition of the premises at Holmbury St. Mary ended a long search by the College for more spacious laboratories to accommodate their expanding space research activities. The choice of location was influenced by the need to be near a major airport and other communications and Holmbury House, within easy reach of London and Gatwick, is conveniently sited.

The need to be near good communications is apparent when it is remembered that, at any one time, scientists may be at Kiruna, Sweden; Woomera; Boulder, Colorado; The Western Test Range near Los Angeles; Cape Kennedy; or in the Washington area at the NASA Laboratories. Travel is a considerable item in the annual budget.

The work of the Laboratory is in originating experiments of scientific value, in detailed development of detection and measuring systems involved in the experiments and the scientific analysis of data obtained.

Among the scientific disciplines involved in space research are Physics, Optics, Electronics, Precision Engineering, Satellite Dynamics, Technology and Orbits, and Scientific Interpretation. The extraordinary variety of problems and the impossibility of correcting equipment faults once an experiment has started has necessitated the development of new orders of reliability and intense concentration on preliminary work to secure success. A single miscalculation in design can mean the loss of, perhaps, three years of work costing, possibly, £50,000.

For historical reasons the space research activities at UCL have been directed largely towards studies of the ionosphere and these studies have latterly been extended to examination of X-ray and ultra-violet radiation from celestial sources. All the work is purely scientific and intended to extend our knowledge of natural phenomena and their inter-relation.

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