

improved". It appears that if the regulations are more widely and more stringently applied than at present, the number of cases should inevitably fall.

The panel indicates that crocidolite has a special significance in relation to mesothelial tumours. It recommends that other types of fibre should be substituted for crocidolite wherever possible, and, where this is impossible, special precautions should be taken to reduce the risks of inhaling the material. The panel admits that at the moment the level of exposure below which the risk may be negligible is not known. The quantity of crocidolite (blue asbestos) imported into the country is much less than the other varieties of asbestos, and it has remained at about 7,000 tons per year for the last few years. But time may show that other fibres are also implicated in the development of mesothelial tumours.

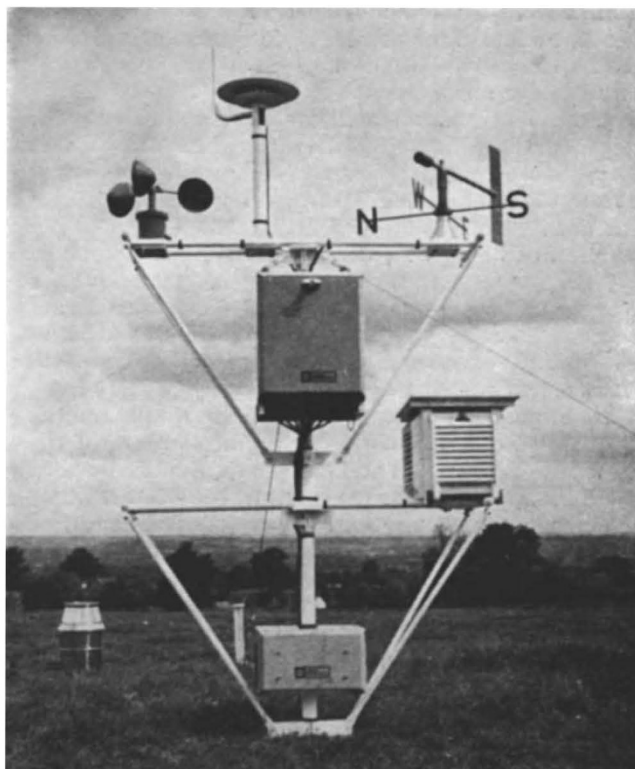
Finally, the report suggests that action should be taken to control the discharge of dust-laden air from asbestos factories and the dispersal of dust from waste dumps. It emphasizes, however, that the problem of mesothelioma in association with asbestos exposure should be kept in a proper perspective. Even though the incidence is increasing, the total number of cases of mesothelioma in Britain over several years is very small when compared with the annual total of deaths from cancers of the trachea, bronchus and lung.

## Recording Weather

AN automatic weather recording station which can operate unattended for at least three months has been produced by the Plessey Company Ltd. This station, which can make and record more than 82,500 measurements in a three month period, is available from the Marine Systems Division of the Plessey Electronics Group at Ilford. The value of automatic weather stations was recognized by a recent report from the World Meteorological Organization (*Nature*, 215, 1324; 1967). They are important because modern developments in weather forecasting require information about climate from all over the world—sometimes from uninhabited areas—and it is becoming increasingly hard to persuade amateur meteorologists to provide accurate data day by day. Professionals cost money, and so there should be a real market for automatic stations which can do the job reliably for long periods without attention.

The Plessey station is virtually self-contained and can monitor parameters such as rainfall, humidity, wind speed and direction, air, soil and water temperatures, barometric pressure, pH, solar radiation and water level and flow. The basic design was evolved in co-operation with the British Water Resources Board, the Meteorological Office and the National Physical Laboratory. By adding various instruments to the basic design, it has been possible to produce a family of stations including hydrometeorological, climatological, water level, water quality and recording rainfall stations. Each can be arranged for automatic operation, and the recorded data can be sent by telemetry to a control centre on demand.

Each station is supplied as a complete system with sensors, recorder, power supply, 'Stevenson' screens and a stayed aluminium mast which supports the sensors. The memory of the station samples up to eight sensors in turn, recording their outputs in ten-bit



binary code on standard quarter-inch magnetic tape. It samples at intervals of 5, 10, 20, 30 or 60 minutes and is accurate to within 0.1 per cent.

## Discomforts of Space

by Angela Croome

THE next moves in manned spaceflight may be uncertain, but in both the United States and the USSR, background experiments for the longer flights of the future are going ahead. This month the McDonnell Douglas Corporation of California, contractors to the Office of Advanced Research and Technology of NASA (National Aeronautics and Space Administration), is to start on a two-month-long test of a closed system space chamber. The Soviet Union has recently completed a 70-day confinement experiment involving three men. American and Soviet trials have relevance both for survival in space and for the operation of manned submersibles under the sea.

In the case of the American closed life-support trial, four college students of the University of the City of Los Angeles are acting as experimental subjects. For a period of 60 days, they will exist on reclaimed water and oxygen from their own metabolic wastes. The test is believed to be the longest so far attempted under flight conditions using a closed water-oxygen loop. The closed water system consists of an evaporation unit, a charcoal filter and a condenser that reclaims moisture directly from the crew and from the air in the cabin. Oxygen will be reclaimed through a process of mixing hydrogen and carbon dioxide and then converting them to water and methane gas. The oxygen is recovered from the water by electrolysis and the methane gas is expelled. Atmospheric pressure within the cabin will be at 7 p.s.i. (half that at sea-level) and will consist of 3.1 p.s.i./oxygen and 3.9