

of the building. The tunnel at Marchwood is provided with the means to simulate this boundary layer. The fluctuations in the wind velocity are also important, because they represent a much greater proportion of the total loading than is the case with aircraft. Two projects under study at Marchwood are concerned with the dynamics of current-carrying cables and the effect of reducing the height of a gas turbine exhaust stack. If the stack height could be reduced, money could be saved, but the danger is that the hot gas would be drawn back into the turbines and the building ventilation system.

Another wind tunnel undergoing trials at Marchwood is concerned with the other extreme of wind speeds—the supersonic speeds experienced by turbine blades. This is a closed circuit tunnel capable of testing turbine blades up to Mach 2. As turbines increase in power, the blades must get longer, and this means that the tips of the blades will be moving at even greater speed. The new tunnel, run by an electric motor which drives an Avon compressor (bought cheaply on the second-hand market), will help to build up experience of conditions like these before the very large machines come into operation.

## Wind-borne Foot and Mouth Disease

THE *London Times* (April 23) has reported that meteorologists at the Meteorological Office at Bracknell have analysed the spread of foot and mouth disease in Cheshire in an outbreak in 1952 and concluded that wind and rain were the main vectors. The disease affected 160 farms, and with only one exception every outbreak occurred downwind of an already infected farm during rainy weather. In most cases the rain was at night. After eight consecutive dry nights, the epidemic declined. The meteorologists are also said to have analysed the relationship between the prevailing wind and the distribution of scattered outbreaks along the Kent and Sussex coasts in the spring and summer of 1952.

After the initial outbreak at Oswestry in October last year, there were fifteen wet nights out of the first seventeen, and the pattern of spread of the disease reflected the changes in wind direction for at least the first four weeks of the epidemic. A computer is being used to analyse the epidemic. It is also rumoured that the analyses of the prevailing wind patterns in October 1967 make it very unlikely that the virus which started the epidemic came from the continent. That, of course, was the conclusion of the Reid report. Publication of the details of this research has been officially delayed until they have been presented to the Northumberland committee which is collecting evidence for its inquiry.

## Research in Jeopardy

UNLESS more funds can be raised, research at the London Institute of Ophthalmology will have to be severely curtailed in 1969 when the current grants, which are supposed to last until 1970, will have been spent. The "Fight for Sight" campaign has so far only produced £460,000 out of a target of £1 million and, unless another £0.5 million is raised, the outlook for research is bleak. There is now a freeze on the numbers of staff. As members leave—there are 176 on the staff,

56 of whom are academic staff—they are not usually being replaced, and no money is available for modernization of the institute's laboratories and very little for apparatus.

The institute, one of fourteen specialized medical institutes in London University, was formally established in 1948 on the recommendation of the Goodenough report, although it had in effect been formed two years earlier. Since then it has become one of the leading centres in the world for research into vision and has been a model for comparable institutes in India, Egypt and Australia. It is an entirely postgraduate institution and is responsible for all the postgraduate teaching of ophthalmology in London. Ninety-five per cent of the students, however, come from abroad—chiefly from Africa, Asia and the Middle East—and there is a queue of overseas applicants awaiting places.

The University Grants Committee finances the teaching. In 1967-68 it gave the institute £171,050, 48 per cent of its total budget, for teaching and £7,000 for apparatus, and it is virtually certain that the grant for 1968-69 will be about the same—in other words, insufficient. The research, which ranges from investigations of eye pigments at the molecular level to the use of lasers in eye surgery (see *Nature*, 216, 535; 1967), is financed by specific grants from foundations and from the institute's own income. In 1963 the institute launched its first public appeal, "Fight for Sight", which is in keeping with the UGC policy of encouraging financial independence. To continue research at the present levels, let alone expand, the institute needs £1 million but, perhaps surprisingly, granted the emotive appeal of blindness, it has only raised about half this sum. The institute's research would be bound to benefit if the proposal of the Todd report, that the institute should merge with St Bartholomew's Hospital, the London Hospital and Queen Mary's College, were put into practice. And the perhaps justifiable fears that in such a merger the institute's work would be submerged by undergraduate demands are no real obstacle. But a merger would not solve the institute's financial problems—the public will have to be persuaded to do that.

## Screening for Cancer

AN aid to the efficiency of cytologists in their analyses of cervical smears is now being given field trials. In collaboration with doctors in Oxford (see *Lancet*, February 17, 359), Vickers Ltd have developed a cytological screening instrument to scan smears and pick out those with evidence of a possible pre-cancer state—an *in situ* carcinoma. The Vickers cytology screening apparatus (VCSA) is based on the theory, put forward by Dr R. A. Diamond in his Oxford BSc thesis last year, that the presence of more than 12 nuclei larger than  $12\mu$  in diameter in a smear is indicative of a pre-cancer state. The VCSA spreads out cells from a cervical smear in a thin line along transparent tape, using about 2.5 feet of tape for each sample. Standard staining and fixing techniques used for microscope slides are carried out automatically. The treated tape is then fed through a microscope which is preset so that whenever a nucleus larger than  $12\mu$  in diameter is found by the automatic scanner, a hole is punched in the tape. A cytologist can then replay the tape to find the potentially dangerous cells and