

there have not yet been any controlled therapeutic observations of the use of such a diet.

The period of low acidity after food tends to last longer after meals containing a high concentration of protein than after meals with little protein but much carbohydrate. A controlled therapeutic trial at the unit, however, has not confirmed the suggestion that a high protein, low carbohydrate diet might be useful in the treatment of ulcers. These studies, as well as making treatment less irksome for patients, are relevant to investigations of dietary factors which may be responsible for the varying incidence of peptic ulcer in different parts of the world.

Other work of the unit aimed at making the life of patients and doctors easier is the development of quicker ways of making a diagnosis. Using available information about the mechanism of production of symptoms it has been possible to build up an algorithmic (flow chart) system of analysis of the causes of difficulty with swallowing. The patient answers "yes" or "no" to various questions and a diagnosis can be made without the use of X-ray or any other form of examination. The algorithm is in two forms; one for the doctor who questions the patient and one for the patient who answers questions from a book or on a film strip in a modified teaching machine. This version with the machine forms the basis for a system of automated patient interrogation which is being developed by the unit in collaboration with the University of Essex.

COUNTRYSIDE

Unspoilt Coastline

ALTHOUGH too much of the coastline of England and Wales has been spoilt by bad siting of caravans, bungalows, industry and defence structures, there remains about three-quarters of the coast that is still completely free from development of any kind. This surprising fact is contained in a recently published compendium of statistics compiled by the Countryside Commission from data supplied from local planning authorities (*The Coasts of England and Wales: Measurements of Use, Protection and Development*; HMSO, 5s 6d). The coastline is shown to total 2,742 miles, of which a little over a quarter lies in Wales. Out of this mileage, camping and caravan sites exist or are planned for just under 105 miles of coast, industrial and commercial users occupy 157.1 miles, and some 134 miles are occupied by defence and other government land. On the other hand, there are 414 miles of coast that is in protective ownership of some kind—National Trust, Forestry Commission, National Nature Reserves, and the like.

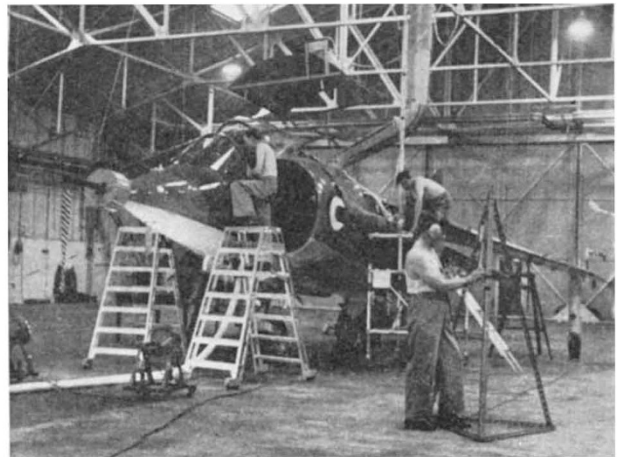
There are wide local variations in the extent of coastal development. The coasts of several counties are hardly developed at all—there are no buildings along any part of the Holland region of Lincolnshire, and only 6.3 per cent and 13.2 per cent of the coasts of Monmouthshire and Gloucestershire are built up. Conversely, the most developed county coastlines in England are those of West Sussex (68 per cent), Durham (53.6 per cent) and East Sussex (50.3 per cent). In Wales, however, the coast of Denbighshire (72.3 per cent) is more substantially developed than that of any English county.

There are wide variations, too, in the extent to which the coasts of county boroughs are developed or are committed for development. The most heavily developed coasts of county boroughs are those of Bootle, Grimsby, Tynemouth, Liverpool, and Great Yarmouth, all of which are completely built up. In contrast, the coasts of the county boroughs of Southport (15.4 per cent), South Shields (18.9 per cent) and Portsmouth (22.9 per cent) have far fewer buildings.

AVIATION

Aircraft on Trial

DESPITE the rapid advance in instrumentation in aviation, some comparatively old techniques survive. At the Ministry of Technology's Aeroplane and Armament Experimental Establishment at Boscombe Down, good use is still made of a large blower, first used in testing flame damping exhaust systems on the British night bomber force of 1942. Four large fans, each ten feet in diameter and with ten blades, are driven by Merlin aero engines to produce airstreams with velocities of up to 400 mph. Whatever is being tested remains outside in the open, so that the blower itself cannot be damaged by breakage or jettisoning of equipment. Last week a quiet murmur of engineering French was to be heard around the blower as tests on the jettisoning of the canopy of the Anglo-French Jaguar went on. Right on cue the canopy flew off to be held by a cat's-cradle of wires and ropes, while a camera in the background recorded what went on. Because the canopy is undamaged and can be used again, costs are greatly reduced and the whole procedure, according to the staff at Boscombe, is fifteen times cheaper than testing in flight.



One of the newer facilities at Boscombe is a hangar which has a good claim to be the biggest Turkish bath in the world. Entire aircraft can be exposed to high temperatures and humidities to test the performance of their systems under extreme tropical conditions. Last week the RAF's latest aircraft, the Harrier, was undergoing a test. Temperatures of up to 75° C can be reached, and maintained to within $\pm 2^\circ$ C, and humidity can also be closely controlled. Cloud formation can be maintained up to temperatures of 34° C, and the effects of solar radiation can also be simulated. In theory the hangar is at the disposal of industria]

companies (the military programme permitting), but so far none seems to have taken advantage. Lorries for export to hot and humid regions might well benefit from a programme of tests in the hangar, and costs of the order of £30 per hour for heating and humidity are quoted.

Although the establishment comes under the direction of the Ministry of Technology, its function is still a military one. It is responsible for the trials of new aircraft and aircraft equipments before they go into squadron service. One of the station's facilities is, however, to be used for the Concorde programme. This is an old Canberra bomber, converted for use as a tanker. By spraying water from specially designed nozzles, it can simulate aircraft icing conditions. The Canberra can carry some 900 gallons of water, using tanks fitted on the bomb bay, and a converted fuel tank. When sprayed behind the aircraft, this produces a cloud into which the aircraft under test is flown. Again, this is a very much cheaper method of testing than waiting for the right conditions to occur naturally, which, as the staff at Boscombe point out, happens only when it is least wanted.

ROYAL SOCIETY

The Year of the Move

"THE most important event was an evening reception on November 21, 1967, when the society was honoured by the presence of its patron, Her Majesty the Queen, who formally declared open the society's new home at 6 Carlton House Terrace." So begins the Royal Society's report of council for the year ending September 30, 1968. But apart from removing to the heart of clubland the society has during the year increasingly involved itself in current problems of science education; the Dainton disease, the failure of industry and schools to attract scientists and technologists which was revealed in the Swann Report, and the problems of postgraduate education. The recent discussion meeting on "The Swing from Science in Schools" was a success, unlike the generally uninspired series of reports of sub-committees inquiring into postgraduate training. The last of these reports, on engineering and earth sciences, is promised this year.

During the year the society has initiated discussions on the introduction of metric units, given evidence to the Dainton Committee on a National Library, and agreed to increase the emphasis of its own library on the history of science, especially that in Britain. The society is, for example, investigating ways of preserving the papers of fellows.

In the expeditionary field the society is on the verge of achieving its aim of setting up a permanent research station on Aldabra island (see page 947) and it has contributed to the International Biological Programme through its expeditions in Uganda and New Guinea, as well as numerous projects in Britain. The society has also jointly sponsored, with the Royal Geographical Society, an expedition to the Mato Grosso, and with its counterpart in New Zealand has arranged an expedition in the New Zealand ship Endeavour to mark the bicentenary of Cook's first circumnavigation.

The European Exchange Scheme, in its second year, is flourishing. Eleven West European countries have now agreed to put up matching money totalling

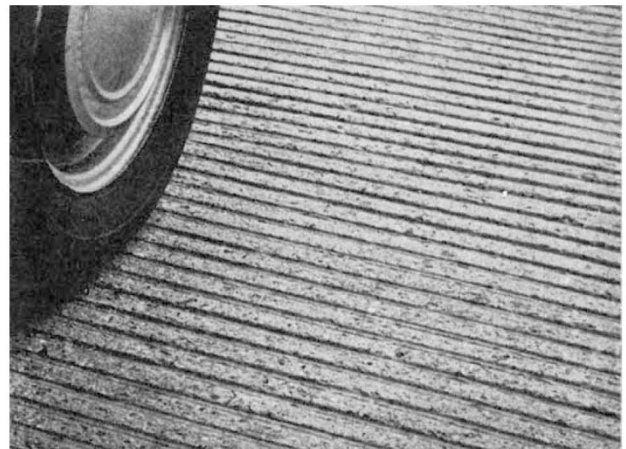
£72,656 so the society can ask the British Government for that amount to finance overseas scientists in Britain. With this Government money and grants from the Ford and Wates Foundations and Pergamon Press, the society awarded 90 fellowships (53 from Britain to Western Europe and 37 from Western Europe to Britain) and 50 study visits. In addition the society made 37 exchanges with academies of science in Eastern Europe.

Parliamentary grants administered by the society in 1967-68 totalled £657,000, including £43,250 for rent and management of Carlton House Terrace. In the current year the society has a considerably larger budget, £802,000, most of the increase being for its International Fellowship Scheme and for furthering international relations.

CONSTRUCTION

Better Concrete

It is estimated that some £130 to £150 million is going to be spent on elevated roads in Britain in the 1970s. Structures such as the Hammersmith Flyover, the Mancunian Way and the Western Avenue Extension are therefore going to become increasingly common features of the urban environment. The design of elevated roads, however, poses several problems—they have, for example, to be supported on a very small ground area, and they must be capable of being constructed on a very restricted site. These and other problems associated with the design of elevated roads are being tackled by the Design Research Department



The addition of skid resistant texture to an existing concrete road.

of the Cement and Concrete Association's Research and Development Division at Wexham Springs near Slough. A comprehensive research programme lasting three years is now in progress at the laboratories with support from the Construction Industry Research and Information Association. Some of this work and other research on bridge design was demonstrated at an open day held last week at Wexham Springs. Work being done in two other divisions of the research station was also on display. The Construction Research Department deals with the construction process itself and its significance in relation to the properties of