

consistent with the three governments' policies to the non-proliferation treaty. In the sense that Britain is offering to West Germany information which might make it easier for her to build nuclear weapons, the agreement is controversial. But, of course, it would be better that this information formed part of a tripartite agreement than if West Germany were to proceed alone. Besides, if West Germany's civil nuclear plans go as is hoped, it will become a substantial plutonium producer in the next ten years or so, offering an alternative route to nuclear weapons.

MEDICAL EXAMINATIONS

New Ways of Finding Doctors

MANY have criticized the system of examinations for medical students, but few—particularly among the students themselves—have set out practicable alternatives. A step in this direction has now been taken, in a World Health Organization publication by J. Charvat, professor of medicine at the University of Prague, Christine McGuire, of the College of Medicine, Chicago, and Victor Parsons, senior lecturer in medicine at King's College Hospital Medical School, London (Public Health Papers, 36; *A Review of the Nature and Uses of Examinations in Medical Education*).

Any technique for measuring competence should fulfil three criteria. It should yield objective data—that is, independent observations of different experts should agree. It should be valid in the sense that it should measure what it claims to measure. Third, examinations should be reliable, yielding consistent scores when given repeatedly to the same group under the same conditions. They should be designed to measure not only knowledge but also skill in solving problems, the ability to communicate with patients, colleagues and other members of health teams as well as the capacity for original work. Under the present system, the report suggests, examinations tend to sample only a narrow range of the requisite knowledge and skills. The questions are sometimes trivial, and the student may be forced to answer in terms of the provincialism or personal views of the examiner.

One new development is the "process approach" to determining whether an examination measures simple recall of isolated information or, at the other extreme, the ability to solve complex problems. Most of the studies in which this approach has been used show that 75–95 per cent of questions currently in use in the United States and Canada measure only recall of information. A number of new tests have been designed to measure the achievements of the student in the cognitive and psychomotor domains. These range from multiple-choice tests and questionnaires to objectively rated diagnostic or therapeutic interviews with an assigned patient. New approaches to the design of essay and oral examinations can be used to measure the student's ability to communicate with a colleague or a patient or to assess his ability in taking a patient's history and his judgment in determining and defending a plan of management for a specific patient. Two new methods are being introduced as a means of objectively assessing a student's professional habits, attitudes and values. Objective anecdotal statements of a student's professional behaviour, by an instructor accumulated during medical school, are used to identify his chief

qualities. The second approach is to set out to identify certain variables in professional behaviour such as response to criticism.

GERMAN SATELLITES

Up with the Mark

from our Special Correspondent

Munich, November 26

THE reconstruction of Germany's aerospace industry has involved several famous names of German aviation—admittedly now only shadows of their former selves—in an ambitious space programme. For some years now, the Bölkow group of companies has strenuously searched for a merger within the German aircraft industry with the intention, it seems, of forming an aerospace industry on a European scale. In this it has been encouraged by the German Government, which has wanted to see a merger of the aerospace industry in south Germany. Last month, Bölkow managed to acquire the Messerschmitt company, and the new Messerschmitt-Bölkow group located at Munich is involved with the HEOS-A satellite which, with luck, should become ESRO's third successful satellite early in December, with a third stage of Europa I, with the first German research satellite and with a proposed solar probe in cooperation with the Americans.

Another historical name, Junkers, also has a part in the merger, having been acquired by Messerschmitts in 1965. Junkers is primarily contractor for HEOS-A, responsible for the satellite's basic structure and the integration of its experiments.

The novelty of HEOS is its highly eccentric orbit taking it to a distance of between 200,000 and 300,000 kilometres from the Earth at apogee. This orbit was chosen so that HEOS would traverse the largely unknown boundary of the magnetosphere, the near-Earth region dominated by the terrestrial magnetic field. A measure of the eccentricity of the orbit—which HEOS takes five days to complete—is that the satellite is influenced by the masses of the Sun and the Moon. The scheduled launch date for HEOS is December 5, when it will be fired from Cape Kennedy by a Thor-Delta vehicle. If the launch is successful, HEOS will then become ESRO's third satellite launched this year, and the value of the experiments it is carrying into a comparatively unexplored region of space should go a long way to appeasing scientists' doubts about the organization.

Looking further ahead, the Messerschmitt-Bölkow group will be responsible next year for launching the first German research satellite Azur—a 78 kilogram vehicle for inner radiation belt measurements. A more important project is an interplanetary solar observation satellite. So far it is still in the design stage; the specification calls for a probe to explore the solar plasma and interplanetary matter up to a perihelion of 0.3 astronomical units, by German and NASA experimenters. The talk is of a launch date in 1973–74.

PLANNING

How to keep Everybody Happy

At last planners are realizing that countryside planning is as vital as urban planning. In a country as small as

Britain there already has to be multiple use of land; for example, mountain moorland may be used for grazing, for open public access and parts may be a nature reserve.

An attempt to reconcile such conflicting uses through a new technique of rural planning was discussed at a meeting in London last week called by the Countryside Commission. Even if the technique goes no further than the drawing board, it was unique in Britain as a planning exercise. Its most valuable contribution was that for the first time important authorities concerned with the countryside showed that they can work together on a coordinated plan. In this particular plan, or research study as the people concerned prefer to call it, the Ministries of Agriculture, Housing, the Forestry Commission, the Nature Conservancy and the planning department of Hampshire County Council were involved. The study was based on evaluating the area covered by each land using interest, assessing the degree to which they may be complementary or in conflict, and on this basis suggesting land management policies which allow each interest to make the most efficient use of resources compatible with the other interests.

These studies first defined the interests involved in the study area—the East Hampshire designated Area of Outstanding Natural Beauty—and then graded the land according to the importance each interest placed on it (the interests were agriculture, forestry, wildlife and landscape). By superimposing the grading (or evaluation) maps, it has been possible to describe the zones by the importance of each interest relative to the others. Within these zones, it has been possible to define the level of activity of particular interests which are acceptable to the others without damage. In the study area, there were relatively few cases of severe conflict of use.

OIL POLLUTION

Where Cleansing goes Wrong

AFTER the wreck of the Torrey Canyon in March 1967, some 8,000 seabirds were taken to cleansing stations in Britain—but well under ten per cent and probably only about five per cent of these birds were rehabilitated and returned to the sea. Even this figure gives too optimistic a picture of the cleansing operation, for a large proportion of the so-called rehabilitated birds were recovered dead within a few days. Although exact figures are hard to come by, the Torrey Canyon episode revealed the complete inadequacy of the current methods of rehabilitating oiled birds, and oil pollution of the sea will continue for as long as oil is transported. Legislation can never totally eliminate accidental pollution and it is estimated that even the much vaunted "load on top" system of washing tankers, although a great improvement on previous practice, produces pollution at a rate of 400,000 tons a year.

As a direct result of the Torrey Canyon disaster, a Sub-Committee on the Rehabilitation of Oiled Seabirds of the Advisory Committee on Oil Pollution of the Sea decided to set up a research unit at the University of Newcastle upon Tyne to study oil pollution of birds. At the moment the unit consists only of Professor R. B. Clark and Dr J. R. Kennedy, and all the money

has been raised from charities—the World Wildlife Fund, the RSPCA and the Royal Society for the Protection of Birds. As a first step, Kennedy and Clark were commissioned to produce a review of the literature on the problems of rehabilitation, to outline promising lines of research and to produce separate proposals for definite research projects. Now that this has been done, the advisory committee will—with luck—be able to persuade the oil companies, the Government or the research councils to finance a full sized research unit at Newcastle.

In their report *Rehabilitation of Oiled Seabirds* (10s), which is in the main a catalogue of unanswered questions about bird physiology, Clark and Kennedy point out that the best index of the real effect of oil pollution on seabirds is the effect it has had on breeding populations. Using this criterion, the large auks of the North Atlantic are the most threatened birds. Razorbills, for example, have in the last 20 years become almost extinct in many of their former breeding grounds off the coasts of Newfoundland and Labrador. Guillemots, which suffered worst from the Torrey Canyon disaster (see *Nature*, 215, 1123; 1967), are, at the present rate of mortality from oiling in the east Atlantic, in danger of extinction from many of their former breeding grounds. Clark and Kennedy take the gloomy view that there is little hope of greatly reducing levels of pollution and the only answer is to improve methods of rehabilitation. Not everyone may be so pessimistic about reducing pollution at its source, but it is undeniable that, with existing methods, cleansing "satisfies a human need but has no biological significance whatsoever".

The problem is that little is known of the biology and physiology of seabirds; even the most trivial information, such as the normal fluctuations in body temperature and weight, is generally lacking, and normal diets are only sketchily understood. As a result, when oiled birds are taken to cleansing stations remedial measures are at best inspired guesses. There are also problems of persuading cleaned and very often tamed birds to return to the breeding population. Clark and Kennedy believe that the two most crucial phases in rehabilitation, which must be significantly improved, are the first few days of acute illness and the time it takes to restore the water repellent properties of the plumage. They suggest investigating the use of tranquillizing drugs to reduce stress and feeding energy-rich liquid foods during the early stages of rehabilitation. To hasten the restoration of water repellency of plumage they suggest hormonal treatment to increase the secretion of the preen gland. Waterproofing of the plumage is in fact being studied at Newcastle, but it is obvious that with the existing funds they will barely scratch the surface of the problem. There will be little improvement in cleansing methods until an adequate research programme is set up.

INFORMATION RETRIEVAL

Delays on Medlars

ALTHOUGH there seem to have been substantial indexing delays affecting Medlars (Medical Literature Analysis and Retrieval System) in 1967, the situation has considerably improved this year. According to Dr A. J. Harley, who is in charge of the UK Medlars service, this improvement is likely to continue as more