OLD WORLD

POLLUTION

Swansea Syndrome

A GRANT of £11,000 has been awarded to Mr G. T. Goodman of the Department of Botany at the University College of Wales, Swansea, so as to continue his investigation of non-ferrous metals in mosses, grasses and soil. A first report of this study, in the region around Swansea, appeared in June this year (Goodman, G. T., and Roberts, T. M., *Nature*, **231**, 237 ; 1971). Now the Natural Environment Research Council is prepared to support an extension of the study to the rest of Britain.

The original discovery showed the presence of large amounts of metals such as zinc, lead, cadmium and copper in plants and soil to the east of the Swansea Valley. At one of the most heavily contaminated sites, for example, some mosses contained as much as 1,200 parts per million of zinc, 800 parts per million of lead and 40 parts per million of nickel. One bizarre accompaniment of the investigation was the discovery that several horses found dead in a field near Llansamlet in the spring of 1970 had large concentrations of lead in their systems, although it has not been possible to show beyond dispute that lead poisoning was responsible. Malnutrition is another possibility.

The appearance of the article by Goodman and Roberts has led to several decisions, not the least important of which is the setting up by the Welsh Office of a working party on pollution by metallic elements in and around the Swansea Valley. It is assumed that the high concentrations of metal elements in the region have been caused by windborne pollution from neighbouring slagheaps, but another possibility is that exhausts from chimneys are responsible.

The working party is interdisciplinary in outlook and the scientists under the chairmanship of Dr R. T. Bevan, Chief Medical Officer at the Welsh Office, include Dr D. H. Peirson of the Atomic Energy Research Establishment, Harwell, Dr S. R. Craxford of the Warren Springs Laboratory, Professor C. R. Lowe and Dr J. R. Glover of the Welsh National School of Medicine, Professor P. J. Lawther of the Medical Research Council and Mr G. H. Francis of the Agricultural Development and Advisory Service. The first meeting of the working party was held in July and the second is scheduled for next week. The brief given to the working party was to recommend to the Secretary of State for Wales the sort of research programme needed to be set up to extend the work of Goodman and Roberts with particular reference to any correlation that might be established between the presence of heavy metals in the environment and human and animal life.

A member of the working party said this week that several botanical sampling stations would be set up throughout the area and that direct air sampling would also be carried out. Soil and herbiage samples would be analysed and blood and urine samples would be taken from hundreds of people throughout the area. It is planned that this survey will take twelve months to complete.

The simplicity and effectiveness of the technique developed by Goodman and collaborators make it particularly suitable for determining heavy metal contamination over even a short period. In areas that are moss deserts—because of high pollution—it is possible to deposit moss samples for as little as two weeks and obtain information on the accumulated metals during this time. The inexpensive nature of this research—the original investigation was carried out on a £500 budget—makes it a particularly useful tool to monitor atmospheric pollution. The problems in the Swansea area, however, might turn out to be insignificant compared with those found elsewhere in the country but there is no doubt that the working party will highlight the effects and dangers of a high atmospheric heavy metal concentration.

EMPLOYMENT

Graduate Problems

FIRST reports from the universities suggest that the plight of applied scientists may not be as bad as was predicted earlier this year. But times are still hard for pure scientists. In April the Confederation of British Industry (CBI) predicted a cut of between 15 and 20 per cent in the largest traditional field of graduate employment—industry and commerce. At the same time, several companies cancelled their visits on the traditional "milk-round" to British universities.

Now that the degrees examinations are over, what is the situation? The university appointments boards emphasize that it may be too soon to know for sure, partly because some graduates are on holiday and not bothering to look for jobs and partly because they often do not let their appointments boards know after they have accepted a job. But the impression is that it has been a difficult year. Quite how difficult depends on where you look. At Oxford, Mr T. Snow, the Secretary of the Appointments Committee, said that "graduate unemployment is not a problem". But he does admit that there are fewer jobs, particularly for those who want specific careers. It is particularly hard for chemists who want to remain chemists.

The estimate of the size of the problem varies from university to university—at Sussex, for example, Mr I. H. F. Kerr, the Appointments Officer, described the situation as "very serious" and estimates that as many as 400 of the 900 ex-students may still be job-hunting. At East Anglia, the number still looking is "higher than last year, but not dramatically so", while at the University of Manchester, figures for mid-July show that the applied scientists —with the notable and unsurprising exception of aero-engineering — were managing as well as or only slightly worse than last year, but that the pure scientists are finding it very bad. Half of the physicists are unemployed, however, compared with a quarter last year, and two-thirds of the chemists compared with half last year.

Yet things are not disastrous and there are hopeful reasons. The employers' concept of a "graduate job" is beginning to change. Companies are considering graduates for jobs that people with A-levels would have had a few years ago and they are also more ready to accept applicants with any degree, not just in a specific field. Graduates are equally beginning to look at careers that formerly they would not have considered — chartered accountancy, insurance, banking and local authority work. And for the graduate who is prepared to be flexible there are still jobs available. The University of Manchester's latest Clearing House List has some 1,400 vacancies (although this is a drop of between one third and one quarter on last year). Many science students are turning to completely different fields – British Rail travel planning or the Civil Service, for example. The theory that a university degree is a passport to a certain sort of job seems now to be a dead duck. Today there are even graduate shift foremen in a steel firm near Cardiff.

But if the employment situation is difficult, what are the graduates doing? Many are still on holiday or doing temporary work, and will only start looking in the autumn when the situation may well be worse, not better. Others may be trying to postpone the decision by prolonging their education. There has been an increase of more than twenty per cent in graduate applications to teacher training colleges—nearly 14,000 have applied for an estimated 9,000 places. (The new requirement that teachers in secondary schools should have a Dip.Ed. may help to account for this.) Some appointments officers also suspect that more graduates are simply dropping out, saying that "no job is better than any job".