

will now have to compete more vigorously for teachers and for students.

Professor Muriel Bradbrook, the Mistress of Girton—one of three women's colleges at Cambridge—said this week that she welcomed the decision even though she could see no great reserve of women scientists in the schools. Her own college, she said, was always on the look-out for more women scientists of the right calibre. She hoped that Churchill's decision would not simply draw off women science undergraduates who would previously have gone to Girton or one of the other colleges, but rather that it would stimulate girls' schools to emphasize science. She anticipated that Churchill and any other men's college which follows its lead would work out some joint examination scheme for entrants with the women's colleges so as to increase the total number of applicants.

As Oxbridge colleges ponder their reaction, some of the Ivy League universities in the United States are working out their own ways of dissolving the remnants of monasticism they assimilated from Oxbridge. After Yale's plans to team up with Vassar came to nothing, the university decided to admit women undergraduates instead—the first will arrive in September. Princeton is following suit with 1,000 places for women. And Harvard and Radcliffe, after 25 years of morganatic marriage, have decided to merge officially. Radcliffe girls will not merely attend Harvard classes and gain Harvard degrees but will become members of the university as well. As at Churchill, they will by the early seventies be living in the same houses, dining in the same halls and coming under the same administration as the Harvard men.

SCOTTISH ASTRONOMY

Seeing from Glasgow

from our Astronomy Correspondent

AFTER more than thirty years, serious observational astronomy is starting again at the University of Glasgow with the opening last Monday of a new observatory with a 20-inch Grubb-Parsons reflector for a centrepiece. Astronomy at Glasgow has an even longer history than at Edinburgh, beginning with the founding of a chair of astronomy in 1760. Since then, the university has had a series of observatories, but in 1935 gave up the unequal struggle against the deterioration of seeing conditions around the city. Even so, there has until recently been a small observatory for students in University Gardens, and one of the functions of the new building will be undergraduate teaching. Now that instrumentation is becoming increasingly important in astronomy, the department has also been able to justify the telescope as a test-bed for the development of new equipment, which will be used on more favourably sited telescopes elsewhere. The department has its eyes on the 98-inch Isaac Newton telescope at Herstmonceux. Until now, of course, the accent has been on theoretical studies, chiefly stellar structure, solar physics and the motion of stars. With the new facilities, the department will go in for studies of the polarization of light from celestial bodies—rapidly rotating stars, interstellar material and lunar luminescence.

As well as the £16,000 telescope, the observatory has a spectrograph, a solar tower and an 8-inch coelostat as well as provision for a radio telescope. There is also

a library, a lecture room with a small planetarium, and laboratories for undergraduate teaching. The total cost was more than £100,000.

TRYPANOSOMIASIS

African and American Experience

FOR millions of people in tropical Africa and America, a life free from trypanosomiasis must be almost inconceivable. In spite of intensive research, there is no single, inexpensive method of mass control which is effective in all epidemiological conditions, and total eradication remains a dream. For many years, local control measures have been based on strict surveillance, early diagnosis, chemotherapy, chemoprophylaxis and vector control, but these measures tend to break down in the face of economic and social problems with resulting recrudescence of trypanosomiasis.

This week, the World Health Organization has published a report which provides a comparative approach to the similarities and differences between American trypanosomiasis (caused by *Trypanosomonas cruzi*) and African trypanosomiasis (caused by *T. gambiense* and *T. rhodesiense*) in the hope that this will help in the development of improved methods of control. The report (*WHO Technical Report Series No. 411; 6s*) sets out to draw attention to techniques for the study of one disease that could be adapted to the study of the other. It also reviews the advances that have been made and recommends areas of research which are ripe for tackling. The report will no doubt be enthusiastically received; according to a member of the WHO scientific group secretariat, the report is "a most valuable exercise"; for the first time it has brought together workers from all over Africa as well as those working on the disease in Europe, thereby resulting in useful discussions on problems in the field. WHO has considerable experience of trypanosomiasis and at the present time has a scheme running in Kenya under Dr David Scott concerned with the epidemiology and eradication of African trypanosomiasis.

Vector control apart, there are two ways of controlling the disease: active immunization and chemotherapy. Dr P. L. F. Boreham, of the department of zoology and applied entomology, Imperial College of Science and Technology, says that although it is possible to immunize against homologous antigenic types, the prospects of a vaccine for general use in the foreseeable future are poor because antigenic variation occurs so frequently and unpredictably in wild strains of African trypanosomes. The WHO scientific group, though more optimistic, nevertheless recognizes the difficulty of comparing the different methods of immunization in experimental use because of the lack of standardization. It therefore urges that immunization and challenge inocula should be derived from standard stabulates maintained in two WHO banks. It also urges that studies should be made of the use of adjuvants—the relationship between the immunization schedule used and the rise and fall of immunity, and the use of irradiation for the attenuation of organisms.

African trypanosomes respond well to drugs to which *T. cruzi* infections are notoriously resistant. Precisely how the resistance develops—whether, for example, transfer of drug resistance as in bacteria is involved—is not known. Indeed, it is not even known whether

drug molecules penetrate resistant trypanosomes. The report suggests that a more rational approach to chemotherapy requires more detailed knowledge of the structure and biochemistry of trypanosomes. And because some enzymes in trypanosomes are more sensitive to certain drugs than are those that catalyse the same reactions in mammalian cells, it adds that it is important that trypanosome enzymes be purified and that detailed comparative studies be made of the kinetics of enzymes from parasite and host cells.

ASTRONOMY DATA

Living with *Ap. J.*

WHAT sources of information are used by astronomers and space scientists in Britain? A three-year survey by the University of Leicester, sponsored by the Office for Scientific and Technical Information, is trying to find out, and the first part of the survey has just been published. Some of its conclusions are mundane; nobody will be surprised, for example, that the universities have a large number of junior research scientists compared with government establishments. But it is remarkable how much British astronomers in particular rely on *Astrophysical Journal*, published in Chicago and containing articles chiefly by American scientists. Forty-four per cent of astronomers named it as the most generally useful journal, with *Monthly Notices of the Royal Astronomical Society* a poor second with ten per cent. Space scientists listed *Astrophysical Journal* with 20 per cent second to *Journal of Geophysical Research* with 22 per cent, and naturally enough the terrestrial scientists did not mention *Astrophysical Journal* at all. But when scientists are divided into those doing observational work, those doing theoretical work, and those with a finger in both pies, *Astrophysical Journal* easily comes out on top in all three categories. The authors of the report, Dr A. J. Meadows and Miss J. G. O'Connor, seem to find the bias to *Astrophysical Journal* surprising, because it contains few papers from scientists working in Britain—probably, they suggest, because of charges which now amount to \$27.50 per page. Elsewhere in Europe, astronomers and space scientists seem not to rely on *Astrophysical Journal* to the same extent, according to Dr Meadows, who is also worried about the way Americans depend on *Astrophysical Journal* even more than do British scientists, thus missing much of the work going on elsewhere.

This first part of the Leicester survey is based on a questionnaire circulated a year ago, and includes an analysis of the fields studied by British astronomers and space scientists. Most areas of British astronomy, the report says, seem to be fairly well balanced between observation and theory, except for solar research, which is significantly weighted towards observation. The British effort also seems to be fairly evenly distributed through the branches of astronomy, possibly with a slight emphasis on stellar work. As might be expected, a good proportion—21 per cent—are using radio techniques and, significantly, 22 per cent are interested in the “new astronomy” based on observations at X-ray, ultraviolet and infrared wavelengths.

By far the most popular way of keeping up with current research is still by scanning the journals—more than half those asked preferred this method.

The abstracting services make a poor showing, and are the favourite method of only a fifth of those who replied. Computer retrieval methods are obviously not making much of an impression. Several respondents wanted some method of keeping informed of research in progress. Various suggestions were put forward—journals should speed up publication, American space research teams should publicize what they are doing before the journal stage, and abstracts of reports written in the course of government-funded research should be more widely circulated.

INFORMATION HANDLING

Metallurgists in Need

THE spring meeting of the Institute of Metals was rounded off last week with a discussion on the sources of information. Prompted by the recent report by Aslib on metals information (*Nature*, 221, 704; 1969), the discussion ranged over the ways in which computers, information officers and journals can help metallurgists to find out what they need to know.

A clear account of the needs of the university metallurgist was provided by Professor R. B. Nicholson of the University of Manchester. He thought that thin specialized journals are best suited to feed a metallurgist with new ideas, but that more comprehensive journals are more useful for carrying out searches. This view was reflected by most of the contributors, who came from both large and small industrial firms as well as from the universities. Mr P. Gregory of BICC stressed the importance of personal contacts and works visits in gaining information. The need for accurate titling of papers was a recurrent theme throughout the meeting.

Several computerized systems for classifying scientific articles were discussed. The most sophisticated of these seems to be the copper data centre being set up by the Battelle Memorial Institute in Columbus, Ohio. Mr W. T. Black from Battelle described how data are first collected, evaluated by an expert and then indexed and stored. Mr Black claimed that when the system comes into operation in May, a search for extracts of relevant papers on a given aspect of copper will cost an American with a teleprinter between five and ten dollars.

The problems encountered by smaller firms in getting hold of information were brought out by Mr Rush of the Industrial Liaison Service, a body set up by the Ministry of Technology to help small and medium sized firms to solve their technological problems. As about 30 per cent of industrial output in Britain comes from firms employing fewer than 200 people, according to an estimate made in 1958, it is of great importance to keep these firms aware of the latest developments in their fields.

Although the press came in for some frivolous criticism, it was evident that many people still derive a good deal of information from this source. There was widespread chagrin that few metallurgists are literate in more than one language, and one speaker pointed out that about half of all metallurgical papers are not in English. He hoped that the collaboration already in being between the American Society for Metals and the British Institute of Metals would soon spread to a wider front.