UNIVERSITIES

Birmingham Inquiry

THERE should be more interdisciplinary PhD degrees and PhD candidates should spend some part of their time of study in employment, according to the review body which for the past 20 months has been considering the role, constitution and functioning of the University of Birmingham.

In the report published last week (*Report of the Review Body appointed by the Council of the University of Birmingham*, University of Birmingham), Mr Jo Grimond, the chairman, and his review body produce well over 200 recommendations which range over the entire university parish from curriculum to administration. Of these, 30 or so need the approval of the Privy Council with a corresponding number needing to be approved by the university Court of Governors.

The report proposes that the faculty of science and engineering should be made into three faculties—life sciences, physical sciences and applied sciences—and that in time a faculty of environmental sciences be created. The review body also recommends that in future the council be empowered to change faculty structure and title without the permission of the Privy Council.

The review body says that a university "cannot stand aside from the moral issues and problems of society" but, as well, it must not divert from its primary duty of being an institution of higher learning. It is recommended that every undergraduate be taught at least once a week in a small class or tutorial and the review body feels that the classification of degrees should still continue and that examinations and assessments should still be part of the system at Birmingham.

The committee also recommends that the day-to-day decisions within the university be taken by an academic executive of 21 people of which 13 will the *ex officio* members and 2 will be students. All non-academic matters and day-to-day decisions on finance and accounts should be dealt with by a 23-person Finance and General Purposes Executive committee, says the report.

The report says that the university should take all opportunities that arise to attract research prospects. In particular, it is suggested that the university tender for local authority research work and that it should join in projects involving collaboration with overseas universities. Such an approach to research, says the report, might, however, have an adverse effect on the careers of research workers if the contracts become too rigid.

Post-doctoral research staff and research students should be used more in demonstrating and tutorial work, and departments should also be allowed to increase their proportion of research staff paid for by the university. The report says that in these circumstances departments should reorganize their teaching loads so that these extra staff will count towards the staff–student ratio.

The report also calls for greater use to be made of the facility where PhDs may be awarded to people who have spent some time in industry and who wish to return to the university to read for a research degree, foregoing residence and supervision requirements if necessary.

SOVIET SCIENCE

Emission Reactor

THE thermal emission of electrons has, for some time, been considered a promising means of obtaining a small but reliable source of electric power. At a conference on the subject held in Germany earlier this year, the possible applications of a nuclear-powered thermal emission unit in communications satellites and spacecraft was stressed. The Soviet Union has been working for some years on this problem, but in their prototype reactor, the "Romashka", the heating of the emission material was carried out through intermediate semiconductor links, heated by the nuclear reaction.

In the new Soviet thermal-emission reactor, the "Topaz", the intermediate semiconductor stage has been eliminated. According to *Izvestiya* (September 16, 1972), the Topaz consists, essentially, of a compact uranium reactor, with a moderator of zirconium hydride. The core is "pierced by electric generator channels", arranged as a "garland" of five generating elements linked in series.

The core of each element is a small uranium cylindrical rod. The heat generated by the reactor is transmitted to the molybdenum alloy cylinder which surrounds each rod. The molybdenum acts as a cathode, emitting electrons, which are collected by a cylindrical anode some fractions of a millimetre away.

The two Topaz prototypes so far constructed have been tested for more than 1,000 h, and have been found to provide a stable electric supply of 5 to 10 kW. (The thermal output of the reactor itself is 130–150 kW.) According to Dr I. D. Morokhov, deputy chairman of the State Committee on the use of Atomic Energy, Topaz has "shown definitively that the new method of obtaining electrical power from nuclear reactors is ready to go into practical operation".

CHINA

Welcome Visitors

FOR the first time since the cultural revolution in the mid-1960s, a multidisciplinary scientific delegation from the People's Republic of China will visit Britain at the end of next week. The seven-man delegation, which will be led by Professor Pei Shih-Chang, Director of the Biophysics Institute of the Academia Sinica, will spend two weeks in Britain visiting universities and government laboratories in London, Edinburgh, Oxford and Manchester.

The visit is the direct result of a visit made to China in May of this year by Professor Sir Alan Hodgkin, President of the Royal Society, Sir Kingsley Dunham and Sir David Martin. It is hoped that next week's visit will pave the way for a resumption of regular visits of Chinese scientists to Britain which existed until the mid-1960s. At that time some 30 or so Chinese scientists, who were generally at the post-doctoral level, used to visit Britain each year for anything up to six months.

As well as Professor Pei the delegation will consist of Professor Pai Chieu-Fu who is a member of the presidium of the Scientific and Technical Association of the People's Republic of China and a leading member of the Peking Municipal Bureau of Science and Technology; Professor Chang Wen-Yu, a high energy physicist, who is deputy director of the Institute of Atomic Energy of the Academia Sinica; Professor Chien Wei-Chang of Tsinghua University, whose field is dynamics; Professor Chien Jen-Yuan a high polymer chemist, who is director of the Chinese Chemical Society and a fellow of the Chemical Institute of the Academia Sinica; Mr Hu Shih-Chuan, a scientist at the Shanghai Institute of Biochemistry; and Mr Li Fu-Sheng, deputy director of the Shenyang Laboratory of the Computing Science and Technological Institute.

The visit to London seems to mark a concerted plan for forming closer links between China and the outside world. In the past few weeks, the National Academy of Sciences in the United States has also been surprised (and pleased) to find that its long-standing invitation to the Academia Sinica to send a delegation to Washington has been taken up, and that a delegation of Chinese scientists will be in Moscow in the second half of October. Its visit will overlap with that of a Russian delegation, also due in time for the academy's autumn meeting. It will be interesting to see whether the American academy chooses to throw the two delegations together.