International Ultraviolet Explorer satellite. Professor Boksenberg hopes to retain an interest in astronomy at University College London by becoming a visiting professor there. **Judy Redfearn**

Oak tree wilt

Europe in dread

Brussels

The European Commission is about to launch a research programme to find a cure for the tree disease oak wilt. And a system of import controls is already in force to ensure that wood from the United States does not trigger off an epidemic as devastating as Dutch elm disease.

Experts on both sides of the Atlantic fear that if oak wilt were to reach Europe, it would in the European climate be the death knell of the oak tree. The fungus has spread slowly in the United States and is concentrated in the areas below the Great Lakes. Oak wilt is a fungus (*Ceratostoma fagacearum*) whose spores are thought to be transmitted either by the scullitus beetle or by root grafting (roots intertwining underground). The fungus clogs the tree's vessels, blocking the movement of the sap.

Controversy has surrounded the necessity for and nature of the import regime. Britain and Ireland have been in favour of tight restrictions on imported wood. But aggressive lobbying by the German furniture industry has led to relaxation for some continental industries. The German industry requires oak logs with the bark intact for veneer furniture, and the United Kingdom's Forestry Commission has stressed that the bark poses the greatest dangers of transmission.

As things are, the logs have to arrive accompanied by a certificate to show that the wood comes from uncontaminated areas of the United States. The logs can then enter the Community only through a limited number of ports and cannot then be re-exported to another member state.

Further precautions are nevertheless being taken. The Community's import regime requires that the wood is square-edged, has been dried to remove 20 per cent of the moisture and is subject to heat and air treatment. In case of doubt, the wood can also be ponded or submerged in water to kill remaining fungus. The problem for the furniture industry is that such processes do the wood no good.

The research programme is being mounted in collaboration with American and Canadian research institutes (although Canada is still unaffected). Five contracts are about to be let by the Commission to plant research institutes in the United Kingdom, Germany and Belgium. Details of the programme have not been released, but one contract will go to the Forestry Commission. The total cost of the programme is estimated at 570,000 European Units of Account (£0.54 = 1 EUA) with Europe contributing just over a half, the United States 200,000 EUA and

Canada 50,000 EUA.

Although oak wilt has been known for the past 40 years, work is still going on to map the afflicted areas. Efforts will also be devoted to gaining a greater understanding of how the disease spreads; present evidence suggests that oak wilt would spread far more quickly in Europe than in North America.

Methods exist to kill the fungus in the wood but the more important challenge is to find a way of killing the fungus in the living tree.

Problems have arisen in coordinating the timing of the research, as the Americans are in less of a hurry. European research is also handicapped by the lack of infected wood, for obvious reasons. Relations between Europe and the United States are also coloured by the knowledge that Europeans were responsible for exporting Dutch elm disease to North America in the first place.

Jasper Becker

Soviet higher education

Candidates change

The Soviet system of higher academic degrees is due for radical overhaul, according to an article in the prestigious *Literaturnaya Gazeta* last week. On the eve of the Annual General Meeting of the Academy of Sciences of the USSR, it published a major critique of the system under which the degree of Doctor of Science is now normally awarded to mature and well-known scientists approaching their fiftieth birthdays.

The author of the article, L. Orlov, is a typical product of the system. He heads a research laboratory employing 50 scientists, and has published more than 80 papers. As a senior scientific worker, holding the degree of Candidate of Science, he earns 300 rubles per month. To obtain the extra 100 rubles a month which go with the title of Doctor of Science, he is now having to rework his research results into a formal thesis, to be defended in exactly the same manner as he defended his Candidate's thesis years ago.

Orlov does not deny that the two-stage degree system had its virtues when it was originally introduced 50 years ago, when the rapid expansion of Soviet science and the lack of trained personnel meant that young scientists who had not yet completed their doctoral research were employed in posts which would normally have gone to Doctors of Science. Under such circumstances, some pre-screening of these "doctoral candidates" was necessary.

Orlov considers the double-examination system no longer relevant since Soviet science and higher education has now reached an extremely high standard. He suggests that the two-stage system is actively harmful to science. Not only do the examiners sometimes let through a young scientist whose thesis is not entirely satisfactory, "since it is, after all, only a

Candidate's thesis", but the need to produce two such pieces of original research in one academic lifetime can seriously hamper a scientist's creativity.

The current Five Year Plan, approved by the Party Congress last month, specifically calls for flexibility in research and development in order to meet the demands of the scientific and technological revolution, and for improvements in training of scientists and workers in higher education. A provocative article in a leading journal is a traditional Soviet way of introducing a possible reform to public opinion, and is usually followed by a spirited "press debate". Orlov's proposals will probably attract considerable sympathy among scientists and academics. Not only would the adoption of a single higher degree eliminate the need to write a second thesis, it would also eliminate the chagrin arising from the present system, which as Orlov notes, gives formal parity between a Soviet "Senior Scientific Worker" who at forty plus has gained his doctorate after 15 years hard work, and some "27-30-year-old young Doctor of Science from East or West Germany".

Vera Rich

Irish research and development

Marching to Georgia

Ireland is to set up a new contract research institution in the hope of persuading the 800-odd foreign companies based — tax-free — in the country to do some research and development there at last. The new institution, announced last week, and to be called the European Research Institute of Ireland (ERII), will be set up in Limerick with the help of America's Georgia Institute of Technology and will offer 50 per cent government grants to companies wishing to place contracts with it.

Ireland's Industrial Development Authority, which is responsible for the arrangements, foresees ERII as leading Ireland into its third stage of industrial development. The first was purely domestic; the second involved the establishment of foreign industry; and the third will involve research and development placing Ireland among the modern technical countries. The problems in reaching that third stage have been first, that most Irish researchers travel abroad to do their work, to America or Europe, and second, that whereas other countries offered tax incentives to companies to invest in research and development, Ireland could offer none as the firms paid no tax anyway.

The new institute is seen as the solution to these problems, with the grants substituting for tax relief, and high salaries to attract expatriate researchers back to Ireland. The Industrial Development Authority calculates that it will be paying staff at Limerick enough to match the

standard of living they might enjoy if they were based, say, at the Battelle Institute in Frankfurt.

ERII will start formally on 1 June, when two members of the Georgia Institute of Technology Engineering Experiment Station begin work in Limerick. Initially they will be housed in Ireland's National Institute for Higher Education, where president Dr Edward Walsh is said to be playing an "aggressive" part in forging links between university and industry. Recruitment is under way for eight engineers, scientists and computer specialists, but in three years' time, when ERII will move to its own buildings, it is planned that staffing levels should increase to 80.

To finance ERII, the Industrial Development Authority is paying for the buildings (£1.5 million); and the balance will come from such sponsors as Guinness Ireland, the Bank of Ireland, Allied Irish Banks and the industrial Rohan Group. Nevertheless the authority is seeking another £500,000 to launch the institute "effectively", and would like more companies to contribute to the consortium.

Robert Walgate

UK universities

Jobs to be cut?

One week after the British government's budget, the University Grants Committee has plucked up courage to make some guesses on the quantitative implications for universities. Dr Edward Parkes, the chairman, told the Public Accounts Committee of the House of Commons last week that to meet an 11 per cent cut in real terms in the universities' grant over the next three years, 3,000 academics and 4,000 other staff would have to lose their jobs. Redundancy payments to academics, said Dr Parkes, could be somewhere between £40,000 and £80,000, although realistic figures would not be known until cases had been through the courts. The total cost to the universities could be £100–200 million.

Dr Parkes has since said that in addition to 3,000 redundancies, 2,000 jobs would have to be lost through natural wastage. He estimates that 3,000 academics will leave their posts in the next three years, either through retirement or to take posts else-

where. His current plan allows for 1,000 vital posts to be refilled. A total loss of about 5,000 academic jobs represents just under 15 per cent of the academic workforce. The percentage of job losses will have to be greater than the percentage cut in the budget because economies in other areas of expenditure are virtually impossible, according to Dr Parkes.

The Association of University Teachers disagrees with that view. It is preparing a scheme to avoid large numbers of redundancies by relying on natural wastage, an early retirement option at 50 and spending one-third of the equipment grant on staff. But the scheme is unlikely to appeal to the grants committee which holds that freezing all posts would be the worst option. The problem is that those departments with the highest rate of turnover of staff — medicine, science and engineering — would suffer most, and in many cases, those are the very departments that the government would like to see least damaged. The committee prefers to maintain minimum flexibility in making new appointments and create the minimum number of redundancies.

The Science Research Council, which provides research grants to individual academics, is particularly concerned that good research should not disappear. Ever optimistic, it says that it may be able to support a few outstanding individuals who would otherwise have to go. Such support, however, is unlikely to be very significant.

The Committee of Vice-Chancellors and Principals has estimated that the grant for 1983–84 will be £80 million less than that for this year and that the loss from overseas students' fees could remove a further £70 million, a total sum short of conservative estimates of redundancy payments. The estimated costs may well have come as a surprise to the government, which is showing signs of reconsidering its plans. Sir James Hamilton, Permanent Secretary at the Department of Education and Science, told the Public Accounts Committee that his department was still attempting to work out with the University Grants Committee how the economies could be achieved. Although the budgets for 1981–82 and 1982–83 are fixed, he said, the figure quoted for 1983–84 is still only an estimate, suggesting that there may be room for further negotiation.

Universities, however, are unlikely to make up lost income by taking in more students. Contrary to the impression given in the white paper on public expenditure and by Mr Mark Carlisle, Secretary of State for Education, Sir James Hamilton told the Public Accounts Committee that the government will not increase the grant to universities that overstep their quota of students. The plan is that student numbers should remain roughly constant, implying greater competition for places as the number of eighteen-year-olds in the population continues to increase over the next few years.

Judy Redfearn

Bulgarian astronomers look up and abroad

Bulgaria's new National Astronomical Observatory on Mount Rozhen, opened on 13 March 1981 by President Todor Zhivkov, was several times referred to in the inaugural speeches as a "pre-Congress gift to Bulgarian science". The term is appropriate, for the theses for the forthcoming Congress of the Bulgarian Communist Party state that in the new Five-Year Plan "primary importance should be paid to fundamental research".

This is in sharp contrast to the policies of many other East European countries, which tend to give first priority to application. According to Kiril Serafimov, head of the Bulgarian Committee for Space Research and Exploitation, "we are also a European country and understand that without fundamental science nothing is possible".

Speaking at the opening ceremony, Dr Serafimov inevitably referred to Bulgaria's "thousand-year-old" interest in astronomy — the country is this year celebrating its 1,300th anniversary of statehood. The observatory has three telescopes and a large data-processing and computer unit. The main telescope has a 200-cm hyperbolic mirror with a Coude-Richey-Cretien focusing system and will be used primarily for work on binaries and variable stars. The second, a 70-cm Schmidt instrument (effective diameter 50 cm) with a 4° x 4° field of view, will be used for preliminary search and scanning work. The smallest, a 60-cm instrument, is especially adapted for photoelectric work and brightness determinations.

The observatory is the most southerly in the socialist bloc (and, according to Bulgarian claims, the second largest optical observatory in Europe). The Rozhen team

expects to cooperate closely with the Soviet observatories, especially the Crimean Astrophysical Laboratory and the Special Astrophysical Observatory in the Caucasus, on approximately the same latitude. Intra-Comecon cooperation is well represented at Rozhen — the research programme has been worked out in collaboration with teams from the Soviet Union, the German Democratic Republic and Poland. (The optical equipment has been supplied by Carl Zeiss (Jena).) There has also been some French participation in drawing up the programme, while the data-processing equipment is largely of Western origin.

Vera Rich

Mount Rozhen in snow