

Yellow rain

Australian report goes public

Washington

FURTHER details of an Australian Government analysis that concluded that alleged "yellow rain" samples were fakes emerged last week as the new Labor Government agreed to release the report of the analysis (see *Nature*, 17 March, p.200).

The report, dated August 1982, had not been publicly circulated. Speculation has it that this was to avoid embarrassment to the United States, which has repeatedly claimed to have proof that yellow rain is a toxin weapon being used under Soviet supervision in South-East Asia.

The Australian analysis, performed by Dr Hugh Crone of the Department of Defence Support Materials Research Laboratory, concludes that "the samples examined are not toxic and in fact are composed of yellow pollen grains, probably with a small amount of binder". The pollen appears in the form of yellow spots adhering to leaves and pebbles, which, the report says, "were deliberately applied, either by a brush or by a spraying process". The report explicitly rules out the possibility that the spots are of natural origin.

The pollen in most of the samples matched that of the genus *Harpullia*, a group of rain forest trees that includes the tulipwood. The report notes that "one tree producing pollen from many flowers at one time would furnish enough material" to produce all the samples received by the Australians. Pollen from other tropical plants (*Sterculiaceae*, *Dilleniaceae*, *Cupaniaceae*, *Sapindaceae*) and from cereals (*Poaceae*) and the daisy family (*Compositae*) were also found in smaller quantities.

According to Phil Harrison of the Australian Embassy in Washington, the samples were turned over to the Australian Embassy in Thailand by a Laotian refugee in mid-April. Harrison said the Australians, who had earlier offered to analyse any material relating to "yellow rain", were informed by the American Embassy that the samples were available.

The report notes that because little systematic study has been made of pollen in South-East Asia, "it has not proved possible to identify grains to a level that could assist in locating the area of origin of the samples within South-East Asia". The bulk of the pollen, though, is probably derived from rainforest, the report says; the small amount of cereal and weed pollen present in some of the samples "could suggest that samples were taken from secondary forest trees close to cleared agricultural areas".

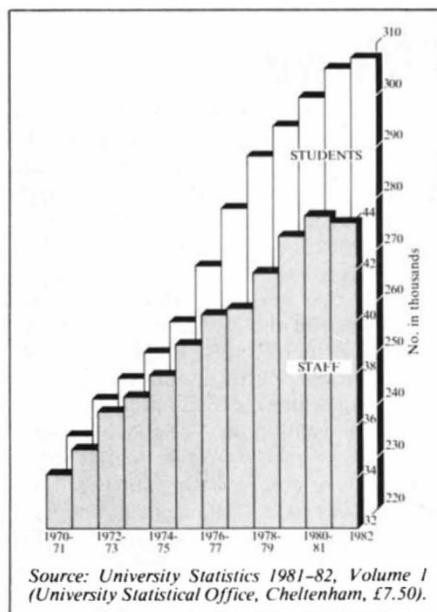
Unlike the US analyses, the Australians' did not specifically analyse for trichothecene mycotoxins, the fungal toxins that the United States maintains are the deliberate — and lethal — component of yellow rain. But the Australians did perform a simple

toxicological test (application to shaved rat skin), which the report says is sensitive to 500 ng of DAS or T-2, two of the chief mycotoxins. The results were all negative. "If we accept 500 ng as the upper limit, this cannot represent a militarily-effective residue", the report concludes.

The report also notes the presence of fungi, including *Fusaria*, on some of the samples. *Fusaria* are the natural source of mycotoxins.

Meanwhile, until more is known about the pollen that has reportedly been found in many, if not all, of the samples that the United States and other countries collected in Thailand, the only sure conclusion is, as the report states, that "since the [Australian] samples are obviously fakes, they convey no information at all as to the veracity or otherwise of the reports of chemical attacks". **Stephen Budiansky**

University staffing



THE total number of full-time students at university in the United Kingdom, both undergraduate and postgraduate, has risen by 31 per cent since 1970. This has been matched by a corresponding 29 per cent increase in the number of full-time staff, so that the ratio of students to staff has remained almost constant throughout Great Britain during this period, being 7.6 to 1 in England (standard deviation 0.13) and 7.5 in Wales and Scotland (s.d. 0.12 and 0.28 respectively), and has improved in Northern Ireland, falling from 10.4 in 1971-72 to 8.6 in 1980-81. However, as the number of students continues to rise, albeit at a rather slower rate, and the number of staff begins to fall, the reduction in the staff to student ratio in 1981-82 can only continue.

Melanie Kee

Sizewell B inquiry

Opposition falters

ALL is not going according to plan for the Sizewell B Appeal Fund, set up in January to support objectors at the marathon public inquiry now taking place at Snape in Suffolk.

The fund hopes to raise £0.5 million to finance groups at the inquiry opposing the plans of the Central Electricity Generating Board (CEGB) to spend £1,100 million on building Britain's first pressurized water reactor (PWR) at Sizewell. But the chairman of the fund's Appeal Committee, Mr Edward Irving, says that so far the fund "has not attracted the support we have hoped for".

The fund got off to a promising start when seven distinguished trustees were appointed to oversee applications for support within three weeks of the fund's foundation (*Nature* 10 February, p.457). The National and Local Government Officers Association, which has declared itself in favour of nuclear power, gave £1,000 to the fund in February, saying that it believed the donation would "assist towards the achievement of a fair and well-informed decision by the inspector". However, no other unions are known to have contributed, and approaches to industrial companies have so far failed to produce much positive response. The Appeal Committee may have to reconsider the fund's future unless more money arrives soon.

At the inquiry itself, CEGB and British Nuclear Fuels Limited have completed their initial presentation of evidence before the Inspector, Sir Frank Layfield QC. Objectors are now getting the first real chance to show their mettle with the cross-examination of Mr R. Priddle, the Department of Energy's only witness. The thrust of Mr Priddle's evidence was that it would be dangerous for the country to rely excessively on coal for its future energy requirements.

During cross-examination from Mr John Blake, vice-chairman of the Town and Country Planning Association, Mr Priddle acknowledged that the government had moved away from the 15-GW, 10-year programme of nuclear power station building that was planned in 1979. The number of new nuclear power stations that the government would like to see built in the next decade is now thought to be nearer four or five than the ten originally foreseen. Lower predictions for future electricity demand have inspired the shift: indeed, demand for electricity in the United Kingdom actually fell by 0.1 per cent last year. However, CEGB expects demand for electricity to increase to the end of the century even if total energy demand falls.

The importance of the nuclear power programme is now framed more in terms of its strategic contribution (diversifying

means of supply) and the savings made through the lower generating costs claimed for PWRs. This shift in government policy will be seized upon by the objectors, who this week include the Campaign for Nuclear Disarmament and the Stop Sizewell B Association.

The stress on diversity will be used by environmentalist to persuade the inspector that CEGB has given insufficient attention to the potential of renewable energy sources such as wave and wind power. The lower generating costs claimed for PWRs are also likely to be challenged, since CEGB's economic case appears to rely on future increases in the cost of coal. A recent CEGB study has revealed that so far electricity generated from nuclear power in the United Kingdom has been more expensive than electricity from coal.

The Nuclear Installations Inspectorate (NII) will take the stand in April to start their evidence on safety aspects of the pro-

posed design. It is clear that NII will not have completed its examination of CEGB's design by this time: on 1 March it detailed 80 outstanding issues on which it is seeking more information from CEGB. The inspector may consider an adjournment to enable NII to extend its presentation. NII has denied responsibility for delays in providing information on safety issues and blames CEGB for failing to provide NII with its Pre-Construction Safety Report until 10 months after the scheduled date. NII says "there can be no short cuts in carrying out the licensing process, and progress will depend on the timing and quality of the material provided".

It is to be hoped that Sir Frank Layfield has a hardy constitution: the inquiry is already expected to last at least until the end of the year. He is not unfamiliar with the subject, however, having represented some of the objectors at the Windscale inquiry in 1977.

Tim Beardsley

Journal of Physics and other leading journals to be published in Russian, and they call on the respective editors to insist that no such excisions are made as a condition of agreeing to such an arrangement.

This last point illustrates the vacuum in which the refusniks live — *Nature*, for example, has heard nothing of such a project. Nor do the refusniks realize that while many scientists are prepared to visit the unofficial seminars as private individuals, it may not be possible for them professionally to have their names openly linked with them. The question of publication of refusniks' articles — as many participants in the scientists' colloquium reiterated — is a very painful one; much as they would like to help, the information lag almost inevitably means that the articles are outdated before they ever reach a Western editor's desk.

With exit visas for Jews down to a dozen or so a week, heavy policy pressure on refusnik seminars and increased pressure on those Jewish academics serving sentences in labour camp or exile, the participants in the scientists' seminar decided to set up an international coordinating secretariat to synchronize and render more telling protests by the scientific community.

In one respect, however, their efforts will no longer be needed. During the past two years, at least ten Jewish scientists have been deprived of their higher degrees for exhibiting an insufficient degree of Soviet patriotism. This practice, the refusniks say, has now ceased — the authorities have abandoned it as a tactical error, apparently as a result of Western condemnation.

Vera Rich

Soviet Jewry

Request for help with status

Jerusalem

MOSCOW'S community of scientific "refusniks", Jewish scholars barred from academic life after filing an application to emigrate to Israel, have issued a decalogue of "requests" for help to Western colleagues. Their message was delivered last week to the World Conference on Soviet Jewry here. This, the third such gathering since 1971, included a colloquium to discuss the worsening situation of Jewish scholars and scientists in the Soviet Union, whether or not they wish to emigrate.

Those concerned request in particular that all help tendered should be on the basis of their status as scientists, not as charity. Their statement says that invitations to foreign scientific conferences can be of particular help. Although an exit visa for the term of the conference will almost certainly be refused, such invitations serve as reminders to the authorities and may even lead to a reassessment of their status. The statement also asks that scientists invited to the Soviet Union should use the opportunity to get in touch with refusniks and that distinguished foreign scientists should put pressure on the Soviet Academy of Sciences. Scientists from international bodies such as CERN, the European centre for nuclear physics, with which the Soviet Union wishes to maintain good relations, may be especially influential.

Other suggestions in the statement are:

- Foreign scientists should attend the unofficial seminars organized by the refusniks, thus helping to avoid police interference.
- Western scientists are asked to help refusniks to get their papers published, particularly in seeing papers through the publication process.
- Refusniks need scientific journals, as they are excluded from academic libraries; in

the case of those sentenced to Siberian exile, the refusniks' journals should be sent to the next of kin.

The statement also asks that scientific journals should deal with the refusniks' plight, pointing out that articles dealing with the subject are omitted from the photocopied versions circulated by the central library service in the Soviet Union. They have heard, however, that negotiations are soon to begin for cover-to-cover translations of *Nature*, *Science*, *American*

Acting ambassadors

SCIENTISTS and scholars tend to be regarded by the Soviet authorities as unofficial ambassadors for the Soviet system. For this reason they prefer to send to an international conference some staid and elderly personage who can be trusted to behave with decorum, rather than some brilliant young researcher who might come out with an indiscreet criticism of the Soviet Union.

This tacitly understood role for the Soviet scientist was more clearly defined recently by Academician Georgiy Skryabin, a principal academic secretary of the Soviet Academy of Sciences. Addressing the annual general meeting of the academy this month he praised the "great work" done by scientists abroad at conferences and study trips in "explaining the resolutions of the twenty-sixth party congress, and the internal and external policy of the Soviet Union".

The main public relations service the scientists have performed, Dr Skryabin noted, related to Soviet proposals for peace and security. They had spoken up in international forums against the threat of

nuclear catastrophe.

Nothing was said at this meeting, however, of the possibility (widely discussed in Moscow just before Brezhnev's death) of a Soviet initiative to form a Soviet version of an international organization of scientists against nuclear war parallel to the existing doctors' organization. Indeed, Academician E. P. Velikhov, who had been widely tipped to head the putative organization, and who recently gave a major interview on the dangers of nuclear war on Moscow television, confined his remarks at the meeting to the importance of organizing the academy's research on automation and computer science. The peace issue was well to the fore, though, with the awarding of the 1982 Lomonosov medals, the highest award of the academy, presented annually to one Soviet and one foreign scientist. This year, the foreign recipient was Professor Dorothy Hodgkin of the University of Oxford, whose campaigning for peace was especially commended by Academician Yuriy A. Ovchinnikov in his keynote speech "Marxism and Scientific-Technological Progress".

Vera Rich