in patients receiving aspirin, this was partly due to an unexpected reduction in non-vascular deaths; vascular end points were not significantly reduced. Thus like a recent review⁸ we have to turn elsewhere for an answer to these various problems.

The solution seems to come in a review of 25 randomised trials, including 29 000 patients, in which antiplatelet drugs were used for secondary prevention in patients with a history of transient ischaemic attacks, occlusive stroke, unstable angina, or myocardial infarction (p 320). Drug treatment had no effect on non-vascular mortality but significantly reduced vascular mortality by 15% and non-fatal vascular events (stroke and myocardial infarction) by 30%. Aspirin was at least as good as any other antiplatelet drug or combinations of such drugs. Aspirin in a dose of 300 mg a day was just as effective as when given in larger doses (1.0-1.5 g a day). Would a lower dose have been as good or better? Although this is an interesting academic question, as prostacyclin might then be spared, it cannot be answered. Do the results apply to both sexes? The earlier results suggested a benefit only in men,^{5,6} but this may have been because men outnumbered women by three to one in most of these studies. In the overall review (p 320) the authors have not analysed the two sexes separately, perhaps because there is no good reason to think that women would respond differently to aspirin.

A doctor should thus give aspirin 300 mg a day to any patient needing secondary prevention of cerebrovascular

and cardiovascular disease, provided no contraindication is present. Aspirin is best given as enteric coated tablets, and it would be advantageous to have them in a calendar pack (no such pack exists). Nevertheless, there is one small cloud on the horizon. Might aspirin make a haemorrhagic stroke (as opposed to an occlusive stroke) worse? As aspirin interferes with thrombosis this might be so, but the various trials are reassuring, although the data in the Physicians Health Study of American doctors is of concern. As far as primary prevention is concerned, I advise caution in the routine use of aspirin until more details of the American study are known.

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Universities to be shackled?

The Education Reform Bill contains clauses that will give the Secretary of State for Education power to force the universities to do exactly what he wants them to do. The bill will also empower him to take back (with interest) any money that is not spent as he has specified. The universities are profoundly worried by the proposed changes, and last week *Nature* organised a meeting to explain the implications of the bill and to muster opposition. The matter was thought so important that at least one ex-prime minister as well as several members of the House of Lords and a bevy of vice chancellors were in the audience.

It seems strange that the government should be anxious to unshackle industry and at the same time be attempting to give itself the power to direct universities precisely. What is even more strange is that the Secretary of State for Education should be insisting that he never intends to use the formidable powers. (This is reminiscent of the government saying that it will not use—save in very exceptional circumstances¹—the powers it is giving itself to stop publication by researchers funded by the Department of Health and Social Security.²) Why then go to so much trouble and create such suspicion among universities? The universities know that legislation and civil servants last much longer than secretaries of state and that even if this one does not pull the potent levers provided by the bill the ones that follow may.

The universities' case was put at the *Nature* meeting by Professor Sir Mark Richmond, chairman of the Committee of Vice Chancellors and Principals and vice chancellor of Manchester University. He accepted that universities needed to change and that after the expansion of the 1960s they

had drifted apart from society. But, he argued, they had changed dramatically in the past few years, using their entrepreneurial flair: more full time students than ever (301 000) are taught by 12% fewer staff than in 1980-1. The number of part time students has risen from 32 000 in 1980-1 to 39 000 in 1986-7, and income from short courses, often run for industry, has increased from £16m in 1981-2 to almost £30m in 1985-6. The numbers of overseas students have reached an all time high (37 208) after dipping sharply when subsidies were withdrawn in 1978-9, and income from industry and commerce has more than doubled in just four years—from £22.9m in 1981-2 to £59m in 1985-6. Only 57% of university income now comes from block grants compared with 77% a decade ago. In other words, said Sir Mark, the universities have done just what the government wanted and have increased their productivity enormously. Now, he argued, the government is in danger of inhibiting the change that it so earnestly requires by its unnecessary heavy handedness.

The Education Reform Bill will replace the University Grants Committee with a leaner hungrier University Funding Council, and what the universities object to is that the bill will allow the Secretary of State to tell the council what to do and in its turn the council will be able to tell the universities what to do—in very specific ways. One clause says: "The Secretary of State may make grants to each of the Funding Councils [there is a second one for the polytechnics] of such amounts and *subject to such conditions as he may determine*." Another clause says, "the Funding Councils shall comply with *any directions* given to them by the Secretary of State [my

italics in both cases].” The bill also has teeth in that the universities will be required to repay (with interest) funds that are not used in the ways directed. Even more worrying is the secondary legislation that will follow the bill for, as suggested in the consultative document of last summer,³ it may introduce funding of universities by packages of mini-contracts with no freedom to switch funds from one to another.

The universities accept that a balance must be struck between the government ensuring that taxpayers' money is well spent and universities being free to research in the subjects they want and question received wisdom without direct and narrow political interference from the government of the day. All politicians in power tend to be unhappy on the day that their wisdom is questioned and may be tempted to punish those who do the questioning. The proposed powers would give them the machinery to do so. Yet few who take a broader view, including retired politicians and civil servants, would doubt that the questioning of dogma is essential for progress. Similarly a government desperate to increase economic return from research may want to switch most of its research funds from speculative to exploitable or strategic research; but this may be to deny both the basic research that is also needed to produce economically important

innovations⁴ and non-scientific research, which may be priceless but economically worthless.

The meeting organised by *Nature* produced dissent on just how much universities had changed in the past decade, whether the changes had come from within or from direct intervention by government, and whether universities had been too slow to respond to the wolf at the door. But nobody dissented from the need to change the wording of the bill. That, it was agreed, must be the priority of the moment. The Committee of Vice Chancellors and Principals has produced alternative wordings, and it hopes to get these through by appealing to Conservative members of parliament on the committee considering the bill and to the Conservative and crossbench lords. Anybody who knows such a person should consider spelling out to him or her the frightening implications of this draconian legislation.

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Cancer among participants in tests of British nuclear weapons

The public are worried by the potential for radiation to cause cancer. The concern has arisen from reports of, for instance, higher cancer rates among children born to mothers who had radiographs taken during pregnancy and among those living close to nuclear power plants. Much of our detailed knowledge on the effects of radiation comes from follow up studies of those who were in Hiroshima or Nagasaki when the atomic bombs were dropped; those exposed have since shown increased rates of cancer. Britain began to develop nuclear weapons after the war, and the Windscale plant was built in the early 1950s partially to produce plutonium for weapons. Tests of 21 British nuclear bombs lasted from 1952 to 1958 in the South Pacific and Australia, and British servicemen and civilians also participated in other experiments with radioactive materials, in American tests in the same areas, and in clean up operations until 1967.

Most of the participants were young men, but they have since approached the ages when cancers become more frequent. Some of the cancers that have occurred have, for lack of any other apparent cause, been associated by the sufferers and their families with exposure to radiation during the tests and clean up operations. Their concern, and its publicity by the media, led the Ministry of Defence to commission the National Radiological Protection Board to carry out the study reported on page 332 by Sir Richard Doll and others.

The authors used service and other records to identify 22 347 men who had been at any of the test locations. About a third were in each of the Royal Navy, the Royal Air Force, and the Army, and some were civilians working on the nuclear weapons research programme. From independent sources the authors estimated that some 17% of participants, mainly those serving in the Royal Air Force or Army, were not on the original lists and hence were excluded from the study. Some of the Army personnel were missed because

their service records had been removed as disability claims had been made. This is unsatisfactory, despite the authors' suggestion from a subanalysis that any resulting bias was small.

The records of those included in the study have been followed up to measure mortality from various causes including cancer. There were concerns that a comparison with national mortality would be inappropriate because the participants were highly selected in terms of physical fitness, social class, and other factors. Thus a control group of 22 326 men who served in other tropical areas during the tests were identified from the same records as the participants and matched with them for age, service, rank, and date of entry to the study.

The comparison of mortality with national figures shows nothing unexpected. Test participants and controls have experienced similarly low death rates from all main causes, including cancer overall; the only exception was accidents and violence. Two particular cancers, however, were significantly higher among participants than among controls—namely, leukaemia (22 deaths against six) and multiple myeloma (six against none). This must be a cause for concern since leukaemia was the first cancer to show an excess among survivors of the Japanese bombs and rates of multiple myeloma rose among them after a latent period of some 15 years. In the present study about half of the other cancers were commoner in participants (but not to the same extent as leukaemia and multiple myeloma) and half were commoner in controls. Some of both of these groups of cancers have also been associated with radiation.

Surprisingly little information is given on radiation exposure from the tests since results from personal dosimeters were available for only about 20% of participants. These measurements suggest that the collective dose was orders of magnitude lower than that absorbed by survivors of the