

Test-bans up and down

The United States wants two test-ban treaties reopened. Why not just ratify them?

Is the United States backsliding with its request to the Soviet Union that two bilateral treaties on nuclear weapons tests should be reopened? The measure of agreement that has been accumulated since the 1963 treaty banning tests in the atmosphere is one of the few achievements in three frustrating decades of arms control. Although the strategic arms reduction talks (Start) begun in Geneva suggest that the Reagan Administration has taken a step forward on arms control, it would rightly be counted a setback if the test-ban treaties were to be thrown back into the melting pot. So what is the Administration doing? Is the reopening a prelude to making the treaties acceptable to the Senate? Or will the Administration wash its hands of them?

First, it is not intended that the 1963 treaty should be reopened. That could not in any case be done without the agreement of the other signatories. Second, the Administration seems to be concerned only with the two related bilateral agreements between itself and the Soviet Union — the agreement signed in 1974 by which each superpower agreed not to test weapons yielding more than the equivalent of 150,000 tonnes of conventional explosive, and that signed in 1976 on peaceful nuclear explosions. Neither of these treaties has been formally ratified, but both parties to the treaties seem ever since to have kept the rules. The United States now wants to improve the provisions for verification on the grounds that the technology has improved in the past few years — and that the provisions of the treaties as they stand are too loose to be convincing to the US Senate.

That is too cheerful a reading of what has happened. The treaties now up again for grabs are very different from each other. The threshold treaty stipulates that verification should depend on "national technical means" — remote seismographs and the like — although a protocol to the treaty (which would have the force of law if the treaty were ever ratified) requires that each side should provide the other with data to help with the calibration of these external measurements. Washington's chief concern seems to be that many Soviet tests of weapons underground have been uncomfortably close to the limit of 150,000 tonnes, at least while errors of measurement are as great as at present. Obviously the treaty would be improved if each side would agree to the siting of automatic monitoring stations at each other's test sites (which, under the treaty, must be specified geographically in advance). If that is what the United States plans to ask for, well and good.

The treaty on peaceful nuclear explosions is a different kettle of fish. Its chief objective is to ensure that peaceful explosions are not used as a means of circumventing the threshold treaty. Among international agreements of this kind, however, this treaty includes some of the most stringent means of verification ever to be agreed. Those wishing to carry out explosions are required not merely to give advance notice of their intentions (including the time of detonation to within a second) but, for explosions yielding between 100 and 150 kilotonnes, to admit inspectors from the other side. Since only the Soviet Union appears to be interested in such explosions (there appear to have been five in 1981), it has seemed on many occasions in the past few years that the United States could win a unilateral benefit by ratifying the treaty and bringing the disclosure provisions into force. If the United States's objective is merely to extend these provisions to smaller explosions, nobody will complain — although there is a risk that to ask for too much will make the Soviet Union retreat from the concessions already made.

The comprehensive test-ban treaty is something else again. When negotiations ground to a halt two years ago, many in President Carter's Administration were fond of saying that a treaty could be completed within two months, given the "political will". This opinion was always too optimistic, for neither President Carter nor his advisers had accurately calculated the chances of persuading the military to forgo tests of any kind for the indefinite future. (Something can be done to improve the

design of nuclear weapons tests by tests of conventional explosives, sub-critical experiments and mere calculation, but the process is uncertain.) The Reagan Administration has now said that it will not pursue the comprehensive treaty. That is not surprising, for it recognizes what is feasible in Washington.

That does not mean that the comprehensive test-ban is dead. The technical study of the international monitoring of a comprehensive test-ban treaty set up earlier this year by the Geneva Committee on Disarmament has terms of reference that will allow it to make the best possible case for supposing that a comprehensive test-ban could be monitored effectively. Whether France and China, the two nuclear powers still outside the 1963 test-ban treaty, will attend the technical session beginning on 3 August remains to be seen. Whatever happens, there is now a good chance that the Geneva committee will be able to back a case that, perhaps with the help of automatic monitoring stations (part of the Carter draft), uncertainty about verification is no longer a valid reason for not having a comprehensive test-ban. The timetable is about right to cause the maximum embarrassment to the nuclear powers at the next review conference of the Non-Proliferation Treaty in 1985.

Britain's test-tube babies

The new British committee on in vitro fertilization should not make heavy weather of its task.

In one respect at least, British technology has established a commanding lead: children conceived by the technology of *in vitro* fertilization are being born at a greater rate than anywhere else (see *Nature* 293, 253; 1981). Predictably, the British government has therefore set up a committee (under Dr Mary Warnock, a lively soul) to consider the implications, ethical and otherwise, and to recommend what should be done. This is what the committee's report should say.

- Devised as a means of treating certain kinds of female sterility, *in vitro* fertilization works and produces predominantly healthy children, but naturally more data on the last point would be welcome. For the small proportion of women thus handicapped, the treatment is demonstrably beneficial and should be provided as if it were a medical routine.

- As a technique for helping sterile women to produce children, *in vitro* fertilization is less open to theoretical objections than other techniques now in use. Thus circumventing male sterility by means of AID (artificial insemination by a donor) is widely practised and is to some people objectionable because the children's DNA is not some reshuffling (by the rules of genetic recombination) of the parental DNA, which is an old-fashioned grumble. The practice of AID nevertheless lends itself to such abuses as those of genetically-attested sperm banks, which should be registered and then regulated.

- Although *in vitro* fertilization could in principle be used to implant surrogate mothers with embryos derived from two other people, thus creating an unseemly trade, it must surely be significant that this has not happened when female sterility cannot be treated by this or other means.

- The use and disposal of surplus embryos produced by *in vitro* fertilization is a problem for many religious people, Roman Catholics in particular. If it were accepted that each viable fertilized ovum is human and alive, not to implant it is to sin. But this strict view cannot be made universally applicable in societies in which abortion is permitted. The more difficult question is whether viable human embryos may be used in embryological studies; the committee should say yes but should fix a time limit corresponding to the normal time of implantation for the independent growth in culture of human embryos, recommending that this time limit will be extended only when animal experiments show that embryologists have pointed questions to ask.

- Otherwise (the committee should say) *in vitro* fertilization should not be a public worry. Human cloning, when it becomes feasible, will be different.