

## Better treaty is worth waiting for

JULES VERNE in *Sens dessus dessous* (1889) reported that the government in Washington was very interested in the possibility of firing a projectile of 180,000 tons which would displace the North Pole by 23°, thus eliminating the obliquity of the ecliptic and thereby seasonal variations in the Sun's elevation. During 1956, Senator Estes Kefauver, the US Vice-Presidential candidate declared that hydrogen bomb tests could tilt the axis by 10°. Neither Verne's nor Kefauver's calculation took into account the Earth's spheroidal shape. When this is accounted for, the displacements in both cases assume more modest dimensions—being reduced by a factor of about 10<sup>12</sup>. "After seventy years", wrote Walter Munk and Gordon Macdonald, in telling this story in *The Rotation of the Earth* (Cambridge University Press), "the government in Washington still refuses to recognise the existence of the equatorial bulge".

This week the United Nations Conference of the Committee on Disarmament reconvenes in Geneva, and environmental warfare will be high on the list of topics to be studied. If denying Moscow (and London) a decent summer every year is less high on the list these days, there still remain plenty of possibilities, however unfeasible they may be at present. They include

- stimulation or suppression of rain, hail, fog, snow and lightning
- generation and guidance of tornadoes and hurricanes
- modification of climate
- diversion or pollution of rivers and ocean currents
- changes in physical, chemical or electrical properties of the atmosphere or oceans
- stimulation of earthquakes and/or oceanic tidal waves
- disruption of natural vegetative cover

Excellent surveys are given by Jozef Goldblat and Bhupendra Jasani in a recent issue of *Ambio* (Vol. IV, No. 5-6).

In the past two years the United States and Soviet Union have been holding bilateral talks on environmental modification, and will be proposing a draft convention. Its crucial sentence runs: "Each State Party to this Convention undertakes not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to another State Party". Environmental modification techniques are later defined to comprise techniques which change the environment "through the deliberate modification of natural processes".

A veritable industry has grown up around the analysis of what is omitted from arms control and disarmament measures, and this convention offers particularly rich pickings. The exercise is helped by the existence of two earlier drafts—one proposed by liberals in the United States Senate in 1973 and given overwhelming support there, the other submitted to the United Nations General Assembly in 1974 by the Soviet Union. The table shows the most significant variations.

The omissions show rather clearly US military thinking on the subject. Environmental modification techniques that

	Military R & D forbidden?	All states protected?	All operations forbidden?	Review Conference after 5 years?
US Senate Resolution (1973)	Yes	Yes	Yes	Yes
USSR Proposal (1974)	'Preparations for use' forbidden	Yes	Yes	Yes
US/USSR Proposal (1975/6)	No	No, only 'States Party'	No, only those leading to 'widespread, long-lasting or severe effects'	No

are limited in extent, short in duration or not too severe are permitted. Bickering about where the line is drawn is, by the convention, transferred to the Security Council, where the veto can be used. Research and development are permitted, so techniques can be brought to the point of readiness; if any country decides to turn its hostility on another and has a new and remarkable weapon it is unlikely to be too squeamish about ignoring a treaty. It is difficult to know whether to attach any significance to the limitation of beneficiaries to 'States Party'. China has not been in the habit of signing treaties; the two superpowers seem to be keeping their options open in her direction. Finally, the lack of a review conference seems to be the easiest way to allow the subject to go underground once the ink is dry on the treaty.

The definition of environmental modification as change "through the deliberate modification of natural processes" was not in the earlier drafts. Was it added simply for neatness or does it exclude anything significant? It does resolve an ambiguity, namely, whether bombing a dam to flood the countryside or illuminating enemy territory at night time is to be regarded as environmental modification. Unfortunately, as with so much else in the convention, the almost feasible is declared beyond its scope.

There are many reasons why the proposed convention is weak, and since widespread, long-lasting and severe modifications are by no means yet upon us (indeed many ideas are by common consent, fairly ridiculous) there is still scope for action. The superpowers should be told to go away and work out something more meaningful in which research and development for peaceful purposes is given a firm international grounding, since the environment does not recognise frontiers. That done, there need be no excuse that military research and development is needed because it might have peaceful applications. And a much more realistic treaty could be written. □