

It is sometimes asserted, too, that the strict design requirements imposed by the relatively limited payloads of US missiles, and the severe safety and security requirements imposed by US authorities, have necessitated the optimization of weapon designs and thereby increased the possibility of subtle design flaws or susceptibility to unforeseen errors which might emerge only after deployment. US designers assert that Soviet weapons, which are less complex and which are destined for missiles with larger payloads, are considerably less vulnerable to design errors than their US counterparts. They therefore claim that cessation of tests or a moratorium would, for this reason, favour the Soviet Union.

On the basis of experience, one might respond that those weapons which have not been tested at full yield at least once should not be admitted to the stockpile. As regards stockpiled weapons which have been tested, some qualified experts contend that their reliability can be ensured indefinitely without recourse to explosive testing. As far as is known, none of the nuclear weapon states performs much explosive testing for the sole purpose of reliability. Strict adherence to stockpile surveillance programmes, including non-nuclear radiographic, chemical or mechanical testing, may be sufficient. Indeed, meticulous examination of the assembly by visual and electronic means and, if necessary, correction or replacement of faulty components by using materials manufactured in full conformity with the original, proven design specifications, could deal with the ageing problems most frequently encountered in stockpiled weapons. In any case, an explosive test, which destroys the seemingly defective weapon, may not provide confirmation of the diagnosis. Proponents of this standpoint also tend to view with scepticism the suggestion that more "robust" Soviet designs are less prone to deterioration and point out that physical degradation, such as corrosion, is not related to the size of the weapon and is likely to affect Soviet and US weapons alike. If, however, less sophisticated nuclear warheads appear to be more reliable, they could certainly be designed by US weapon laboratories.

At most, over an extended period of time, a programme to ensure