

## Testing times

While many fear that Iran and North Korea are edging the world towards nuclear war, a greater threat lies closer to home, warns **Lawrence Krauss**

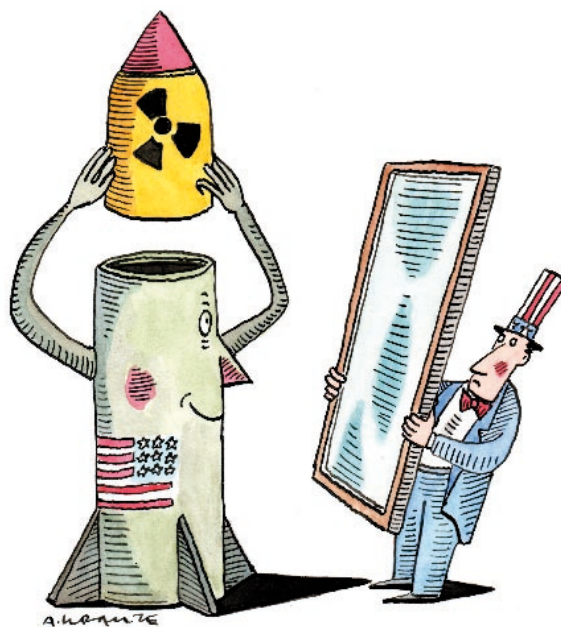
WHO would have thought, at the end of the cold war, that the world would be closer to a nuclear conflagration in 2007 than at just about any time since 1945? Yet that's the way it seems today.

Last month the *Bulletin of the Atomic Scientists*, whose board of sponsors I am a member of, moved the hands of its "Doomsday Clock" 2 minutes closer to midnight, as a graphic reminder of the dangers posed by nuclear weapons. It has been more than 60 years since they were last used in wartime, representing a great success for deterrence. But as memories of the realities of nuclear war fade, we may also be becoming worryingly complacent about their use.

One reason for this is that many of us labour under the false assumption that the world's biggest superpower would never be the first to use nuclear weapons. We cannot rely on that. US policy, reaffirmed in 2002, states that the country "will not use nuclear weapons against non-nuclear-weapon state-parties to the Treaty on the Non-Proliferation of Nuclear Weapons, except in the case of an invasion or any other attack on the United States, its territories, its armed forces or other troops, its allies, or on a state toward which it has a security commitment carried out, or sustained by such a non-nuclear-weapon state in association or alliance with a nuclear-weapon state".

The loopholes in this statement are large enough to allow the US to start a nuclear war. More worrying still is the country's updated 2002 Nuclear Posture Review, in which the US declared that nuclear weapons "provide credible military options to deter a wide range of threats" including "surprising military developments".

The situation is made worse by the current fixation in the US with terrorism, which has provided ample opportunity for hawks to argue in favour of using nuclear weapons pre-emptively. Until Congress put an end to the programme last year, the Bush administration had been



investigating the development of "nuclear bunker busters", small nuclear-tipped warheads designed to penetrate deep underground. Besides the dubious assumption that such devices would actually work, the notion that "small" nuclear weapons are acceptable and somehow not qualitatively different to non-nuclear devices is chilling.

The bunker-buster programme is also a classic example of why the 1970 nuclear non-proliferation treaty (NPT), under which the nuclear powers agreed to work towards the eventual elimination of nuclear weapons and to work with non-nuclear states to ensure their non-proliferation, is failing. None of the nuclear powers that signed the NPT – the US, Russia, France, the UK and China – has significantly reduced its nuclear weapons arsenal. Of the 27,000 nuclear warheads that exist around the world, 26,000 are held by the US and Russia, with no rational strategic purpose. Furthermore, non-treaty states such as India and Pakistan are actively working with

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countries including the US to upgrade their nuclear weapons capabilities.

Even more troubling is a recent US proposal that could herald a whole new era of nuclear weapons testing. Testing nuclear weapons has been banned since 1996 under the Comprehensive Nuclear Test Ban Treaty, though the US has failed to ratify the treaty and India, Pakistan and most recently North Korea – none of whom are signatories – have undermined it by carrying out tests. President Bush's latest budget requests funds for what has become known as the Reliable Replacement Warhead (RRW) programme, whose aim is to develop warheads to replace all existing weapons in the US nuclear arsenal. The US government claims these new warheads would not need testing, but many physicists familiar with the programme maintain there will be huge pressure to test the weapons before they are deployed. Indeed from a scientific perspective it seems folly to deploy any system on such a scale without testing it.

If the RRW programme does lead to new nuclear tests, it will open a Pandora's box from which the world might not recover. It will put pressure on other states to test, and make it more difficult to convince Iran and North Korea to abandon their nascent nuclear programmes. The US will have lost any moral authority with which it can convince non-nuclear states to stay out of the nuclear club. It is worth noting that testing a weapon is one psychological step towards using it.

What can be done about all this? The American Physical Society, which represents more than 45,000 physicists around the world, has argued for a full and open discussion about the circumstances under which the US might use or threaten to use nuclear weapons, and about our security in general. Such a dialogue is urgently needed if we are to stave off the beginnings of a second nuclear age. ●

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