Letters to the Editor

It is hard work to digest the writings of Mirzayanov in his book *State Secrets*, an insider's chronicle of the Russian chemical weapons programme. In fact, it is mainly a chronicle of a part of the former Soviet Union CW programme. The summary given in the Summer 2009 issue of *CBRNe World* tells the same story, and all the details in the book are not required to make his point. It might be due to a difference in culture between the USSR and the Western world, but the details undermine the actual message which is: "Beware, there are more highly toxic nerve agents than described in the schedules of the Chemical Weapons Convention (CWC) and there are (or at least were) states willing to develop chemical weapons to circumvent the CWC and who have a stockpile of chemicals that fall outside the CWC verification regime".

Vil Mirzayanov should get special recognition as a whistle-blower for anti-CWC activities in the former SU that seemed to continue in the new Russia. What he forgets is that there is a General Purpose Criterion in the CWC. What he also forgets is that the CWC and every responsible nation will follow the principle laid down by US President Ronald Reagan: trust but verify and at the same time protect the troops as part of a web of deterrence. Just banning research as proposed on page 246 is not a very feasible option.

Jumping back and forward in time is one of the things that make the book difficult to read. Going through the book I was amazed to read that, after all those years, he remembers the names, background and drinking habits of many of his teachers and colleagues – even distant ones and from many years ago. Not so nice is the negative writing about good scientists, for instance Dubinin. Everybody working in the area of adsorption knows that the theory originally was developed by Polanyi, but Dubinin and his co-workers did good thermodynamically-sound work to extend the theory. The work of Dubinin *et al* have contributed to the understanding of the pore structure and adsorption process on activated carbon. If the people at the State Scientific Research Institute of Organic Chemistry and Technology (GosNIIOKhT) would have had a somewhat better understanding of the energies involved in an adsorption process, they never would have started the development of mask breakers (Chapter 9) or made other funny statements about adsorption (p187) and many others.

When he started to work in the laboratory on the use of chromatographic techniques for analysis of CW agents, he complains that he got no instruments, was not supported by the management and his techniques were questioned by the bosses. (In those years we also had to build our own GCs). Two years later (1970) he ran a laboratory full of modern equipment – even including a US-made GC-MS, which in my memory came onto the market about a decade later.

As a matter of fact, the most interesting part of the book is about the Novichoks. Some claims are made about these compounds that are hard to swallow. For instance, he claims they are seven times more toxic than VX. This is a rather useless statement without more details about the test animals, the exposure, the route of exposure, etc. Even worse are the remarks that the agents would not be detected by available detectors. A suggestion is made that the detectors missed very low agent concentrations in Kuwait when the Iraqi CW stockpile (including Novichoks) was destroyed, and this could have caused the health problems with the Gulf War veterans. He misses the point that, for most of the troops, the wind was blowing in the wrong direction. In addition, it assumes that some of the detectors based on cholinesterase inhibition would not have worked, despite the fact that Novichoks are cholinesterase inhibitors. But the lack of detection capability continues to play a part. Even after the 1992 publication he assumes that the Western world is sleeping and not clever enough to find out about the Novichoks. I will not reveal any details, but with some skilled researchers it is not too difficult to find out what the Novichoks are. Detectors based on ion mobility or mass spectrometry (Spurfuchs) are easy to calibrate so that they alarm for these compounds.

The book gives the structural formulas of several nasty nerve agents without any good reason. In *CBRNe World* the reasoning is followed that it would result in a better world. The good guys from the OPCW now know that these agents exist and can adjust the CWC schedules. On the other hand, it would be too complicated for the bad guys to produce and handle the agent. Both statements are very wrong. It took 22 years to negotiate the CWC, and difficult compromises were made on many issues by the participants. It is highly unlikely that when some parties suggest opening up the schedules for change the other will follow suit without bringing forward the changes they would like to see. It is far better to have a crippled but very successful CWC than to go into many more years of negotiation. In addition, most of the experts knew those formulas for nearly two decades.

His suggestion that the Novichoks would be too complex for the terrorist to produce and handle is even more wrong. The Aum Shinrikyo hired a skilled Russian chemist to produce their nerve agent. Now, 12 years later, one cannot expect the terrorist to be more ignorant or to have less money to execute their plans. The compounds are hazardous to handle and every sound chemist will take his precautions, but this does not hold for terrorist who are involved in suicide missions. The only result of the publication of the formulas is that it has become one step easier for the terrorist to lay their hands on hazardous compounds.

I am not in favour of burning books, but when there is a fire I will be happy to donate my copy.

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[If you have a comment or opinion on this, or any other issue, please do not hesitate to send it in to gwyn.winfield@cbrneworld.com Ed)