

ions drift down a short, electrically charged tube. A computer measures the time that the ion clusters take to move down the tube. The computer is programmed with the drift times of the various known chemical agents. It gives a read-out of the amount of agent present. This chemical agent monitor is small, portable, and requires little maintenance, but can be used only for nerve agents and mustard gas. Furthermore, it is not useful as an alarm. Canadian scientists at Suffield have been able to develop an alarm based on the chemical agent monitor just described. It provides warning of a gas attack and identifies the agent.

There are a number of other technologies that are being considered for use as chemical agent detectors, with varying degrees of success:

- o electron capture
- o infrared spectrophotometry
- o flame ionization
- o flame photometry

These are all common techniques used around the world in the field of analytical chemistry.

One of the major problems facing scientists today is that the chemical structures of new agents are extremely varied. No longer do we have to consider only organophosphorus nerve agents and mustards. The challenge is to develop new detection techniques that allow us to detect these new agents.

Canadian scientists fear that the use of biotechnology by other countries will lead to the development of novel chemical and biological agents. Ironically, the Department of National Defence is turning to biotechnology as a possible solution to problems in CW detection. In addition, biological research into monoclonal antibodies and cellular receptor sites are being evaluated by DND for possible applicability to the development of new detectors.