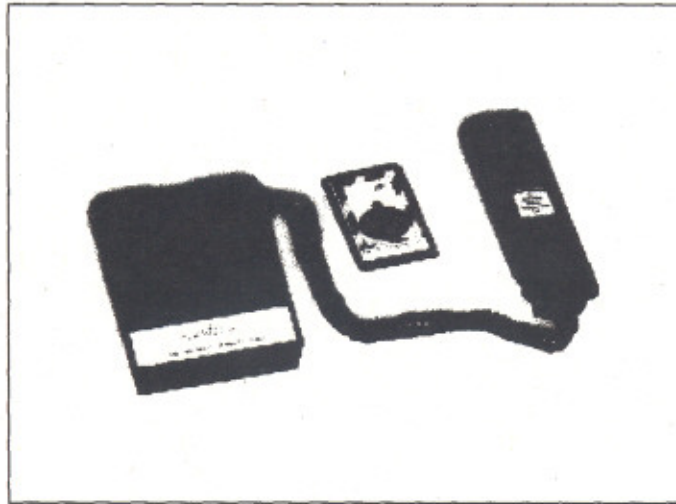


APPENDIX A

Special Feature: The Mole



The "Mole" is an unusual piece of detection equipment marketed in the UK by at least two companies - Bridgewood Consultants and Global Technical. It consists of three main components: a hand-held unit is connected by a wire to a card holder into which is inserted a laminated card which programmes the unit to detect one of a range of substances.

The hand-held unit has attached a pivoted telescopic pointer which swings freely in a horizontal plane. In use, the pointer is supposed to point in the direction of the target item, be it drugs, explosives or whatever.

The "Mole" has no power source, relying, it is claimed, on static electricity generated by the user's body. The internal workings of the device are a closely guarded secret but the device is said to rely on the principle of "molecular resonance": a principle which is, it must be said, unknown to mainstream science.

Another popular explanation is that the "Mole" exploits some paranormal effect, akin to water divining or dowsing.

Because this device has received much publicity, even being featured on the BBC's "Tomorrow's World", and because a number of organisations have expressed positive views of its performance, it was decided that it should be tested in a way which would satisfy scientists at both the Police Scientific Development Branch (PSDB) and the Defence Science and Technology Laboratories (Dstl), both departments having great experience of the scientific evaluation of search and detection equipment. A joint trials protocol was therefore produced and the suppliers invited to submit their equipment for trial. They were given the opportunity to comment on the protocol and to suggest variations, which would be accepted provided that the scientific validity of the trial was not compromised.

Only one supplier, Bridgewood Consultants, actually submitted equipment, though Global Technical were given adequate opportunity. The trial took place at PSDB's Langhurst site on 18th-19th September 2001.

In the trial, the "Mole" operator was required to locate a 500 gramme quantity of Semtex H plastic explosive located in one of ten boxes arranged on the ground. Roughly 80 tests were to be carried out - 40 double-blind and 40 single-blind. In the double-blind

tests (the fairest way of testing a detection device) no-one in the search area knew the location of the explosive: this means that the performance cannot not be influenced by either the operator or by the observer. In the single-blind tests the location was disclosed to the observer, to test the possibility that the observer could somehow unconsciously influence the operator.

The result showed that this device **does not work**. The results for the double-blind trial were statistically indistinguishable from the results we would expect from chance: it's no better than guessing.

To avoid any suggestion that the trials conditions were artificial we twice tried hiding the Semtex in the open air, in and around a large open field. Again, the Semtex was not detected.

We therefore have to conclude that this device **does not detect explosives**. Not only does it not work in theory, it doesn't work in practice either.

The "Mole" also closely resembles a device called the "Quadro Tracker", which was banned from sale in the US in 1996 after a federal judge pronounced it a fraud. Although PSDB did not dismantle the "Mole", the "Quadro Tracker" was closely examined by the FBI who found it to be an empty plastic box. Programming cartridges contained cut-up photocopies of pictures of explosive and drugs.

In conclusion, although the idea of security forces forking out thousands of pounds for a useless lump of plastic seems incredible or even funny, a surprising number of people have been taken in. If they are relying on such devices to detect terrorist bombs the implications are deadly serious.