

Machine Can Measure Stress

By Paul W. Valentine
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The innocent-looking machine that fits neatly into a black attache case has been variously branded as a super lie detector, Big Brother device and doomsday machine—but it falls short of all those descriptions.

The Psychological Stress Evaluator (PSE), one of the latest tools in the security-intelligence hardware market, was on display last week at the Channel Inn Motel here.

Personnel directors, chain

store security agents, policemen and others huddled around the machine as it wheezed, chortled, sighed and occasionally disgorged spools of graph paper with a jagged line on it.

"The pattern of the line shows us whether the subject is under stress or not," explained Gil Gray, representative of Dektor Counterintelligence and Security, Inc., of Springfield, Va., purveyor of the PSE.

The PSE measures tiny, giveaway modulations of the human voice that tend to diminish when the subject be-

ing tested is under psychological stress. That stress may occur because the subject is lying.

Or, as the official Dektor literature puts it: "Superimposed on the audible voice are inaudible frequency modulations. The FM quality of the voice is susceptible to the amount of stress that one may be under when speaking.

"To the human ear, a person may sound perfectly normal, free of tremors or 'guilt-revealing' sound variations. The PSE senses the difference and records the

changes in the inaudible FM qualities of the voice on a chart."

The Dektor company, run by a group of former Army intelligence specialists, claims it has sold more than 400 of the gadgets at \$3,455 apiece. The price includes a three-day training course in operating the PSE and evaluating its results.

More than a dozen police departments, most of them small, have purchased PSEs, as have several psychological and other academic institutions throughout the country.

in Human Voice

But the biggest buyers are retail chain stores, said Gray, where internal theft and personnel screening are major administrative problems.

Official opinion is not unanimous on the PSE's reliability. Numerous police departments have written Dektor, praising the instrument. The Vienna, Va., police department, the only local law enforcement agency currently using the PSE, called it an "invaluable asset" for weeding out criminal suspects.

But Florida's secretary of

state, Richard Stone, issued a directive Sept. 19, restricting PSE use throughout that state except in conjunction with a conventional polygraph machine operated by a licensed expert. The directive stemmed from growing concern about the PSE's reliability, and aide to Stone said.

The PSE is similar to the traditional polygraph in that they both record emotional stress of the subject.

But the PSE records only one variable — the voice — while the polygraph records several, such as pulse, blood

pressure and respiration.

Also, a polygraph subject must be "strapped in" with a number of wires and tubes for recording physiological reactions, while a PSE subject simply speaks into a tape recorder.

In fact, Gray observed a PSE subject does not even have to be present for testing. A sample of his voice from any tape recording can be used.

Gray discounts speculation that this opens the door to an Orwellian nightmare in which any person's utterances can be recorded and

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then measured for truthfulness.

"The PSE only measures stress," he said. "It does not tell you what caused the stress." It could be triggered by the fact the subject is lying, he said but "there are plenty of other reasons for stress, too."

Thus, without a controlled situation in which the subject is given a "structured" test with simple non jeopardizing questions to determine his normal stress pattern, it is risky to try to evaluate PSE voice measurements, he said.

He said, for example that recorded segments of recent

Senate Watergate Committee testimony processed through Dektor's PSE "showed some of the people asking the questions stressing harder than the witnesses in some cases."

Likewise, he said, PSE tests of recorded press conferences and speeches by President Nixon and other political figures have been largely inconclusive.

On the other hand, the PSE has been used extensively and with considerable success by police in questioning criminal suspects.

Gray ticked off a number of instances in which suspects have been either implicated as guilty or cleared as innocent by their recorded responses to key questions.

A prize case, he said, was that of a convicted murderer in Maryland who, after serving several years in prison, was pardoned by Gov. Marvin Mandel early this year after going through the PSE with flying colors.

The ex-convict is Riley Brooks, sentenced to life imprisonment on a first-degree murder charge in the 1965 shooting death of an acquaintance in Ann Arundel County.

Gray supported his PSE claim with copies of a letter from Brooks' lawyer, Donald G. McIntosh of Baltimore, praising the efficacy of the PSE, which he said, showed Brooks "to be innocent of murder."

McIntosh's letter went on

to say, however, that the PSE test itself did not trigger Brooks' release but led further investigation and the discovery of state-suppressed evidence indicating Brooks' innocence.

Also, Ann Arundel prosecutor Joseph Reina said the PSE results were only "one in the petition for Brooks' release, "and I think it played a relatively small part in the decision of the governor's office to pardon the man."

In the academic world, PSEs have been put to a variety of uses, ranging from mental health research to training drama students to act.

James W. Worth, a psychologist at Washington & Lee University in Lexington, Va., says he has been conducting validity tests of the machine and trying to determine if it can be used in mental health programs.

"If it can be used to monitor stress," he said, "it would be a very good tool in mental health."

At the University of California at Irvine, drama teacher Robert Cohen said, "I'm trying to teach students to beat the PSE, to speak on cue without any physiological signs of stress . . . Some can do it magnificently, others can't."