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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

Executive Registry
75-18451

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17 April 1975

Mr. David W. Belin
Executive Director
Commission on CIA Activities
Within the United States

Dear Mr. Belin:

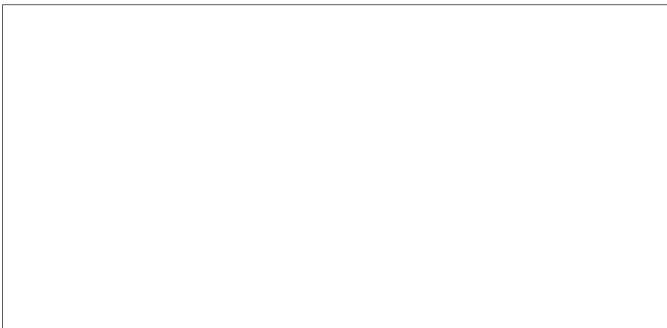
This is a follow-up to our telephone conversation of this morning. As I indicated, we are putting into train the preparation of responses to the questions you raised in three separate letters from you to me dated 15 April.

There is one item, however, which we do not feel appropriate for this Agency to investigate. It is your request in Question #3 of the two-page letter dated 15 April in which you ask for any evidence that an Associated Press report of 1963 might have appeared in any American newspapers, including specifically, Dallas or New Orleans. With this exception, we will proceed to provide answers on all other matters you raised.

Faithfully yours,



E. H. Knoche
Assistant to the Director



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SUBJECT: ORD's Investigation of PSE

1. ORD personnel have observed developments in the voice stress analysis field for some years because of the potential value of an effective alternative to the polygraph. We are familiar with the Dektor Psychological Stress Evaluator (PSE) through the work of others but have never sponsored research on this device. Our estimation is that the PSE is, as a "lie detector," either ineffective or far less effective than other devices or techniques.

2. Dektor Counterintelligence and Security, Inc., manufacturers of the PSE, claim that their devices measure a microtremor in the voice which amounts to a slight "warble" of the pitch, occurring at a rate around ten cycles per second. They claim that this normal oscillation in pitch diminishes or disappears when a subject is under stress. Unfortunately, the manufacturer will not provide circuit diagrams which would allow a determination of precisely what aspect of the voice signal the PSE is measuring. In addition, to the best of our knowledge Dektor has never performed controlled studies to provide experimental validation of the effectiveness of the PSE.

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Although the manufacturer claims 71 out of 75 correct evaluations of voice recordings from the TV show "To Tell the Truth", a 91% success rate on a second study and a 100% success rate in a study by a "Maryland County Police Chief Polygraph Examiner", details of these studies are not provided by Dektor, making an objective evaluation impossible.

3. Details are available on one PSE evaluation project, sponsored by the U. S. Army Land Warfare Laboratory. This failed to demonstrate any significant results. The research was done in 1973 by Joseph F. Kubis of Fordham University. Groups of three subjects participated in a mock crime (a theft), one as the thief, one as a lookout, and one as an innocent person knowledgeable of the "crime". The subjects were then interrogated and, in most cases, polygraphed. Voice recordings of the interrogations were evaluated by means of the PSE (and a second device) by personnel unaware of the subjects' respective roles. A total of 174 subjects were tested. The best results were obtained by the polygraphers (76% overall accuracy). By comparison, PSE analysts were correct from 19% (in the bulk of the cases) to 53% of the time depending on the experimental conditions. The 19% results were worse than chance, which would have been 33%. The voice tapes were also monitored by raters

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who gave their overall subjective or "global" impression as to the guilt of the subjects. Even these raters did better than the PSE, scoring 83% correct in one set of 27 subjects. The conclusion was that the PSE yielded either insignificant or non-competitive results. An open-source report on the Kubis work appears in The Washington Post, 13 February 1974, page A21. A draft copy of the Kubis report is attached.

4. C. Alan Smith of the Department of Psychology, Powick Hospital, Worcester, England reported an experiment in which he used the PSE to detect stress in speech of patients. While Smith reports his results as "statistically significant" there is a flaw in his statistical work. After the error has been corrected, it appears that his results ($p=.15$) are far below the level considered "significant" by usual scientific standards.

5. Working under contract to NASA, Harry Older of the PLANAR Corporation of Alexandria, Virginia, analyzed the voices of astronauts using various techniques, among them the PSE. Again the PSE results were only slightly better than chance. In another group of related informal studies using the recorded voices of airplane pilots just prior to crashing, conflicting results were obtained. The same voice recordings produced differing results when analyzed by different people using different PSE machines.

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6. A technical evaluation of an early Dektor device, property of the Army Land Warfare Laboratory, was performed in June 1971, by an ORD scientist. Although the electronics were embedded in plastic, input-output studies revealed that the device did not have the characteristics of an FM discriminator. This means that the unit examined would not, by itself, have been able to detect the 10-cycle-per-second "warble" alleged to be the basis for the PSE's operation. Rather, the unit acted as a simple (low pass) filter.

7. Based on these considerations, ORD has kept in touch with PSE-related developments but has not chosen to fund proposed research suggested by such firms as Planar Corporation and Keptron, Inc., which have approached us in recent years. The PSE is merely one of many possible means of measuring voice qualities related to stress and other more attractive research alternatives seem to exist.

8. The Office of Security (Interrogation Branch) borrowed and attempted to evaluate a PSE briefly in-house. Unfortunately, the device malfunctioned a good bit of the time so the results were inconclusive.

~~TOP SECRET~~