

ible other than a lack of appreciation for the statistical, professional, procedural and technical questions which abound in this area. Chronic shortages of personnel and a failure to assign qualified statistical and research personnel to polygraph units must have contributed to but does not explain the absence of studies on the effectiveness of lie detection programs. About 200,000 examinations have probably been performed with the polygraph, but there is not even a reliable summary of the number of tests accomplished within the Government. There is no useful residue of this experience to help identify the strong and the weak features of our present procedures or to tell us what we must do to improve them. Though there is no reason to doubt that the lie detector "works," we do not know whether the security and criminal interrogations would be just as effective as they appear to be without the polygraph device.

The experts themselves express divergent views:

"Although the present-day instrument can assure almost 100-percent accuracy in detecting deception, the long history of constant search for improvement continues. The day is not far off when it may be said with complete accuracy: 'You can't beat the machine'" (R. W. Inman in "Truth The Polygraph Story," current catalog of Associated Research, Inc., producers of the Keeler Polygraph, no date).

"The best advertising is our ability to get at the truth more often and more accurately than any other known method but claims of 100-percent success are an insult even to the casual intelligent observer" (Ansley & Weir, 1956, p. 2).

"Among polygraph examiners, the machine itself is credited with 10 percent of the success of a polygraph interrogation; 90 percent or 95 percent of the interrogation is dependent upon the ability, sincerity, and training of the examiners using this piece of equipment" (R. W. Inman in Ansley & Weir (1956), app. II, p. 18).

The repetition of numbers which have no objective basis has created an impression of knowledge that need no longer be tolerated.

There has been more concern with the problem of conducting polygraphic interrogations than with determining whether the polygraph is a valid instrument in lie detection. Polygraph operators have had the responsibility of doing the best they know how with the facilities available to them. They have not had the opportunity or the detachment required to assess their own activities. They must, in fact, be complimented for doing a conscientious job without the support of objective evaluation, research and development provided in many other programs.

Improvement of our lie detection capability will require a coordinated research and development program and the development of professional standards in the practice of polygraphy. We will discuss these two steps below.

First, research and development in equipment and test procedures are required to improve our capability in lie detection. This research program should have the support of a technical advisory committee consisting of competent and respected scientists who are not committed professionally to the use of the polygraph device, together with liaison from the operating agencies. No conceptual problems are thought to exist in the formulation of a research program and it is believed that an expanded program will produce useful results.

No lie detection research and development program is currently in existence. The several studies which have been identified receive insufficient support (about \$100,000 a year) to provide the effectiveness we require in our lie detection capability. Except for the work of Kubis and Zimmer, most of the "research" is aimed at improving various features of already existing equipment. This will not enlarge our understanding of lie detection. Work of the type performed by Kubis has been conducted on a small scale (\$25,000 per year) and should be enlarged to at least \$100,000 per year. This is also true of Zimmer's work on computer data processing of physiological responses to improve lie detection.

Research and development should be expanded to a level of about \$500,000 per year for a period of 3 to 5 years. This will permit a significant increase in our knowledge of the physiological, behavioral and methodological problems associated with lie detection together with a modest improvement in sensors, instrumentation and experimental facilities. It would provide the basis for a judgment as to the probable utility of a computerized lie detection apparatus but not the funds for such a development. Competence and resources for conducting an expanded R. & D. program in the psychological, behavioral, and