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CONTROL QUESTION THEORY IN THE POLYGRAPH TECHNIQUE

By

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When John Reid developed the control question technique during th late 1940's, he laid the foundation for a diagnostic polygraph technique. Since that time many examiners have utilized elements of the original concept to develop their own technique and procedures. Unfortunately the revisions have been developed independent of any common theoretical ground. In fact, the profession has been noticably negligent in formulating and testing theoretical concepts upon which techniques are based.

This is not to say that examiners have not attempted some theoretical justification of their technique. Reid (1947) explained his control question theory through the concept of emotional weighted questions, while Backster (1974) and Abrams (1976) borrowed concepts from the field of perceptual psychology to incorporate set theory into their rationale. Despite these attempts, there still does not appear to be a complete understanding of the theory behind the control question technique, and those theories which have been presented do not have universal acceptance. This weakness has been played upon by opponents of the polygraph technique. Lykken, for example, created his own assumptions of the polygraph technique. Lykken's (1980, p. 93) assumptions represent implausible theories which support his arguments against polygraph. Recently other opponents have attacked the technique's construct validity using these same infeasible assumptions (Kleinmuntz & Szucko, 1984).

The purpose of this article is to present a theoretical foundation for the control question technique. The intent of the article is to spur interest and research in the area of construct validity. It is tempting to be satisfied with merely validating empirical results such as the accuracy or reliability of examiners' diagnoses. However, without an accepted theoretical foundation, the generalization of such research findings is necessarily limited.

TEST DESIGNS

There are two different test designs currently used in detection of deception. One design relies on subject recognition to stimulate the emotional process. Recognition is a form of memory triggered by an external stimulus. Examples of recognition tests would be guilty knowledge tests or the peak of tension test design (Lykken, 1980, p. 297, Reid and Inbau, 1977, p. 55). With a properly conducted recognition test there is little chance of a subject without guilty knowlege experiencing acute sympathetic arousal on cue to the key item.

A recognition test, however, has severe investigative limitations in that the test can only validly demonstrate the presence of guilty knowledge

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and not the absence of guilty knowledge. Secondly, many cases do not have the necessary factual criteria for the test to be conducted. For these, and other reasons, a test design is required wherein an opinion of the subject's truthfulness to an answer is needed. These types of tests rely on the psychological process of attention wherein differential significance is placed on some questions depending on the subject's truthfulness. It is important to distinguish between phenomena relating to recognition or attention test designs. Research findings applying to recognition tests do not necessarily hold true for the attention test design and vice versa. The control question technique represents an attention test.

Before embarking on a theoretical foundation supporting the control question test design, it will be useful to state some of the underlying assumptions of response theory. Because there is no one psychophysiological response unique to deception, a direct measure at this time cannot be made. Detection of deception therefore is similar to dozens of other scientific tests wherein the results are obtained through inference. All inferential tests used in medicine or psychology are based upon certain assumptions. If the assumptions are valid, the results of the inference should also be valid.

Assumption #1: During a polygraph examination most individuals undergo a cognitive process which often leads to an emotional state at the time they recognize a stimulus which is significant to them.

One of the key concepts in this assumption is that it is not necessary for a test to be 100% predictive for it to have validity. Therefore, not every person must experience an emotional state at the time he lies; it is sufficient to assume that most individuals do. Another important aspect of the assumption is that it is not the act of lying, per se, which stimulates the process, but rather the subject's expectations within the context of the examination. Studies and empirical data indicate that it is the question presented to the subject, not the subject's verbal response which generates a response (Horvath & Reid, 1972; Kugelmass, Lieblich, & Bergman, 1967).

Identifying the actual emotional state associated with deception is not necessary to accurately detect deception. Indeed, many examiners believe that different sugjects experience different emotional states during deception depending on environmental, behavioral, and cognitive variables. Common cognitive processes associated with deception are fear, hope, and conflict. Davis (1961), for example, presented three alternative mechanisms explaining how deception could result in an emotional state. It is likely, therefore, that different subjects not only experience different emotional states during deception, but also through different psychological mechanisms.

Assumption #2: The emotional states experienced during deception are accompanied by short term sympathetic arousal.

To simplify discussion, the cognitive processes associated with detection of deception from this point on will be considered psychologically within the realm of emotional responses. Because emotional states cannot be measured directly, their presence, like deception, must be inferred. Psychologists agree that before an emotional state can be experienced,

three requisites must be met. First there must be some form of sensory input. An emotional state requires some perceived stimulus, whether it be auditory, visual or olfactory. Secondly the body must physiologically respond in some fashion to the stimulus. This response has been closely linked to the autonomic branch of the peripheral nervous system. Finally, a cognitive element is involved wherein the individual phenomenologically experiences the emotional state.

Several theories have been suggested relating to the sequence of these three events. For example James and Lang theorized that the experiential aspect of emotion results from the biophysical arousal. Cannon and Bard, on the other hand, speculated that the biophysical and experiential components of emotion occur concomitantly. Several other theories have been posited as well. Despite lack of agreement on one theory of emotion, each of the presented theories incorporates a biophysical arousal state.

The classification and differential discrimination between similar emotional states has likewise been debated (Ekman, 1985). Relying on either experiential or biophysical data, psychologists have separated emotional states into broad categories. For example, contact withdrawal, positive negative, sympathetic/parasympathetic, and chronic/acute distinctions are generally recognized.

Therefore, while emotional states may not be specifically identified through physiological differences, there appear to be dimensional differences. Chart interpretation rules established by various polygraph schools all involve analysis of emotional states associated with short term sympathetic arousal.

Assumption #3: When obtained under controlled conditions, polygraph recordings of most subjects provide adequate information for a trained examiner to evaluate the significance of short-term sympathetic arousal.

Reliability studies done on the polygraph technique support this assumption (Barland, 1972; Raskin, Barland, & Podlesny, 1977; Slowik & Buckley, 1975). The roles of training and experience have also been studied, with more diverse findings (Horvath & Reid, 1972a; Suzucki, 1978; Raskin et al., 1977).

Assumption #4: Using proper techniques under controlled conditions, a polygraph examiner can reliable distinguish between short-lived sympathetic responses that are related to deception and similar responses which are non-deceptive in origin.

This assumption is of course necessary if the technique is to have scientific validity. Different techniques have attempted to accomplish this goal through different means. An approach common to most techniques is the control of environmental stimuli during the examination (extraneous auditory, visual, tactile, stimuli). To evaluate the possibility of random non-deceptive ideation responses, the questions are repeated a number of times during the examination to check the consistency of responses. Despite these precautions, it is generally accepted that other measures are needed to further discriminate non-deceptive sympathetic arousal.

In evaluating the derivatives of the original Reid Control Question

Technique, the variations between one technique and another primarily represent different means of further achieving this response discrimination. As examples, some techniques utilize clinical assessment (Reid & Inbau, 1977), others incorporate special questions (Matte, 1980), or have created procedural changes (Howland, 1978). The most effective method has not yet been scientifically identified. However, there appears to be a common belief that non-deceptive sympathetic responses can, through some means, be differentiated from deceptive sympathetic responses. Further, it is believed that the control question facilitates this goal.

CONTROL QUESTION THEORY

As previously mentioned, Backster and Abrams have explained control question theory through a hypothetical construct termed psychological set. Although I, too, will incorporate set theory within my explanation of the control question polgyraph technique, it is important to note that my usage of terms and concepts within set theory is different from that generally presented by polygraph examiners. To utilize existing research findings in set theory, my description of the control question technique relies on the traditional concept of set theory.

Set theory holds that individuals simplify perceptions and expectancies by converging dissiimilar stimuli to form a unified expectancy (Coon, 1980; Marx, 1963). There are two different ways in which a psychological set is developed. An existing set, sometimes called a mental set, is formed through past experiences, knowledge, beliefs, and attitudes. A perceptual set, on the other hand, relies on context comparisons to help unify expectancies or clarify perceptions (Davis, 1973). With this brief background, the first assumption of control question theory can be made:

Control Question Assumption #1: Psychologically healthy polygraph subjects know whether or not they are telling the truth to an issue under investigation.

The subject's knowledge with respect to their truthfulness makes up part of his mental set. A subject, therefore, who is innocent of a theft of $5,000, has a mental set established around his truthfulness. Some elements of his set would be that he did not steal the money, he does not know who stole the money and did not received any of the stolen money. The individual who did steal the money however enters the polygraph examination with a mental set established around his deception. Elements of his set include opening the safe after hours, stealing the deposit, throwing away the deposit bag, using some of the money for a downpayment on a car, and lying to the police when he was questioned. Set theory predicts that these respective mental sets will affect the subject's behavior, expectancies, and perceptions toward the issue under investigation as well as stimuli presented in the context of the examination.

The effect of motivation on the polygraph technique has been studied and considered critical to achieve valid results (Gustafson & Orne, 1963). As motivational factors increase, so does the clarity of an individual's perceptions and focus on his attention (Shaver, 1975, p.23). Motivation is actually a combination of two processes; goal orientation and the impetus of drive to accomplish the goal. Goal orientation simply refers to fulfilling a perceived need. A polygraph subject's goal orientation becomes an integral part of his mental set.

Truthful subjects enter the polygraph examination with a need, expectancy, and goal of being reported truthful to the issue under investigation. They are confident of their truthfulness and although, through recognition, the relevant questions will be perceived as being important to their goal, the relevant questions are not a threat per se.

Deceptive subjects, conversely, enter the examination with a need and goal of not being reported deceptive to the issue under investigation. The deceptive subject's mental set is established around the threat of the questions that deal with the issue under investigation. During the course of a pretest interview, control questions are introduced and formulated with the subject. A control question is one of similar nature to the issue under investigation, however, one to which the subject in all probability will lie or have doubt about his truthfulness (Reid & Inbau, 1977, p. 28). Control question theory predicts differential responsivities between the truthful and deceptive subjects.

Control Question Assumption #2: Most subjects who are not telling the truth to the issue under investigation will exhibit greater sympathetic arousal to the relevant questions (dealing with the issue under investigation) than the control questions.

Control Question Assumption #3: Most subjects who are telling the truth to the issue under investigation will exhibit greater sympathetic arousal to the control questions than the relevant questions.

These assumptions rely on truthful and deceptive subjects developing different perceptions toward the control questions. Returning to the concept of set theory, the truthful and deceptive subjects form different perceptual sets which will either include or exclude the control questions (relative to the relevant questions). The perceptual set is formed through context comparisons, and therefore will reflect elements of the mental set along with the respective subject's goal orientation.

When motivational levels are high, there is a natural tendency to allocate potential responsibility to stimuli (Shaver, 1975). This process is termed attribution, and may help explain the truthful and deceptive subject's differential question discrimination during a control question test. The truthful subject enters the examination with a goal of being reported truthful to the issue under investigation and is anxious to accomplish that goal. When the control questions are introduced, the truthful subject may attribute a response to the control question as a threat to his goal. His mental thoughts might be something like, "If I react to that question my innocence isn't certain," and therefore the question becomes threatening.

The deceptive subject, on the other hand, has a different goal orientation and will correctly attribute a response to the control question to something other than the issue under investigation. He should, quite easily, be able to dismiss a response to the control question to some incident in any way related to his primary goal. The resulting attribution is that the control question does not threaten, or apply to his goal of not being reported deceptive to the issue under investigation. The deceptive subject's thoughts may be, "If I react to that question my guilt is not certain," and therefore it is dismissed as insignificant.

Atrribution theory only partially accounts for the differential responses between the truthful and deceptive subjects. The deceptive subject, after all, is lying to the control question and could form a new mental set or expectancy around the control question. Similarly, the truthful subject certainly recognizes the relevant questions as being important to their goal orientation and therefore some sympathetic arousal to those questions would be expected. The exclusion of the control questions from the deceptive subject's perceptual set as well as the relevant questions from the truthful subject's perceptual set is best explained through the concept of attention. Attention is the process of selection and limitation wherein an individual excludes competing stimuli in favor of those that bear special relation to a primary goal (Reik, 1947).

Therefore, even though the deceptive subject could form a new mental set around the control questions, and the truthful subject could exhibit sympathetic arousal to the relevant questions through recognition, this rarely occurs in a properly conducted polygraph examination. Depending on the subject's truthfulness, the respective question type is relatively excluded from the perceptual set through the process of attention.

As can be seen, in addition to proper goal orientiation and motivational incentives, the selection, introduction, and formulation of the control questions are critical if the subject is expected to properly discriminate between the relevant and control questions. Utilizing the preceeding theoretical framework the following characteristics of a control question are evident:

THE CONTROL QUESTION MUST BE A LIE OR DIFFICULT TO ANSWER TRUTHFULLY

The control question must hold potentially for sympathetic arousal through some implicit threat. It is essential, however, that the control question elicit the same emotional states which will potentially be elicited during the relevant questions. Through this procedure, the examiner need not be concerned with exactly which emotional state the particular subject experiences during deception because comparisons between the same emotional states will be made during chart interpretation, e.g., fear vs. fear, conflict vs. conflict.

A control question which is specifically designed to elicit non-deceptive sympathetic emotional states can be very misleading diagnostically in this regard. To compare deceptive emotional states to the emotions of surprise, embarrassment, novelty, or confusion for example, has serious theoretical limitations. The reason for this is that context comparisons, such as those required to form a perceptual set, require some time and similarity to form. The predicted results of such control questions would be sympathetic arousal from both the truthful and deceptive subject to the control questions resulting in no diagnostic potential.

THE CONTROL QUESTION MUST PRESENT A THREAT TO THE TRUTHFUL SUBJECT'S GOAL ORIENTATION

Several aspects of the control question are required to fulfill this characteristic. A control question should be similar in nature to the subject's perception of the issue under investigation. If the subject is an employee of a bank and he is being questions about the theft of money, a

control question dealing with violating company policy would be appropriate. However, if the theft of money involved a burglary, the subject's perception of the theft would be different and a control question dealing with engaging in illegal activities may be more appropriate.

Merely selecting the proper area of inquiry will not necessarily threaten the truthful subject's goal. The truthful subject must be able to attribute a response to the control question as a threat to his goal orientation. Depending on technique, this is accomplished in two different ways. Examiners who utilize a non-exclusive control question which includes the time of the offense, e.g., "Did you ever steal anything in your life?", typically offer no explanation or purpose for the control question during the examination. In fact the question is introduced as a natural extension to the issue under investigation, with a concerted effort on the examiner's part not to separate the control questions from the relevant issue under investigation. Because the control question overlaps with the issue under investigation the truthful subject can attribute deception to the control question as a direct implication of deception to the issue under investigation as well.

On the other hand, some techniques utilize exclusive control questions which exclude the time of offense. If a 25-year-old employee is suspected of a recent theft, an exclusive control question might be worded, "Prior to your 21st birthday, did you steal anything of value from anywhere?" With an exclusive control question the examiner must create an artificial connection between the subject's goal and the control question because the control question does not directly threaten the subject's goal orientation. For example, the examiner may tell the subject that the reason such a question is being asked is to determine whether or not the subject is the type of person who could commit the issue under investigation.

THE CONTROL QUESTION MUST BE BROAD IN SCOPE

One obvious reason for this characteristic is to increase the likelihood that the subject will have difficulty answering the question truthfully. However from a psychological prospective, a much more important reason exists. By making the control question broad in scope and time, the deceptive subject will have an easier time attributing a response to the control question to something other than the issue under investigation. The theory presented in this article predicts that the broader a control question is, the less likely a deceptive subject will exhibit sympathetic arousal to it. For example, a deceptive subject who is taking an examination regarding the theft of an automobile should have little difficulty dismissing the importance of a control question such as, "Did you ever steal anything in your life?" He can easily attribute a response to that question to childhood thefts or other thefts in no way related to the car. However, if the examiner were to ask, "Did you ever steal any cars in your life?" or, "In the last 12 months did you steal anything from anywhere?" the attribution becomes much more difficult and the examiner would expect poor question discrimination.

THE CONTROL QUESTION MUST BE FORMULATED AND REVIEWED WITH THE SUBJECT

Because the control question is unique for every subject, the examiner requires both verbal and non-verbal behavior from the subject to determine

whether the control question is being perceived properly and whether the subject is evidencing difficulty answering the question truthfully. Reviewing the control question during the pretest interview also allows the subject time to formulate a perceptual set and, of course, eliminates any possible response due to surprise or confusion.

CONCLUSION

The goal of the polygraph technique is to evaluate whether or not a particular subject's mental set contains elements of the issue under investigation. Early attempts to identify 'guilty' mental sets relied strictly on the absence or presence of autonomic arousal. This approach, in retrospect, seems naive in that autonomic arousal can be blocked through chemical agents, or stimulated through non-deceptive intrinsic emotional states. The primary difficulty in lie detection is that there is no unique, identifiable physiological response associated with truthfulness or deception. Every subject has his own autonomic response potential and the presence of autonomic arousal must be relatively evaluated. Appreciating this problem, John Reid developed the control question technique.

The mechanisms by which the control question functions in the polygraph technique are complex and not completely understood. The observation that two individuals may predictably have different interpretations of the same stimulus is the underlying principle behind many psychological evaluation techniques and written tests. Given a particular interpretation or perception to a question, the evaluator draws a conclusion or inference as to some element of the individual's background. In a written test the individual's perceptions of stimuli are measured by evaluating which answer they circle. In the control question polgyraph technique the individual's perception is evaluated through the presence of autonomic arousal.

Relevant questions can address specific elements of the mental set, e.g., stealing the money, breaking the window, shooting the victim, etc. However, because our index of evaluation (short-term sympathetic arousal) is not deception-specific, and because there is no measureable emotional state associated with truthfulness, an artificial measure must be created. The purpose of a control question, then, is to serve as a comparison against the potential autonomic arousal occurring through recognition of the relevant questions as well as demonstrating a sympathetic response potential if the subject is telling the truth to the issue under investigation. The relevant and control questions used during a polygraph examination therefore are merely asked to gain insight into the subject's mental set. The validity of inferring deception from autonomic arousal is dependent not only on selecting proper control questions, but introducing and formulating the questions properly.

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BEHAVIORAL INHIBITION AND ELECTRODERMAL ACTIVITY DURING DECEPTION*

By

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Abstract

We tested the assumption that the act of inhibiting ongoing behavior requires physiological work. In a guilty knowledge test (GKT) paradigm, subjects were induced to attempt to deceive the experimenter on two separate occasions while electrodermal activity was measured. For 20 of the 30 subjects, overt behaviors (changes in eye movement and facial expression) were recorded during the second GKT. Results indicated that the incidence of behaviors decreased during their deceptive responses. This behavioral inhibition coincided with increases in skin conductance level. In addition to suggesting nonverbal correlates of deception, the results indicate that long-term behavioral inhibition may be a factor in psychosomatic disease.

Whenever an individual emits a behavior, a certain amount of physiological work or energy is required. To stand up from a sitting position, for example, requires a temporary elevation in blood pressure and muscle tension. Although people typically assume that not behaving conserves energy, there are certain occasions in which "actively" not behaving (i.e., inhibiting) may be effortful. Our purpose is to demonstrate that inhibition of ongoing behavior in a controlled laboratory setting is associated with increased physiological activity. If such a link can be substantiated, a number of implications arise for our understanding of psychosomatic disease processes.

The impetus for the present study has come from a series of surveys indicating that victims of sexual abuse and related childhood traumas (Pennebaker & Hoover, in press) and spouses of suicidal or accidental death victims (Pennebaker & O'Heeron, 1984) are more prone to a host of illnesses in the months and years after these traumas if the individuals have not discussed the traumatic event with others. Indeed, the confiding-illness relation is independent of measures of social support. Interviews with these subjects indicate that those most affected have wanted to tell others about their trauma, but have not for fear of punishment, embarrassment, and so on. These individuals, then, appear to be actively restraining or inhibiting their confiding behavior, which, we hypothesize, places additional stress on them. Over time, the cumulative stress of behavioral inhibition could result in increased incidence of disease (cf. Selye, 1976).

In recent years, investigators have suggested that behavioral inhibition is associated with increased physiological activity. For example, Gray (1975) summarized a number of animal investigations by noting that behavioral inhibition coincides with increased activity in the septal and

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hippocampal regions of the brain. In an extension of this idea, Fowles (1980) provided compelling evidence indicating that behavioral inhibition in humans is linked to increases in electrodermal activity (EDA). For example, passive avoidance paradigms with humans result in changes in EDA, whereas active avoidance behavior is unrelated to EDA (see Fowles, 1980, for review). Furthermore, individuals who are classified as chronically low in behavioral inhibition (i.e., sociopaths) or as "poorly socialized" tend to have lower skin conductance levels than do normal individuals (e.g., see Hare, 1978) or those classified as "highly socialized" (Waid & Orne, 1982). Another group of researchers has found an inverse relation between emotional expressiveness and skin conductance levels on a between-subjects basis (e.g., Buck, 1979; Notarius & Levenson, 1979). Interestingly, this relation has not been confirmed through the use of within-subject paradigms (e.g., Laird, 1974; Lanzetta, Cartwright-Smith, & Kleck, 1976).

Of particular relevance to our research are a number of studies that have examined the behavioral and psychophysiological correlates of deception. For example, when individuals are required to deceive others about their feelings or attitudes, a number of behaviors, such as changes in gaze and smiling, decrease in frequency. These same behaviors either increase or remain constant when the subjects are not deceptive (see DePaulo, Stone & Lassiter, in press, for review). By and large, the behavioral research that suggests an inhibition of behavior during interpersonal deception has not included physiological measures.

Within the physiological realm, researchers have restricted their study of deception to autonomic changes associated with one word responses to a question that represents either a lie or the truth. Perhaps the cleanest methodological research in this area involves the guilty knowledge test (GKT). Although a number of physiological measures have been used in order to tap deception (including skin conductance, heart rate, breathing rate, blood pressure, voice analysis), Waid and Orne (1981) demonstrated that skin conductance is the most reliable indicator of deception.

In summary correlational studies suggest that not being able to discuss a traumatic event with others, or behavioral inhibition, is associated with disease processes over time. Various lines of research indicate that behavioral inhibition is correlated with EDA (Fowles, 1980). Deception is associated with the inhibition of behavior (DePaulo et al., in press). Furthermore, deception in the GKT is associated with phasic skin conductance increases. Our purpose was to tie these findings together. Specifically, we sought to evaluate the degree to which induced deception was associated with behavioral inhibition and EDA over time.

METHOD

OVERVIEW

Thirty undergraduates participated in a mixed between-within design in which we used two separate GKTs during which skin resistance was monitored. During both GKTs, subjects selected one of five words printed on an index card. On the second GKT, 20 of the 30 subjects were observed by a male experimenter who sat directly in front on them. The experimenter pressed one of two buttons each time there was a change in the subject's eye movement (EM) and facial expression (FE). EM and FE changes were recorded simultaneously with EDA on the polygraph in the adjacent control room. After the

experiment, subjects completed a questionnaire with which we assessed how effective they thought they were at deceiving the polygraph and the observer.

SUBJECTS

Thirty-two undergraduates (26 female and 6 male) participated in the experiment as part of an introductory psychology requirement. The data for 2 subjects were not tabulated, one because of equipment failure, another because of the subject's reporting of heavy alcohol use before participating in the experiment. Subjects were randomly assigned to one of the two conditions (observe vs. no observe) with the restriction that a comparable ratio of male subjects to female subjects was represented in each cell. The final sample included 30 subjects: 20 in the observe condition and 10 in the no-observe condition.

APPARATUS

Skin resistance level (SRL) was continuously measured during each of the GKTs via a Grass Model 7D polygraph located in a room adjacent to the subject. We recorded SRL from the second phalanges of the first and third fingers of the subject's left hand by using Beckman Ag/AgCl electrodes. A 10-mA constant current was used in the SRL recording. On completion of the study, SRL measurements were converted to skin conductance units (in micromhos).

During the second GKT for those assigned to the observe condition, the experimenter pressed one of two silent handheld buttons whenever there was a change in the subject's EM or FE. The buttons connected to event markers on the polygraph directly below the skin resistance pen on the polygraph chart.

PROCEDURE

Subjects were tested individually. When they entered the lab, a female experimenter, who was blind to the condition to which the subjects were assigned, introduced herself. Subjects were told that the experiment involved physiological correlates of verbal responding. All subjects were told that they would select one of five code words that were written on separate index cards. They were to keep the card that they selected and not to discuss it with the experimenter. They were further informed that they would be asked if they were holding each of the five words, one at a time, by the experimenter. They were to respond "no" to each word. After answering any questions, subjects were allowed to withdraw from the experiment. None did so.

After the electrodes had been attached, subjects were given all five word cards and asked to select one of them. After the subjects had chosen one of the cards, the experimenter placed the remaining cards face down on a table in front of the subject. The experimenter was unaware of which word had been selected. Subjects sat alone for 5 min; during the last 2 min, the baseline SRL was recorded. From the control room, the experimenter announced that the experiment was ready to being and reiterated the instructions. The experimenter then asked the subject, "Is the word blue?" The first two words that she asked were not among those that the subject

had been able to select. The final five words were asked in the same order for all subjects. Questions were asked 14 s apart. After asking about each of the words, the experimenter announced that this concluded the first phase of the experiment and that a second experimenter would talk with them momentarily. The experimenter exited the lab and notified the second experimenter.

The second experimenter, a male who was blind to the procedures and responses of the first GKT, entered and introduced himself as a professor in the psychology department. He noted that the second phase of the experiment would work in much the same manner as the first half. He handed the subject five new cards with different words on them and requested that they select one. After the subjects had chosen one of the word cards, the experimenter placed the remaining cards face down without examining them. At this point, the experimental manipulation was introduced. Those subjects randomly assigned to the no-observe condition were told to respond "No" to each of the code word questions asked by the first experimenter in the same way that they had done in the first phase of the study. The experimenter then left the room.

In the observe condition, the experimenter noted that in the second phase he would be watching their behavior to see if, by viewing their behavior, he could detect which word they had selected. He then sat down 1 m directly in front of them. As in the no-observe condition, he then told them to respond "No" to each question called out by the first experimenter in the control room in the same ways they had done in the first half of the study. At this point, the first experimenter called out the questions pertaining to each of the five words, together with two initial words that had not been included in the cards that the subjects had viewed. As in the first GKT, SRL was continuously monitored.

The male experimenter sat expressionless throughout the procedure fixing his gaze on the subject's chin. Whenever the subject's eyes changed the direction of their focus, he pressed the button in his right hand. Whenever there was a change in facial expression, he pressed the button in his left hand. We pretested this procedure by using videotapes of 10 mock subjects. EM ($r = .83$) and FE ($r = .81$). This method only allowed for changes in EM and FE; hence we could not evaluate whether subjects changed from no expression to a smile or vice versa. Also, during the debriefing session, all subjects were asked to guess what the experimenter was looking at during the observation period. Not one of the 20 observe condition subjects guessed either EM or FE. Almost half of the subjects failed to notice that the experimenter was pressing the buttons. Those who ventured a guess invariably thought that he was looking for changes in posture, body movement, or facial sweating.

At the conclusion of the second GKT, the electrodes were detached and the subject was asked to complete a postexperimental questionnaire. In two questionnaire items, we assessed how well the subjects thought they had fooled the polygraph as well as the observer. For those in the no-observe condition, subjects were asked to imagine how well they would have fooled an observer had one been present. In addition, subjects responded to a series of items headed, "When you lied about the code word, to what degree did you experience:" A series of four physical symptoms (*e.g.*, sweaty hands, tense stomach) and three emotion items (*e.g.*, guilt, embarrassment)

were each listed along 7-point scales (see Pennebaker, 1982, for scalar properties). At the bottom of the questionnaire, subjects wrote down the two words that they had concealed during the two GKTs. On completing the questionnaire, subjects returned the two word cards to the experimenter who checked to be certain that the subject had written the correct code words on the questionnaire. Finally, subjects were escorted to an adjacent room where they were extensively debriefed.

RESULTS

EDA ANALYSES

The data were analyzed in a number of different ways. For all subjects, SRL was coded at 2-s intervals over the 14-s response period for each word from 2s after the experimenter began asking "Is the word X?" For each of the key five words for each GKT, then, seven SRLs were tabulated. At this point, SRL was converted to skin conductance levels. For ease of communication, we refer to the four words that the subjects did not choose as truth words and the selected word as the lie word. The mean skin conductance levels (SCL), in micromhos, for each of the seven time periods for each of the truth words were compared against the SCLs for the lie words. These comparisons were made separately for the first and second GKT. These data were then subjected to a 2 x 2 x 7 (Observe vs. No Observe x Truth Words vs. Lie Word x the seven 2-s Intervals for Each Word) between-within repeated measures analysis of variance (ANOVA). The analyses were computed on unadjusted SCLs. Because all of the main analyses are based on within-subject comparisons, log or other transformations of the raw data are not necessary.

As one can see in Figure 1, a number of significant effects were obtained. Because of the large between-subjects variability, the condition main effect did not approach significance ($p < .60$). The main effect for session, however, was significant, $F(1,28) = 12.0$, $p < .01$, indicating that SCL was higher during the second GKT than the first. This effect was primarily due to the Condition x Session interaction, $F(1,28) = 7.91$, $p < .01$. In other words, when subjects were observed by the experimenter, there was an overall increase in skin conductance. As would be expected, there were highly significant main effects for the truth-words-versus-lie-word effect, $F(1,28) = 13.1$, $p < .01$, the overall trials effect, $F(6,23) = 22.8$, $p < .01$, and the Truth/Lie Word x Trials interaction, $F(6,23) = 12.6$, $p < .01$. The effects reflect the fact that SCL increases during the 2-4 s interval after the verbal response, especially in response to deception. No other main effects or interactions attained significance.

These data confirm previous findings of researchers using the GKT and EDA; that is, when individuals attempt to deceive the experimenter, there is a significant increase in SCL particularly during the 2-4 s after deception. In addition, overall SCL is higher when the subject is being closely observed than when not being observed.

BEHAVIORAL DATA

For the 20 subjects in the observe condition, changes in eye movement and facial expression were continuously coded during the second GKT. For each of the words, the total number of EM and FE changes were summed during

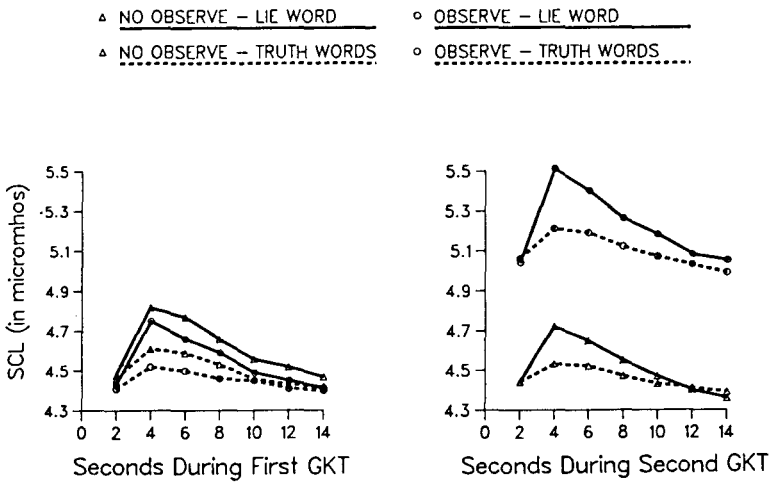

Figure 1. Skin conductance levels at each 2-s interval for the first and second guilty knowledge tests. (Subjects' "no" responses occurred at the 2-s point.)

the intervals 0-2, 2-4, 4-6, 6-8, 8-10, 10-12, and 12-14 s. The means of the numbers of behaviors in each interval were computed for the four truth words. These data were then subjected to a 2 x 7 (Truth Words vs. Lie Word X Time Interval) repeated measures ANOVA. As one can see in Figure 2, there were significantly fewer behavioral changes for the lie word than for the truth words, $F(1, 19) = 13.3$, $p < .01$. The overall trials effect was not significant ($F < 1.0$). Although the Words X Trials interaction did not attain statistical significance, $F(6, 14) = 2.03$, $p. = .12$, this overall effect was partitioned into predicted components on the basis of the EDA data; that is, the change in the number of behaviors from the first time period to the second time period interacted significantly with the truth-words-versus-lie-word manipulation, $t(19) = 2.60$, $p = .01$. No other contrasts attained significance.

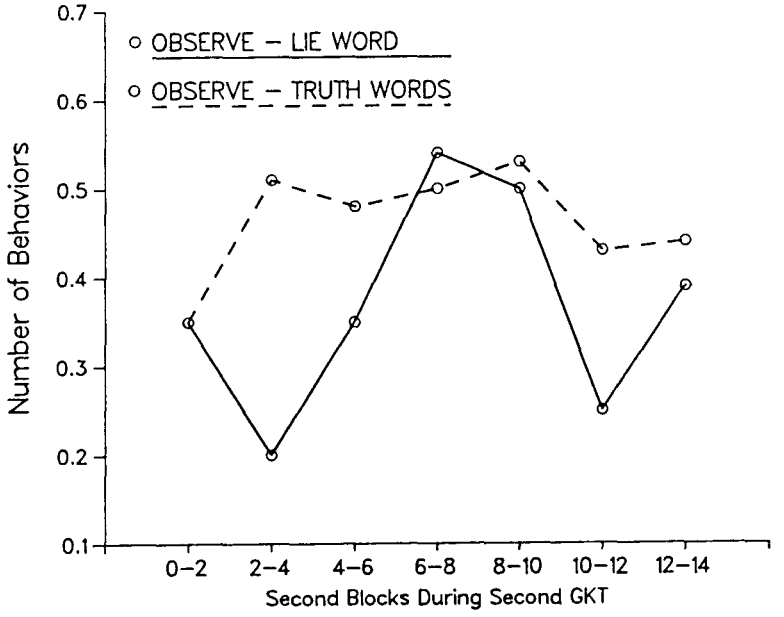

Figure 2. Mean number of behaviors (changes in eye movement and facial expression) during each 2-s time block during the second guilty knowledge test (observe subjects only).

The behavioral effects were more pronounced for EM than for FE. This was primarily due to the fact that the frequency in eye movement changes was much higher (2.70 movements per word) than changes in facial expression (0.39 movements per word). Separate 2 x 7 repeated measures ANOVAs on the EM and FE data yielded a significant truth-words-versus-lie-word main effect for EM ($p < .01$) and FE ($p = .03$). The Words X Trials interaction approached significance for EM ($p = .10$) but not for FE ($p = .43$). The predicted contrast interaction from Time 1 to Time 2 was significant for EM ($p = .03$) but not for FE (p. - .11). The direction of all effects was the same for both EM and FE. No other effects were significant for either variable.

OTHER RELEVANT DATA

In addition to the preceding analyses, between-subjects and within-subject correlations were computed in order to evaluate the correspondence between EDA and the behavioral data. First, mean SCL during the second GKT was correlated with the total behavioral changes across the 20 subjects. Although the hypothesized relation was only marginally significant, high SCL was negatively related to behavior changes, $r(18) = -.34$, $p = .065$ (one-tailed). In addition, simple within-subject correlations were computed between SCL and raw number of behaviors across the time periods separately for each subject. The correlation coefficients for the 20 subjects ranged from .60 to -.53 with the mean correlation being a nonsignificant .04.

Another question of interest pertains to the relative value of using EDA, behavioral data, or both in the detection of deceptive responses. For each subject, the magnitude of the skin conductance response during the 2-4s interval (relative to the 0-2s period) was rank ordered across the five code words for each GKT. Comparable rankings were made for the total EM and FE changes. The lie word produced the greatest EDA for 12 of the 20 subjects. For an additional 5 subjects, the skin conductance response for the lie word was equal in magnitude to one of the four truth words. If one assumes that with ties one has a 50% chance of detecting deception, the overall detection rate for the observe subjects in the second GKT was 73% (70% during the first GKT) when only EDA was used. For the no-observe subjects, the detection rates were 65% and 50% for the first and second GKTs, respectively. When we used only the behavioral data (EM and FE), the detection rate was only 32% (note that 20% is chance level).

Although these data suggest that the behavioral data alone do not discriminate deceptive responses as well as EDA, closer inspection of the data indicate that using both EDA and behavioral responses is most efficient if one uses the following procedure: Use EDA first in predicting deception; in case of a tie among the highest EDA responses, use behavioral data. Among the 20 observe subjects, this procedure resulted in a 85% detection rate.

Finally, simple ANOVAs on the self-reported physical symptoms and emotions yielded no significant effects as a function condition. In addition, we used questions to assess whether the subjects thought they had fooled both the polygraph and the observer, subjects' responses were unrelated to the experimental manipulations, SCL, number of behaviors, and other self-report items. In short, perceptions of one's ability to deceive were unrelated to objective indicants of deception.

DISCUSSION

The results of the experiment support the idea that behavioral inhibition is associated with phasic increases in skin conductance within a guilty knowledge paradigm. This correspondence holds for total behaviors and SCL for truth versus lie words on a second-by-second basis. Although the general findings are supportive of the ideas put forward by Fowles (1980) and Gray (1975), a number of important issues concerning the causal relations between these variables has not been addressed. In addition, these data suggest some intriguing theoretical directions as well as practical applications.

The causal direction of the skin-conductance-behavioral-inhibition relation cannot be directly addressed by our findings. As has been discussed elsewhere (Pennebaker & Hoover, in press), we view the act of inhibiting behavior as physiological work that is reflected in the skin conductance measure. At this point, however, we are unable to determine whether the elctrodermal changes are directly caused by changes in behavior or merely signal centrally mediated inhibitory processes. In either case, our results may have significance for instances of longterm behavioral inhibition and psychosomatic processes.

If short-term behavioral inhibition is associated with phasic physiological changes, it would follow that if individuals inhibit their behavior over longer time intervals (e.g., weeks or months), chronic physiological changes associated with disease processes may result. As we noted earlier, individuals who have experienced traumatic events (e.g., sudden death of spouse, rape, molestation) are far more likely to report a number of major illnesses if they had never confided these events to others than if they had confided them (Pennebaker & Hoover, in press; Pennebaker & O'Heeron, 1984). These results obtain independent of social support measures. We argue that in these cases the act of not confiding in others represents behavioral inhibition. Extrapolating the results of short-term behavioral inhibition within a relatively contrived context such as the GKT to long-term inhibition and psychosomatics is indeed speculative. Clearly, a number of future studies must be conducted in order to evaluate the viability of the inhibition-disease link.

A final issue concerns the application of our results to research associated with the detection of deception. Studies in which researchers have attempted to use behavioral indicators of deception within a polygraph setting have typically yielded null or ambiguous findings (see Waid & Orne, 1981). By the same token, experimenters who have searched for nonverbal behavioral correlates of interpersonal deception have found very few consistent deception-relevant overt behaviors. Indeed, our results support DePaulo et al.'s (in press) hypotheses that the inability to find consistent nonverbal behavioral correlates of deception may reflect the fact that observers are looking for the occurrence of deception-relevant behaviors as opposed to the omission of behaviors. In addition, the behaviors (or lack thereof) that are relevant to deception may only surface during the brief time interval that coincides with skin conductance increases. As our results indicate, EDA is a far more reliable predictor of deception than changes in eye movements or facial expressions. Nevertheless, the behavioral data can serve as one additional source of information for the individual seeking to detect deception in a controlled setting.

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DETECTABILITY IN THE CARD TEST AS A FUNCTION OF THE SUBJECT'S VERBAL RESPONSE

By

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and
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Abstract

The study compared, in a within-subjects design, the effect on electrodermal responsiveness of the subject affirming, denying, or making no response to questions about the card selected in a laboratory test of deception. Contrary to previous findings, denying that a card had been selected led to greater responsiveness and an increased likelihood of correct detection.

In the physiological detection of deception (PDD), the card test is frequently used as a field technique for convincing the subject of the effectiveness of PDD or as a simple laboratory procedure for studying factors influencing detection (Podlesny & Raskin, 1977). In the card test the subject selects one from a number of playing cards and is then questioned about the choice while physiological (typically electrodermal) responses are monitored. The card that elicits the largest physiological response is identified as the card chosen by the subject.

Laboratory studies of the card test have sought to identify the stimulus and contextual factors responsible for detection. A stimulus factor shown to be important in studies by Lieblich, Kugelmass, and Ben- Shakhar (1970) and Ben-Shakhar(1977) is the ratio of selected to unselected cards, with detection more likely the lower this ratio. Evidence for the importance of contextual factors is more equivocal. Gustafson and Orne (1963), for example, reported that detection rates are significantly higher when subjects are explicitly motivated to avoid detection, an observation not supported by Horvath(1979). A related issue is the nature of the subject's verbal response to questioning. Typically the subject is instructed to say "No" when asked whether each of the cards was the chosen one, i.e., to lie about the card chosen. Gustafson and Orne(1965) reported that requiring a "No" response from the subject resulted in better detection than having the subject make no response at all (a mute condition). However, Kugelmass, Lieblich, and Bergman(1967) reported that having the subject respond "Yes" to each question in the inquiry phase was equally as effective as having the subject say "No," and concluded that it was not necessary for the subject to lie for the chosen card to be detected.

The observation of Kugelmass et al.(1967) is consistent with an interpretation of differential physiological responding to the chosen card in

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terms of orienting reflex (OR) theory (e.g., Ben-Shakhar, 1977; Lykken, 1974). According to Lykken, increased responding to the chosen card is the result of an OR elicited by the card's significance or signal value. Significance is conferred by the act of choosing the card, and is further enhanced when the subject is required to respond to it in some way. Thus, according to this view, the verbal response is important only in directing the subject's attention to the card.

The present study was designed as an extension of that by Kugelmass et al.(1967). Three conditions were completed by each subject. One required the subject to answer "No" when questioned about each card, one required the subject to answer "Yes," and the third required the subject to remain silent. It was expected that the conditions requiring a verbal response would elicit stronger electrodermal responses than the mute condition, but that the two verbal response conditions would not differ. In addition to including the mute condition, the design differed from that used by Kugelmass et al.(1967) in that two groups of subjects were studied. One group was questioned about cards from which they made their selection, the procedure followed by Kugelmass et al., and the other was questioned about a different set of cards. Inclusion of this second group was an attempt to make explicit the role of card selection in increasing physiological responsiveness. Consistent with the procedure adopted by Kugelmass et al., instructions to subjects did not attempt to motivate them to avoid detection.

METHOD

SUBJECTS AND DESIGN

A total of 121 undergraduates, 60 males and 61 females, served as subjects. Forty-three (22 males and 21 females) were assigned to the control group. Each subject completed all three conditions with the order counterbalanced across subjects.

APPARATUS

Skin conductance was recorded using a Grass model 79D polygraph and the circuit proposed by Venables and Christie(1973, p. 102) with a constant voltage of 0.5V across the electrodes. Bipolar recordings were made using AG/AgCl electrodes of 12mm diameter affixed with KY jelly to the first and third fingers of the left hand. Sensitivity with 0.02 μS/mm. Respiration and EKG data were also gathered but are not reported here.

PROCEDURE

Subjects volunteered for the study on the understanding that it was concerned with physiological responses to simple stimuli. No mention was made of lie detection in any instructions to subjects. Testing was conducted individually in a sound-reduced laboratory separate from the experimenter and recording equipment. Following attachment of electrodes, subjects in the experimental group were asked to select one of six cards (the 2, 3, 5, 8, 9, and 10 of diamonds), record their choice on a slip of paper, seal it in an envelope, and return the envelope to the experimenter. Subjects were then informed that they would be asked a series of questions about their choice and that they should respond to each question in the

same way. The particular response required of them, "Yes," "No," or mute was indicated. The inquiry phase began with a buffer question regarding the ace of diamonds and was followed by a question about each of the six cards from which they made their selection. The series of questions was then repeated in the same order before proceeding to the next condition. The procedure was the same for subjects in the control group except that they selected either the king, queen, or ace of clubs or spades, and were then questioned about the same cards as the experimental group.

RESULTS

To provide a basis for comparing the Experimental and Control groups, control subjects were randomly paired with 43 of the experimental subjects. For each pair, the card selected by the experimental subject was taken as the critical or relevant card for the control subject.

The first analysis examined skin conductance responses (SCRs) to the non-critical cards. Group (Experimental/Control) was a between-subjects effect in the analysis, and Serial Position of the question about a card (2nd through 6th). Trial (first or second presentation of the questions), and Condition ("Yes," "No," Mute) were within-subjects effects. Conservative degrees of freedom (Greenhouse-Geisser, 1959) were employed throughout, and a rejection rate of $p < .05$ was adopted. There were two significant three-way interactions, Group X Condition X Trial, $F(2/100) = 4.42$, and Condition X Trial X Serial Position, $F(8/100) = 2.62$.

Table 1 presents mean SCRs over the non-critical cards by Group, Condition, and Trial. Because predictions focused on the effects of Group and Condition, analysis of the three-way interaction proceeded by reexamining these variables separately for each trial. For Trial 1, there was a significant main effect for Condition, $F(2/216) = 27.32$. A Newman-Keuls test indicated that in the Mute condition SCRs were significantly lower than in the "Yes" or "No" conditions, and the latter two conditions did not differ from each other. The Group effect was not significant, $F(1/108) = 1.18$, nor was the Group X Condition interaction, $F(2/216) = 1.16$. For Trial 2, both the Group effect, $F(1/107) = 4.23$, and Condition effect, $F(2/214) = 20.06$, were significant, but their interaction was not, $F(2/214) = 1.51$. As inspection of Table 1 indicates, Experimental subjects showed smaller SCRs to the non-critical cards on Trial 2 than Control subjects. The differences among conditions, using the Newman-Keuls test, were the same as those occurring on Trial 1.

Analysis of the Condition X Trial X Serial Position interaction examined the effects for Trial and Serial Position in each of the three Conditions. The interaction of Trial and Serial Position was significant for the "Yes" ($F(4/456) = 4.21$) and "No" ($F(4/456) = 6.07$) conditions, but not for the Mute condition ($F(4/444) = 0.29$). Further analysis indicated that Serial Position produced differences on Trial 1 but not on Trial 2 for the "Yes" ($F(4/456) = 8.71$) and "No" ($F(4/452) = 8.20$) conditions. The serial position effect in both conditions showed a decline in response magnitude from the 2nd to the 6th question, i.e., an habituation effect.

Magnitude of SCR to the critical card was compared with average SCR magnitude to the non-chosen cards in an analysis in which Group (Experimental/Control) was a between-subjects effect and Condition, Trial, and Card

Table 1
Mean SCRs to critical and non-critical cards in each condition and trial for experimental and control subjects

	Mean SCRs (μS)			
	Experimental Group		Control Group	
Conditions and Trials	Chosen Card	Non-Chosen Card	Chosen Card	Non-Chosen Card
Yes				
Trial 1	.90	.59	.68	.76
Trial 2	.71	.42	.31	.47
No				
Trial 1	1.27	.64	.68	.61
Trial 2	1.04	.33	.44	.56
Mute				
Trial 1	.41	.14	.23	.21
Trial 2	.32	.10	.20	.25

Type (Critical/Non-critical) were within-subject effects. This analysis indicated significant interactions for Group X Card Type, $F(1/99) = 21.54$, Condition X Card Type, $F(2/198) = 4.08$, and Condition X Trial, $F(2/198) = 5.33$.

Means for effects involved in these interactions are summarized in Table 1. As inspection of this table indicates, SCR magnitude to the critical card was larger than that to the other cards for the Experimental Group, $F(1/60) - 30.32$, but not for the Control Group, $F(1/39) = 1.28$.

The Condition X Card Type interaction was examined separately for the Experimental and Control groups even though the three-way interaction of these factors was not strictly significant, $F(2/198) = 3.16$, $p = .054$. In the Experimental Group, SCRs to the critical card were significantly greater than mean SCR to the other cards in the "Yes" ($F(1/71) = 16.05$). "No" ($F(1/66) = 30.19$), and Mute ($F(1/70) = 10.94$) conditions. In the Control Group, none of those comparisons were significant (all $Fs<1$). A Newman-Keuls test on SCR magnitude to the chosen card in the Experimental Group indicated that all three conditions differed significantly from each other.

The Condition X Trial interaction was a consequence of the greater decrease in response from Trial 1 to Trial 2 in the "Yes" ($F(1/114) = 29.47$) and "No" ($F(1/109) = 12.01$) conditions compared with the Mute condition ($F(1/117) = 4.54$.

The final analysis concerned the rate of detection of the selected card for subjects in the Experimental Group. A subject was classified as correctly detected if SCR magnitude to the critical card was greater than SCR magnitude to each of the other cards. Table 2 summarizes these results. To test for the significance of the differences among conditions,

Cochran's Q statistic for dependent proportions was employed. This indicated differences between conditions on both Trial 1, $Q(2) = 13.45$, and Trial 2, $Q(2) = 7.13$. Further analysis indicated that the proportion detected under the "No" condition was significantly greater than that under either of the other two conditions which did not differ from each other. This result occurred on both trials.

Table 2
Frequency and percentage of detectability on each trial under the three response conditions

Conditions and Trials	Correctly Detected	
	Frequency	Percent
Yes		
Trial 1	16	20.5
Trial 2	19	24.4
No		
Trial 1	37	47.4
Trial 2	32	41.0
Mute		
Trial 1	23	29.5
Trial 2	22	28.2

DISCUSSION

The results of the analysis of SCRs to the non-critical cards were consistent with an interpretation of physiological responding in the card test in terms of OR theory. The requirement to respond verbally, whether "Yes" or "No," resulted in larger SCRs than a requirement to remain silent. This was the case on both trials. Further, the response requirement produced SCRs which were larger in magnitude to the earlier than the later questions, i.e., an habituation effect. This, however, was the case only on Trial 1. This pattern of SCR activity can be interpreted as the consequence of an OR to stimuli having some minimal level of significance for subjects (i.e., they must respond verbally to them) that habituates with repeated stimulus presentation. Consistent with an OR interpretation, the content of the verbal response did not exert a significant effect, even though subjects were technically lying when they responded "Yes."

Increased stimulus significance may also account for the larger magnitude SCRs on Trial 2 for the Control as compared with the Experimental group. Control subjects were questioned about cards they had not selected, and questions of this sort may have been more significant when asked a second time. In Maltzman's(1979) terms, subjects may have been showing a voluntary OR to the discrepancy between the content of questions asked and expected.

Analysis of the SCRs to the critical indicated, not surprisingly, a

strong effect for card selection, with the Experimental but not the Control group showing significantly larger SCRs to the critical compared with the non-critical cards. This simply confirms the assumption in the card test that the act of selecting a card enhances the SCR to it. Of more interest are the comparisons involving the differing verbal response requirements. In all conditions, the SCR was significantly larger to the critical than to the non-critical cards. That is, card selection in the absence of any requirement to respond verbally to it led to a significant increase in the SCR. However, the increase was of larger magnitude and was sensitive to the effect of trials where verbal response was required of the subject. This gain is consistent with an OR interpretation: increasing stimulus significance leads to a larger magnitude SCR.

One result which was not as expected on the basis of OR theory was the superiority of the "No" condition in terms of both the magnitude of the SCRs elicited and the detection rate obtained. Comparison of the SCRs to the critical card indicated significant differences between all three conditions, and not, as expected from an OR interpretation, only between the conditions requiring a verbal response and the mute condition. When examined from the point of view of correct detections of the chosen card, the detection rate was higher in the "No" condition than the other two. That is, the significant difference between "Yes" and Mute conditions in terms of SCR magnitude was not maintained in terms of detection rate. The discrepancy here is in all likelihood due to the different comparisons being made and to the variability of the SCR measures. The SCR magnitude analysis compared the SCR to the critical card with the mean SCR to all the other cards. The detection rate analysis compared the SCR to the critical card with the largest SCR to the other cards. Given the known variability of SCR data, the latter comparison is as likely than the former to show a difference fa[sic] the critical card.

The superiority of the "No" condition implies that the content of the subjects response is important, contrary to the data on SCRs to the non-critical cards and to the expectations from OR theory. The result requires replication, however, before too much is made of it, particularly since it conflicts with the findings of Kugelmass et al.(1967). They reported no significant difference in the detection rates for "Yes"(70%) and "No"(59%) conditions, and in fact a somewhat higher detection rate in the "Yes" condition.

The present study was designed partly to replicate the experiment of Kugelmass et al. However, the detection rates in that study were higher than reported here, and in the case of the "Yes" condition significantly so, $x^2(1) = 19.68$. The most probable cause for the low detection rates in the present study is the instructions to subjects which were purposely designed not to induce the motivation to deceive. Although attempting to replicate the experimental conditions employed by Kugelmass et al., which we understood to be motivationally neutral, it may be that our subjects were insufficiently concerned about the outcome of the test. This suggests that an examination of the possible interaction of motivational level and response requirements is necessary before a comprehensive statement can be made about the importance of the content of the subject's verbal response in the card test.

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TOWARDS A PHILOSOPHY OF POLYGRAPH SCIENCE: ACCEPTED STANDARDS OF THE POLYGRAPH PROFESSION

By

Robert B. Bates, M.A.

Philosophy as a Substructure

"Philosophy" is sometimes thought of as the "Queen of the Sciences" and might be defined, generally, as the logical examination of the basic problems, tenets and beliefs facing human existence, for example, Diety, Values or Reality. As strange and contradictory as it sounds to mention "philosophy" and "science" in the same definition, all studies, physics and mathematics to law and religion, rest on a solid foundation of basic assumptions and tenets not demonstrable with the usual proof and evidence. In sort, they begin with a philosophy.

The philosophy of any discipline is a kind of substructure on which that study builds. As such, all studies have a philosophy. There is, for example, a philosophy of mathematics, a philosophy of science, a philosophy of religion, a philosophy of law, etc. Any discipline's philosophy, that is, its set of rules, terms, assumptions, models and basic concepts, although not demonstrable in the everyday sense of "proof", must be justified and accepted by the majority of the members of that profession. Those standards are subject to future change, but for current practice, those standards and terms are used as the basis of that discipline. At the fundamental level, being "scientific" is what the majority of practicing scientists in that discipline agree on as being "scientific". Scientists working in the daily routine of the laboratory often forget the philosophical basis of their discipline. For example, has any astronomer or physicist ever captured and photographed a "gravity"? Gravity, rather than being a thing, is a basic concept or assumption used by those disciplines to explain certain phenomenon. Other philosophical models might have been used to explain the phenomenon of falling objects, but the notion of gravity is the one practitioners have chosen.

As further example of the philosophical nature of science, consider the astronomical model used from the 2d Century to the 15th Century to explain the movements of the solar system, the "Ptolemaic" model. According to that model, the earth was the center of the solar system. That model was widely used by working astronomers of the day as a workable, although cumbersome, system for making predictions of the movement of the heavenly bodies, etc. This system was challenged in the 15th Century by Copernicus, who suggested an alternative system, simpler and more accurate, in which the earth was removed from its central position. This new system was ultimately adopted but not without considerable debate and controversy. Modern physics now has gone beyond the limits of the Copernicus system and no doubt the future promises concepts unimagined by 20th Century thinkers.

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Towards a Philosophy of Polygraph Science

The field of polygraphy is in need of such a systematic foundation, a "philosophy of polygraph science." While opposition to the polygraph exists in some circles and will no doubt continue to reappear periodically, by and large, the respectability of the polygraph profession has grown by leaps and bounds during the past several decades. Research in the polygraph profession has resulted in, for example, improved instrumentation, examination techniques, and standards for formal training and selection of examiners to a point that it appears that polygraphy is on the verge of overcoming the traditional objection (e.g., Frye). However, for polygraph to overcome legal and constitutional hurdles and to become a "true" science, it has to develop sound, defendable and accepted standards of the profession: A Philosophy of Polygraph Science.

It is time for the polygraph industry to clearly outline its philosophy and substructure. Once agreement has been reached regarding the basic tenets, overcoming the objections will be easier. Part of the problem which has stood in the way of winning acceptance of the polygraph technique in contested court proceedings is the variety of opinion sometimes offered by "experts", but without empirical support. Who is to believe what? It is not surprising that the general acceptance of the polygraph has stalled. If, however, polygraphers agree on the basics, acceptance will be achieved with greater ease. Agreement on the basics has been the secret of traditional science. It is not that scientists know any more or less than polygraphers about their particular study or endeavor, but that they have all agreed on a basic set of foundational premises. When all agree on a set of premises there is greater respectability and greater authority. All "March in Step", "Read From the Same Music", "Whistle the Same Tune". This is not to say that research cannot continue and that techniques cannot be refined or changed and philosophy altered. As in astronomy, changes will be made. However, current practice must reflect some unified agreement; there must be a generally accepted practice.

Are Polygraphers In Agreement?

Some polygraphers, living in their own worlds, might argue that there is general agreement as to the basics of polygraphy and that disagreement is over minor details. However, close examination of the field as a whole reveals not only fundamental disagreements, but also general ambiguity regarding fundamental polygraph philosophy. These differences and ambiguities range from the theoretical to the practical. Consider, for example, the following differences or ambiguities:

1. There is some vagueness regarding specific understanding of the basic psychology of polygraphy, such as the establishment of psychological set. Polygraph examiners are taught that an examinee will turn his or her attention to that issue which is the greatest threat to his or her immediate wellbeing, and hence, will respond during polygraph testing appropriately. This is a fundamental and basic tenet of polygraph testing. Examiners know that the polygraph technique, based on that principle, often produces amazing results. Yet, most honest examiners can recall examinations where the theory did not work as predicted, despite strict adherence to professional standards and procedures. Most examiners can recall verifying charts that didn't "add up", or testing an individual he or she

"knew" was responsible for the crime before the administration of the charts. The subject either didn't respond or responded erratically even though clearly responsible for the crime and attempting deception. Why is this? Why do some people respond to some questions but not others? Why do some people respond well and others only a little? It could be partly due to examiner incompetence or psychological fatigue on the part of the subject. However, it is no doubt at least partly due to an inadequate understanding of the basic principles underlying the psychology of deception. How much of the literature is devoted to such topics? Much of the psychology taught at professional polygraph schools is applied psychology. How much actual instruction or research is given or conducted at such institutions to ensure that polygraphists really understand the fundamental processes that go into the establishment of psychological set? Have polygraph examiners thoroughly examined the fundamental philosophical issues such as defining the nature of the "mind" and how it interacts with the "body", or what the "conscience" is and how it develops and functions? Have polygraph examiners, producing excellent results, been relying more on luck and art than science? How can polygraphists really expect to conduct pre-test interviews, construct examinations questions, or establish predictable psychological set without clearly understanding those issues? The current debate over the accuracy of polygraph testing shows that the general population is not convinced that polygraphists do truly understand those principles! Without such understanding, the science of polygraphy cannot hope to advance beyond its current state. To be truly accepted as a scientific discipline, polygraphy must strive to define its terms and move into the mainstream of behavioral science.

2. Beyond the general and fundamental problems, such as those mentioned above, there are a variety of specific and practical disagreements among examiners which are symptomatic of the underlying difficulties reflecting a lack of a firm philosophical foundation. For example, consider the fundamental debate over the use and definition of "control questions."[1] For example, polygraphers trained at most schools feel that control questions are an essential aspect of a "true" professional polygraph examination in order to give the "innocent" (as later verified) a place to react, to show a capability of reaction at a place separate from the relevant issue. Others, from the more traditional relevant/irrelevant school, argue that use of control questions is philosophically unnecessary and introduces unnecessary outside issues into the examination. Modern R/I examiners have attempted to soften criticism of their technique by introducing what they call "control questions" into the R/I style examination. Consider the following comparison of typical control questions used in a "Modified R/I"(MRI) technique <u>vs</u>. those used by most "Control Question"(CQ) examiners:

The Hypothetical Issue: 50-year-old J.R. is shot by his 16-year-old girlfriend, Melinda Brown, last Saturday, after an argument.

A. Modified R/I Control: "Are you aware that J.R. was killed last Saturday?"

B. Typical CQ: "Between the ages of 10-15, do you remember attempting to deliberately harm anyone?"

Without going into detail, or listing the arguments for or against any particular system, several differences are apparent:

i) MRI controls, in CQ terminology, would be viewed as "weak controls" (yellow/green), rather than solid "green" (e.g., Zone comparison) controls. CQ oriented critics would charge that the MRI controls are actually neutral questions ("yellow") and not "controls" at all.

ii) MRI controls could be about the same issue as the relevant one, whereas in the CQ system, the controls would be separated from the relevant issue by time.

iii) The answer in an MRI control could be "Yes", and truthful, whereas in the CQ system, the answer is normally "No" and is thought to be a known lie.

iv) An R/I examiner would argue that the result of a control question, even a "weak" control, can be achieved without actually asking a separate and distinct question, by using some controlled stimulus device such as voice inflection for example.

3. Also, consider the many differences among polygraphers in the information used to separate the "guilty" from the "innocent". For example, some schools make use of non-verbal behavioral indicators, while others claim reliance only on the charts.[2]

4. Moreover, there is some debate as to what use the polygraph should be put. For example, should the polygraph be used in pre-employment screening or should it be limited to specific issue testing? Backster, for exmaple, doesn't consider pre-employment screening to be a true "polygraph" examination due to the structure of the test. The author feels, moreover, that in pre-employment examinations, examiners may be asking the wrong kinds of questions and should be asking questions regarding a subject's propensity in future actions, rather than on concentrating on uncovering information about undisclosed past actions.[3]

5. Consider the variations in chart interpretation rules as taught by the leading professional polygraph schools. For example, Backster teaches that hyperventilation is not a reaction criterion, except by inference, that reactions five seconds past the point of answer have no significance and that the height of a GSR reaction is significant, but that multiple reactions, duration and plunging GSR reactions are not. The National Academy of Lie Detection, on the other hand, teaches that hyperventilation is a significant respiration reaction, rections past five seconds past point of answer may have significance, depending on the context, and that while the height of a GSR is significant, so are multiple reactions, duration and a plunging GSR![4]

There are no doubt many, many other examples of fundamental differences and ambiguities in polygraph theory and practice that could be outlined. The point, however, is that there are many significant differences among the various schools in such primary areas as the use of control questions, examination formats, chart interpretation rules, and the very nature of the psychology underlying the detection of deception. It is no wonder that polygraphy is misunderstood. If polygraphers cannot effectively communicate with each other, how can they expect to argue polygraph science to the courts and the public? To thoroughly professionalize polygraphy there must be a general consensus on theory and practice. This means that the

profession must go beyond egos so often present in debate over polygraph issues and establish a generally accepted philosophy of polygraph science. Once this is accomplished, the profession will become as solid as any science.

The Need

The need is clear: Leaders in the field of polygraphy must reflect on the philosophy of polygraph science and come to terms with the basics. They must conduct empirical research and record that research in the journals. Symposia must be held to review the philosophical principles and research results. Directors and instructors of the various professional polygraph schools, leading police, government and private examiners, polygraph organizations, reseachers and related scientists must meet and arrive at a clear consensus of what counts as justifiable polygraph theory and practice. They must agree, moreover, to teach that philosophy to their students. Once such agreement is reached, general acceptance, even over objection, will no doubt follow. Argument over theory should be reserved for the lab and the seminar, not the courtroom. As with other scientists, courtroom argument should center around adherence or non-adherence to the established standards. The result would be a truly professional and accepted polygraph profession.

Summary

Polygraphy has come a long way in developing adequate instrumentation, standards for personnel selection, understanding of the physiological principles behind lie detection, and so on. However, what is lacking is a basic philosophy of polygraph science to which all professionals in the field will adhere to. As with other scientific disciplines, polygraphy needs a firm and accepted substructure of basic terms, concepts, models and assumptions. Common agreement as to instrumentation, physiological and psychological mechanism, examination format, chart interpretation rules, etc. is necessary for true and lasting acceptance by the general population. This means that all professionals will have to go beyond their own egos and will have to rely on documented research and justified principles. Many "Me" theories will have to be discarded in favor of the generally approved theory. Research into new techniques should be welcomed, but in their place. Only when an accepted philosophy of polygraph science is agreed upon will polygraphy come of age.

Footnotes

1. Source: Author's classnotes: Backster School of Lie Detection, Basic Course, 1-9-78 to 2-25-78; "Keeler Training Guide", Leonard H. Harrelson, Keeler Institute, Chicago, Illinois; Author's classnotes, "The Modified Relevant/Irrelevant (MRI) Technique, Paul Minor *et al.*, APA Seminar, Reno, Nevada, 8-6-85; "Truth and Deception", 2nd ed., John Reid.

2. Sources: "Truth and Deception", 2nd ed., John Reid; Author's classnotes, "The Reid Technique", Joseph Buckley, APA Seminar, 8-6-85, Reno, Nevada; Author's classnotes, Basic Course, Backster School of Lie Detection, 1-9-78 to 2-25-78.

3. Robert Bates, "Value Clarification Testing: A Pre-Employment Polygraph Technique Integrating Polygraphy and Psychology", unpublished.

4. Sources: Backster System: Author's classnotes, Basic Course, Backster School of Lie Detection, San Diego, 1-9-78 to 2-25-78; NALD System: Advanced Course, 1-85, National Academy of Lie Detection, Santa Ana.

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A HALF CENTURY OF SERVICE BY THE MICHIGAN STATE POLICE POLYGRAPH SECTION

By

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1985 marked the fiftieth year of service by the Michigan State Police Polygraph Section to the people of the State of Michigan. How did it begin? Who was responsible for it? What were some of its early procedures? How were early examiners selected? Where were they trained? What kinds of cases did the section deal with and for whom? And, finally, what is the section doing today? The purpose of this article is to answer those and related questions.

As happens so often, the Michigan State Police Polygraph Section resulted from a chance meeting between two men at the Century of Progress Exposition which took place in Chicago, Illinois in 1933. These men were Leonarde Keeler and Dr. LeMoyne Snyder. Dr. LeMoyne Snyder, a medical doctor, was a member of the Michigan State Police. His actual title was Medico-Legal Director(Snyder, 1977). He later obtained a law degree; founded the Michigan State University School of Criminal Justice; and wrote Homicide Investigation, the classic textbook in this field which has gone through thirteen printings and has been printed in several languages besides English including German, Japanese, and Spanish. He has also made many other contributions to the field of criminal justice.

The May 1934 issue of The State Trooper, on page 8, graphically illustrates his involvement at the time. (Jennings, 1934)

> "During recent months, Dr. Snyder served as a member of the Committee, made up of University of Michigan officials and Commissioner Oscar G. Olander of the Michigan State Police, which arranged Michigan's first Institute for Law Enforcement Officers ...
>
> "Dr. Snyder has also donated liberally of his time during the Michigan State Police training schools at East Lansing to lecture on toxicology and the relation of poisons to police work."

The article went on the discuss how the current location of Michigan State Police Headquarters was at one time part of the Snyder Farm.

The author was a police polygraph examiner in the City of Detroit from 1971 to 1973. From 1973 to 1976 he was Chief Examiner for the Michigan State Police. He remained an active examiner from 1976 to 1978 while commanding officer of the Intra-Departmental Affairs Unit of the Michigan State Police. Since 1979 he has been chief examiner for Intenational Forensic Services, Inc. He is a member of the APA, the AAPP and the Michigan Association of Polygraph Examiners. For copies of reprints, write to the author at International Forensic Services, Inc., 6822 West St. Joseph Highway, Lansing, Michigan 48917.

Leonarde Keeler, as a young man, had studied polygraph under John Larsen at the Berkley California Police Department. Larsen, was an MD in 1921 before he trained Keeler. Larsen would later write Lying and Its Detection. Keeler obtained his position through the friendship of his father with one of the early giants in law enforcement, August Vollmer. Keeler found working with polygraph so fascinating that it quickly became his life-long interest, one to which he was totally devoted. He acquired a national reputation for his abilities to ferret out the truth, even in the most difficult cases.

Because of his talents, Calvin Goddard asked him to join a team of exceptional people who he was pulling together to become the Scientific Crime Detection Laboratory within the Northwestern School of Law in Chicago, Illinois. This was in response to the St. Valentine's Day Massacre in Chicago in 1929. Keeler accepted Goddard's offer and returned to Chicago.* Keeler was manning the Scientific Crime Laboratory Booth at the Exposition, and Snyder, through the good graces of his mother-in-law, was on a paid vacation. The exhibits of science and industry on display at that time were regarded as the best ever assembled in the United States up to that time. Snyder, having a natural propensity towards scientific crime investigation, stopped at the booth and talked with Keeler regarding his use of a polygraph to test criminal suspects. Snyder also became extremely interested in the polygraph. He asked whether it would be possible for him to come to Chicago and study the polygraph. Keeler assented. (Snyder, 1977)

Snyder spent several weeks with Leonarde Keeler learning about the polygraph and the technique that Keeler used in testing criminal suspects. Snyder was also amazed at Keeler's knowledge of worldly ways. For example, he knew banking practices inside out. Snyder saw where this really paid off in bank-embezzlement cases where Keeler had been called in to identify the thief. What Snyder observed was that Keeler would test everyone working at the bank, from the president down to the janitor. Frequently, Keeler turned up, not one thief, but several--some of whom had been stealing money for as long as a ten-year period. They had been clever enough to cover their tracks so that during the times of their thefts, bank examiners had balanced the books and given the bank a clean bill of health.

*Keeler had been in Chicago before, working with the polygraph at the Institute for Juvenile Research. (Ed.)

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Snyder was also impressed by Keeler's ability to interrogate people. He had the gift of being able to question people without antagonizing them. He was very professional. Frequently a guilty person would confess the crime before the polygraph examination. By the time Snyder returned to Michigan, he was thoroughly convinced that the Michigan State Police should train someone in this area to make this remarkable investigative tool available to criminal investigators. (Snyder, 1972)

Snyder set up a meeting with Commissioner Oscar G. Olander of the Michigan State Police, who was also a very progressive leader in law enforcement. Snyder related to Olander what he had seen and what the potential use was for such an instrument in the area of criminal investigation. He had to overcome the argument of the 1923 Fry Case, which, in fact, did not involve the use of a polygraph, but was nothing more than taking a suspect's blood pressure before and after asking a question. In addition, according to Dr. Snyder, Mr. Hoover of the Federal Bureau of Investigation saw little value in the use of polygraph. Its use and articles in early Federal Bureau of Investigation journals were negative. (Snyder, 1977).

Olander was, however, in his own right, truly a giant in law enforcement. He had great foresight and surrounded himself with capable men who were not afraid to break new ground. In 1930 he brought the use of radios into the Michigan State Police which became the first state-owned and operated system in the United States. Giving credit where it is due, however, the April 1933 issue of The State Trooper related that Harold Mulbar advocated the use of the radio as early as 1920, but his idea was dismissed as being too expensive. Olander also made extensive use of aircraft during the early 1930's. In fact, he was called "The Flying Commissioner" (Jennings, 1932), and the July 1932 issue of The State Trooper refers to Corporal Jack Spencer's flying exploits in Marquette. It should also be mentioned that the current Director, Colonel Gerald Hough, is really a "Flying Director" because he is, in fact, a licensed pilot. Olander also had certain selected officers working as parole officers in their respective districts. According to articles published in The State Trooper in July 1932, this was a very successful program.

In 1935, Hollywood made a movie about the Michigan State Police. It was called "Car 99". Fred MacMurray and Ann Sheridan played the leading roles. Since then, this movie has become required viewing for every new recruit school class.

Olander was very conscious of the public appearance of his troopers. As early as 1934, he had ordered compulsory physical training for two and a half hours every week to keep his men physically fit. The only required exercises were situps. Beyond that, the troopers were encouraged to play volleyball or handball, or "some other sport that stirs up the blood and makes the lungs work." (McKeown, 1934).

The State Trooper, in March of 1934, reported that the Single Finger Print File had been initiated within the State Police, the first to be established at the state level. The standard fingerprint file, according to the Michigan State Police Fifty Year Anniversary Book, had been started in 1921. It is the second largest file of its kind in the nation. Only the Federal Bureau of Investigation is larger, which is the central repository for all agencies. Olander also approved and encouraged the establishment

of a Scientific Crime Laboratory under the direction of Detective Lieutenant LeRoy F. Smith. Work by him and others, such as C.W. Muehlberger of the Michigan Department of Public Health, laid the foundation for the excellent system of scientific crime laboratories throughout Michigan today.

Although officially inaugurated through the efforts of the State Crime Commission, in reality, the prime movers behind the establishment of the "West Point" for police in Michigan were Olander and Snyder. They founded, together, in October of 1934, the Michigan State College (now University) Police Administration Program. This program, as initiated, required one and a half years of practical experience with the Michigan State Police and was a five-year program. (Park, 1935) The concept for this type of training may have originated from the previously mentioned Law Enforcement Institute. Olander also originated the Michigan Protective League. Detective Harold Mulbar, who would become the first polygraphist, was the Director of this. The purpose of this organization was to fight radical activities and keep a close watch on communists in Michigan. The "league" maintained records from every part of the state on radicals and agitators. (Jennings, 1932) The "league" was divided into two branches. One was a secret branch to conduct investigations into communist activities and those of other radical groups. The second was a public relations branch. Its goal was to expose communist activities and to make the public aware of the threat they represented to our freedom. (Jennings, 1934a) They also wanted to educate the People of Michigan that one of the tactics used by communists was to infiltrate teaching positions where they could influence the thinking of the young, to become leaders in labor organizations, and to become elected officials. (Jennings, 1934b) In their 1933-1934 Winter Bulletin, the League wrote:

> "In 1918, Lenin issued orders which have continued to be the instructions of the Communists' International at Moscow to the present date to bore into our (the United States and other nations which have a capitalistic system) army, the navy, the labor unions, the political parties, and the schools of America until these institutions are so undermined that they will collapse into the hands of the enemies (the communists) of the Republic." (Jennings, 1936)

Another of Olander's early accomplishments was to set up a blockade system in the state to combat bank robberies. He assigned his Chief of Detectives, Lieutenant Van A. Loomis, to develop this sophisticated plan which was put into effect in 1934. The system was so effective that, as reported in the February 1936 issue of The State Trooper, for the fifteen-month period preceding the report, Michigan only had two bank robberies. This was at a time when bank robberies in surrounding states were at record levels. Olander, to provide for good coordination within the department, initiated regular monthly meetings by district commanders, followed by a monthly meeting of all post commanders within a district, which was, in turn, followed by each post commander conducting a monthly meeting with all the troopers at his post (personal interview with Oscar G. Olander, 1957). Olander's interest in the department continued, even after his retirement, when he instituted an Awards Program for Safe Driving.

Despite the fact that this was in the midst of the depression, and the Michigan State Police was cutting back its forces, Commissioner Olander decided to give this new device a try, even though the cost of the instrument

and training came to over $1,000 which was quite a considerable amount of money in those days. Snyder thought this to be quite remarkable. (Snyder, 1977, Jennings, 1935)

The instrument itself had been designed by Keeler and carried his name. It was a refinement over the one designed and used by Larsen. It was capable of recording, simultaneously, the breathing, relative blood pressure and pulse rate changes on the moving chart paper. It was portable and there was no longer the need to treat the paper with shellac in order to make a permanent recording, which had to be done with Larsen's device. The next thing to be decided was who would be trained as the first polygraph examiner for the Michigan State Police. Based upon what he had learned from working with Leonarde Keeler, Snyder did not agree with the prevalent view held by some at that time and, indeed, still held by some today, that it was necessary to have a degree in psychology in order to be a competent polygraph examiner. In fact, Snyder came to the conclusion that there are many people who have all sorts of academic credentials who would be no good at all as polygraphists. On the other hand, he believed that there were those who were brought up in police work, who had no college at all, and who would be excellent examiners. He felt that, while medical training would be helpful, it was by no means essential. What he did regard as important, was that the person selected as a polygraph examiner be one who has had long experience in criminal, business, social, and professional matters. It was essential that the person selected be capable of combining the scientific approach to a problem with complete and absolute honesty. He felt that this was necessary so that the records would be interpreted as they actually were, not as one might hope they were. The man that Commissioner Olander decided that would fit the bill was a Detective named Harold Mulbar.

Harold Frederic Mulbar was born on October 1, 1898, in Marquette, Michigan. Later he moved to Denver, Colorado where he attended high school. Following graduation, he returned to Michigan. On June 17, 1918, he enlisted in the Michigan State Troopers. On April 15, 1920, he was promoted to Corporal, and, the following December, he was promoted to Sergeant. During that time, his outstanding abilities in criminal investigation began to become apparent. He was assigned to the murder case of Stanley Brown of Mt. Clemens who had been found shot to death in his car outside the city where he lived. Alex J. Grosbeck, then Attorney General for the State of Michigan, asked the Michigan State Troopers to investigate. This was the first murder case assigned to the department. Brown had inherited a considerable amount of money from his parents. Prevost, the suspect, supposedly a good friend, was determined to help him share in his new fortune whether Brown agreed or not. After a six-month investigation, Prevost was arrested, charged, tried, and convicted of murder in the first degree.

When Mulbar's three-year enlistment expired, due to his good record, he was permitted to reenlist. He remained in the department until September 15, 1922, when he resigned. But, nine years later, on December 9, 1931, he reenlisted again. He was permitted to rejoin as a Detective, one of the first in the State of Michigan. (McKeown, 1933)

When Commissioner Olander asked Detective Sergeant Mulbar whether he would be interested in going to Northwestern University's Scientific Crime

Detection Laboratory in Chicago to study the polygraph under Professor Keeler, he was asking one of the best investigators and interrogators the State Police had at that time.

Mulbar was always eager to learn about something new which could help him do a better job. In fact, he was a man who was an avid reader, an accomplished public speaker, and an excellent writer. Mulbar had a short talk show on WKAR Radio in East Lansing where he discussed various topics about criminal activity. He also taught in the Michigan State College (now University) Police Administration Program and lectured at Harvard University's Department of Legal Medicine. He later authored the classic Book, Interrogation. (Mulbar, 1951)

In 1935, Mulbar began conducting polygraph examinations in Michigan. He received requests from all over the state. At first, he took the Keeler Polygraph with him to the department which had requested the examination. As the requests for tests increased, Mulbar had to discontinue this practice for two reasons. First, he found that it was difficult to control the environment where some of the tests were conducted. There were rooms in which examinations were conducted which were not sound resistant. Talking and laughing could be heard inside the room where the test was being administered. Sometimes there were telephones in the room which always seemed to ring at the most inappropriate times. However, the primary reason was to establish a special polygraph room at Headquarters as a matter of efficiency.

Michigan is a big state, comprised of two different peninsulas, both 300 miles long. Mulbar believe he could conduct more examinations by having law enforcement agencies come to him at Michigan State Police Headquarters in East Lansing rather than spending a day traveling to a department in the Upper Peninsula, another day conducting the examination, and a third day returning to Headquarters, or somewhere else where an examination had been requested. Therefore, a special polygraph room was established at Headquarters. (Snyder, 1977)

During the first year, Mulbar examined 165 subjects on 92 different criminal cases. (Snyder, 1943) Of these, he cleared 96 subjects, obtained 41 admissions, and was unable to make an analysis with 15 subjects. The use of the polygraph as an investigative tool was an immediate success. Prosecutors were writing Headquarters praising Mulbar's work. Police agencies from all over the state began requesting Mulbar's help in working on the various cases they were investigating. (Jennings, 1936a, Park 1936)

The correspondence in the state police files indicate that Mulbar, like all fledgling examiners, sometimes had trouble interpreting records. He corresponded with Leonarde Keeler on a regular basis and, from time to time, made trips back to the laboratory in Chicago for assistance. In a letter to Keeler, dated September 23, 1935, Mulbar said, "Pardon me again for imposing upon your good nature. I hope to be able to pay you a visit after the first of the month ..."

In the 1935 Michigan State Police Annual Report, Mulbar recommended that a psychogalvanometer be added to the equipment used for the detection of deception. He wrote, "In fact, it will soon become an essential part of the equipment for this work." In 1937, Detective Lieutenant Mulbar

traveled to Fordham University where he studied under Father W.G. Summers, S.J., Ph.D. Father Summers was the head of the Department of Psychology there and after six years of experimental work, developed an instrument known as the Fordham Recording Psychogalvanometer.* The purpose of this instrument was to measure skin resistance. It was unique since it used dry electrodes which were attached to the palms of each of the subject's hands.

Mulbar then incorporated this instrument into his test procedure when he returned to Michigan, even though he was not impressed with its capabilities outside the laboratory. In his book, he wrote:

> "As a laboratory instrument, little fault can be found with the Fordham Recorder. It works well when confined to the laboratory. But, in actual criminal cases, we have had little success with it. Not being a scientist, we cannot tell why. We do not know why. But, in tests alongside the conventional blood pressure and respiration polygraph, the Fordham machine did not hold up." (Mulbar, 1951)

Mulbar did not use the polygraph and the psychogalvanometer simultaneously. On page 128 of the 1938 Michigan State Police Annual Report, he wrote, "In only the more involved cases where the subject stubbornly persists in lying is it necessary to run a test on both machines--one to corroborate the other." The test procedure used by Mulbar was that taught to him by Leonarde Keeler. As a matter of fact, in official reports, he referred to the examination as Keeler Polygraph Test. It began by Mulbar meeting with the investigator to learn all the case facts. He wanted every shred of information available. He would them formulate possible relevant test questions and write these down. The examinee would then be brought into the examination room where he was introduced to Mulbar. He would be seated in a comfortable stuffed chair. Mulbar would offer him a cigarette and discuss his physical condition with him with particular emphasis on whether the subject had slept, whether he had been fed, and whether there was resentment present. He would briefly explain the polygraph to him and tell him ...

> "Now, before you take the test, Jones", ... "please tell me if there were any inaccuracies in the statements you have made to the investigator. I have those statements before me and I will use them in the test, therefore, it is important that I know the truth from the start". (Mulbar, 1951)

Then he would run a stimulation test to show him how well the machine worked. He would ask the subject to write down seven different numbers on a card. He would then ask the subject to pick one of those numbers out, write it on another card without telling him the number, and put it in his pocket. Mulbar would then invite the subject to "beat the machine" by deliberately lying to him when he asked the different numbers during the first test. Mulbar would then try to identify the number, and Snyder said most of the time he was able to do it. (Snyder, 1977) He deliberately avoided the use of cards with numbers of them, as he wanted no part of anything that could be construed as some sort of a card trick. He also believed that the lying pattern he saw on this test could be used to help identify a lying pattern during the relevant test. In fact, he referred to

*Later called the Fordham Pathometer. (Ed.)

this numbers test as a "control record." (Mulbar, 1951) Another form of "control record" was to simply ask them to select a number from one to ten, which were written on cards, without telling Mulbar the number and inviting him to try to "beat the machine." If he failed to identify the number, Mulbar said, "We also know the examiner could have run several more tests to 'get a good graph.'" Mulbar's procedure then called for running two charts using the same relevant questions. He would not review the questions to be asked with the subject, but would tell him that the relevant questions would deal only with the matter under investigation.

The format for the relevant examination was three irrelevant questions, a relevant question, another relevant question (dealing with knowledge), an irrelevant question, a relevant question, an irrelevant question, followed by two relevant questions. (Mulbar, 1951) Mulbar then conducted two more relevant tests using different questions than those used previously. Between each of these tests, Mulbar permitted the subject to have a five-minute rest period. During all of these tests, the subject would remain seated in the living room style chair. The examinee's hands were on his knees. The blood pressure cuff was on the upper right arm with the sleeve rolled up.

In one test, in 1935, when he had a doubt regarding the test result, he sent the records to Keeler who recommended that a peak of tension test be conducted in such cases where possible. Snyder said that usually the examination of a truthful person generally did not take more than a half hour, while those who were deceptive required two to three hours, and sometimes longer. (Snyder, 1977)

In an examination conducted on May 31, 1939, on Wallace Goodwill, regarding the arson and total destruction of Stevenson Lumber Yard in Michigan's Upper Peninsula, Mulbar questioned him through the day and night, into the following day, until he confessed committing the sex-related arson. (MSP, Mulbar file) Mulbar strongly believed that it was not the number of cases that were conducted that was important, but, rather, how many were brought to a successful conclusion. He urged other examiners to remember, "As a polygraph examiner, you are dealing with another person's freedom." (Mulbar, 1951) He said, "Every examination should be approached in an objective, scientific manner."

He stressed the importance of good public relations, particularly with the news media. As a matter of policy, he would never tell the press that an examinee was tested and found to be deceptive unless he was already in possession of a bonafide confession.

On January 15, 1940, Mulbar was promoted to Deputy Chief of Detectives and on July 16, 1942, he was made Chief of Detectives. He then trained Detective Wilber M. Petermann to conduct polygraph examinations. Through 1942, these two officers conducted examinations on 1,551 subjects--on 905 cases; they had the opinion that 563 of these subjects were deceptive and, of these, they obtained 308 admissions. They rendered an indefinite opinion 75 times. (Snyder, 1943)

In 1946, Mulbar accompanied Commissioner Oscar G. Olander to Japan and Korea, where, at the request of General Douglas MacArthur, they drew up a plan for the reorganization and modernization of the Japanese Police

System. (MSP, Mulbar file) In October 1947, at the request of General MacArthur, he was granted leave from the Michigan State Police to execute the plan he and Olander had drawn up. Part of this involved the recruitment of 36,000 new Japanese police officers for rural areas. (Snyder, 1977) Also, there can be little doubt that Mulbar influenced Japanese thinking on the use of the polygraph in criminal investigations. But, with Mulbar's departure to Japan, the entire responsibility for polygraph testing fell upon the broad shoulders of Wilber Martin Petermann. Petermann, of German-American descent, was born on March 3, 1908. He was from Allouez, a little village on Michigan's Upper Peninsula with its waterfalls, crystal clear lakes and rivers, cliffs, and diverse Lake Superior shoreline. It is easily the most beautiful area in the Keweenaw Peninsula. Petermann graduated from Calumet High School and went to work in the copper mines as a machinist. Then he became a deputy sheriff in January 1931. He was a big man, nearly 6'4" and weighed 225 pounds. On August 18, 1931, he enlisted in the Michigan State Police. He served at five different posts before he was promoted to Detective, and assigned to the new Special Investigation Squad initiated by Mulbar. "Pete," as his friends called him, became interested in polygraph. He was preceptor-trained under Mulbar and began conducting examinations as early as 1941.

In one triple murder and arson case, which occurred in September 1941, investigators were convinced that it was a murder-suicide and were "not interested in the murder angle." There had been an argument between Peter Kulnick and his wife, Julia, regard Julia having an affair with the hired man. Later, during the early morning hours, their house was on fire. Those responding to the fire found the husband and the two children shot. The wife claimed that the husband had shot the two children, he thought he shot her, set fire to the house, and then turned the gun upon himself. While the investigators were satisfied that she was telling the truth, the insurance company was not. They wanted a polygraph test. After the polygraph test, the wife confessed that it was she who killed her husband and children and then set fire to the house. For this exceptional work, Mulbar recommended "Pete" for the Meritorious Service Award, which he later received. This was the first of four such awards he was to be given during his 17 years of polygraph testing for the Michigan State Police. On July 1, 1942, Petermann attended the Keeler Polygraph School in Chicago. Following his graduation, he conducted an examination on an Upper Peninsula man who shot and killed another man through the door of his cabin. He claimed that he thought it was a bear trying to get inside. During the polygraph test, he confessed that he killed him deliberately due to jealousy resulting from a triangle love affair. (MSP, Petermann file) Another award was given to "Pete" in 1944 for "solving many baffling criminal cases" during the preceding year. And, because he ... "has done an outstanding job in connection with his work in the detection of deception." Finally, he received another award for solving a multi-million dollar arson to a state building in Lansing which occurred on February 8, 1951. Here, again, he obtained a confession during a polygraph examination from a suspect asked to take the examination by investigators.

The demand for polygraph service continued to increase to where "Pete" just couldn't handle it. He preceptor-trained other examiners in the Keeler Technique. Those he trained then helped train others. It was a promotion to Detective Sergeant if one was appointed to one of these locations. New polygraph locations were gradually added to the unit.

Detective Sergeant Howard Whaley headed the polygraph unit at Headquarters and at Detroit, Vic Beck manned the unit at Paw Paw, Frank Barkman handled polygraph tests at Rockford, Clarence Bloomquist conducted examinations at Traverse City, Mel Kaufman ran tests in the thumb area at Bay City, and George Strong was the examiner for the Upper Peninsula situated at Marquette. Bill Menzies, who was also at Paw Paw, had been trained by Vic Beck.

Petermann retired from the Michigan State Police on February 2, 1958, as a Lieutenant, but this did not end his polygraph career for he went to work as a polygraphist for the Michigan Department of Corrections. The man chosen to replace him as Chief Examiner was Jack Pletzke.

Jack had enlisted in the Michigan State Police in July 1940. He was from Saginaw, Michigan. When the war broke out, he went into the army where he served over three years. Jack had always wanted to be a detective since childhood. He was particularly interested in interrogation. As he came to learn more about polygraph, he could see the potential of it. During the time he was in the service, he was involved in investigations where he met and talked with others who had been involved in polygraph work. (Pletzke, 1985)

In August 1955, Pletzke was promoted to Detective Sergeant and transferred to the Second District Headquarters Polygraph Unit, replacing Lieutenant Whaley, who was promoted to the Detective Bureau there. Whaley gave Pletzke a couple of weeks of orientation regarding the instrument and how charts should be read using the Keeler Polygraph Technqiues. Pletzke then spent a week with Petermann. From time to time, Whaley would also give him advice, but he was busy running the Detective Bureau at the State Police Headquarters in Detroit. Jack had read everything on polygraph he could get his hands on. This included old Keeler manuals and Reid and Inbau's book, Lie Detection and Criminal Interrogation. Jack then began using the Reid Technique as outlined in that book. He wanted to acquire as much experience as possible. He, therefore, tried to conduct as many examinations as possible. The number of examinations he conducted each day varied, depending upon whether or not they were in relation to the same case.

Jack was in Detroit from 1955 until February 1958. During one of those years, he had conducted over 900 specific issue exams. One must bear in mind, however, that, during that time, state police officers were working six days a week and a ten-hour work day was not unusual. In February 1958, Jack Pletzke replaced Petermann as Chief Examiner at Michigan State Police Headquarters in East Lansing. He was promoted to Detective Staff Sergeant. Shortly after he was there, as he was leaving the building after work about six o'clock one evening, Commissioner Joseph A. Childs stopped him. Childs asked how things were going. Jack thought this was as good a time as any to express his dissatisfaction with the training polygraph examiners were receiving.

A few days later, Captain William Ward, who was in charge of the Training Division, contacted Pletzke to discuss this further. Ward was well-acquainted with Richard O. Arther who had spent a considerable amount of time working with the Michigan State Police, including polygraph examiner Vic Beck, while Arther was a police administration student at Michigan State University. Ward contacted Arther in an effort to have Arther give

Michigan State Police Officers further training in the Reid Technique. If possible, it was desired that Arther personally give them preceptor training and that they conduct specific issue tests directly under his supervision. Arther replied, in substance, that he believed they would get more specific issue cases if they were trained by John Reid in Chicago. Ward and Pletzke went to Chicago and met with Reid. Reid was agreeable to training Michigan State Police. Jack Pletzke and Bill Simmons went to Chicago and attended Reid's school and received their diplomas from him on May 1, 1959.

Upon returning to State Police Headquarters, Jack designed a program to preceptor-train polygraph examiners. He started training the examiners that were in the field by calling them into Headquarters. All examiners, including those previously trained by Petermann, spent eight days a year at Headquarters learning Reid's Technique. This was accomplished by two-day training sessions conducted four times a year. Jack presented each of the examiners with a copy of Reid's book to study and then he introduced them to some of the new ideas he had learned from Reid. These included the control question technique, the guilt complex test, the mixed question test, the yes test, a different form of stim test, and some stimulation techniques. It required several sessions. He also had them practice running peak of tension tests on each other using the galvanic skin response.

Jack, although he had to select future examiners from the Civil Service list, had a considerable latitude in who was accepted. He did not want anyone who was, what might be termed, "an old, hard-nosed policeman." He wanted men who were able to get along with people, who were "on the softer side," but, yet, were not "wishy-washy." He also wanted them with a minimum of five years of experience in conducting investigations and interviews. When a new examiner was selected, he would bring them into Headquarters for two weeks. He had them study certain materials he had gathered which he regarded as important. He would begin to teach them chart interpretation and show them how Reid evaluated records by using check marks on a form. The darker the check mark, the more significant the response. Then he would take the trainee into the examination room while he conducted an exam. The trainee would be seated out of sight of the examinee. Pletzke would then have the trainee evaluate the records and form an opinion. Gradually, the trainee would be placed behind the instrument to conduct the exam himself with Jack observing from the viewing room. Behind the two-way mirror, Jack would critique the examination from start to finish. After two weeks, the trainee would return to his home post for two weeks. Then he would return for another two weeks of training under Jack. The actual time period for each person trained would vary, depending upon the progress of each person; but, it was never less than a month.

When the trainee had conducted several examinations, and Jack was satisfied that he could perform an adequate job, Jack would give the trainee a set of 30 charts to evaluate. These were selected by him as typical of the tests he had seen day in and day out. Some of these cases were extremely difficult. In addition to the charts, the examiners were also provided with the case facts. Jack considered that if an examiner missed no more than three or four, that he was capable of doing an adequate job. If he missed more than that, he would be required to spend another week or two with him and then re-take the chart interpretation test. When Jack was finally satisfied that the new trainee was capable of conducting

examinations in a competent manner, the training was concluded and the new exmainer was put out on his own. Jack trained several examiners in this fashion. Among them were Bill Lanphear, Hap Morrison, Ev Millar, Ralph Baney, Wally Pletzke, Earl DeBoar, and Walt Barkell. These men then replaced examiners who were promoted to positions out of polygraph or who retired. (Pletzke, 1985)

The procedure used in the polygraph unit in the 1950's was that advocated by John Reid. In this method, the examiner met with the investigator and obtained the case facts. The tentative test questions were written out. The examiner would then meet with the examinee. The pneumo tube would be placed on the examinee. A brief medical history was obtained with particular emphasis upon whether the person was well-rested, whether he was on any form of medication, and if he was hungry. Electrodes from the galvanic skin response, at that time, were rather fragile. After several of these were broken, and to stop the examinee from playing with them, these were not placed upon the subject until shortly before the test was to be conducted. Then a structured pre-test interview was completed. Certain questions were asked in different types of cases, in which one might describe as a clinical evaluation of the examinee. The instrument was briefly explained to the person. The control questions were established. All questions were reviewed. The attachments were placed on the person, and the first test was conducted. It was thought to be critical that the pre-test interview be kept short. (Jack, to this day, strongly believes that responses are reduced, thus making chart interpretation more difficult by a long, drawn out pre-test interview.)

After the first chart, a stim test was administered in the form of a card test which was designed to assure and relax the innocent and to stimulate the deceptive subject. Then the person was given a five-minute rest period. Following this, a third chart was obtained which was a repeat of the first chart. Then adjustments would be made as required. The fourth test could be a mixed question series, a peak of tension test, a guilt complex test, or a yes test. Various stimulation techniques, if it were thought that these were necessary, could be given prior to conducting the test. In most instances, four charts, including the stim test, were obtained before the examiner arrived at an opinion. If the examiner still was not certain, a re-examination was conducted at a later date. On an average, a polygraph examination took about 75 to 90 minutes to complete.

Jack started a record-keeping system by requiring examiners to document daily activity and submit monthly reports on the number of examinations and in what areas they had been conducted. Prior to that time, examiners would merely report at the end of the year on the number of exams they had handled so they could be tabulated. He also caused a second polygraph examiner to be installed at Second District Headquarters in Detroit. (Pletzke, 1985)

In November 1965, personnel selected to be Michigan State Police polygraph examiners were sent to Dick Arther's National Training Center in New York City for training. The first officers sent there were Bob Ferry and Ralph Severance. Then, in the following year, they were followed by Ed Goss, Bob Spletzer, Gene Dinkel, and George Kerr. All in all, over 22 Michigan State Police polygraphists would receive their training through the National Training Center in New York under Dick Arther. Following

their return from the National Training Center, the trainees would then be shifted from unit to unit about the state to work under senior examiners. After a period which would range from a half year to nearly one and a half years, they would be permanently assigned to a polygraph unit, and they would be promoted to Detective Sergeant.

In April 1966, Jack Pletzke retired from the Michigan State Police. He was made an honorary member of the Michigan Polygraph Association. At this writing, Jack has a special place in the hearts and minds of all Michigan polygraphists who know him, both within and without the State Police. He is a modest man ... for one to say that he is deeply respected or highly regarded almost seems like an understatement. Jack continued to attend polygraph meetings and training sessions. He has donated his vast collection of materials related to the polygraph to the Michigan State Police Library for use by Michigan State Police examiners. With Jack's retirement, Harold "Hap" Morrison was promoted to Detective Staff Sergeant and was made Chief Examiner. Morrison enlisted in the Michigan State Police on October 1, 1946. After working at Jonesville and Clinton, he was promoted to Detective on October 14, 1956, and was assigned to the St. Ignace Post. Hap was made a Detective Sergeant three years later and was assigned to the Special Investigation Squad at East Lansing Headquarters. This squad did special investigation work for the Michigan Attorney General's Office. It was during this time that Hap became interested in acquiring polygraph training. In the latter part of 1960, Jack Pletzke began to train him and Ev Millar in his structured preceptor course which he had developed. When the training was completed, he was certified as a polygraph examiner through the Michigan State Police Training Division. (Morrison, 1985)

On July 16, 1961, when Clarence Bloomquist retired at the Seventh District Headquarters in Traverse City, Hap was sent there to replace him. On January 9, 1966, Hap was promoted to Staff Sergeant and was assigned to command the Erie Post. Jack Pletzke retired about four months later on April 4, 1966, and Hap replaced him as Chief Examiner. Hap Morrison remained in command of the Michigan State Police Polygraph Unit for over two years. He was then promoted out of the unit to Detective Lieutenant to command the Michigan State Police Second District Headquarters Detective Bureau in Detroit. He would eventually be promoted to Captain where he would command the Eighth District, which includes the entire upper peninsula.

While Morrison was at Detroit, from time to time, he would be consulted on serious cases when the second examiner was absent and the examiner who was conducting the test was alone. In one such case, when this writer was a cub examiner, he was asked to conduct an examination on a murder case. A bar maid had been found beaten and strangled and the police had no evidence at all. The best they could do was to determine whether any of the twenty some plus people who were at the bar the night the crime occurred were involved. The examinee, who was known to have a hair-trigger temper, was a big muscular guy. He had been in the bar at closing time, but he claimed he left with everyone else. One of the investigators thought he was a good suspect--the other one did not.

After obtaining three charts from him (which all looked deceptive), I wanted a second opinion before I accused him of such a serious crime. The charts were taken down to Hap Morrison's office. He looked at them and

agreed that the man was deceptive. Upon returning to the polygraph room, just to be sure, another chart was run. The emotional responses on that chart to the relevant questions also indicated deception. With that, and the confidence gained also from Hap's opinion, I launched into an interrogation.

The various emotional approaches during the interrogation had little or no impact on him. A switch was made to a logical approach, emphasizing the amount of evidence the police gathered at the scene. He said, "If the police had any evidence on me, they would have already arrested me." The examinee was told that, "Crime laboratory scientists analyze evidence from many different cases from around the state. They work on these in the order that they come into the laboratory. When they finish working on the evidence gathered in this case, you will be arrested, tried and convicted. I suggest to you that you not wait until that happens until you tell your side of this story. It appears to me what happened here was that this woman led you along all night in the bar. Then when you wanted to go out with her after the bar closed, she told you to shove off and would have nothing to do with you. You became so angry that you hit her. That is what happened, wasn't it? You hit her after she made you feel like dirt, didn't you?" He began to sob and admitted that he did hit her, and a full confession was obtained. He eventually led investigators to the shoes he was wearing the night he killed her. The shoes had been thoroughly scrubbed, but he knew that oftentimes crime laboratory scientists are capable of detecting minute traces of blood, so he threw the shoes away and bought a new pair. He also took the investigators to the woman's purse. She had just been paid, and he stole that after he killed her. He had thrown that away at a different location.

The examiners who became trained in polygraph, while Hap Morrison was the Chief Examiner, were Alex Schwartzkopf, Bob Neigebauer, Ray Coger, Dick North, and Steve Cloonen. Schwartzkopf and Neigebauer would later be promoted to Detective Sergeant in Intelligence. The others were promoted to Detective Sergeants and were assigned to the polygraph unit. North was sent to Detroit, Coger was assigned to Bay City, and Steven Cloonen, affectionately nicknamed "The Penguin" by his colleagues, was sent to Rockford.

Hap Morrison attended the National Training Center in 1967. The internship training program continued under him much the same as it had under the guidelines of his predecessor. Trainees were sent to different locations after they had spent some time at Headquarters working with him. When one of the new interns requested to know if it would be permissible to wear a mustache, he told him, "of course you can, as long as you don't wear it in the polygraph room." Hap Morrison required examiners to conduct a minimum of three charts during a test. One of these would generally be a stim test. If the examiner then was still undecided, he would run another chart, which usually was a mixed-question series. (Morrison, 1985) On July 7, 1968, when Hap was promoted to Detective Lieutenant, Edward J. Goss was promoted to Detective Staff Sergeant and transferred from Rockford, Michigan to Headquarters to replace him.

Eddie "E.J." Goss was born on March 4, 1925 at Jackson, Michigan. He came from a large family where he was one of eleven children. When he was 17, in November 1942, he enlisted in the Marines. He saw action in the South Pacific in several operations against Japanese forces. During this

time, he suffered a serious wound which nearly cost him his leg. After the war was over, he was encouraged by several members of the State Police to join the force. On November 29, 1948, "E.J." enlisted in the Michigan State Police. He served as a trooper at Mt. Pleasant and Traverse City. In August 1959, he was promoted to Detective and was assigned to Willow Run Airport Detail which operated out of the Ypsilanti Post for nearly three years. He then was transferred to the Ionia Post where he served over four years. During all this time, he was involved in criminal investigations and, frequently, used polygraph to assist him. (Goss, 1985)

At Traverse City, he watched Clarence Bloomquist conduct examinations where, as the stim test to reassure the truthful person, Bloomquist would have the subject pick an item from a cigar box. Since the galvanometer on the old instrument was poor, he would ask the investigator, watching the exam through a two-way mirror, to tell him what the item was that was picked from the cigar box. Bloomquist was an outstanding interrogator and Goss said, "I observed about 50 polygraph examiantions and I only saw the attachments put on six to eight times. And, this is a conservative estimate." From this, Goss came to believe that the polygraph was being used as an interrogation wedge and not as a scientific instrument to determine whether someone was telling the truth. His view on this was to change, however, by subsequent events.

While a detective, working at Ypsilanti, he was called to investigate a case where a young nurse was hit with the edge of a snow shovel in her home. She had called her mother before she passed out. When police arrived at her home, they found her lying in a pool of blood with her little three-year-old daughter holding a towel on her mother's head. The nurse said the intruder wore a brown bag over his head. The police developed a suspect, a 15-year-old boy, who denied any involvement. The suspect was examined by a psychologist who said he didn't have the personality to commit such an offense. He was asked whether he would submit to a polygraph test and he agreed. On a Saturday morning, Goss, Ray Tanner, a Detective Sergeant at the Ypsilanti Post, and the suspect, went to Second District Headquarters at Detroit for the examination. They talked with Frank Barkman, the polygraphist on duty and related the case facts to him. Barkman had been trained by Jack Pletzke. Barkman had already conducted two tests that day before they arrived. Barkman conducted the examination and found the suspect deceptive. Frank told the suspect this, and when the suspect tried to confess, Frank told him to tell the detectives about it. He didn't have time to get the confession because he had to conduct another examination. The suspect was taken into another room where he was questioned further by Detective Sergeant Ray Tanner. After a full confession had been obtained and, while they were walking out, they saw another person being ushered into the polygraph room for Frank's fourth test of that day. (Goss, 1985)

A later burglary investigation also had an impact on Goss. He had developed a suspect whose prints had been found at the back door of the building and he had been seen in the alley near the bar. The suspect claimed that the reason his prints were there was because on the night of the break-on, he had stopped there to urinate. The suspect was bound over at the examination, but continued to deny his involvement in any breaking and entry. He wanted a "lie detector" test to show he was innocent. Goss took him to Jack Pletzke at Headquarters. He told Jack that, in his

opinion, the "guy was guilty as hell." After the first chart and a stim test, Jack came out of the room shaking his head. Jack said, "His charts don't show he did it--it shows he's telling the truth." Eddie replied, "He's guilty as sin." After two more charts, Jack came out again and told Eddie, "You'd better look for another guy." Goss left in disbelief. He thought Pletzke had made a mistake. On top of that, as he was taking the suspect back to jail, the suspect needled him about it, "That guy has something you don't have. He told you I didn't do it, didn't he?" Goss decided he better do some further investigation. He developed another suspect. He picked him up. After 20-minutes of questioning, he confessed. He led Eddie to some of the stolen property which was recovered. With the help of the prosecutor, the innocent man was released after spending over a month in jail, but not without some difficulty due to the stage of the legal process. (Goss, 1985)

This, and other cases, caused Goss to change his view on polygraph. He went to Headquarters and talked with Jack Pletzke about entering the polygraph unit. Goss appeared, along with about twenty other candidates, before the Polygraph Selection Board. This Board was comprised of the Chief Examiner, a representative from the Michigan Department of Civil Service, a representative from the Michigan State Police Personnel Office, and Mr. George Lindberg, the Chief Examiner of John Reid and Associates in Chicago. In January 1966, Goss attended the National Training Center of Polygraph Science (then "Of Lie Detection") in New York City with Bob Spletzer and George Kerr. Goss thought that the National Training Center was one of the better polygraph schools for police officers, especially detectives, in the entire nation. After graduating from polygraph school, he interned at several Michigan State Police polygraph units in the state under examiners trained by Jack Pletzke and "book learning." Then he worked as a relief examiner and taught in recruit schools until August of 1966 when he was promoted to Detective Sergeant and was assigned to Sixth District Headquarters which was then located in the little town of Rockford, just north of Grand Rapids. Goss said that out of the first thirty people brought to his unit who were deceptive, about twenty-five admitted to the crime during the pre-test interview. Ed said that he used many of Clarence Bloomquist's techniques, and some other experiences he had learned which was responsible for this high confession rate. This procedure later came to be called "the extended heart and you."

Ed was promoted to Detective Staff Sergeant and Chief Examiner on July 7, 1968. He was a tireless worker who continued projects started by those who had gone before him. He continued in areas of research, upgrading educational standards of state police examiners, got a polygraph licensing bill passed, and still conducted polygraph examinations. One of his first projects, was to put it into the department's rules and regulations that the examiner shall make the sole determination on whether an examination was to be conducted. Both Jack Pletzke and Harold Morrison had worked on this, but it took an almost comic incident that occurred in Marquette to push it through. This involved a broken knob on a radiator which was thought by the district commander to have been deliberately broken by someone who was trying to harass the district headquarters secretary. The district commander had ordered the polygraph examiner there to conduct exams on all employees to get to the bottom of this dastardly deed. When the janitor heard what was going on, he told the district commander that it was he who had broken the knob while trying to fix it.

There were, of course, other limiting factors involved in the polygraph testing procedures of which, oftentimes, only the polygraph examiners were aware. For example: factors, such as, the age of the subject, whether he was well-rested, if he had recently been subjected to an interrogation, whether he had physical illnesses which could interfere with the test, whether he was hungry, and others. These made it important that the examiner have the final word on whether an examination should be administered. After these reasons were explained to Director Fred Davids, he agreed that examiners should have such authority. Davids approved it and the rule was implemented. This regulation has, subsequently, been adopted by many police agencies in the United States. Ed believed that more information should be obtained from the examinee, particularly as to his physical condition and suitability to take the polygraph test. He, therefore, while working with other examiners, put together a more detailed personal history sheet. This expanded that area of the test from five or six minutes to about twenty minutes. Goss also was instrumental in expanding polgyraph service by the Michigan State Police. He had drawn up a plan showing the need for additional units. As a result, although he did not get everything he wanted, a second unit was added at Rockford since this was near the busy Grand Rapids area. A new unit was put in at Gaylord, Jackson and Flint. Much of this was through federal funds made available to states to upgrade their law enforcement facilities and to train local law enforcement officers.

Goss also played a key role in getting the legislation passed which set professional polygraph standards for polygraph practitioners in Michigan and which created the Board of Forensic Polygraph Examiners within the Department of State Police. Eddie said the bill had been initiated by such dedicated people as Lynn Marcy, a private examiner, who graduated from Michigan State University, and who was a former instructor at Keelers; Jack Pletzke, and others. Each time the bill died in Committee. Ed contacted the new Director, John Plants, and asked his help to get the bill passed. Plants wanted assurance that it would not have a negative impact on police polygraph testing and that there would be no cost to the Michigan State Police to administer the act. Plants agreed to help get the bill passed. Ed testified before the Appropriations Committee as well as several other committees. He met with both unions and the American Civil Liberties Union to discuss their concerns. Finally, in 1972, this model piece of legislation was passed and signed by the Governor. The bill came into effect in the spring of 1973. Governor Milliken appointed Lynn Marcy, Dr. William Yankee, Professor Wolfgang Pindar, Detective Technician Carl Smith, and Detective Sergeant Earl James to the first polygraph board. At their first meeting in Lansing, Marcy was elected chairman and James was elected vice--chairman.

In 1970, in anticipation of the bill, and to provide more training for Michigan State Police polygraph examiners, Goss, Marcy and Bill Yankee began laying the foundation for the First National Polygraph Workshop. The plan was to have a real workshop with the emphasis on work. They sought a location where the attendees would be isolated. It was believed that it would be beneficial if most of those attending were living together in a dormitory where information would be exchanged. The goal was to bring in the best experts that could be found. Panel discussions would also be conducted with input from those in attendance.

In May 1971, the First National Polygraph Workshop was held at Delta College. The college was sufficiently isolated, the program was excellent, the food was good, and everything was fine except the weather. Examiners came from all over the United States. Within three years, however, the National Polygraph Workshop could have been called "The International Polygraph Workshop" because there were examiners there from all over the world. Goss had accomplished his purpose for the Michigan State Police. Now, instead of only one or two state police examiners receiving a week's training every year, half of the unit was sent. This training was in addition to that which was obtained by attending the Michigan Association of Polygraph Examiners educational classes and the material sometimes presented during the quarterly meetings of the unit. The training offered at the National Polygraph Workshop was of the highest quality.

Some of the early instructors at Delta were Richard O. Arther, Director of the National Training Center; Dr. Frank S. Horvath, former Director of Training and Chief Examiner of John E. Reid and Associates; Dr. Ames Robey, M.D., Director of the Center of Forensic Psychiatry; Dr. William Yankee; Dr. William Barber; Len Harrelson of Keeler's; Lynn Marcy, Robert Brisentine, Chief of Army Quality Control; Harry Lindberg of Foremost McKesson; Major Glenn Davis of the Vermont State Police; Dr. Fred Barnett, M.D., L.L.B., Law Professor; B.J. George, Director of the Center for the Administration of Justice, Wayne State University; Ron Decker, Chief of the Army Polygraph Committee; John Reid; Detective Sergeant John Lyng of the Jersey City Police Department; Ray Weir of the Department of Defense; William Menzies; Richard Patterson; Richard North; Dr. Stan Abrams; E. Paul Leek; Dr. H.M. Hildebrandt, M.D.; Dr. William J. Bryan, M.D., J.D., Ph.D., LL.D.; Attorney Robert J. Harrison; and Cleve Backster, to name only a few.

Goss, Marcy and Yankee were presented with a special plaque on May 8, 1975, to honor their special contribution for creating this very special workshop. Many close bonds of friendships were created during the workshop. For example: the Royal Canadian Mounted Police examiners and the polygraphists from the United States became such good friends that, at a later banquet the night before the workshop ended, the Mounties stood up and led those in attendance in singing the Canadian National Anthem. That close bond of friendship between the Royal Canadian Mounted Police and the Michigan State Police began in 1969 when the Commissioner of the Royal Canadian Mounted Police wrote the Director of the Michigan State Police and inquired whether it would be possible for one of his men to train with the Michigan State Police Polygraph Unit. The Director consented. A short time later, Sergeant Les Holmes of the Royal Canadian Mounted Police arrived at State Police Headquarters. Holmes told Goss that he was there strictly on an experimental basis. The Royal Canadian Mounted Police wanted to evaluate whether they wanted to initiate a polygraph program on their own. Goss made up a training schedule for Holmes, who had graduated from the National Training Center in New York. He then began conducting examinations at the various polygraph units around Michigan. This resulted in some humorous instances--like the time, so the story goes, that Holmes was giving the Miranda Warnings by telling the examinee, "Now under the Crown, you have certain rights."

Holmes returned to Canada and initiated a very successful polygraph section. He would be followed by several other examiners who did their

initial training at the National Training Center of Polygraph Science. The Royal Canadian Mounted Police continued to have their polygraphists spend part of their field training in Michigan into 1978. After Goss retired, the Royal Canadian Mounted Police presented him with a beautiful plaque with their emblem on it at the National Polygraph Workshop at Delta College. They were honoring him for the special contribution he had made in starting their polygraph program.

Officers of the Michigan State Police Polygraph Unit have always been part of a Planning Committee of the National Polygraph Workshop. They take part in selecting the speakers, contacting them, and helping arrange for them to come to Delta College. During the years of 1974 and 1975, James co-chaired the Committee and was the Master of Ceremonies for the opening dinners, and coordinated the 1975 Workshop.

On August 23, 1972, Detective Sergeants North and James, of the Detroit Unit, were qualified as expert witnesses in polygraph and testified in the United States District Court in the United States v. Richard Ridling.* On October 5, 1972, Federal District Judge Charles Joiner ruled that the results of polygraph examinations should be admitted into evidence providing certain guidelines, which he set forth, were followed.

Following Ridling, there was an increase in requests for polygraph examinations by the courts in Michigan. For example: a case that was pending in the Michigan Court of Appeals was resolved where a convict in the Michigan State Prison at Jackson, who was serving time for armed robbery, claimed he was not even present when the robbery occurred for which he was convicted. He was deceptive and admitted it. Judge Victor Baum of the Wayne County Circuit Court in Detroit requested examinations on a case where a man was charged with felonious assault. The victims, all teenaged boys, alleged that the defendant had pointed a gun at them while they were sitting on the stone fence of his motel. The defendant admitted that he had a rifle, but denied even taking it out of the gun cabinet that day. After the test, the defendant admitted pointing the rifle at the youths. There were numerous cases for the courts, like those above, and many more conducted at the request of prosecutors where there was doubt in their minds whether the defendant committed the crime. In many of these cases, the criminal proceedings had already passed the examination stage and a lower court had found that there was a crime committed and there was probable cause to believe the defendant committed it. In one such case, an ex-convict had been paroled from Jackson prison after serving eight years for armed robbery of a restaurant. A month after he was released, another robbery occurred of a restaurant in a Detroit suburb. The investigators pulled mug shots of those on parole, or who had been convicted of armed robbery, who were living in their area. They showed these to one of the four eye witnesses who were working in the restaurant at the time. The witnesses identified the parolee. The defendant was arrested. At a properly conducted lineup, all four eye witnesses picked out the defendant from a group of six men. At the examination, he was bound over to stand trial for armed robbery. What was particularly bad for the defendant was that the method of operation in the previous armed robbery corresponded to the details of this robbery.

*U.S. v. Ridling, 350 F.Supp. 90 (E.D. Mich. 1972), 41 LW 2191.

At the urging of the defense attorney, the prosecutor arranged for a polygraph test at the State Police Polygraph Unit in Detroit. The prosecutor promised to drop the charges if the defendant did pass. The defendant passed and the charges were dropped. Needless to say, the investigators were furious. They told the polygraphist that he had made a mistake and, because of this, he was responsible for putting a criminal back on the street. In addition, they were never going to bring anyone back to the unit again. About a month later, however, in the City of Royal Oak (another Detroit suburb), the Royal Oak Police apprehended two men in the act of sticking-up a restaurant. To avoid multiple charges, the men admitted the robberies they had pulled, independently and collectively, in the Detroit area. One of them admitted to the robbery where the ex-convict had been falsely charged and where four eye witnesses were clearly in error. In response to these cases, and the examinations which were being conducted at the request of the courts by unit polygraphists, it appeared to Goss that admission of test results was imminent. Goss arranged to conduct special training for members of the Michigan State Police Polygraph Unit to better prepare them for testifying in court. From December 1972 through March 1973, periodically, state police examiners came to Headquarters for two-day sessions. The instructors for these training sessions were Dr. Edmund J. Glassford, member of the American Society for Psychophysiological Research; Dr. Albert Ax, Director of Psychophysiological Research at the Lafayette Clinic in Detroit; Dr. Jan Nyboer, M.D., Ph.D., Professor of Physiology, Cardiology and Pharmacology at Wayne State University; Dr. Robert Pitman, Professor of Physiology at Michigan State University, College of Medicine; Dr. Ames Robey, M.D., Ph.D., Chief Psychiatrist and Director for Forensic Psychiatry of the Michigan Department of Mental Health; Mr. Walter A. VanDeWerken, a researcher and designer of polygraph instruments; Mr. Lynn Marcy, B.S., Director of the American Institute of Polygraph Technology and Applied Psychology, who was also former Director of the Keeler Polygraph School; Mr. Robert Harrison, LL.B., generally recognized then as being the most knowledgeable attorney in Michigan in the polygraph field.

The examiners who attended the entire period of this training were Detective Lieutenant Edward J. Goss, Detective Sergeants Lowell Wilds, Earl James, Richard North, Ronald Beauchine, Ralph Cabot, Fred Garchow, Robert Spletzer, Steve Cloonan, Thomas Krusniak, Ralph Severance, Wallace Pletzke, Robert Dufort, and Lynn Marcy. Those examiners, who, because of other commitments, were not able to attend all the sessions were Detective Sergeants Chester Romatowski and Robert Foster, and Constables John Nield and Richard Reynolds of the Royal Canadian Mounted Police.

Pletzke and Morrison had encouraged constant study and research in the polygraph area, and so did Goss. Detective Sergeant Robert Foster and Goss had a special interest in child abuse cases. Goss worked with Dr. Ray E. Helfner, Chairman of Pediatrics and Human Development at the University of Michigan, a doctor at the Lafayette Clinic in Detroit and the Michigan Department of Social Welfare. In addition, he paid particular attention to the background of suspects in child abuse cases during polygraph tests when they were deceptive. From this, he developed a profile which was later presented at Advanced Detective Schools and at The National Polygraph Workshop, and before many other organizations. Sometime later, the research conducted at Brandeis University, and by Dr. Helfner, verified many of the things Goss had found. While Foster and Goss were involved in this, other research was taking place in Detroit.

Detective Sergeant Richard North had long been interested in nonverbal behavior and its relationship to truth and deception. Detective Sergeants Ferry, Seath, James, and Romatowski noted various types of behavior and kept records on it indicating whether the person was truthful or deceptive. This was carried on periodically from 1968 through 1973.

While working on his Masters Degree at Michigan State University, James pulled 100 verified cases--fifty verified truthful and fifty verified deceptive, where four examiners had recorded behavioral observations occurring during the structured pre-test interview. If the examiner believed the response and behavior was truthful, an up-arrow was assigned; if deceptive, a down-arrow was noted. Where there were more up-arrows than down-arrows, the person was considered truthful. This meant that there was, over all, a lack of defensive behavior on the part of the examinee. Unfortunately, physical manifestations of behavior, which occurred when the crime questions were being discussed versus the control questions, were not recorded. This would mean that the examiners were recording strong indications of truthfulness where defensive behavior was exhibited while discussing the controls. Let this be very clear, however, that the examiners certainly did make mental note of it. It was just not recorded. The results indicated that examiners were correct in their evaluations of the examinees during the pre-test interview, overall, 74 percent of the time. Nine percent of the time they were undecided, and 17 percent of the time their evaluations were wrong. The important thing discovered was that they were accurate in evaluating the verified truthful 80 percent of the time. James believed this would have been even higher had the behavior been noted when discussing the control questions and crime questions. In fact, where this behavior would have been present, it probably would have an overriding effect on the other observations.

At Detroit, Detective Sergeants Seath, North, and James recorded data on conjugate lateral eye movement on male subjects during the pre-test interview to assist them during a later interrogation should the subject be found to be deceptive. This, along with other information, was used in an effort to determine whether the examinee was predominately introverted or extroverted. It was believed that the deceptive introvert would be more likely to internalize a matter and would be more susceptible to an emotional appeal. With the deceptive extrovert, on the other hand, it was believed that the opposite would be true and, therefore, it was likely that a logical appeal would yield greater success. Detective Sergeant Seath presented a paper on results at the National Polygraph Workshop.

Detroit examiners also began using a five minute Luscher Color Test during the pre-test interview. The color panels used by James and North to do this were sent to James by Dr. Max Luscher at the University of Basel in Switzerland where he was teaching at the time. North designed a form which was used to record information and develop proficiency in using the test. James also flew to New York City and met with Psychologist Margarete Jurick. She was looking into this test to help evaluate persons sent to her by the court. She had worked for the City of New York for many years at the Department of Forensic Psychiatry at Kings County Hospital Center in Brooklyn. She had been referred to James by Dr. Luscher. They exchanged information on the use of the test. It was suggested that she use the longer test format. A paper was presented on this at the National Polygraph Workshop at Delta College by Detective Sergeant North. After he retired

from the Michigan State Police, he continued to teach the use of this test at the American Institute of Polygraph in Dearborn, Michigan.

In addition to research, Goss also wanted to be certain that all state police polygraph instruments were in proper working order. He wanted someone in the unit capable of making repairs, beyond removing defective parts and sending in for replacements. Goss made arrangements for Ron Decker, Chairman of the United States Army Polygraph Committee to check and repair any instruments found defective. Mr. Decker came to Michigan and this was accomplished. While working on the instruments, he was accompanied by Detective Sergeant Robert Foster who tried to learn as much as possible from him.

In the middle of November 1973, Eddie Goss decided to retire after completing 25 years of service. The retirement date was effective November 30th. The following year he would go work at Delta College as a coordinator/instructor. James was promoted to Detective Lieutenant in command of the polygraph unit and transferred to Lansing. It was effective December 2, 1973.

The foremost problem confronting the unit when James took over involved an internal matter at the Flint Post. Inspecting Lieutenants had uncovered about six problem areas. The Uniform Division Commander, who later became the Director, wanted polygraph examinations to resolve the matter. The Major wanted the officers at Flint asked several questions regarding the problem areas and, if possible, all during one test. It was explained to him that, for the sake of accuracy, examiners could only deal with one problem at a time and would also have to deal with other areas for control purposes. Because of the Forensic Polygraph Act, all the tests had to be voluntary. Since Detective Sergeant Ralph Cabot, who was assigned to the Polygraph Unit at the Flint Post, would have to continue to work with the officers stationed there after the testing was finished, it was decided to bring in examiners from other units to conduct the examinations. All the examiners were outstanding and were men of high integrity, but James decided to send in Detective Sergeants Lowell Wilds of the Paw Paw Polygraph Unit and Richard L. North of the Detroit Unit.

North had been a Michigan State Police officer for nearly 25 years at that time. He had served many years also as post detective, working at New Buffalo Post on special assignment as an investigator for a Wayne County Grand Jury in Detroit looking into corruption in the Detroit Metropolitan Area. He had been in the polygraph unit for five years and had extensive experience testing police officers on internal matters. This was because, at that time, the Detroit Police Department Internal Affairs had most of their examinations conducted by the Michigan State Police. The same was true of several other police agencies in the Detroit area.

Lowell Wilds, at the time, had about 17 years of experience with the Michigan State Police. He had been a post detective at the Houghton Lake Post. He had taught college courses in that area. He had been in the polygraph unit for two years. He was first assigned in the unit at Headquarters, but, later, was transferred to Paw Paw when Detective Sergeant Robert Spletzer retired. Lowell had served a hitch in the Marines, and part of that time was as a drill instructor. Lowell is a gentleman in every sense of the word and held in high regard by everyone who ever worked with him.

Near the end of November 1973, the testing at Flint got underway. North and Wilds got through the first issue with little difficulty. Flint, at that time, was the largest state police post in Michigan with over 50 officers working there. One minor incident of wrong doing was uncovered. North and Wilds started through the next two areas. The officers at the Flint Post, lacking an understanding of the polygraph technique, thought when the examiners were discussing controls that they were on a fishing expedition. Major Halverson asked the process to be accelerated. James discussed this with the examiners working in Flint. It was decided to put two issues in the same test with two questions on each issue. If a deceptive response was indicated, then a separate examination could be given to that particular examinee on each of the two issues. North and Wilds got about half way through issues two and three when all testing was stopped. Even though no one was forced to take the examination, the Michigan State Police Troopers Association (MSPTA), which James had helped form in the early 1960's, had obtained a court injunction to block further testing of their members. This injunction would never be lifted, but it did not end all testing on the matter.

In the spring of 1974, the officers who had been in command of the Flint Post during the time these problems arose were flown to Headquarters where they were given polygraph examinations by James, backed up by Dick North. This backup method continued to be used, primarily in murder cases. In this first instance, it was used on an Assistant District Commander. This man was cleared of any wrong doing. He would later be promoted to a division commander.

In 1974 Frank Horvath contributed to increasing the knowledge of the members of the unit. He gave a talk at the quarterly unit meeting on the Reid Method of selecting control questions, made a video tape with James as the examinee to demonstrate the Reid Techniques, and, on numerous occasions, served as a consultant to the unit in difficult cases. The Director of the Michigan State Police gave him a Certificate of Appreciation as a small token to recognize his contribution.

By 1974, the polygraph unit was conducting over 3,500 specific issue examinations per year at their ten sites. Their indefinite rate was 2.8 percent and the confession rate of those who were called deceptive was over 70 percent. In addition, the known error rate was less than one-half of one percent. In addition, there was a tremendous demand for polygraph examinations by investigative agencies. In Detroit, for example, where there was two fully-equipped polygraph rooms, there was a six-week waiting period for a polygraph test. The examiners there would ordinarily conduct four exams each day, two each. It was not uncommon for an examiner there to handle two or three murder examinations in a week. For a period of time, James assigned Detective Sergeant Stuart "Sam" Hutchings (now Inspector Hutchings) there on an afternoon shift to help cut that backlog.

Lt. Chester Romatowski, also known by his colleagues as "The Polish Prince of Polygraph," was assigned to Detroit at the time. He had replaced James. Today he is retired from the Michigan State Police and is working as an examiner for the Oakland County Sheriff's Department in Pontiac. He has conducted over 5,000 specific issue examinations and has made only one known error, and that was made on a non-law enforcement case.

In 1975, from out of the west, and from the University of Minnesota, came criticism from those who are inclined to deny that polygraph testing is a process. That it is part art and part science. These men would make polygraph testing more mechanical than it is. They cast aspersions on the ability of Arther graduates and, although the name of the Michigan State Police was not mentioned, they left little doubt about whom they were talking. The attack upon the National Training Center was obviously based upon their ignorance of the true facts. The Michigan State Police examiners did not, although trained by Arther, conduct examinations completely according to his teachings. The methodology used, was, in fact, a synthesis of the teachings of Keeler, Reid, and Arther. It was a fairly uniform process. James was not worried about this criticism because he knew that the methodology being used was working. If it were not and examiners were making serious errors, the users of this investigative tool, the hundreds of police officers, prosecutors, courts, and other agencies like the Michigan Department of Social Services, would simply stop using it. Instead, the demand for services remained constant.

Another matter which confronted the polygraph unit during that time dealt with the rank and, therefore, the compensation examiners were to receive. For a good number of years, the polygraph examiner, due to the nature of their opinions and the heavy weight which was attached to those opinions, was at a level equal in pay to the post commander. Examiners were selected from those who served as detectives after years of investigative experience. It was a promotion to detective sergeant to enter the unit and, most often, involved a transfer from the post where they were working to a station where the polygraph unit was located. Oftentimes, this required moving the entire family to a new town. Children would have to change schools, wives would have to give up their jobs if they were working outside the home, and houses would have to be sold.

On August 1, 1971, all detectives were reallocated to the rank of detective sergeant and the rank of detective was abolished. Post commanders were also reallocated to the rank of lieutenant. There was no change in the status of polygraph examiners--they remained detective sergeants. This had an impact upon those who would be willing to serve in the polygraph unit. Among those who did make lateral transfers to come into the polygraph unit were Detective Sergeants Stuart Hutchings, Chester Romatowski, Robert Foster, John Harsen, Ronald Beauchine, Lowell Wilds, Robert Dufort, and Robert Crider. It was perceived by James that if the polygraph examiner was not upgraded, it would seriously impact upon the number of highly qualified personnel who would apply for duty within the polygraph unit. Further, it was believed that it would be difficult to retain the highly qualified personel already in the unit because most, if not all, of these men were also high on the Civil Service list for post commander at the time they came into the polygraph unit. Civil Service had recently completed a benchmark study which had placed the polygraph examiner in the same location as a sergeant in police training and an increase in rank was decided upon the basis of how many personnel one managed, not upon the importance of decisions made. As part of the hard effort Captain Christensen, who was Director of Laboratories, was putting forth, James decided that to help bring an increase in pay about, it was necessary to become part of the crime laboratory. James thought that it would be more professional, wherever possible, to conduct polygraph tests in a crime laboratory rather than in the police-dominated atmosphere of a post or district headquarters. He

believed examinees would be less apprehensive when taking tests, and where they were deceptive, it would be easier to obtain confessions. After meetings with the Chief of Detectives and Captain Christensen, the polygraph unit was transferred to the crime laboratory on July 1, 1974.

Meanwhile, Captain Christensen and James rewrote the specifications for the polygraph examiner position to include the trooper who had five years of service in the state police. He would be at the 11-level (Detective Sergeant) for one year and then become a 12, equal to a Lieutenant. Christensen thought this was necessary to get Civil Service approval. James thought this was desirable for another reason. The Michigan Polygraph Act required all new examiners to have sixty semester hours of college by the end of 1974 and by the end of 1979, all applicants for licensing were required to have a bachelors degree. By including the five-year trooper, it would widen the base of those from whom a selection could be made. At that time it was an important consideration that there would not be enough Detective Sergeants who had the years of investigative experience plus a bachelors degree, who would be available and willing to accept a lateral transfer into the unit. In the winter of 1975, Captain Christensen indicated that it looked very favorable for the upgrading of polygraph examiners. He indicated where there was one examiner at a unit, he would be a Laboratory Specialist 12 (equal to lieutenant). Where there were two men, only the senior man could have that position. This meant that only two men would not be upgraded, but they would be offered the first available opportunity.

On June 3, 1975, Troopers Robert Kelly and Richard Lowthian began polygraph training at the American Institute of Polygraph and Applied Psychology in Dearborn. Kelly had a bachelors degree from Madonna College in Livonia, outside Detroit, and Lowthian had attended General Motors Institute. Kelly was to remain in the polygraph unit for five years and, at this writing, Dick Lowthian is still in it. A special effort was made to select these first two men to enter the polygraph unit at the trooper rank. It was thought if the performance of these men was not up to the high standard set by their predecessors who had much more investigative experience than they possessed, the unit would be in trouble because the law required five years of investigative experience and two years of college, or a bachelors degree in an area applicable to polygraph, and it was apparent that the Michigan State Police would no longer permit the entry level into polygraph to equal the pay of a post commander.

Other problems involved the polygraph bill which was to be administered by the Michigan State Police. At first there were no funds to hire a secretary for the Board, nor were there any to create a position for an investigator to handle the Board's work. Further, the Legislative had turned down the Director's request for funds. It was nearly two years after the Act was passed that funds were provided.

The courts continued to request the polygraph unit to conduct examinations for them from time to time. On July 19, 1974, a test was conducted for the Michigan Supreme Court at the request of the Administrator. It had been alleged that one of their employees had removed court records. After the examination, it was reported to the Administrator that, in the opinion of the examiner, the subject was not telling the truth when he denied removing the records. Other cases which the circuit courts requested had to

be turned away due to the heavy caseload. Most of these were paternity matters, but one included an adoption case.

During the summer of 1974, renovation work was taking place at East Lansing. The polygraph room was moved to the new First District Headquarters on Canal Road near I-96. This made it more accessible and convenient for the users of polygraph in the mid-Michigan area. The Administrative Office remained at Headquarters.

On January 6, 1975, James received unofficial information that the Legislature was supportive of putting a polygraph unit in the Down River area, south of Detroit. James had been working for two years to put a unit into that area at Flat Rock. It then appeared, however, that it would be going to be put in at Wyandotte.

Increased use of the polygraph by police departments in Michigan created new problems that had to be dealt with by the Chief Examiner. For example, he received requests from prosecutors or police officers to have another polygraph examination on a person where the person making the request did not like the result of the first test. The original examiner could be from any law enforcement agency. It was the policy, at that time, not to conduct a re-examination under these circumstances. At nearly every location, there was a backlog of three to four weeks. To conduct such repeat examinations would have made this situation worse. In addition, there was a danger of creating dissension between law enforcement agencies.

Another problem the Chief Examiner was confronted with occurred on February 18, 1975, when James was told that the State of Michigan was in a financial crisis. There was to be no out-of-state travel, in-state travel was to be cut as much as possible, all construction except for Negaunee was to be halted, no state cars were to be taken home except when returning from court, and there would be no funds for training. This prevented sending anyone to the National Polygraph Workshop.

Because Michigan is almost a one-industry state, manufacturing automobiles, when the rest of the nation catches an economic cold, Michigan has pneumonia. These periodic economic crunches are something that every manager in Michigan government has learned to take in stride.

Providing an unmarked police car to Detective Sergeants who were polygraph examiners had been done for years. After litigation, it was determined by the court that this was a condition of employment and a fringe benefit which could not arbitrarily be withdrawn by state police management. However, management advised James to clearly inform all new examiners coming into the unit that they would have no vehicle issued to them.

Not only is the Chief Examiner responsible for the smooth operation of the polygraph unit, but he is often called away to assist investigators in special cases. For example: during the early part of March 1975, James went to a motel on Lake Michigan and studied reports on three different killings. One victim was found floating in a river in Florida; another man, who had escaped from prison in Michigan, was found shot to death near Tunnel Valley, Georgia; and a third man, a drug dealer, was thought to have died from a self-inflicted gunshot wound. A man who had, within four years, gone from being a county animal control officer to where he was

worth millions, lived on an island in the Bahamas and owned a famous night club in Boston. Most of the money was made by bringing in shiploads of marijuana to the coast along the Carolinas where the marijuana was transferred from small boats to pick-up campers with the insides stripped out. Drivers then transported the cargo north for distribution. This former animal control officer wanted to return to Michigan. The problem was there was an outstanding warrant against him. He had hired the famous criminal attorney F. Lee Bailey. Bailey was trying to work out a plea bargaining arrangement with a very aggressive prosecutor who would later become a judge.

The prosecutor said he would accept the plea if he would take and pass a polygraph test on these three previously-mentioned murders. After working up tentative test questions, on March 14, 1975, James met with Attorney Lee Bailey and Mr. Zimmerman, a private polygraphist, at the Holiday Inn outside of Muskegon. On the case in Florida, there was agreement that the questions were proper. There was insufficient information to conduct a test on the case in Georgia, but additional information would be obtained. On the third case, the alleged death from a self-inflicted gunshot wound in Michigan, there was considerable discussion regarding the questions. After much haggling back and forth, James finally told Bailey, "Lee, you probably know more about the polygraph technique than any other attorney in the country. You know these are good, fair questions." He finally related that, while his client was not directly involved, he did know what happened. Bailey said, in substance, that the deceased had a defective revolver. He had pointed it at another man's stomach and snapped the hammer. The gun, which was loaded, did not fire. The man who had the gun pointed at him was furious. He grabbed the man's hand with the gun in it with his finger over the trigger. He forced the gun to the other man's head, cocked the hammer, and squeezed the trigger. The gun went off putting a bullet into the drug dealer's head.

Further discussion wad held about James flying down to the Bahamas in Mr. Bailey's Lear Jet, and using Mr. Zimmerman's polygraph. Because the former dog catcher had made considerable contributions to various charitable organizations and had established a very close relationship with government officials in the Bahamas, James rejected the trip on the Jet and the use of Mr. Zimmerman's polygraph. In fact, he did not want to test the former dog catcher in the Bahamas at all. He wanted to conduct the examinations on neutral ground. He suggested Nova Scotia, Canada, but Lee Bailey didn't like that idea. He said to James, "You and Canadians are too close." The meeting between the Prosecutor, Detective Lieutenant Dick Schave, Bailey, Zimmerman and James lasted the greater part of the day. When the meeting broke up, Bailey wanted to think over where the tests could be conducted that would be mutually agreeable. The tests never were conducted. James was later told that Bailey's client was apprehended trying to enter the United States, was tried on a charge in Florida, and sentenced to prison there.

Besides these matters, as Chief Examiner, James handled scheduling of vacations for the sixteen examiners to insure the state had adequate coverage, answered numerous questions regarding licensing, processed expense accounts, drew up a budget for the unit which provided for various degrees of funding, ordered equipment, conducted polygraph exams in serious cases, gave speeches, and attempted to keep operations running as smoothly as possible. Sometimes this was difficult to do.

In 1975 the Assistant District Commander Robertson at Detroit was concerned about the big backlog that the Detroit Unit had. He wanted to see units established at Warren and south of Detroit in the Down River area, but the financial crunch prevented this. James put an afternoon shift there on an experimental basis. While Detective Sergeants Romatowski and Crider worked the day shift, Detective Sergeant Hutchings (now Inspector Hutchings) worked afternoons. There was a concern about the effectiveness of testing during the evening hours. It was thought by many polygraphists that such testing would yield questionable results because the subject would be tired after being up all day. Previously when evening tests were conducted they were generally of a serious nature, one that could not be dealt with through regular scheduling such as a murder suspect, or a test regarding an internal matter.

The polygraph unit considered experiments carried out in Minnesota, Germany and France, where subjects were involved in research in which they were completely cut off from time and had no way to determine whether it was day or night. Their ability to react to outside stimuli was measured. These studies indicated that the human being did establish a cycle around 24 hours. For some people, it was shorter and for some, it was longer. Generally, however, most human beings were at a low point around 4:00 a.m. and began to climb until about 1:00 p.m. At that time, it would drop. It made no difference whether the subject ate or not. After about two hours, their ability to respond would climb until 7:00 p.m. or 8:00 p.m., then it would steadily decline until about 4:00 a.m. Along with this, the research concerning errors made by major airline pilots and surgeons was examined. Most of their errors were made during the early morning hours. It appeared that both their ability to react to problems mentally and physically was affected. Some of the research suggested that there may be real problems in polygraph tracings, especially in the area of cardio reactions. One book on cycles states: "During the night, the vital capacity of your lungs decreases while adrenaline, your body's activity-boosting hormone, is produced in its largest quantities between 4:00 a.m. and 6:00 a.m., just before you awake. By late evening, you are producing little, if any, adrenaline." Also, consulted was research on animals and their reactions to outside stimuli during their cycle. A loud bell sounded near a laboratory rat during the day had little affect upon the rat. The same bell sounded during early morning hours would kill it.

James called Hutchings in Detroit from time to time during the summer of 1975 to determine whether testing during the evening hours was presenting any problems. He experienced no difficulty whatever. Sam would schedule his first exam late in the afternoon, shortly after the polygraphists on days were finished. The second exam took place right after supper. In most instances, he was done testing by 9:30 p.m. Then he completed his reports, or worked on his personal project of altering the Second District Headquarters at Seven Mile and Grand River in Detroit. As previously mentioned, there were only two complete polygraph rooms there, along with an office where the examiners talked with investigators and made out their reports. The only way one could enter this office was through the adjacent polygraph room. Sam Hutchings, though, frequently used the small polygraph room. If he finished before the examiner using the large room, he would have to wait until that examiner was through so he could get back into the office to make out his reports. To solve this problem, he examined the wall of the toilet next to the office, and he claimed it was not a load

bearing wall. He then got his sledge hammer and chiseled and tunneled through the concrete which was reinforced with wire mesh to the viewing room for the large polygraph room. Now he could get back to his office, but every once in a while someone would snag their nice knit suit on the jagged wire mesh still sticking out of the concrete. One day the Supervisor of State Police Building and Grounds was taking another state official on a tour of the building. When he saw the hole, he explained that they had not had time to box that in yet. He apparently assumed that his men had knocked this hole through the wall. A short time later, a crew from Building and Grounds came in and finished the job by putting a wooden frame around the hole Sam made.

In August of 1975, all the state police examiners who had not attended Delta College in May were permitted to attend the American Polygraph Association Seminar held in Traverse City. The only way that this could be done, within the budget restrictions, was to make arrangements to quarter the men at Northern Michigan College. Dr. Bill Yankee was contacted and he made the arrangements. On August 7, 1975, at the APA banquet held on the Thursday night before the final day of the Seminar, Colonel George Halverson accepted an award on behalf of the Michigan State Police, honoring the 40th year of the polygraph unit, and being the first state police polygraph unit in the nation.

On August 13, 1975, James was called to the Office of the Chief of Detectives to discuss private testing by state police examiners during off-duty hours. At that time, he expressed the view that he did not think it was a conflict of interest for tests to be conducted on Saturday on non-criminal matters. Later, Captain Christensen discussed with James a letter from a state police examiner requesting permission to do this. The Captain indicated he was going to deny the request because it would open the door to other personnel in the crime laboratory to do the same thing. In addition, the expertise was all acquired at state expense and should be used to serve state interests. The matter was litigated and state police examiners were then able to conduct examinations where there was no conflict of interest.

On August 14, 1975, Beauchine contacted James and told him that he was experimenting with those subjects who were deliberately distorting their polygraph charts. He was now advising them what they were doing and telling them to stop.

On September 19, 1975, Sergeant Robert Foster was transferred from East Lansing Headquarters to First District Headquarters on the southwest side of Lansing. This was the first unit that did not have a viewing room. Instead, a concealed television camera transmitted pictures to a monitor located in Sergeant Foster's office. Later, the unit evaluated the Psychological Stress Evaluator. On December 14, 1975, James drove to Virginia where he met Dr. Frank Horvath who had flown to the Washington Area previously. Together, they attended the Dektor P.S.E. School at Springfield. Frank wanted to do research on the instrument, and James was going to help him. Both believed that if the PSE worked, it would be of real value in the detection of deception. It could be used as another parameter to the polygraph, similar to the manner in which the galvanic skin response was once a separate instrument. While Horvath and James attended the school, they examined tapes, both in their hotel room and in the classroom. They

were both convinced that the PSE was recording something, but they weren't at all sure it was stress. Later research work on this by Horvath seemed to indicate that the PSE, at least at that stage of its development, had little value in detecting deception.

The Michigan State Police had considered the use of the PSE to evaluate tips from informants. Before James attended the Dektor School, an intelligence officer had attended the school. Lieutenant Ernest Nash, now the Vice-Chairman of the Michigan House of Representatives Judiciary Committee, received the report submitted by the intelligence officer and submitted a critique. Lieutenant Nash was the Commander of the Voice Prints Unit. Shortly after this, the national news media had apparently received information that the PSE was being used by the Michigan State Police. Leslie Stall of CBS News interviewed James regarding this. She was told it was true that the state police had sent an officer to Dektor's School, but the department was not using it. After James retired from the Michigan State Police, he used the PSE for half a year in conjunction with the polygraph. There did not appear to be any value in using it.

On December 23, 1975, the Director of the Michigan State Police came to James' office and told him that he would like him to establish an Intra-Departmental Affairs Section. He told him that the Governor had given his approval for such a section that day. The Director stated that this section would eventually have five officers working out of Headquarters in East Lansing and two officers in each of the eight districts. Initially this was a lateral transfer to uniform lieutenant, and it involved no promotion. James told the Director he would agree to it, providing he would report directly to him and that he would have complete control over who would come into the section. The Director agreed to this and stated that anyone who worked in the section would be by mutual agreement. For the next month, James was involved in internal investigations and with polygraph work.

On January 16, 1976, James briefed Ronald Beauchine on activities in the Polygraph Unit. Beauchine had agreed to accept the promotion to Chief Examiner. On that same date, James was called into Captain Christensen's office where he was offered a promotion to command the Warren Crime Laboratory. James declined so he could establish the new Intra-Department Affairs Section.

On February 3, 1976, Sergeant Ronald Beauchine was relieved at the Third District Headquarters Polygraph Unit by Trooper Dick Lowthian. Beauchine was made Acting Chief Examiner and took over command of the Polygraph Unit at East Lansing Headquarters. First Lieutenant Ronald Beauchine was born and raised in Munising in the Upper Peninsula of Michigan. He was an outstanding athlete, especially in the area of basketball. After graduation from high school, he served in the United States Marines. On October 14, 1957, he enlisted in the Michigan State Police where he served at Brighton, East Tawas, and New Buffalo before coming into the Polygraph Unit. In 1970, then Detective Beauchine, was selected for polygraph training. In January 1971, he attended the National Training Center of Lie Detection (now Polygraph Science) in New York City for six weeks. (Beauchine, 1985)

After Ron had completed his internship training, late in 1971, he

replaced Detective Sergeant Raymond Coger, who had been promoted to lieutenant to command the Method of Operation and Licensing Unit at Bay City. On March 7, 1976, Ron's status was changed from Acting Commander of the Polygraph Unit to Commanding Officer. He was later made a First Lieutenant when the status of the unit was upgraded to a section. While commander of the section, Ron acquired a Bachelor of Science Degree in Law Enforcement from Saginaw Valley College. He later attended the F.B.I. Academy at Quantico, Virginia. When Beauchine took over, personnel in the unit were assigned as follows:

- Ronald Beauchine at East Lansing Headquarters
- Robert Foster at First District Headquarters, Lansing
- Chester Romatowski and Stuart "Sam" Hutchings at Second District Headquarters, Detroit
- Richard Lowthian at Third District Headquarters, Bay City
- Ralph Cabot at the Flint Post
- Lowell Wilds at Fifth District Headquarters, Paw Paw
- Frederick Garchow at Fourth District Headquarters, Jackson
- Edward "Ned" Seath and Steve Cloonan at Sixth District Headquarters, Rockford
- Robert Dufort at Seventh District Headquarters, Traverse City and the Gaylord Post
- Wallace Pletzke at Eighth District Headquarters, Negaunee
- Robert Crider and Robert Kelly were relief examiners.

In March of 1976, Sam Hutchings left the Polygraph Unit to take over command of the East Tawas Post. Sergeant Bob Crider replaced him at the Polygraph Unit in Detroit. In the fall of that year, the State Police Headquarters and the Crime Laboratory in Northville were consolidated and put into a new, modern facility in Northville. Both polygraph examiners were transferred there.

In 1977, polygraph units were added to the Madison Heights Crime Laboratory, north of Detroit, and at Bridgeport Crime Laboratory. In 1980, polygraph offices were put into operation both in Pontiac and in Wyandotte. In 1982, Gaylord was staffed with a full-time examiner and, in 1983, the unit was moved from the Fourth District Headquarters to an office building in Jackson. The double unit at Rockford was relocated in Grand Rapids when the Sixth District Headquarters moved their operations into the city.

During the last ten years, the Michigan State Police has had examiners trained at the United States Army Polygraph School, the American Institute of Polygraph, the Royal Canadian Mounted Police Polygraph School, the National Training Center, and the Michigan State Police Polygraph School. The latter was organized and coordinated by Lieutenant Beauchine in 1979 to train five new examiners. Many experts who had helped the state police in the past; such as, Dr. Donald Rossi, a psychologist, and Dr. Robert Pittman, a physiologist, taught in this school as well as many veteran examiners. This was a twelve-week school and it was accredited by the American Polygraph Association. All of the graduates are highly successful field examiners and are still in the section today. While Beauchine would like to have conducted more of these schools, it was not cost-effective to conduct them for less than five trainees.

The examiners trained by the R.C.M.P. have interned outside the State

of Michigan with the Maine and Missouri State Police. (Palmatier, 1985) It is Ron Beauchine's belief that by having different examiners trained in different techniques, then through studies he hopes to determine which teachings have merit and should be required, and which do not and should be discarded. These studies have the full support of the polygraphists. The last validity study in the section was between March 1 and August 1, 1982. During the time 1,773 questionnaires were given to investigators and other users of polygraph asking them to follow upon cases involving a polygraph test. Of these, 1,351 were returned. Nine hundred and ten (910) of those opinions of the investigators remained unverified. However, 433 polygraph decisions were verified as correct and there were eight cases where errors were detected. For those cases in which results could be verified, the error rate was under two percent.

One of the research projects currently underway deals with the accuracy of polygraph testing. The section now requires that the data on each test be put into the computer. This includes information on the type of case, whether the examinee is male or female, the opinion, and whether it is verified. The users of polygraph are provided with questionnaires at the time of the test. If they are not heard from within a year, a follow-up letter will be sent. All this is being done to verify cases and to learn about mistakes and why they occur.

The Michigan State Police Polygraph Section also has a research project involving the breathing response and interpretation of those responses. In addition, they will continue studies on non-verbal behavior. Dr. Merlene McKinnon is heading a research project dealing with non-verbal behavior and deception at the present time. This involves the use of multiple cameras to assist in the evaluations. This study is being conducted at the Lansing Unit where Sergeant John Palmatier is working with her.

Currently, examiners are not required to use the numerical evaluation system. Beauchine believes that the chief value of using it is that it forces the examiner to look at the responses in each parameter for each and every question. He does not agree that the indefinite range should be at +/- 6. He believes, false positives, truthful who appear deceptive, the indefinite range should be between 0 and -10, with +1 being called truthful.

Beauchine also encourages examiners to visit crime scenes as this helps with the formulation of test questions and with interrogation. They acquire an insight which only such visits can provide.

Currently, examiners are required to conduct a minimum of three charts, excluding any stimulation tests, prior to rendering an opinion. If, for some reason this cannot be done, Beauchine requires that he be contacted and advised. He believes this provides for a better scientific analysis of the records. Beauchine's criteria for rendering an opinion of either truth or deception rests upon the principle of the psychological set. Each polygraphist conducting an examination must be able to justify and demonstrate from the charts that such a psychological mind set exists. With the truthful examinee, the mind set is towards the controls; with the deceptive person, the reverse is true, and his mind set is towards the relevant questions.

The members of the Polygraph Section continue to conduct two examinations each day, but, if an examiner is conducting an examination on a serious crime, such as a murder, it is permissible to schedule that test as the only examination for that day. Oftentimes, these are scheduled at 10:00 a.m. so the examiner has sufficient time to formulate test questions, conduct the examination and any post-test interview that might be necessary, and prepare reports. The cases handled by the unit are over 90 percent felonies and are as serious as they were fifty years ago when Mulbar conducted the first examination for the Michigan State Police. For example: on February 13, 1985, Sergeant Charles Allen, of the Michigan State Police Polygraph Unit in Jackson, conducted an examination on a murder suspect we'll call Jones (not his real name). Jones had been observed in the area of the victim's apartment the night she was murdered. She had been stabbed repeatedly and her head was nearly cut off. Following the polygraph test, he admitted being in the apartment, having the knife in his hand, and later going to a bar where he washed the blood from his hands. Polygraph also continues to be used to exonerate the truthful. In 1986 an 18-year-old man was accused by a young woman of assaulting her with a baseball bat. The incident occurred in Farmington Hills. A felony warrant was issued for his arrest, charging him with the crime of felonious assault less than the crime of murder. The suspect left Michigan and was apprehended in another state. He was given an examination in that state--the results of which were detrimental to him. Rather than be extradited, he returned to Michigan and was given an examination by Lieutenant Harold E. Raupp. The results of his examination were inconclusive. His accuser was then asked to take an examination. Her records clearly indicated that she was not telling the truth. During the post-test interview, she admitted that she had made the story up about this young man hitting her with a ball bat. It had been a different young man who hit her and she was protecting him. She was also acting out of anger towards the first young man due to an incident involving attempted criminal sexual conduct. Following her confession to making a false report, she was taken before an Oakland County Circuit Court Judge where she related to him what had occurred and the charges against the falsely accused young man were dropped.

The caseload has been fairly consistent over the past decade. During the past three years, there have been 19,169 polygraph examinations requested, and 10,644 conducted. Of these, 4,065 were truthful, 4,413 were deceptive, and 729 cases which were indefinite. The remainder were incomplete examinations. Incomplete includes those who confessed in the pretest or were, for some reason, never actually tested. In the latter, for example, the subject left the polygraph room prior to testing procedures being completed.

The problem with the disparity in the rank structure and, therefore, the amount of compensation each member of the unit receives, continues to be a problem. Since it has existed for fourteen years, it is highly doubtful that it will be resolved in the near future by Civil Service. Essentially, the crux of the problem is that two different examiners, doing exactly the same work only at different locations, are compensated differently. The entry level into the section remains at the trooper level. The examination now is a general management test. The trooper must have a bachelor's degree, and have at least two years of experience. As a practical matter, however, no one is accepted with less than five years of police experience. After satisfactorily working as a polygraphist for two years

at the trooper level, the person is automatically promoted to sergeant.

In September 1981, two women troopers were selected for polygraph training. Both graduated from polygraph school, but only one finished internship training to become the first woman examiner in the Michigan State Police. She is Sergeant Robin Bratton, now assigned to the Flint Post.

During the later part of the 1970's, Ron Beauchine was asked by the Director of the Crime Laboratories to attend hypnosis school in California to evaluate whether there was value for the Michigan State Police in using this technique. Beauchine was interested in hypnosis for another reason. He wanted to learn what possible impact hypnosis could have on polygraph test results. He was immediately successful the first time he attempted to hypnotize someone. He concluded that hypnosis does have value, and the department later sent Lieutenant Gary Powell, the department artist, and Dr. Reiser to California for training. Beauchine concluded, however, after considerable experimentation with hypnosis, that it does not present any real danger to polygraph testing. This is particularly true if one knows what to look for, such as rolling patterns in the pneumo tracings.

Because of their ability to talk with people, members of the Michigan State Police Polygraph Section have been trained as hostage negotiators by Dr. Glassberg of the New York Police Department and Dr. Rossi of the State Police, and work with the State Police Emergency Services Team. This is the only other task outside of polygraph work that members of the section have, aside from teaching from time to time which is performed on a volunteer basis. At present, seven members of the polygraph section are also hostage negotiators.

Many of the Michigan State Police examiners are authors. Ralph Cabot has had an article on polygraph published in Law and Order. Chester Romatowski published an article in the Investigator which dealt with the testing of rape victims. (1980) Chet also wrote regular articles in this magazine when he was President of the Wayne County Detectives' Association under the heading "President's Message." North and James had an article published in the Commander and Arson Investigator, designed to help investigators better understand polygraph testing procedures and its limitations. (1973) And, of course, Harold Mulbar's 1951 book has already been mentioned.

In national organizations, such as the American Polygraph Association, they have served and are continuing to serve on committees. When the APA had its seminar at Traverse City, Bob Dufort was part of the Program Planning Committee that helped make it such a success. In August 1973, Dick Arther and Earl James gave a presentation on non-verbal behavior at the APA Seminar in Miami. Ed Goss had given a presentation at a previous seminar. James has served on the book Review Committee, the Legislative Committee, and is still on the Continuing Education Committee. Ron Beauchine has served on the Membership Committee, giving examinations to applicants for membership.

In the American Association of Police Polygraphists, several members of the Michigan State Police Polygraph Section were charter members and James currently is on the Board of Directors.

Members of the section helped found the Michigan Association of Polygraph Examiners and have made major contributions to the success of that organization. Those members who have been presidents of the organization are Jack Pletzke, Steve Cloonan, Ralph Cabot, Dick North, and Chester Romatowski. The current president is H. John Wojnaroski III of the Pontiac Unit. In addition, they have served in other positions such as on the Executive Board, Vice-President, Secretary, Treasurer, and on various committees. They have established a quality review system which provides for a review of any case for educational purposes, free of charge. In this review, all parties are kept confidential. Only the Chairman of the Committee has knowledge of the requesting examiner, and a review is made by at least three examiners in whom the requesting examiner has confidence. The plaque for MAPE was also designed by a section member.

It cannot be overlooked that the members of this section have given countless speeches before public service organizations, law schools, judges, legislative hearings, police recruit schools, detective schools, polygraph schools, and in high schools. Section members have donated their time to set high professional standards within the State of Michigan by serving on the Board of Forensic Polygraph Examiners which licenses and regulates polygraphists in Michigan. Both Earl James and Ronald Beauchine are continuing to serve on that Board--James as Chairman and Beauchine as Vice-Chairman. Finally, section members, or former section members, continue to make contributions in various other polygraph organizations. Chester Romatowski has been very active in the Academy of Certified Polygraphists. He is a regular contributor to their journal, The Professional Polygraphist, and is the current Vice-President of the Academy.

On the Michigan State Police Polygraph Section's Golden Anniversary, it is appropriate to list the ranks, names, and locations of those who are serving now and doing such an excellent job:

F/Lt. Ronald Beauchine	East Lansing Headquarters
Lt. Vernon Petersen	Negaunee
Lt. Harold Raupp	Northville
Lt. Richard Lowthian	Bay City
Lt. John Hulsing	Grand Rapids
Sgt. Theodore Monfette	Northville
Sgt. Carl Lundgren	Wyandotte
Sgt. Christopher Lanfear	Madison Heights
Sgt. John Wojnaroski III	Pontiac
Sgt. James Watt	Bridgeport
Sgt. Robin Bratton	Flint
Sgt. Charles Allen	Jackson
Sgt. Terry Anderson	Paw Paw
Sgt. James Ward	Grand Rapids
Sgt. Gregory Somers	Traverse City
Sgt. Michael McMasters	Gaylord
Sgt. John Palmatier	Lansing

Years ago, when the section first began, medals were presented to examiners for solving a serious murder case, or a case that involved a great deal of value. Now, such incidents are so commonplace that it almost goes without any recognition at all except by those in the "polygraph family." A case in point: Earlier this year, Lieutenant Harold Raupp conducted a

polygraph examination at the request of the Westland Police Department. This police department was investigating the theft of automobile parts from General Motors. Mr. Fowl (not his real name) was brought in for an examination. He was simply a suspect because he worked in the warehouse from which the parts were stolen. During the exam, Mr. Fowl admitted stealing over $1,000,000 worth of parts and implicated three others. He was getting three to four thousand dollars per van load of parts. They would back the vans up to the dock, load up the parts, and sell them to an outlet. Before the investigation was over, it was learned that Mr. Fowl and his associates did not steal $1,000,000 worth of parts, as $9,000,000 was closer. (Beauchine, 1985)

There are future plans for expansion of the section to an office in the Upper Peninsula, which is three hundred miles from one end to the other. The Escanaba Police Department wants the Michigan State Polygraph Polygraph Section to put a unit in their department and they are offering the office space. Regarding expansion, Beauchine said, "Prosecutors and others in the state generally accept our opinion because we've been right, and our opinions are valued in making their decisions. It has been found to be a very valuable investigative tool. The truth is, we've done a good job over the years and that's what keeps the section going ... no one has tried to build an empire. The Uniform Division has said, 'we can't wait six or seven weeks for a polygraph examination,' We have increased stations because there was a demand from the field. Basically, our section has always been closely knit. We have had our little problems. By and large, although we all think we're the best polygraph examiners, I think what makes us achieve is the mutual cooperation that we get from one another, and when someone does a good job--the whole section feels proud of it. It's a team effort, and it always has been that way as long as I've been in it. It has been good team work!"

In summary, the first state police polygraph unit in the United States was within the Michigan State Police. The first examiner was Harold Mulbar who was trained by Leonarde Keeler. This training took place in 1934, and the unit was operational during the early part of 1935. Why Mulbar was selected as the first polygraphist is open to speculation. It could have had something to do with the fact that he was Director of the Michigan Protective League. The League had two goals, one of which was secret. Its stated purpose was to educate the people concerning the dangers of the communist movement. The secret goal was to keep track of communists and other radical groups in Michigan.

The polygraph was an immediate success in Michigan. It was quickly recognized as a valuable tool to law enforcement by both police and prosecutors. Due to increased demand for its services, the section has expanded over the years until now its units are positions at various points around the state; but there is still a waiting period of approximately two weeks before an investigator can get a polygraph test.

The selection of highly experienced investigators and proven interrogators was the standard during the early years. In most instances, being appointed as a polygraph examiner was a promotion equal to that of the commander of a state police post. When the Forensic Polygraph Examiners Act was passed in 1972, the educational requirements of the Act mandated a gradual increase in the educational level of the trainee. Most detective

sergeants in the state police did not meet this criteria. This, coupled with the fact that it was no longer a promotion to come into the section, and in most instances be transferred, resulted in a sharp decline in personnel at the detective sergeant rank willing to undergo polygraph training. Therefore, the standards were changed to require one to have a higher education with less investigative experience.

Over the years, the section has always tried to do an increasingly better job. Examiners have received training at several different polygraph schools which has resulted in a synthesis of the knowledge acquired from different schools into what was recognized by Goss, as early as 1972, as the Michigan State Police Polygraph Technique. It was this technique which was taught to five examiners in 1979 in a twelve-week training course at the Michigan State Police Training Academy. Over five years later, these examiners continue to do an excellent job.

In their fiftieth year, the Michigan State Police Polygraph Section conducts, on an average, about 3,500 examinations each year. They have done this for over ten years. Over 90 percent of the cases they deal with are felonies. These examinations are conducted for all governmental agencies which have requested them in connection with their investigations into criminal activities.

The members of the Michigan State Police Polygraph Section are now, and for over fifty years have been, on the cutting edge of the fight against crime in Michigan. No other section or unit of comparable size in the state police has solved the number of serious crimes that they have over the years. The use of a polygraph by a well-trained examiner has been, and will continue to be, a valuable tool in criminal investigations.

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U.S. ATTORNEY GENERAL'S VIEWS ON THE POLYGRAPH PROTECTION ACT OF 1985

By

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Mr. Chairman and Members of the Committee:

I appreciate the opportunity to appear on behalf of the Department of Justice at this hearing on S.1815, the proposed "Polygraph Protection Act of 1985." This bill, if enacted, would prohibit private sector employers from administering polygraph examinations to employees or prospective employees.

The Department of Justice vigorously opposes federalizing the law in this area. Such action is directly contrary to the principles of federalism on which our union is based and to which this Administration is deeply committed. Until now, regulating polygraph use has been the responsibility of the states. In fact, thirty-five states have enacted statutes regulating the use of polygraph or other "honesty" tests or polygraph examiners. To preempt the states in this context, where there is no evidence of an overriding need for national policy uniformity, would do violence to an important underlying principle of our union--the belief in the ability and responsibility of the states generally to govern the affairs of their citizens.

The attempt to federalize the law in this arena has implications far beyond polygraph regulation; it is symptomatic of the persistent tendency of government officials in Washington--well meaning officials--to act as if only we can fully understand and remedy the problems confronting 240 million Americans. It is this attitude that, in recent decades, has been responsible for the mushrooming growth of a national government that has not only undertaken unmanageable responsibilities, but that also has usurped the decionmaking authority of private citizens and of the levels of government closest to those citizens--the states and their localities. It is an attitude that is responsible for a steady succession of constitutional debates within this country on Gramm-Rudman, on balanced budget and tax limitation constitutional amendments, on item veto initiatives, and on constitutional amending conventions.

This centralizing tendency is not difficult to understand. It is not surprising that public officials and other citizens, who believe that their public policy ideas are sound, want those ideas to be imposed uniformly upon the fifty states. It is not surprising that citizens who feel strongly about the merits of a public program want to bestow that program upon as

This is the statement of Stephen J. Markman, Assistant Attorney General, Office of Legal Policy, U.S. Department of Justice, before the Committee on Labor and Human Resources, United States Senate concerning S. 1815: The Polygraph Protection Act of 1985 on April 23, 1985 as entered into the record of the hearing.

many of their fellow-citizens as possible. And it is not surprising that a business or other private entity subject to some form of public regulation would prefer to abide by a single regulation promulgated by Washington than to have to abide by fifty separate regulations promulgated in Sacramento and Springfield and St. Paul. It is precisely because each of us can understand the impetus toward centralization of governmental authority that we have to be particularly careful to avoid falling victim to this tendency and, in the process, undermining the constitutional balances within our system of government.

As with many things elemental, there is a tendency sometimes to give the principles of federalism short shift. I recognize that it is not always easy to identify a bright line between those responsibilities of government that ought to be carried out by the national government and those more appropriately addressed by the states. Even in this Administration, which is deeply committed to ensuring that each level of government operates in its appropriate sphere, we have sometimes had trouble drawing that line. It is important, nevertheless, that those in the executive and legislative branches not lose sight of the inherent responsibility to confront this matter.

This responsibility is particularly acute given the Supreme Court's recent decision in Garcia v. San Antonio Metropolitan Transit Authority, 105 S.Ct. 1005 (1985). In that case, the Supreme Court held, with respect to federal regulation under the commerce power, that Congress, not the federal courts, generally is the primary protector of state sovereign rights and responsibilities. As the Court observed,

> "We continue to recognize that the States occupy a special and specific position in our constitutional system and that the scope of Congress' authority under the commerce clause must reflect that position. But the principal and basic limit on the federal commerce power is that inherent in all congressional action--the built-in restraints that our system provides through state participation in federal governmental action."

In other words, the principal burden of protecting the values of federalism in the commerce context lies with the Members of this body. As representatives, not only of the citizens of the states, but of the states themselves, it is the Congress that is principally vested with the responsibility to preserve the prerogatives of the states within the constitutional structure. Whatever the merits of the Court's decision in Garcia--and this Administration opposes its holding and supported legislation prepared by this Committee to modify the Fair Labor Standards Act in response--its observations on the role of the Congress in upholding federalism can hardly be disputed.

Because of their importance to this Committee's decision on whether to proceed with S.1815, I would like at this time to briefly revisit the fundamental values of federalism. The healty respect for the states envisioned by the Framers requires that the national government pay as much attention to who should be making decisions as to what decisions should be made and that, where appropriate, it defer to the states. It was the people of the states who created the national government by delegating to that government those limited and enumerated powers relating to matters beyond the competence of the individual states. All other sovereign powers, except for

those expressly prohibited the states by the Constitution, are expressly reserved to the states or the people by the Tenth Amendment.

The Framers of the Constitution set up a structure that apportions power between the national and state governments. The values that underlie this structure of federalism are not anachronistic; they are not the result of an historic accident; they are no less relevant to the United States in 1986 than they were to our Nation in 1789. In weighing whether a public function ought to be performed at the national or state level, we should consider the basic values that our federalist system seeks to ensure. Some of those principles include:

Dispersal of Power -- By apportioning and compartmentalizing power among the national and 50 state governments, the power of government generally is dispersed and thereby limited.

Accountability -- State governments, by being closer to the people, are better positioned as a general matter to act in a way that is responsible and accountable to the needs and desires of their citizens.

Participation -- Because state governments are closer to the people, there is the potential for citizens to be more directly involved in setting the direction of their affairs. This ability is likely to result in a stronger sense of community and civil virtue as the people themselves are more deeply involved in defining the role of their government.

Diversity -- Ours is a large and disparate nation; the citizens of different states may well have different needs and concerns. Federalism permits a variegated system of government most responsive to this diverse array of sentiment. It does not require that public policies conform merely to a low common denominator; rather, it allows for the development of policies that more precisely respond to the felt needs of citizens within different geographical areas.

Competition -- Unlike the national government which is necessarily monopolistic in its assertion of public authority, the existence of the states introduces a sense of competition into the realm of public policy. If, ultimately, a citizen is unable to influence and affect the policies of his or her state, an available option always exists to move elsewhere. This option, however limited, enhances in a real way the responsiveness of state governments in a way unavailable to the national government.

Experimentation -- The states, by providing diverse responses to various issues which can be compared and contrasted, serve as laboratories of public policy experimentation. Such experimentation is ultimately likely to result in superior and in some instances naturally uniform policies, as states reassess their own and other states' experiences under particular regulatory approaches.

Containment - Experimenting with varying forms of regulation on a smaller, state scale rather than on a uniform, national scale confines the harmful effects of regulatory actions that prove more costly or detrimental than expected. Thus, while the successful exercises in state regulation are likely to be emulated by other states, the unsuccessful exercises can be avoided.

While these values of federalism may often mitigate in favor of state rather than national action, other factors -- including a demonstrated need for national policy uniformity or for a monolithic system of enforcement -- mitigate in favor of action by the national government and must be balanced in this process. For example, the need for a uniform foreign policy on the part of the United States clearly justifies national rather than state action in this area. Similarly, in the interstate commerce area, the need for a uniform competition policy argues strongly for national antitrust law; and the need for efficient flow of interstate transportation argues for national rather than state regulation of airplane and rail safety. In other words, by federalism, we are not referring to the idea of "state's rights"; rather, we are referring to the idea expressed in the Constitution that certain governmental functions are more properly carried out at the level of the fifty states, while others are more properly carried out by the national government.

While reasonable individuals may well differ on the direction in which these and other factors of federalism point -- and that may well be the case in the context of S.1815 -- it is nevertheless critical that we not lose sight of the need to go through this analytic process.

When these factors are examined in the context of polygraph regulation, the balance in the Administration's judgment is clearly struck in favor of state, not national, regulation. Not only is there no need for national enforcement or uniformity with respect to private sector polygraph use, but the benefits of leaving regulation to the states are evident; polygraph regulation is a complex issue, subject to extensive ongoing debate, in which a substantial number of responsible responses are available to (and have indeed been adopted by) the states.

Whether or not polygraphs should be regulated by some level of government is not the issue here. Assuming that polygraphs are abused by private employers -- and there is no question that such abuse is possible -- the states are as capable as the national government of recognizing and remedying any such problem. In fact, they have the greater incentive to do so since the rights of their own citizens, to whom they are immediately accountable, are involved. As I indicated earlier, 70% of the states have already recognized a need for certain protections in this area and have provided them through various forms of state legislation.

There are a number of interests that must be balanced in determining whether or how to regulate polygraphs. For example, while certain employees may be concerned about the intrusiveness of polygraph regulation, other employees -- for example, employees falsely accused of stealing from their employers -- may desire the availability of polygraph tests in order to establish their innocence.

Moreover, by protecting employees from the use of polygraph tests, employers are necessarily restricted in their use of a test that may help ensure they are hiring honest or firing dishonest employees. No one can dispute the need for identifying and discharging dishonest or thieving workers. From losses reported during a recent random sampling of three industries -- retail department store chains, general hospitals, and electronic manufacturing firms -- the National Institute of Justice estimated that business and industry lose to employee theft five to ten billion dollars annually. Not only are employers losing valuable assets and paying higher

prices for theft insurance policies, but, to the extent possible, employers pass on those costs in the form of higher prices to consumers. Some of the commodities diverted -- drugs, for example -- impose their own costs on society. According to the Drug Enforcement Administration, legally produced drugs, falling in the wrong hands, kill and injure twice as many people annually as illicit drugs. DEA estimates that half a million to a million doses of drugs are stolen each year by employees of pharmacies and wholesale drug manufacturers and distributors.

Those opposed to the use of polygraphs will argue that the test is inaccurate and cannot provide employers with useful information. Certainly, the validity of polygraphs has been widely debated during the last two decades. The scientific community itself is divided. One camp, led by Prof. David C. Raskin of the University of Utah published, in 1978, a study assessing polygraphs to be 90 percent accurate, when properly conducted and evaluated. The opposing camp, led by Dr. D.T. Lykken of the University of Minnesota, claims that the test is much less accurate and that it works to screen out the most honest, most conscientious employees. As the dissenters in the House Committee on Education and Labor indicated in their report on the companion bill to S.1815, "Field studies are difficult to validate, and 'laboratory' studies cannot exactly replicate polygraph usage. The Office of Technology Assessment (OTA) in a 1983 report concluded that 'no overall measure or single, simple judgment of polygraph testing validity can be established based on available scientific evidence.'" What is essential to recognize here is, not that one side or the other has satisfied the burden of persuasion, but that the current debate is an ongoing and vigorous one.

Apart from the debate in the scientific community, a number of employers obviously believe that polygraphs are useful devices for aiding them in making responsible decisions about existing or prospective employees. According to the House Committee Report on H.R. 1524, more than two million polygraph tests are administered in the private sector each year, triple the number given ten years ago. From an economic perspective, it seems highly unreasonable to believe that employers would incur the cost of $50-$60 per test and risk generating some bad will among valuable or potentially valuable employees, and perhaps losing them to competitors, if those employers did not believe the tests provided useful information. Moreover, it must be remembered that the alternatives to polygraph tests -- for example, background checks and personal interviews in the preemployment screening context -- may be far more highly subjective and may intrude upon privacy interests in at least as substantial a way. The value of polygraphs, therefore, should be analyzed not by some unattainable, ideal standard, but with reference to existing, real-world investigative alternatives. Again, these are considerations as to which different citizenries in different states may reasonably come to different conclusions.

S.1815 itself takes an inconsistent stand on whether polygraph tests are sufficiently valid to be useful. While the bill would ban the use of polygraphs in the private sector, in large part because of the inaccuracies of the test, it explicitly recognizes the usefulness of polygraphs for the government by continuing to allow polygraph testing of all governmental employees. Certainly if the machines are reliable indicators of truth or falsity in the public sector they are equally as reliable in the private sector.

Apparently a majority of the Members of the House of Representatives also believes that polygraphs are useful in a variety of private sector contexts. When H.R. 1524 went to the floor on March 12, it contained a single exemption for companies involved in the storage, distribution, or sale of controlled substances. One representative after another offered amendments exempting various industries from the bill's blanket prohibition. The bill passed the House containing not only the original exemption, but also exemptions for workers in nursing homes and children's day care centers, security personnel, and public utility employees. From these exemptions it is clear that the very representatives who have voted to bar the use of polygraph seem to recognize their usefulness and credibility in certain contexts.

More than that, however, these exemptions again highlight the arbitrary nature of decisions on which occupations to exempt. If polygraphs provide benefits to employers in the armored car industry, it is difficult, if not impossible, to understand why banks (where 84% of losses are attributed to employee theft) or the legal gaming industry (where large sums of money change hands and policing of employees is extremely difficult) are not entitled to the same benefits. Likewise, if polygraphs are useful to protect employers and the public from prospective employees seeking sensitive positions involving the distribution or sale of controlled substances, they would seem to be equally useful for screening prospective employees for other sensitive positions, such as airport security personnel and truck drivers transporting munitions and other hazardous materials.

What all of this indicates is that polygraph regulation is a complex and emotional issue which poses a number of questions with no definitive answers. It is an issue which requires careful balancing of the interests of consumers, employees, and employers. Possible responses range from relying on the free market, to licensing polygraph examiners, to banning completely the use of polygraphs. While all sorts of variations on these approaches are possible, which precise approach is best for any given state should be left to the citizens of that state. We see no reason to forestall the vigorous debate on the issue continuing to take place within the states.

In fact, those states that have regulated in this field have adopted widely varying approaches. Nineteen states and the District of Columbia regulate employers' use of the polygraph; three states regulate employers' use of other "honesty testing devices." Some of these states completely ban the use of polygraphs by private employers; others prohibit employers from requiring employees to take the tests, but allow them to be administered to employees who volunteer to take them; still others exempt certain occupations--ranging from police and firefighters to jewelers to pharmaceutical companies -- from the ban. Six of these states additionally regulate polygraph examiners. Of those states that do not directly regulate employers' use of polygraphs, thirteen regulate polygraph examiners -- some requiring licensing, some limiting the types of questions that can be asked to employees. This diversity, with the alternatives it provides to citizens -- some of whom are vigorously opposed to polygraph use and some who are its adamant supporters -- and the ability to experiment with different approaches it allows, is one of the primary reasons the Framers of our Constitution created a two-tiered system of government, with much of the regulatory authority remaining with the states.

While the Department of Justice strongly opposes this bill in its entirety, or any other attempt to federalize this field, the bill is problematic by its own terms. For example, the current exemption for Department of Defense contractors -- included to protect sensitive national security interests -- is not adequate to protect all important national security matters. In addition to the Department of Defense, a number of other departments and agencies -- including the Central Intelligence Agency, the Departments of Energy, State and Treasury, the Federal Bureau of Investigation, and the National Security Agency -- would require exemptions pertaining to certain contractor employees.

Again, however, I reiterate that merely fixing this or other more minor problems would not be sufficient to remedy the fundamental defect of this bill -- federalizing an area of law best left to the states.

I would like to conclude my remarks with a quote from President Reagan. In an address to the National Conference of State Legislatures on July 30, 1981, he stated:

> "Today federalism is one check that is out of balance as the diversity of the states has given way to the uniformity of Washington. And our task is to restore the constitutional symmetry between the central government and the states and to reestablish the freedom and variety of federalism. In the process, we'll return the citizen to his rightful place in the scheme of our democracy and that place is close to his government. We must never forget it. It is not the federal government or the states who retain the power -- the people retain the power. And I hope that you'll join me in strengthening the fabric of federalism. If the federal government is more responsive to the states, the states will be more responsive to the people ..."

For the reasons so eloquently articulated by President Reagan, I urge that this bill not be enacted.

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