

The Lie Detector

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THROUGHOUT the centuries many methods have been attempted for the purpose of detecting deception. Torture was very popular in ancient times. In England, France, Scotland, Spain, Russia, and Greece, the wheel and the rack were considered ingenious devices of the "police" at the time. Drowning, hanging, and beating were popular in other European countries. In Greece, even the children were subjected to torture.

By the turn of this century the "third degree" method of detecting deception developed. The term "third degree" has been derived from the medical term used to describe the degree of seriousness of any physical injury, like "third degree burns." With reference to police methods, the term denotes the method of interrogation often employed by inefficient investigators in their attempt to extort confessions from suspects. Most common of so-called "third degree" methods are the application of strong lights, the rubber hose treatment, deprivation of food and water, mental torture, etc.

Of late, however, a more scientific approach to the detection of deception has taken place among most police institutions in the Americas, Western Europe and other democratic countries of the world. Modern devices, invented and improved from time to time, are presently being utilized as scientific aids of army and police interrogators and as aids in the work of investigation. One of these scientific devices is the so-called "lie detector" or the Polygraph machine.

The Instrument

Many people think of the "lie detector" as a huge infernal machine strung with many electrical wires and complex de-

vices which are supposed to glow, screech, or announce that the person under interrogation is a liar whenever he tells a lie. This concept is common among comic book addicts and is true only in their weird imagination. Actually, the "lie detector" consists of mechanically controlled pens which automatically register the bodily changes in blood pressure, pulse rate, and respiration of the person under examination. These physical changes are diagnosed as signs of a feeling of guilt or of an intent to deceive just as a physician would diagnose symptoms of a disease in his patient with the aid of mechanical devices.

Also contrary to popular concept, the "lie detector" does not cause any physical or mental strain on the person examined. In fact, the machine is practically harmless except for a very slight discomfort caused by the blood pressure cuff wrapped around either the right or left upper arm of the subject under examination.

The machine or instrument commonly used in the Philippines, the Model 301, consists of two operational units. The *Cardio-sphygmograph Assembly* which records the blood pressure and pulse continuously and quantitatively, and the *Pneumograph Assembly* which records the respiration of the person examined. Both units have no power supply. The subject himself furnishes the impulse to motivate these units. Another unit, the *Kymograph Assembly* which houses the complete chart drive mechanism, is the only electrically operated part of the machine. It has, however, nothing to do with the functions of the machine opera-

tionally.

Its Development

The first one who attempted to utilize a mechanical instrument in an effort to detect deception was Cesare Lombroso. In 1895, he experimented on the presence or absence of changes in the blood pressure and pulse of criminal suspects under questioning. The instrument he used is known as the *Hydrospigmograph*. Although his experiments achieved a measure of success, his research in the field was not very intensive. In 1904, a fellow named Munsterberg made experiments, with the aid of several instruments, in recording blood pressure, respiration, muscle movement, and psychogalvanic reflexes. He used all these instruments with what is known as the "word association" test. In 1914, Vittorio Benussi made many actual deception tests based upon the pneumograph, a machine which registered changes in respiration alone. In 1915, some contribution to the development of the present day "lie detector" was made by William Marston. His experiments, however, were primarily with the blood pressure-pulse principal. In 1921, the first instrument capable of recording blood pressure and pulse changes simultaneously was devised by one John Larson. He made over 400 tests using the Erlanger sphygmomanometer and pneumograph. He did extensive work on convicts at various institutions in the United States. It remained, however, for Leonarde Keeler to perfect the machine in 1930. He was first to use the Kymograph with the machine. Keeler also did much work on the testing technique and developed the chart as we know it today.

How It Works

The use of the machine is predicted on the theory that a lying individual usually displays apparent outward symptoms like blushing, squinting of the eyes, excessive dilation of the carotid artery, dryness of the mouth, excessive perspiration, increased activities of the Adam's apple, and many other unnecessary movements caused by uneasiness resulting from fear over the possibility that his deceitful act might be discovered and these are always accompanied by physiological changes in blood pressure, pulse rate, respiration, and galvanic reflex.

The importance of the "lie detector" as an aid to the interrogator cannot be over-emphasized. With the machine it is possible to ascertain deception with much greater accuracy, to make a more complete diagnosis in the establishment of the guilt or innocence of an individual; and to do away with "third degree" methods employed by brutal and inefficient interrogators.

There are two types of "Detection of Deception" tests commonly used, namely: the "general question" test, and the "peak of tension" test.

The "general question" test is composed of a set of questions, which are either irrelevant or relevant to the matter under investigation. The first two or three questions are irrelevant to the matter under investigation. These questions must deal with matters within the knowledge of both the examiner and the subject being examined. Questions like, "Is your name Juan?", "Are you a soldier?", "Do you smoke?" are appropriate initial questions to ask the subject. Relevant questions which are pertinent to the matter under investigation are then asked alternately with irrelevant questions.

The "peak of tension" test is used in instances where the Subject has not been informed by the investigator or from other sources like newspapers, reports, etc. of all the important details of the offense in question. This is called the "peak of tension" test. This type of test consists essentially of a set of questions in which only one is pertinent to the subject matter under investigation. This pertinent question should be asked at about the middle of the test.

The "peak of tension" test is considered more valuable and dependable than the "general question" test, since a guilty person though unresponsive in nature, is apt to be more disturbed over certain specific details of an offense than about the offense itself. On the other hand, an innocent person who may experience considerable nervousness at the time of the test is likely to be disturbed over the specific details of an offense with which he is not familiar.

There are several factors that affect the results of a "detection of deception" test. The principal factor which causes

the physiological changes that are interpreted as symptoms of deception is the fear of detection.

Physiological abnormalities such as excessively high and low blood pressure, cardiac diseases, respiratory disorders, etc., and mental abnormalities such as feeble-mindedness, insanity, psychosis, psychoneurosis, etc, may have a serious material effect on the test results. However, all these are recognizable by the types of tracings produced on the chart. Recordings made of the reactions of persons who are merely nervous but not lying are very distinct from those produced by the reaction of persons who seek to deceive interrogators by lying. A highly nervous but innocent person being examined always produces that uniform irregular pattern in the blood-pressure, pulse and respiration recordings, but there is an absence of marked specific responses to pertinent questions asked. Another factor that might affect the test results is the unobserved muscular movements which produce deceptive reactions in the blood pressure-pulse recordings.

Accuracy and Admissibility

There has been much controversy with regards to the accuracy of the "lie detector" in detecting deception and as to the admissibility as evidence in court of its results. No definite estimate can be made of its accuracy since several factors are to be considered before one can arrive at any fair conclusion. They are: (1) ability and efficiency of the interrogator, (2) the testing procedure and techniques employed by him, (3) suitability of the instruments used for the recording of bodily changes of the person being examined, (4) the mental processes involved in the act of conscious deception, and (5) the voluntary and involuntary changes in the physiological conditions accompanying the mental processes. Considering all these factors, it is the author's opinion that the margin of probable error in the use of the "lie detector" is approximately five per cent, even when the best available instrument and testing procedures and techniques are employed by skilled and competent examiners. However, in some cases, the percentage of error may rise to as high as from 15 to 20 per cent. This arises

when examiners who are unskilled in the procedures and techniques of interrogation use the "lie detector." Most frequently, their test records are "inconclusive" or unreliable for an accurate diagnosis. On the whole, however, "lie detector" results are 75 to 80 per cent accurate.

With regards to its admissibility, August Vollmer, a noted criminologist, says: "The test results can be taken into consideration in any court of justice provided that the prosecution and defense counsels enter into a signed agreement. In the Loniella-Grignano trial which was held in the Circuit Court of Green Lake County, Wisconsin, in February 1935, Leonarde Keeler, inventor of the Keeler Polygraph, was permitted to display charts of Loniella's and Grignano's blood pressure, pulse and respiration records, which were offered by the prosecution and defense counsel for the consideration of the Judge and Jury". In that trial Keeler made mention that the test results should be considered with other circumstances and facts in the case.

The value of the "lie detector" in criminal investigation work can not be gainsaid. Although primarily used for police interrogation, it is now utilized for various purposes in other fields. Agencies of the Allied occupation forces in Japan and in Germany after the war, among them the CID, the CIC and the PMO used the machine as an important aid in their work. In Korea today, the "lie detector" is being used by UN troops. In civilian endeavor, the machine also has its own use. Banking institutions and commercial houses in the United States are using it for screening their personnel.

In the Philippines we can use the "lie detector" to advantage not only in police interrogation but with as much, if not greater, value in intelligence work. It will prove invaluable to our interrogators in the field in securing important and accurate information and in screening surrendered dissidents and HMB suspects arrested in areas of operations. It can likewise be useful in counter-espionage work to curb any possible infiltration of enemy agents into our ranks, and as an aid in crypto-investigation when screening military personnel.