

USE OF POLYGRAPHS AS "LIE DETECTORS"
BY THE FEDERAL GOVERNMENT
(Part 6—Testimony of Department of Defense Witnesses)

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HEARING
BEFORE A
SUBCOMMITTEE OF THE
COMMITTEE ON
GOVERNMENT OPERATIONS
HOUSE OF REPRESENTATIVES
EIGHTY-NINTH CONGRESS
FIRST SESSION

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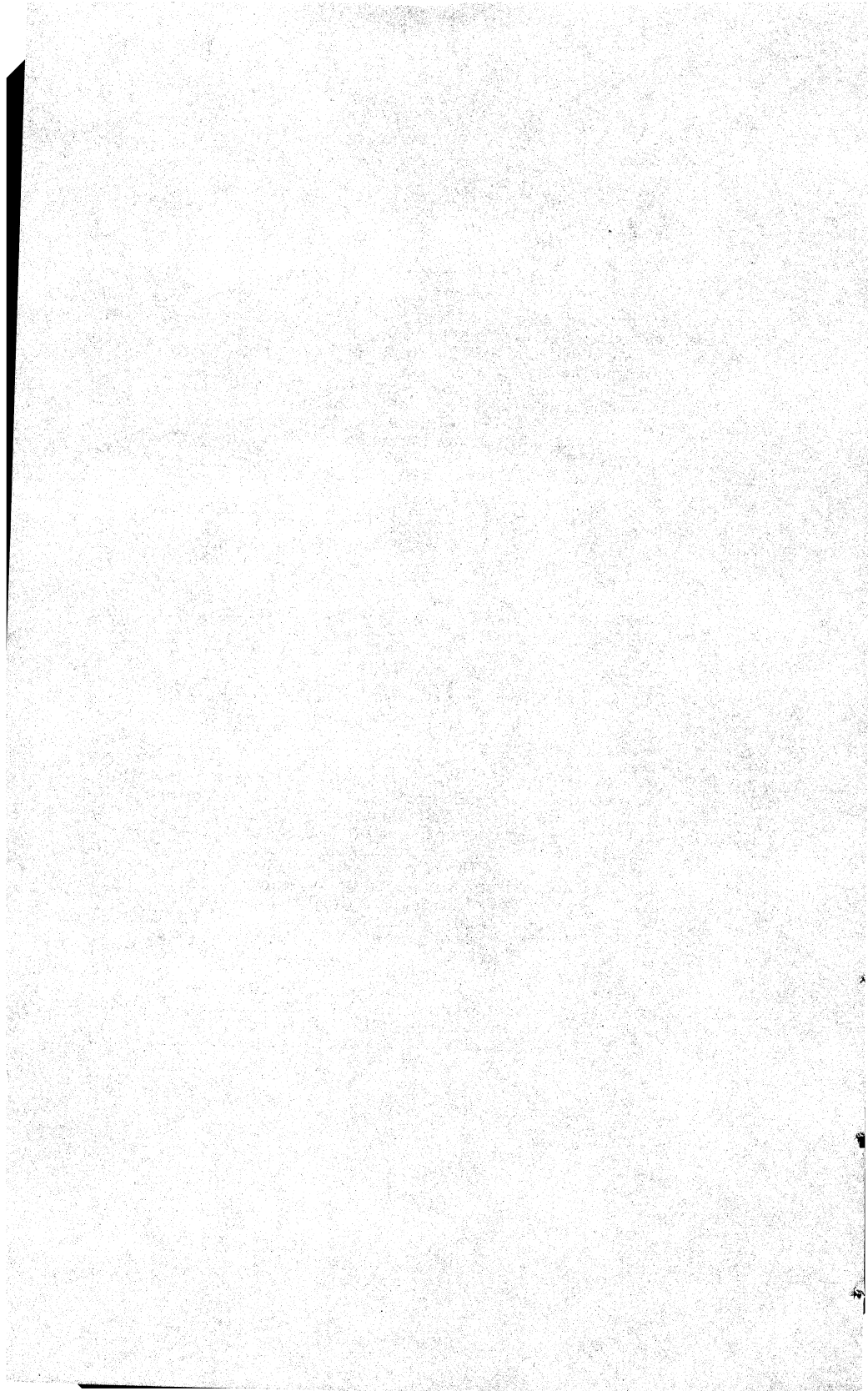
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(Part 6—Testimony of Department of Defense Witnesses)

THURSDAY, AUGUST 19, 1965

HOUSE OF REPRESENTATIVES,
FOREIGN OPERATIONS AND
GOVERNMENT INFORMATION SUBCOMMITTEE
OF THE COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, D.C.

The subcommittee met at 10:15 a.m. in room 2247, Rayburn Office Building, Hon. David S. King presiding.

Present: Representatives David S. King, Robert P. Griffin, and Donald Rumsfeld.

Also present: Samuel J. Archibald, chief, Government information; Benny L. Kass, counsel; Jack Matteson, chief investigator; and David Glick, chief counsel.

Mr. KING. We will resume hearings of the Foreign Operations in Government Subcommittee, which are a continuation of the hearings involving the use of the polygraph by the Government.

This morning we are pleased to have the Honorable Walter T. Skallerup, Jr., Deputy Assistant Secretary of Defense, who has come prepared to present the position of the Department of Defense with regard to the use of the polygraph.

Mr. Skallerup, there is a copy of the rules of this committee available to you and the rules of the committee require that such a copy be made available to you.

It is customary to swear in witnesses. If you would like to rise.

(Witness sworn.)

TESTIMONY OF WALTER T. SKALLERUP, JR., DEPUTY ASSISTANT SECRETARY OF DEFENSE

Mr. KING. If you would identify yourself, please, for the record.

Mr. SKALLERUP. My name is Walter T. Skallerup, Jr., Deputy Assistant Secretary of Defense.

Mr. KING. At this point, we will be very pleased to receive your prepared statement.

Mr. SKALLERUP. Thank you, Mr. Chairman.

I appreciate the opportunity of appearing before the committee to set forth the procedures and policies of the Department of Defense relating to the use of the polygraph. I understand the committee already has met in executive session to hear testimony regarding the use of the polygraph as a device in preemployment screening. The following remarks are directed toward other uses.

As you know, the Deputy Secretary of Defense, Cyrus Vance, on July 13, 1965, issued a Department of Defense Directive No. 5210.48, which regulates the conduct of polygraph examinations and the selection, training and supervision of Department of Defense polygraph examiners. This is the first comprehensive directive of the Department of Defense regulating the use of the polygraph.

In brief, the directive sets forth circumstances under which the use of the polygraph is authorized and prohibited; it is intended to assure that the use of the polygraph will be undertaken only with the prior consent of responsible officials under appropriate circumstances.

The directive permits the use of polygraph examinations in criminal investigations provided a determination has been made by a responsible official that—one designated pursuant to paragraph VII-B of the directive—that the investigation has been as thorough as circumstances permit, that the subject has been interviewed, and the development of additional information by means of a polygraph examination is essential and timely to the further conduct of the investigation.

Use of the polygraph in criminal cases is limited to those where the alleged crime is an offense punishable under the United States Code or the Uniform Code of Military Justice by death or confinement for a term of 1 year or more. Also, there must be reasonable cause to believe that the person to be examined has knowledge of or was involved in the matter under investigation.

The directive permits the conduct of polygraph examinations as part of a counterintelligence investigation provided a determination has been made by a responsible official that the investigation by other means has been as thorough as circumstances permit; that the subject has been interviewed and further productive investigative effort is not likely without a polygraph examination; and that information furnished by the individual cannot be checked through the use of other investigative methods. The investigation must be one to determine whether to grant, deny, or withdraw a security clearance higher than "confidential" or to determine whether initial or continued membership in the Armed Forces is clearly consistent with the interests of national security.

In both criminal and counterintelligence polygraph examinations, the person to be examined must be advised in advance that he has the opportunity to obtain and consult counsel of his own choice prior to the polygraph examination; advised of his rights in accordance with the provisions of either the "self-incrimination clause" of the fifth amendment to the Constitution, or article 31 of the Uniform Code of Military Justice, whichever is appropriate; and that the examination will be conducted only with his prior written consent and that no adverse action will be taken against him because of refusal to consent to take a polygraph examination.

Further, consistent with Deputy Secretary of Defense memorandum dated April 27, 1964, the person to be examined must be advised whether the area in which the examination is to be conducted contains a two-way mirror or other device by which the examinee can be observed without his knowledge; and whether the examination will be monitored in whole or in part by any means.

The directive permits the conduct of a polygraph examination when the individual under investigation voluntarily seeks a polygraph ex-

amination as a means of exculpation. Such polygraph examinations also are subject to the requirements of the directive. The directive contains provisions to protect information obtained in the course of a polygraph examination, section VII-D, and provisions for the supervision of examinations, paragraph VIII-C.

Provisions for the selection of polygraph examiners require that the candidate be a U.S. citizen, at least 25 years of age, a graduate of an accredited college, plus 2 years as an investigator with a recognized Government agency, or have satisfactorily completed 2 years of training at a college, plus 5 years of investigative experience. All candidates must be successfully screened on the basis of a background investigation as being persons of high moral character and sound emotional development.

While training programs are to be determined by the Secretaries of the military departments, the directive provides that such programs shall be designed to assure that no person shall be designated as a qualified polygraph examiner without having demonstrated an understanding of investigative techniques; methods of interrogation; basic elements of psychology, normal, abnormal, and criminal; constitutional and other legal considerations; physiology; the functioning of the polygraph, including its usefulness and limitations; and regulations of the Department of Defense concerning the use of the polygraph.

Insofar as the use of polygraph examinations in connection with the conduct of intelligence operations is concerned, the directive provides that in the case of an individual who is a principal—an actual agent—in an intelligence activity, a polygraph examination may be authorized with the specific approval of or by regulation issued by the Secretary of the military department or head of the Department of Defense component conducting the operation, where the information cannot be obtained through other investigative methods.

The directive expressly authorizes polygraph examinations as an aid in determining the eligibility of persons for employment or access to sensitive cryptologic information by the National Security Agency pursuant to regulations issued by the Director, NSA, with the prior approval of the Secretary of Defense.

The directive permits the conduct of experimental polygraph examinations of volunteer subjects in the course of research performed under the auspices of a research element of a Department of Defense component. The obtaining of special measurements or other information for research purposes during regular polygraph examinations may be authorized under the terms of the directive, on a case-by-case basis, but only with the prior written consent of the Assistant Secretary of Defense (Manpower).

The Assistant Secretary of Defense (Manpower), under the terms of the directive, is to be kept fully and currently advised of all studies regarding the use of the polygraph proposed to be undertaken by any component of the Department of Defense; this official—that is, the Assistant Secretary for Manpower—shall collect data to determine the effectiveness of the polygraph, and is authorized to issue instructions regarding both the use of the polygraph in the conduct of polygraph examinations and the qualifications of examiners, as may be considered appropriate.

As the chairman of the committee was advised on April 20, 1965, the Department of Defense has undertaken a coordinated program of research in this connection to include four major tasks:

1. A study of the validity of lie detection based on existing records of security and criminal cases where evidence independent of the polygraph is available.
2. An experimental study of interrogation methodology.
3. A study of interexaminer reliability and examiners' performance differences.
4. A study of the reliability of various physiological measures with actual or potential relevance to lie detection.

A Joint Service Group has been formed, made up of representatives of the Office of the Director of Defense Research and Engineering, Departments of the Army, Navy, and Air Force and a representative of the Institute of Defense Analysis. The Joint Service Group is composed of scientists from the research components of each service and experienced polygraph specialists. The group has been reviewing past and current polygraph research.

The group currently is exploring external polygraph validation criteria against which the validity of polygraph examinations may be judged. The group also is developing proposals for research on equipment reliability and exploring measures for judging examiner reliability.

Returning again to the directive, it permits exceptions to be made for cause by the Secretary of a military department, Assistant Secretary of Defense (Administration) acting in the Office of the Secretary of Defense, or head of the Department of Defense component concerned, as appropriate, with written notice of such exceptions including the basis therefore to be sent to the Assistant Secretary of Defense (Manpower).

By way of general comment, it is recognized that the directive is a first step toward bringing polygraph examinations under appropriate controls. Over a period of time actual experience should indicate the desirability of amending its provisions to assure that the polygraph is used only under appropriate circumstances and then with adequate safeguards.

I welcome questions from the committee.

Mr. KING. Thank you very much, Mr. Skallerup.

The Chair would recognize the gentleman from Michigan, Mr. Griffin. I know you have some questions.

Mr. GRIFFIN. Mr. Skallerup, I notice in the directive that the authorization to use the polygraph is limited to situations in which information furnished by the individual cannot be checked through the use of other investigative methods. It seems a little odd to me that it would be used only in those situations.

If you are conducting a research program to determine the validity of the polygraph, wouldn't it be best to use the polygraph in cases in which you could check the information in other ways, rather than rely exclusively on the polygraph?

Mr. SKALLERUP. Well, the purpose of that provision is to require the use of, say, conventional investigative methods up to the time of the polygraph examination. After the polygraph examination, information may be disclosed which could be subsequently checked through normal investigative methods. This kind of information could be used to validate the effectiveness of the polygraph examination.

Mr. GRIFFIN. I see. It doesn't preclude the development of information which could later be checked by other investigative methods?

Mr. SKALLERUP. That is correct.

Mr. GRIFFIN. How many schools for polygraph examiners do we have? Do each of the services have a separate school?

Mr. SKALLERUP. No; the Navy trains its own, and the other services use the Army Provost Marshal General School at Fort Gordon, Ga.

Mr. GRIFFIN. I am not arguing for this necessarily, but just to explore the question, is there any possibility that there ought to be just one school? I don't know how many examiners are involved or whether the schools operate the same kind of a training program. I would think that they would. Has that possibility been considered?

Mr. SKALLERUP. At the time it did not appear desirable to establish a single DOD polygraph school, because the bases for selecting examiner candidates were fundamentally different. The Navy was of the view that it would be wasteful for them to send their polygraph examiner candidates to the Fort Gordon School because the candidates generally, almost without exception, would be considerably older and much more experienced as investigators, and so that much of the training that was received at the Fort Gordon School would not be necessary.

They also believed that the kind of supervision that is given to the Navy examiner candidates is more effective in producing a better examiner than running them through the Fort Gordon School.

There are a number of things that, I would say, are loose ends in this directive, and this is one of them. It appeared desirable really to issue the directive without resolving that particular problem of training. It is intimately tied up in the question of selection, and it raises other questions that are not treated in the directive at all.

For example, how many examinations should an examiner conduct to maintain his proficiency? There is a wide variety of opinion in this area. But it appears that the more active an examiner is, so that if he is doing one or possibly as many as two a day, his proficiency and his expertise is apt to be one of great skill, whereas an examiner who does it only occasionally is not apt to develop the same kind of expertise.

We are looking into this as a possible criterion to use in providing us with some assurances that when polygraph examinations are conducted, they are conducted by well-qualified and highly skilled examiners.

Mr. GRIFFIN. Do I understand from your statement that polygraph is used under the directive for employment purposes only with respect to the National Security Agency; is that right?

Mr. SKALLERUP. The intent of the directive is to limit the use of the polygraph and to preclude its use as a general screening device. It is recognized that there are instances, isolated instances, apart from the NSA, where a polygraph may be given in connection with employment. For example, in connection with recruitment of foreign scientists there are some instances where it will be used.

Mr. GRIFFIN. I would think there would be other situations.

Mr. SKALLERUP. There are occasional situations.

Mr. GRIFFIN. I should think there would be other occasions where it would be just as sensitive as in the Defense Department.

Mr. Chairman, I may have other questions, but I will yield the floor to you or the staff.

Mr. KING. Thank you. I have one or two questions myself.

Mr. Skallerup, you referred in your prepared statement to the use of the polygraph in connection with criminal cases, among other things. Are you talking about criminal cases before military courts or before civil courts in which the military might be brought in to assist in the prosecution of a case. In both cases you could be playing a role. I was wondering which you had reference to?

Mr. SKALLERUP. The bulk of criminal investigations conducted in the DOD are those involving military personnel. However, from time to time the investigative services may get into what they call a complaint type case—for example, a fraud case, something which could lead to criminal prosecution, which may involve civilian employees of the Department. But these are rather small in number compared to the general criminal run of cases.

Mr. KING. You are talking then essentially about military courts?

Mr. SKALLERUP. True.

Mr. KING. Involving military personnel?

Mr. SKALLERUP. Yes.

Mr. KING. Of course, military personnel can be involved in civilian courts also. The military can be brought in to help even in a civil case. There might be certain evidence which they would be called on to present. But you are talking essentially about proceedings in a military court; is that correct?

Mr. SKALLERUP. That is correct.

Mr. KING. Are the results of the polygraph test used as substantive evidence of guilt or innocence or are they used simply as a so-called fishing expedition to assist the prosecutor in preparing his case, or both?

Mr. SKALLERUP. I can't speak with any authority in that area. I can say that it is my understanding that the results of the polygraph examinations are not used as substantive evidence of guilt or innocence, that normally the government prosecutors, we will call them, would not introduce evidence which is related to the opinion of a polygraph examiner, whether the individual was practicing deception or not practicing deception. The prosecution would introduce evidence procured in the course of a polygraph examination for what use it might be by way of inference in establishing guilt. But the opinion as to the guilt or innocence of the party being prosecuted would not be introduced as evidence.

Mr. KING. Do I understand it, then, that the judge, or examining officer, or jury if there is a jury, would under no circumstances be made aware of the fact that the defendant had been subjected to a polygraph examination, and that that would not come in as substantive evidence during the course of the trial; is that correct?

Mr. SKALLERUP. I can't answer that. I just don't know whether there is a bar excluding the fact that the defendant undertook a polygraph examination.

Mr. KING. Of course, you run into some serious constitutional restrictions there, do you not, involving self-incrimination. Moreover, the polygraph test is voluntary. But on the other hand, I suppose a person could withdraw his consent after he had given it.

Mr. SKALLERUP. He could do this at any time and we have tried to provide safeguards to assure the voluntary nature and also to assure

that the information obtained in the course of a polygraph examination could be used in prosecution, if circumstances warranted it. You will note that provision is made to advise the individual in advance of his opportunity to consult counsel and obtain legal advice before taking the examination, and before taking the examination the party to be examined is advised of his rights under the self-incrimination clause of the fifth amendment, article 31 of the uniform code, and this.

I brought with me article 31 of the uniform code, and it is quite extensive. If you care, I would be pleased to put it into the record.

Mr. KING. Without objection, that will be made a part of the record. (See exhibit 46, p. 609.)

Mr. KING. Well, then, from what you say I get the impression, Mr. Skallerup, that the chief value of the polygraph in this situation is that it gives to the prosecuting officials one more tool with which to work in trying to line up their case against the defendant. This is just one more dimension that they have in which to operate. In other words, they subject the defendant to a polygraph examination and ask him a question, and get an answer. The machine indicates that this is an area of great disturbance to the interrogee, suggesting perhaps that he is lying or at least greatly disturbed over the matter.

So this is a "red flag" to the examiner, and he immediately goes into that in a little more depth in the hope that maybe he can come up with something fruitful. The polygraph was useful in that it did send up the red flag. It put him on notice that this is a possible area for fruitful research.

Is that correct?

Mr. SKALLERUP. That is a good description of the function, yes.

Mr. KING. As far as you know—you qualified your answer—but as far as you know, it is not used as substantive evidence at the trial?

Mr. SKALLERUP. That is my understanding.

Mr. KING. Certainly if the man objected to its use, I would assume that the privilege against self-incrimination would act as a complete barrier at that point. This is my understanding. I haven't researched the question lately, but I believe that is correct.

Now, do I understand from your statement that the DOD has appointed an investigating committee? You referred to that in your statement. It is composed of experts from the different branches of the service, and that they are now going into this whole matter?

Mr. SKALLERUP. That is correct.

Mr. KING. And that there will be forthcoming an official report on this soon; is that correct?

Mr. SKALLERUP. I can say yes, except as to the "soon." They are experiencing considerable difficulty in establishing standards by which to make the validation judgments. It will be some time, I believe, before they conclude their activities.

Mr. KING. Are they going into the matter of reliability?

Before you answer that, let me amplify my question a little bit. Not too long ago, we had before us the rather celebrated case involving Airman Gerald M. Anderson, stationed at the Mountain Home Air Force Base in Idaho, who was accused of committing two dastardly murders. As I remember the case, he was subjected to a polygraph. At first he maintained his innocence, and then later, because of the results of the test, he changed his story, presumably to make it consistent with the polygraph.

And then still later, he changed the story back again and repudiated his alleged confession. And then still later, another party confessed to the crimes that Airman Anderson was alleged to have committed so that the upshot of it all was that the charges were dismissed, and he was given an honorable discharge from the service.

But this particular case, I think, brought the whole use of polygraphs rather dramatically to the attention of the public and of this subcommittee.

Now again, my question, is this committee to which you refer going into the matter of the accuracy of the polygraph, and in passing, would you like to comment on this case of Airman Anderson?

Mr. SKALLERUP. The committee will attempt to study that and develop some judgments in the matter. I personally feel that it is going to be a most difficult thing to accomplish. My own view is that the difficulty will be comparable to the problem you would have if you were going to assess the reliability of jury decisions and jury verdicts or the reliability of judges' fact-finding functions.

I say this essentially because the polygraph examiner as well as the jury and the judge are basically involved in making very subjective judgments. This is a very, very difficult thing to assess by reliable scientific measurement.

Mr. GRIFFIN. Would the chairman yield?

Mr. KING. Yes.

Mr. GRIFFIN. Certainly that would be true. I go back to my previous point, the limitation of polygraph use to a situation in which information can't be checked by any other means. I realize you seem to qualify that when I put the question. But it seems to me there are lots of circumstances in which the validity and accuracy could be checked if polygraph examination were used as an investigative tool not the only means.

The difficulty occurs when you rely exclusively on the polygraph as the method of developing information. Then you are out in an area where it is indefensible from most points of view.

Mr. SKALLERUP. I don't think we are really going to measure the validity of the polygraph machine. I believe what we will be able to do is develop an assessment of the effectiveness of a polygraph examination and when we do this, one must take into consideration the variations and degrees of competence among examiners. There will be good examiners and there will be others that won't be so good.

Mr. KING. Well, then, admitting as you do—and I think as everyone knows,—that the polygraph is far from perfect, far from precise in the scientific sense of the word—then aren't we saying in effect that its justification lies in the fact that something is better than nothing, and that a fragile instrument is better than no instrument. And on occasions, maybe frequently, it does give us some significant truths, so therein lies its justification, even though we recognize that it is imperfect and that occasionally there may be some error mixed up with the truth.

Is that correct?

Mr. SKALLERUP. I am in general agreement with you. We are really talking about factfinding here and reliability should be based essentially on the intellectual prowess of the interrogator.

The polygraph is used as a crutch by some interrogators. It is helpful in detecting responses that might not normally reach the eye.

And to that extent, it provides the interrogator with some additional information that he can use to proceed further in the course of his interrogation. But the polygraph itself is not capable with any degree of certainty at all of determining the credibility of a man's testimony.

Mr. KING. Just as a practical matter, it seems to me that if a man had a really guilty conscience, he would refuse to submit. If he had a clear conscience, he would be happy to submit. So that if that be true, then you are sifting out and excluding immediately those in which the use of the polygraph would be the most fruitful.

I am a little puzzled here. It seems to me you are barking up the wrong tree. You say that it is entirely voluntary. You can't force a man to submit to the test, both because of your regulations and because of the very nature of the test. If the man doesn't want to answer he doesn't have to, and that ends it. So obviously it must be voluntary.

But I am still left with my question. It seems to me that those who have guilty consciences will uniformly elect not to submit to the test and those who have clear consciences will elect to submit to the test. So what have you gained as a practical matter?

Mr. SKALLERUP. I will not speculate as to the identity of those who will or those who won't take a polygraph examination. But I think we must recognize that the administration of criminal justice has been going on for a long time without the use of the polygraph and very likely will continue to do so.

Mr. KING. I think that is a correct statement. The problem confronting this subcommittee, of course, is whether the weaknesses, the negative aspects of this, are such as to more than outweigh what are obviously some benefits. I think we all agree there are benefits and we all agree there are disadvantages, and we are now trying to weigh the one against the other.

Mr. ARCHIBALD. Mr. Skallerup, is the Office of Industrial Personnel Access Authorization Review under your administrative supervision?

Mr. SKALLERUP. It is.

Mr. ARCHIBALD. Generally, what does it do?

Mr. SKALLERUP. As you know, in the Department of Defense there are a number of defense contracts that involve access to classified information. This means granting clearances to personnel in defense industry. The military departments and the newly established office in the Defense Supply Agency, which is taking over these responsibilities, are in a position to conduct the investigations and grant clearances. But they are not in a position to deny an individual a clearance or to take away a clearance. That authority was vested in this one office that you have mentioned—OIPAAR—and we call it "OIPAAR" for convenience.

So the function of "OIPAAR" is to review these cases and provide the party involved with a statement of reasons which sets forth in considerable detail why it is believed to be not clearly consistent with the national interest to grant a clearance. There is a hearing before an examiner and the Government is under an obligation to provide the applicant with the opportunity to cross-examine and confront those persons giving testimony adverse to the interest of the applicant.

The applicant can engage counsel, bring in his own witnesses and at the termination of the case, it is reviewed and considered by a central

board and then the central board makes the determination whether to grant or not to grant or whether to take away or not take away a clearance.

That becomes the final action in the matter in the Department of Defense.

Mr. ARCHIBALD. Are these applicants private industry employees?

Mr. SKALLERUP. That is correct.

Mr. ARCHIBALD. Why does this new polygraph directive grant the OIPAAR Office the authority to request polygraph examinations for these private industry applicants?

Mr. SKALLERUP. The screening board of the Office may, upon review of the investigative file, believe that a polygraph examination might prove fruitful in obtaining additional information and for that reason the use of the polygraph examination is authorized under these circumstances.

Mr. ARCHIBALD. Has this been done in the past?

Mr. SKALLERUP. It has.

Mr. ARCHIBALD. Do you know how many tests were given under this procedure to private employees during fiscal 1964?

Mr. SKALLERUP. I have information on a calendar basis in 1964. During calendar year 1964, approximately 200,000 industrial clearance actions were made by the Department of Defense. And this does not include CONFIDENTIAL clearances of which we do not keep a record, which clearances are granted by the industrial concern itself.

Of the 200,000 cases, 657 were referred to the Office and polygraph examinations were authorized in 37 cases; that is, in 37 cases permission was granted to ask the individual or the applicant if he would undertake a polygraph examination. And 24 applicants consented—that is about 65 percent. Five declined and eight terminated employment prior to expressing a preference after they had been asked. And that was our experience during 1964.

Mr. ARCHIBALD. The new directive permits heads of Defense Department components to select those in their agencies who will be permitted to authorize polygraph tests. What does this mean? How many Defense Department components are there?

Mr. SKALLERUP. I don't recall the number. There are about 10.

Mr. ARCHIBALD. This then doesn't go down to the minor bureaus but remains at a top level?

Mr. SKALLERUP. That is right.

Mr. ARCHIBALD. Do you have any idea of how many people in each one of the components will be permitted to approve polygraph tests?

Mr. SKALLERUP. I have taken soundings from the Army, Navy, and Air Force, which are the big components, and the Army advises me that in their military police organization, their CID personnel, that worldwide, approximately 49 will be exercising this authority. And that in the intelligence side, CIC, 48.

The Navy estimates worldwide about 50, and the Air Force, 5, all 5 officials being in the headquarters office here in Washington.

Mr. ARCHIBALD. Do you or does anyone in the Defense Department have authority to restrict the number of persons who can approve tests?

Mr. SKALLERUP. Well, the authority has been given to the heads of the components, or their designees, to establish the number. And that would include the authority to restrict the number.

Mr. ARCHIBALD. Will you be informed of the actual number when the determination is made?

Mr. SKALLERUP. Yes.

Mr. ARCHIBALD. Is your memorandum of November 26, 1962, on the subject of civil and private rights still in effect?

Mr. SKALLERUP. The memorandum was a request for information from the military departments. They responded to it. It was not of a directive nature. I have no authority to issue directives.

Mr. ARCHIBALD. The memorandum did, however, suggest a prohibition in investigations of questions on religion, race, politics and union affiliation, didn't it?

Mr. SKALLERUP. That is correct.

Mr. ARCHIBALD. And that has substantially been picked up in this directive now, hasn't it?

Mr. SKALLERUP. That is correct.

Mr. ARCHIBALD. But there is no prohibition in the directive itself on questions of union affiliation. This part of your memorandum was not included in the directive.

Why was that not done?

Mr. SKALLERUP. That was deliberately left out because it was our judgment that we had reached a time in the development of our investigative organizations where that was widely recognized as not being a proper area to go into. And it appeared to be a bit strange to have to include it in this day and age, so we left it out.

Mr. ARCHIBALD. You felt that was a more widely accepted area than religion or race?

Mr. SKALLERUP. Definitely.

Mr. ARCHIBALD. And you found investigators weren't going into that then?

Mr. SKALLERUP. That is correct.

Mr. ARCHIBALD. In the Defense Department, who in general will have access to the results of the individual polygraph tests?

Mr. SKALLERUP. Initially the access will be available to those immediately concerned with the investigation. Subsequently, after the investigation is completed and whatever action is required to be taken has been completed, the files of polygraph examinations will be returned to, in each one of the investigative organizations, to a central headquarters master file. So there will be one place in each military department where these records will be kept.

Mr. ARCHIBALD. Section VII-D of the directive covers the access. Apparently, in a major DOD component such as the Army, the head of the component—the Secretary of the Army—all of his advisers, every Army official responsible for personnel security, law enforcement, and the administration of justice, would have access to polygraph test records.

Do you have any idea of the number of persons it would be in the Army, for example?

Mr. SKALLERUP. I have no idea of the number, but this provision that you read was essential so that the information obtained from a polygraph examination would be available to officials who have to take action on the information.

Mr. KING. Might I interrupt you to say there are some gentlemen in the back of the room representing the press, and others that are having a little hard time hearing, so all those participating could speak up a little louder.

Mr. SKALLERUP. We might ask them to move up further.

Mr. ARCHIBALD. Under this same section on access to polygraph results outside the Defense Department, Federal officials in all Federal agencies responsible for intelligence, security, or law enforcement will be privy to Defense Department polygraph results.

Do you have any idea how many people this will be?

Mr. SKALLERUP. Those individuals will not have access to these polygraph records except in those cases where information has come up which in the view of the Federal official having custody of the record should be disclosed to the State or local official.

This provision does not provide a license to State and local officials to have access to polygraph results.

Mr. ARCHIBALD. I was referring in this case to State and local officials. The directive says that the polygraph test will be open to State officials if there is an alleged violation of State law or if a serious crime is likely to be committed.

Who is going to decide that a serious crime is likely to be committed?

Mr. SKALLERUP. In the initial instance, it would be the polygraph examiner and his supervisor would make this determination. Whether that information should be disclosed to State officials will be determined by somebody else.

In the case of Air Force investigations, this determination whether to turn the information over to a State official will be made by any one of these five officials in Washington, who in the first instance is authorized to permit the conduct of the polygraph examination.

In the case of Army criminal investigations, I understand that this authority will be limited to the Provost Marshal General himself. I am not acquainted with the Navy's way of doing this. They have not yet established their own ground rules, but they are in the process of doing so.

Mr. ARCHIBALD. Mr. Chairman, if we might ask the witness to provide this information for the record?

Mr. KING. Could this be done?

Mr. SKALLERUP. Yes.

Mr. KING. Without objection, that will be part of the record when submitted.

(The information referred to follows:)

Within their respective agencies, the following persons have been granted authority to make the determination as to whether results of polygraph examinations may be released to State or local law enforcement agencies:

Department of the Army:

(1) Provost Marshal General.

(2) Assistant Chief of Staff for Intelligence, Headquarters, U.S. Army.

Department of the Navy:

(1) Director of Naval Intelligence.

(2) Deputy Director of Naval Intelligence.

(3) Assistant Director of Naval Intelligence (Counterintelligence) and three members of his staff.

(4) Ten officers in charge of their respective district intelligence offices.

Department of the Air Force:

(1) The Director of Special Investigations (OSI).

(2) Deputy Director for Operations, OSI.

(3) Chief, Counterintelligence Division, OSI.

(4) Chief, General Investigations Division, OSI.

(5) Chief, Personnel Investigations Division, OSI.

National Security Agency:

- (1) Director.
- (2) Deputy Director.
- (3) Assistant Director for Personnel Management.

Defense Atomic Support Agency:

- (1) Director.
- (2) Commander, Field Command.

Mr. ARCHIBALD. Do you know how many reports of polygraph examinations by Defense Department investigators have been turned over to State and local law enforcement officers in the past calendar or fiscal year?

Mr. SKALLERUP. I don't know.

Mr. ARCHIBALD. Is this possible to determine?

Mr. SKALLERUP. I could make efforts to determine what the number is. What I would like to do would be to find out how much effort would be required to get this information. We are talking about 12,000 cases, and if someone has to go through all 12,000, it raises a question whether—

Mr. KING. If that could be done with reasonable facility, would you be kind enough to furnish that for the record, with the understanding that you not make a big production out of it; if it is not feasible?

Mr. SKALLERUP. I will be pleased to do so.

Mr. KING. Without objection, it will be received into the record when it is submitted.

(The information referred to follows:)

The principal DOD agencies involved in the conduct of polygraph examinations have reported that information pertaining to the results of a polygraph examination was released to State or local law enforcement agencies in the following number of instances for the period indicated:

Department of the Army: None during fiscal year 1965.

Department of the Navy: None during fiscal year 1965.

Department of the Air Force: Four during fiscal year 1965.

National Security Agency: None during calendar year 1964.

Defense Atomic Support Agency: Three during fiscal year 1965.

Mr. ARCHIBALD. Referring to the training provisions of the directive, why does the directive have a grandfather's clause which will permit currently operating Defense Department polygraph examiners to continue on their jobs, even if they do not meet the requirements for future polygraph examiners?

Mr. SKALLERUP. Well, as I indicated earlier, this is one area that was not completely understood at the time the directive was issued, and rather than disturb the established arrangements, it was felt that a grandfather's clause would be appropriate and as we obtained better information and more reliable information with regard to the effect that more stringent standards would have upon the actual investigative operations, then we would establish an additional requirement.

You will recall the directive does provide that the Assistant Secretary of Defense for Manpower may issue instructions. This is in section IX.C. regarding the qualifications for polygraph examiner.

We anticipate going into this area and establishing what we consider to be appropriate requirements.

Mr. ARCHIBALD. In your earlier discussion with Mr. Griffin, you pointed out that the skill of an examiner may be determined by the amount of time he spends on cases and the number of cases he has

prepared. Yet in the grandfather's clause requirements for current investigators, they only have to have been conducting polygraph examinations for 6 months out of the last 3 years.

This doesn't seem like much experience.

Mr. SKALLERUP. Well, the 6-month period really does not disclose the intensity of the experience. As I say, we anticipate finding some kind of criterion which will be helpful in assuring that we only have good examiners.

But you must recognize that what we are talking about here is a rather large complex worldwide organization, and it may not be possible to have polygraph examiners in some rather remote areas who will be able to develop the kind of experience that we think would be desirable and in that instance, if you set the threshold too high, you create a counterpressure that tends to increase the number of examinations conducted so the men can qualify. So that this tends to be a somewhat, say, complex area.

Mr. ARCHIBALD. You are going to try to rationalize this in the future regulations that will be developed?

Mr. SKALLERUP. Yes.

Mr. ARCHIBALD. Do you know how many of the currently employed Defense Department polygraph examiners are qualified under the criteria for future examiners that you hope to set up in the future?

Mr. SKALLERUP. I have made some inquiries and the Navy believes that somewhere between 12 and 20 of the current examiners will not be qualified. While the directive was in the process of being drafted, the Air Force unilaterally established higher standards than they had in the past. And in so doing, they removed some who had been qualified from the qualified list, so that at the time the directive came out, no Air Force polygraph examiners would be excluded by virtue of the operation of the directive.

Now, in the case of the Army, I am told that the Provost Marshal General will have the job of reviewing the credentials of all the CID polygraph operators and will determine whether they should continue to be polygraph examiners in the CID. The same function will be performed on the CIC side of the house in the Army, so that at this time it is not possible to give an informed guess as to the number who are currently authorized in the Army who will be dropped under the terms of the directive.

Mr. GLICK. I wonder, Mr. Skallerup, if we might clarify that for a moment. I think there may be some confusion as to the figures you have just given.

Now, when you say the Navy has determined that somewhere between 12 and 20 members of their present polygraph examiners might not qualify, this could well mean they might not qualify under the grandfather clause provision, isn't this correct?

Mr. SKALLERUP. Under the terms of the directive.

Mr. GLICK. I believe Mr. Archibald's question was directed to the proposed requirements for becoming a polygraph examiner. How many of those presently being used as examiners would qualify under the requirements of having the baccalaureate degree, investigative experience, and so forth; not those who would necessarily qualify under the looser provision of the grandfather clause? I believe that is what Mr. Archibald was trying to get to and this was my understanding of his question.

Now, would your figures differ in that event?

Mr. SKALLERUP. I initially didn't understand the question that way, and second, I don't know what the answer would be.

Mr. ARCHIBALD. The answer you gave refers to the present looser requirements for currently employed DOD polygraph examiners?

Mr. SKALLERUP. Yes, sir.

Mr. GLICK. I would like to pursue one thing Mr. Archibald opened up a little earlier. In the giving of polygraph examinations as part of a security clearance for civilian industrial personnel under OIPAAR as you call it, is the information that is obtained through this process made available to the review board or the final board that makes a determination either of granting or withholding security clearance?

Mr. SKALLERUP. The information is disclosed to the screening board. It does not go beyond the screening board.

Mr. GLICK. Is all of the information deduced disclosed?

Mr. SKALLERUP. Yes, sir.

Mr. GLICK. The questions as well as the answers and reactions?

Mr. SKALLERUP. Yes, plus the opinion of the examiner.

Mr. GLICK. Plus the opinion of the examiner. Is there further use made of this, or is it merely provided to the screening board as part of its knowledge for final determination?

Mr. SKALLERUP. It is part of the investigative record for consideration by the screening board. The screening board, you realize, the screening board performs two functions: One, it can review the file and then, based upon its review, determine that it is clearly consistent with the national interest to grant and it can order a grant of a clearance.

If it chooses to not grant a clearance, it prepares a statement of reasons which are sent to the individual so that the individual can determine whether he wants to have a hearing and contest it or simply withdraw from proceeding.

Mr. GLICK. What are the provisions of custody of the information that is obtained in this process? Does the handling of this information fall under the terms of the directive?

Mr. SKALLERUP. The handling of that information is set forth in other directives, principally 5220.6.

Mr. GLICK. Is it more carefully controlled under 5220.6 than that which is set forth in 5210.48? I frankly have not had an opportunity to read 5220.6.

Mr. SKALLERUP. You see, this office, OIPAAR, receives the complete investigative files on all individuals whose clearances are referred to the office. The files are available for the review of the screening board, available for review by Department counsel who assist the screening board in preparing statements of reasons, and they are available for my review.

When these files are no longer involved in the action they are returned to the military department who performed the investigation and at that point, the files in those cases where polygraph examinations were involved, would fall under this 5210.48 provision.

Mr. GLICK. One final question in this area. Is the information obtained made available to the employer in the contract?

Mr. SKALLERUP. I can't say that it is never done. It is highly irregular. There is a strong policy against it. It is contrary to the

terms of the Executive order, but every now and then I get a suspicion that it has happened.

Basically I think our practice is good, that it is not done in almost 100 percent of the cases, but every now and then there is a leak.

Mr. GLICK. Thank you.

Mr. KING. The Chair recognizes the gentleman from Illinois, Mr. Rumsfeld.

Mr. RUMSFELD. I have read your statement, and listened to the questions with considerable interest. I have also read some articles that relate to the Pentagon curtailing the use of the polygraph and some releases and I am curious to know exactly what prompted this new directive which purports to be a rather dramatic change in policy.

Mr. SKALLERUP. Well, it was drawn to our attention that there was no overall Department of Defense regulation controlling the use of the polygraph. And further, we went into the subject and the further we went into the subject matter the more it appeared to be desirable to establish such a regulation.

The military departments were using the polygraph independently. The standards used in one service were not the standards used in others. Indeed, in some instances, there wasn't much in the way of standards at all. So it was quite apparent that this was an area that should be carefully regulated and that was the purpose of issuing this directive.

Mr. RUMSFELD. Are there standards that relate to other employment and investigative techniques such as background checks, and psychological interviews, or personal interviews—all the other techniques or processes which are used in hiring or investigating a given individual? Was this the only area where you lacked standards within the Department of Defense?

Mr. SKALLERUP. No. There are other directives. I will give you an example: 5210.8 sets forth the criteria for determining whether an individual should have access to classified defense information and it goes into considerable detail with respect to the scope of the investigation to be conducted, in connection with making such a determination.

Mr. RUMSFELD. My question is, Are there standards for such things as psychological tests and background checks today in the Defense Department, and if not, why do you draw a distinction between the use of the polygraph and other investigative or employment techniques such as the background check or psychological test? What is the big difference?

Mr. SKALLERUP. We do have standards in the directive with respect to background investigations.

Mr. RUMSFELD. I see.

Mr. SKALLERUP. And in terms of psychological testing, it is not done in the competitive service. The National Security Agency—

Mr. RUMSFELD. What do you mean by competitive service?

Mr. SKALLERUP. Civil service, in terms of conditions of employment.

Mr. RUMSFELD. The polygraph is not used either, except under certain circumstances?

Mr. SKALLERUP. Well—

Mr. RUMSFELD. I mean where a polygraph is going to be used, frequently a background check and psychological test is also one of the techniques, so the fact that it is not used in the civil service isn't

really pertinent, is it? I am talking about those areas where these three things are used.

Mr. SKALLERUP. I am afraid I just don't get your point.

Mr. RUMSFELD. The Department of Defense issued a directive. It indicated that it was a departure from past directives and a change in policy. I asked what prompted this directive. You answered that you lacked standards in the use of the polygraph. So I asked, did you have standards, uniform standards, with respect to other things like the polygraph, that are used for investigative work or part of the employment process, a technique to determine whether or not you want to employ somebody. You indicated no. And then you proceeded to answer in greater length.

My question is, If the answer is "No," why is it "No," and why did you isolate out the polygraph from background checks or psychological tests or the other things that are apparently a normal part of the process that goes into investigating or employment? It seems to me to be simple. Maybe I am not making myself very clear?

Mr. SKALLERUP. We do have directives and standards with respect to all of those areas you mentioned.

Mr. RUMSFELD. Good. You answered "No" and that is what confused me.

Mr. SKALLERUP. Maybe I heard a double negative.

Mr. RUMSFELD. Okay. Let me read a quotation. It purports to quote Deputy Secretary of Defense Cyrus Vance. It says—no it doesn't, either. It is supposedly quoting Chairman Moss, it says "Moss hailed the directive signed by Vance as the first step taken by any Government agency to curtail the widespread use of so-called lie detectors."

For the purposes of the record, did you feel there was widespread use? Is that a good way to describe what was going on in the Department of Defense?

Mr. SKALLERUP. There is no question it was used in instances where it was not appropriate. This will tend to eliminate that type of examination.

Mr. RUMSFELD. This directive is attempting to avoid having the Government become polygraph happy and just issue permission to use them willy-nilly without a good reason?

Mr. SKALLERUP. It is very important that the polygraph not be used as a crutch any more than it has to, because it tends to make investigators lazy and the more we demand our investigators use old-fashioned, well-established investigative techniques the better investigators they will become.

Mr. RUMSFELD. So you don't feel there is any danger that this directive itself might swing the pendulum too far the other way and be too restrictive?

Mr. SKALLERUP. Well, we don't want it to be too restrictive. If it turns out that it is too restrictive in some areas, it can be changed, but this will depend on our experience under the directive.

Mr. RUMSFELD. In your statement, you say that the directive expressly authorizes polygraph examinations as an aid in determining eligibility of persons for employment or access to sensitive cryptologic information by the National Security Agency pursuant to regulations issued by the Director, NSA, with the prior approval of the Secretary of Defense.

I am not knowledgeable about cryptologic information, but the way I read this paragraph it is restricted to National Security Agency cryptologic information, and my question is: What about those individuals within the Department of Defense who have access to exactly the same information that you are referring to with respect to NSA? From the way I understand it from this, it is conceivable there is a different requirement of NSA cryptopeople, and DOD? Is that a correct assumption, or incorrect?

Mr. SKALLERUP. It is correct and I believe this was set forth in the course of the executive session that you had with NSA the day before yesterday.

Mr. RUMSFELD. I understand the NSA situation. I would like to ask the question, if you can answer it in an open session: What prompted a different handling of individuals simply, on the surface, by agency, when these individuals, despite the fact that they are in different agencies, are dealing with exactly the same type of information?

Mr. SKALLERUP. The thing that prompted it was the recognition that at the headquarters of NSA, you draw together this information from many, many sources; that makes it a much more sensitive agency. It is a much more obvious target for hostile intelligence services, so the NSA established security standards which were much more stringent than the security standards which were used by military departments.

Mr. RUMSFELD. Then you are saying that you feel NSA, by virtue of its activities, could be described as being of a more sensitive nature than DIA, CIA or the Defense Department activities? Is that way off the track?

Mr. SKALLERUP. It is not way off the track. This is a very difficult thing to assess. The fact of the matter is that polygraph screening as a condition of employment at NSA has been established for a number of years. It is working there. It has not been deemed desirable or necessary in the other Defense Department agencies that you mentioned.

Mr. RUMSFELD. Well, that doesn't, and I am not being critical of your answer, because you are from one department, but from the standpoint of a member of the Government Operations Committee, which is concerned with all of government, it doesn't make a whole of a lot of sense to me, that simply because it is going on in one place and working, that people in the Government that are dealing with exactly the same types of information, shouldn't be treated on a similar basis. Why wouldn't it be equally as appropriate in your Agency, or department, or somewhere else.

It strikes me that this is an area that the subcommittee should interest itself in.

There was a quotation also in this article where Mr. Moss said that—
Hopefully this new policy will put an end to giving the polygraph test to military personnel accused of disciplinary matters.

As I read the directive, that is not going to be the case. Is that correct?

Mr. SKALLERUP. As I interpret Chairman Moss' remarks, he meant that the polygraph should not be used in cases of, what you might call, minor disciplinary matters. The directive provides that its use in

criminal cases will be limited to those where there are serious crimes and the standard used is where the sentence is in excess of a year.

Mr. RUMSFELD. So by specifically using the word "disciplinary" in his statement he was drawing a distinction between disciplinary and criminal.

Mr. SKALLERUP. Question of degree.

Mr. RUMSFELD. Right. In your statement you say:

By way of general comment, it is recognized that the directive is a first step toward bringing polygraph examinations under appropriate controls.

I would hate to think that this directive was really the first step. Certainly in the past it has not been without controls and guidelines as to their use.

Mr. SKALLERUP. What is your question?

Mr. RUMSFELD. The statement, I think, could leave the hopefully erroneous conclusions that this was the first step in doing anything about saying that this investigative technique, or employment technique, was used intelligently and bring it under appropriate controls. It is hard for me to believe that the Department of Defense has been functioning without controls or guidelines as to the use of this, just as the background check or medical examinations or psychological testing or anything else.

Mr. SKALLERUP. Well, as I said in my statement:

This is the first comprehensive directive of the Department of Defense regulating the use of the polygraph.

Prior to the issuance of this directive there were regulations of the military departments, which purported to control the use of the polygraph. We found those regulations inadequate, and as a consequence, this directive was developed.

Mr. RUMSFELD. I have included some comments in my questions which were to some extent conclusions. Just to satisfy myself, is it correct that before and as a result of this directive, the Department of Defense uses the polygraph as an investigative technique and not as a lie detector; is this correct?

Mr. SKALLERUP. That is correct.

Mr. RUMSFELD. And that this has been the practice, and certainly every other bit of testimony we have received on this subcommittee, has been that it should be used as just one of many techniques in trying to ascertain certain information. Do you feel that when you use the words "first step" it implies there might be a second step. Do you feel there would be any serious damage to the Department of Defense in the event that you were denied this particular device as one of many techniques used in investigations or in your employment process or any other way that it may be used?

Mr. SKALLERUP. We considered that as an alternative at the time we prepared the directive and it was considered to be inappropriate to ban the use of the polygraph. What we have tried to do is provide a degree of assurance that it is used responsibly and used in proper circumstances.

Mr. RUMSFELD. So your testimony would be then that the Department of Defense considers the use of the polygraph necessary in the conduct of your activities on behalf of the people of this country?

Mr. SKALLERUP. Yes; within the areas set forth in the directive.

Mr. RUMSFELD. Exactly. There is a bill that has been introduced by Congressman Gallagher which I am sure you are familiar with, which I suppose could be summarized by saying that it rather dramatically restricts the use of polygraph and requires the head or acting head of an executive department or agency to make a specific determination with respect to its purchase or use, and to supply a written report on it.

In view of the directive, and in view of your answers today, it would seem to me that this would unnecessarily restrict your use of the polygraph and put a tremendous burden on the Department of Defense with respect to the conduct of your responsibilities in the Government. Is this your conclusion, or do you disagree with that?

Mr. SKALLERUP. I am not prepared to discuss this particular piece of legislation to which you refer. I know the Department has prepared a position. I believe it is currently being coordinated with the Bureau of the Budget and I think it would be more desirable if we were to wait until that letter were sent to the chairman of the committee.

Mr. RUMSFELD. That is all I have, Mr. Chairman.

Mr. KING. I have one question I would like to ask, Mr. Skallerup, a rather frank question. Is it possible that a polygraph in effect becomes a club over the head of an employee used either intentionally or unintentionally?

Now what I have in mind is this. Practically everybody has something in his background that he is not particularly anxious to have come to light. This isn't because most people are criminal; not at all. It is simply that we all have quirks and idiosyncracies, and we all make mistakes. As we get older we are perfectly happy to leave our mistakes where they are, and go on to new things. Well now, isn't it possible that an employee who is perfectly innocent, perfectly competent, and making a very fine contribution to the U.S. Government, but faced with the possibility of subjecting himself to a polygraph test, in which perhaps some of these aspects of his life are going to come out that he would much prefer remain buried, isn't it possible that, faced with such an alternative, he might just say, "The heck with it, I am going to resign rather than go through all of that business"? So that in effect the use or possible use of the polygraph has become a club over his head. Isn't it also possible that certain administrators, knowing this to be a fact, might actually use this as a threat in order to force somebody out of the service?

Mr. SKALLERUP. I think it is highly unlikely that it could be used under those circumstances, in view of the provisions of the directive here. In the first instance, I will recognize that the polygraph does add certain stress to an interrogation which would not be there without the polygraph. But under the terms of the directive, an individual is not obligated to take the polygraph examination; one may choose to decline.

Mr. KING. But if you will pardon my interjecting, the very declining might in itself constitute an adverse reflection on the employee. And since he does not want to have that adverse reflection cast upon him, he might withdraw before he has to actually refuse.

Mr. SKALLERUP. We are getting into a rather subjective area of what is going on in a particular employee's mind. I should think

on the other hand some of them would stand up and say that this directive permits them to decline and no inference is to be drawn from his refusal to take the polygraph and stand on his own two feet. The directive is intended to preclude the polygraph from being used as a club, as you describe it.

Mr. KING: But apparently you will concede that without a carefully drawn regulation, such as the one you are referring to, this would be a possibility. In other words, this is a danger area that would concern us and without careful regulation of the use of the polygraph, then what I described a minute ago might be a possibility. This would be true; would it not?

Mr. SKALLERUP: Without a regulation of this kind, it could be used, say, coercively and prejudicially.

Mr. RUMSFELD: Mr. Chairman?

Mr. KING: Yes.

Mr. RUMSFELD: On that point, it seems to me that what has been said by Mr. King, and what you have agreed to, would in large part be equally true for a background check or a psychological test or a variety of other types of things that individuals could do to another individual, when they are in a position, higher on the ladder than someone else. And I don't believe that the polygraph in this case can be simply isolated out in this way.

But the point I think that comes up, and I just suggest it is this. What we are talking about is not every employee. We are talking about, as you indicated in your question, and you in your response, the employees set out in the directive, who are a very small number, and the question is, do the people of this country want individuals in the most sensitive positions who are even remote risks. I think that we have got to balance the interests of the country as a whole against the interests of one individual being in one job or another; namely, a very sensitive one, and that this is what we are really talking about, not all employees, but only those that are dealing with things that are of the utmost importance to this country.

Thank you.

Mr. KING: Mr. Kass?

Mr. KASS: Thank you, Mr. Chairman.

Mr. Skallerup, how long has the Defense Department been using the polygraph?

Mr. SKALLERUP: My recollection is that it was used as far back as 1948. I was not there at the time. This is based on hearsay.

Mr. KASS: I would like to read for the record part of a letter signed by Mr. Fubini for Dr. Harold Brown, the Director of Defense Research and Engineering. The letter is dated April 13, 1965. It is a memorandum, actually.

Despite the weight which has been placed on polygraph data in arriving at decisions of considerable importance, little, if anything, is known about what they contribute to the accuracy of an investigation.

Mr. Chairman, I would like permission to insert that entire memorandum into the record.

Mr. KING: Without objection, the entire memorandum will be inserted.

(The memorandum follows:)

USE OF POLYGRAPHS AS "LIE DETECTORS"

DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING,
Washington, D.C., April 13, 1965.

Memorandum for—

Assistant Secretary of the Army (R. & D.).

Assistant Secretary of the Navy (R. & D.).

Assistant Secretary of the Air Force (R. & D.).

Subject: A coordinated R. & D. program of lie detection research.

Lie detection procedures involving polygraphs have been used for many years in DOD to screen personnel for security reasons and to evaluate the testimony of criminal suspects under military jurisdiction.

Despite the weight which has been placed on polygraph data in arriving at decisions of considerable importance, little, if anything, is known about what they contribute to the accuracy of an investigation. A careful examination of this topic reported in IDA TR 62-16 reveals that information on such elementary and basic considerations as the reliabilities of the various measures employed, the freedom of the device from interrogator or interpreter bias, and the validities of the diagnoses for various situations, is largely inadequate.

The need for basic investigations in this area is therefore acute. The timeliness of such an effort is enhanced by the fact that a research program on the polygraph is being initiated at the CIA under the Director of Life Sciences, ORD. Thus, both programs can benefit from interchange, particularly in terms of research plans and design.

I therefore intend to initiate immediately a coordinated program of research on lie detection to include four major tasks:

(a) A study of the validity of lie detection based on existing records of security and criminal cases where evidence independent of the polygraph is available.

(b) An experimental study of interrogation methodology.

(c) A study of interexaminer reliability and examiner performance differences.

(d) A study of the reliability of various physiological measures with actual or potential relevance to lie detection.

This program will be pursued under the cognizance of my Assistant Director (Research) with the coordination of the Special Assistant (Intelligence and Reconnaissance), who will have the responsibility for coordination with the intelligence community.

I am designating the Air Force by this memorandum to be the responsible military department and to form a project within an existing program element in 6.2 funds under "Studies and Analysis of Behavioral Sciences."

I also intend to set up a monitoring group to consist of a research representative and an operational representative from each of the services with central coordination by my staff. Representation from the CIA will be provided where appropriate. Technical assistance will be available from IDA. Firm estimates of amounts for the funding of the project should be determined after guidance from this monitoring group.

I should like each of you to nominate one research representative and one operational representative to the monitoring group described above. These nominations should be made by May 1, 1965. Any amplifying detail that you may need can be obtained from my Assistant Director (Research).

E. G. FUBINI
(For Harold Brown).

Mr. KASS. Now, the Defense Department subsequent to this letter, in July of 1965, issued Defense Department Directive 5210.48, the one we have been discussing here this morning. Doesn't it seem a little unusual that despite Mr. Brown's comments, we just don't know what the polygraph does for investigative purposes. Here, in effect, the Defense Department is putting the stamp of approval on the use of the polygraph.

Mr. SKALLERUP. Would you repeat the question?

Mr. KASS. The question is this: Here you have responsible Defense Department officials saying we just don't know what the polygraph contributes to the accuracy of an investigation. You have informed

the committee this morning that the polygraph will be used for investigative purposes.

Now, in my mind, this seems to be a little bit of a contradiction. Mr. SKALLERUP. It seems to me you can discriminate here between on the one hand, wanting a rather precise scientific measurement of what it adds to an investigation, and on the other hand, where persons who conduct investigations, based on their experience, can tell you that the polygraph has been helpful to them in the conduct of their investigations, in the course of their fact-finding missions.

Based upon the actual experience of investigators, we have determined we will continue to use it. Meanwhile, efforts are being undertaken to assess to what assessment is possible, what the polygraph does add and what validity, if the word can be used, is associated with polygraph examinations.

Mr. KASS. If the Defense Department, through its research, determines that the polygraph has a certain validity, whether 50, 60, or 100 percent, will a determination then be made by the Defense Department either to continue to use it or restrict its use or even curtail its use completely?

Mr. SKALLERUP. Well, as time goes by, I believe we are going to learn more and more about it, and I trust we will take such action as is appropriate in light of what we learn.

Mr. GLICK. Mr. Skallerup, let me see if I can help in one area here that I am a little concerned about. As I understand the directive and the discussion here refers to the use of the polygraph as a tool in investigative technique. The information solicited during the course of an examination would then be followed up in an attempt to substantiate the impressions gained. Is this a fair understanding of what we have been talking about here?

Mr. SKALLERUP. It is.

Mr. GLICK. What happens in the event that there is no substantiation of any impressions gained during the course of a polygraph examination, substantiation made later by investigative and more orthodox techniques—if I may use a phrase?

Mr. SKALLERUP. It depends on the circumstances of the case. It is not an unusual fact situation. We have run into this kind of a fact situation without the polygraph, where unsubstantiated information is obtained. This is a problem of resolving either conflicting or insubstantial evidence.

Mr. GLICK. Would the evidence obtained from the use of the polygraph be treated as any other evidence which cannot be substantiated?

Mr. SKALLERUP. It must be assessed; it must be weighed; and in the light of the circumstances, conclusions must be drawn.

Mr. GLICK. I see.

Mr. KASS. It is not a lie detector?

Mr. SKALLERUP. There is no question in my mind that it is not a lie detector.

Mr. KASS. Is the Department of Defense taking any steps to eliminate from the various services such documents as "Lie or Truth", put out by the Office of Special Investigations Headquarters, U.S. Air Force and referred to as "A Lie Detection Handbook"? Similar manuals and directives exist in the Marine Corps, Navy, and Army.

Mr. SKALLERUP. Thus far, no action has been taken to edit those publications.

Mr. KASS. If I recall the testimony by General Butchers, the Provost Marshal, and other witnesses from the Army, Navy, and Air Force, quite often they used the phrase: "When the person 'lies' on the machine," or "We have determined that the person had 'lied' because of the charts on the machine."

I remember Congressman Moss, chairman of the subcommittee, a number of times asked: "Is it a lie detector?" And despite the fact that the witnesses said, "No, it is not a lie detector," they kept using the words "he is lying."

Are you planning to try to instill in Department of Defense representatives that it is not a "lie detector," but merely maybe an investigative tool?

Mr. SKALLERUP. Well, some people use the word "lie" more freely than others. And we are not undertaking any efforts to change those practices. I believe that OSI, the organization from which the pamphlet you describe came, in its regulations states forthrightly that it is not a lie detector. This is stated.

I suppose that in the trade, as the expression goes, among investigators, it is called a "lie detector." This sort of thing is going to be difficult to change over any short period of time.

Mr. KASS. In your statement you referred to the Deputy Secretary of Defense memorandum dated April 27, 1964. As I read the new Department of Defense directive, that memorandum has been canceled. I am referring to Mr. Vance's memorandum which speaks about two-way mirrors.

Have those criteria been spelled out completely in this new Defense Department directive?

Mr. SKALLERUP. Those terms have been incorporated in the directive.

Mr. KASS. Will individuals be informed in a criminal situation of their rights, and of the presence of a two-way mirror and other monitoring devices?

Mr. SKALLERUP. The directive requires it.

Mr. KASS. Will they be informed in security and intelligence operations?

Mr. SKALLERUP. The directive requires it.

Mr. KASS. Is it also applicable to the National Security Agency?

Mr. SKALLERUP. The relationship of this directive to the National Security Agency directive has not been completely resolved. The 5210.48, as you know, in section VI-C provides that the NSA regulations must receive the prior approval of the Secretary of Defense. Presumably, the regulations of the NSA would be compatible with this directive to the extent that it would be desirable in the light of the NSA type of operation.

Mr. KASS. Was there any reason why the provisions of the Vance memorandum were not made applicable to the National Security Agency, though?

Mr. SKALLERUP. My recollection is that the Vance memorandum did not exclude the National Security Agency. Do you have a copy of it here?

Mr. KASS. I was referring not to the Vance memorandum per se, but to the principles of the Vance memorandum as incorporated in

this directive. Is there any reason why it was not made applicable to the National Security Agency also?

Mr. SKALLERUP. There is a question really whether it is or isn't at this point. My belief is that it is applicable with respect to the National Security Agency. If there is any question about it, the place to resolve it is in the NSA regulations and not in this regulation.

Mr. KASS. You stated that there may be experimental-type research going on during the course of a regular polygraph examination. Will the person being subjected to a polygraph examination be informed of this additional experimental research?

Mr. SKALLERUP. This is one incompatibility. He won't because the whole purpose is to get some reliable research.

Mr. KASS. Are you able to inform the committee about the type of experimental research which will be conducted?

Mr. SKALLERUP. This has not been determined at this time.

Mr. KASS. In relationship to the provisions of what I call the Vance memorandum, why must a two-way mirror even exist in the polygraph examination?

Mr. SKALLERUP. Well, a number of reasons have been set forth. I might begin with a rather significant one. Why does a jury want to look at a witness? There are many ways that you assess testimony and looking at the individual who is giving it to you provides you with a number of indicia. Is he being candid, evasive? You can draw all kinds of inferences from a person's behavior.

Second, I believe the Provost Marshal Butchers mentioned when he was here before the committee a year or so ago, that in cases involving investigations of women regarding sex offenses, it is desirable to monitor the investigation closely through the two-way mirror and through other means to provide assurance that the investigation is not of a prurient nature, and also to provide independent testimony to the fact that the investigation was properly conducted in the event the person under examination makes serious allegations about the nature of the investigation.

Mr. KASS. Why can't you put another person in the room with the examiner?

Mr. SKALLERUP. I suppose you can.

Mr. KASS. Testimony given by the FBI indicates that, on occasion, they do bring in additional people into the room.

Mr. SKALLERUP. And our people do, too. Whether the mirrors, the two-way mirrors should be abolished is something that I have not carefully considered.

Mr. RUMSFELD. If the gentleman will yield, what is the difference?

Mr. KASS. Between—

Mr. RUMSFELD. Between having someone in the room and a two-way mirror, if they know the two-way mirror exists?

Mr. KASS. Many illustrations have come before this committee, Mr. Congressman, where the persons apparently haven't been informed that additional people were sitting behind the mirror.

Mr. RUMSFELD. Is it not correct that with respect to the witness that is here, that the individuals taking a polygraph are informed?

Mr. KASS. I beg your pardon?

Mr. RUMSFELD. Was there testimony before this committee in previous years from the Department of Defense indicating that there

were instances where the person receiving the polygraph examination was not advised that there was a two-way mirror?

Mr. KASS. Yes, sir. In fact, that is the reason for the Vance memorandum and this directive.

Mr. RUMSFELD. And this is the departure that was taken in the directive, then?

Mr. KASS. Yes, sir.

Mr. RUMSFELD. I see.

Mr. KASS. Mr. Skallerup, returning to Mr. King's question on the use of polygraph evidence in military tribunals, is the polygraph also used in evidence in administrative type hearings?

Mr. SKALLERUP. I have no direct knowledge of the details of those administrative proceedings. The one proceeding of which I have direct knowledge is the one involving the granting of access to persons in industry, and in those cases, where polygraph examinations were conducted, in no instance did Government counsel bring forth evidence or testimony to the fact that a polygraph examination was conducted.

There have been instances where, in these same proceedings, where the applicant has independently obtained the services of a polygraph operator and brought into testimony the opinion of the polygraph operator. But this was done on the applicant's motion, not on the Government's motion.

Mr. KASS. Mr. Chairman, because of time limitations, I would like permission to insert in the record at this point the Defense Department answer to question 16 of the subcommittee's questionnaire on the use of polygraphs.

The question was: "Has your agency ever been involved in any legal or administrative matter involving the use of the polygraph or any other so-called lie detection device?"

Mr. King. Is there objection? Without objection, it will be received into evidence.

(The document referred to follows:)

DEPARTMENT OF DEFENSE ANSWER TO QUESTION 16 OF THE SUBCOMMITTEE'S QUESTIONNAIRE ON THE USE OF POLYGRAPHS

16. Has your agency ever been involved in any legal or administrative matter involving the use of the polygraph or any other so-called lie detection device? (This question is intended to elicit any reference, regardless of degree of use, to the polygraph in these judicial or administrative proceedings.)

(a) If your agency holds administrative hearings, are any references to polygraph examinations admitted in evidence?

(b) If the answer to question 16(a) is in the affirmative, is the polygraph operator made available for examination and cross-examination purposes?

(c) Are polygraph charts and other related documents admitted in evidence in these administrative hearings?

ARMY

PMG: In fiscal year 1964, a Military Police Corps polygraph examiner conducted six examinations preliminary to administrative board proceedings. In each instance cited above, the results of the examinations were not used as evidence in the hearings, no testimony concerning the polygraph examinations was heard by the board except that in one instance a respondent asked the board for a polygraph examination. Even in this case, the polygraph examiner did not appear before the board in this or any other proceedings, and no other reference to a polygraph examination appeared in the records of board proceedings.

ACSI: Army Intelligence has not been involved in any legal or administrative matter involving the use of the polygraph or any other so-called lie detection device.

Department of Army: Neither of the aforementioned agencies, as such, conduct administrative hearings. However, reports of investigations of either agency could be submitted to other elements of the department which do hold administrative hearings. In any such instance, the PMG follows a policy that all references to any polygraph examination will be deleted prior to the submission of the report to any board or hearing. The ACSI follows a procedure in which the report of examination, with the findings of the examiner but excluding the charts, may be part of the completed report of investigation provided a board or hearing. However, the report of polygraph examination is not formally introduced into evidence. Polygraph charts and related documents, other than the findings, are not included in the reports of investigation.

NAVY

ONI: The specific answer to the primary and subordinate parts of this question is negative. Taking heed of that portion of the question in parentheses, however, it can be said that on occasions, not readily identifiable, either by name or number, defense attorneys have attempted to question special agent operators in the course of pretrial investigations and general courts-martial trials. As far as is known, the presiding authority limited information to a description of the machine and its attachments and never allow questions asked during or results of examinations to be introduced.

Marine Corps: No.

(a) Yes; but only on rare occasions.

(b) Yes.

(c) Yes.

AIR FORCE

Yes. The Uniform Code of Military Justice prohibits the use of the results of "lie detector" examinations in court-martial cases (*U.S. v. Massey*, 5 USCMA 514, 18 CMR 138), and Air Force Regulation 1-1A similarly prohibits their use in administrative proceedings. However, the fact that such an examination was administered may, if otherwise relevant and competent, be received in evidence. For example, it has been used by defendants before courts-martial to place the time-sequence of the accused's interrogation in perspective, and to otherwise raise the issue of the voluntariness of a statement of an accused.

(a) Yes; within the limitations mentioned above.

(b) Yes.

(c) No. The use of polygraph charts as evidence in administrative hearings is prohibited by AFR 11-1A. Two copies of this regulation are attached.

DIA

DIA provides for the administrative review of personnel actions by an activity known as the Personnel Advisory Board. Substantive matters affecting security, suitability, and employee retention, are referred to this Board for recommendations. Recommendations emanating from this Board are forwarded to the Chief of Staff, DIA, for approval and when he deems it necessary, may be referred to the Deputy Director or the Director, DIA, for consideration of the recommendations. When the polygraph has been utilized in conjunction with substantive cases, the Board is advised of the examination conducted and the results thereof. The Board is not provided the charts or graphs that are a product of the examination but rather is given the questions, the response by the examinee to the questions, and the polygraph operator's evaluation of the response as indicating no reaction, apparent deception, or inconclusive results.

(a) As indicated above, polygraph examinations are considered in personnel actions; however, should the individual decline to take the polygraph examination, this information, under current policies is not provided to the Board.

(b) Should it be considered necessary, the Board may examine and cross-examine the polygraph operator.

(c) As noted above, the polygraph charts are not reviewed at the hearing but the questions and answers may be considered at the hearing.

Mr. KASS. Mr. Skallerup, Mr. Griffin asked you about the training school. Do you plan to set up one overall Defense Department school?

Mr. SKALLERUP. I know of no such plan at this time. The problem seems to be not whether to have a single school or not a single school,

but first, to determine what kinds of operators you want, what kind of qualifications you want, and then tailor the school to fit the need.

Mr. KASS. How will this be determined?

Mr. SKALLERUP. By obtaining information from the military departments and making some judgments as to what would be in the best interest of the Department.

Mr. KASS. Do you plan to utilize the services of outside experts in this field?

Mr. SKALLERUP. We have found no need for obtaining expert assistance from outside the Government.

Mr. KASS. As to the training, testimony before the subcommittee indicated that various departments in the Defense Department utilize the service of private polygraph schools? Will this practice be discontinued?

Mr. SKALLERUP. I believe that the question is somewhat up in the air with respect to the NSA. However, I believe that the other military departments, to the extent that they are going to use a school, plan to use the Fort Gordon school. I believe the Air Force already has issued a regulation to that effect.

Mr. KASS. As far as the National Security Agency is concerned, you stated the directive leaves it up to the NSA to prepare their own directive. You mentioned that the polygraph may be useful for preemployment screening.

Does this utility for preemployment screening that you have spoken about go to whether a person will make a good employee in the future, or is it more toward verification of existing facts that you are looking for?

Mr. SKALLERUP. While I am prepared to discuss this, I think that if you choose to obtain information regarding NSA operations, that it would be more desirable to obtain this directly from NSA personnel.

Mr. KASS. I have no further questions, Mr. Chairman.

Mr. KING. Mr. Griffin, do you have any further questions?

Mr. GRIFFIN. No, except from the standpoint of economy and efficiency of the Government. It would seem, on the surface at least, that the Defense Department ought to consider very seriously the establishment of uniform criteria and one school for these people. I don't understand why the requirements of training in a field like this would be different for the Navy than it would be for the Army or Marine Corps.

It seems to me this would be a field in which the Defense Department could coordinate its activities. It would seem there ought to be some saving involved. I understand that is under consideration.

Mr. SKALLERUP. It is under consideration. But the principal element is to determine what qualifications and requirements should be established.

Mr. GRIFFIN. It seems to me DOD ought to do that.

Mr. SKALLERUP. We fully intend to. We could have withheld issuance of the directive until we had done that. The determination was made to go ahead and with the directive, and then authorize the Assistant Secretary of Defense for Manpower to issue supplemental instructions regarding the qualifications of polygraph examiners.

Mr. KING. Mr. Rumsfeld, do you have any questions?

Mr. RUMSFELD. No questions.

Mr. KING. Mr. Kass?

Mr. KASS. I have just one more question.

Mr. Skallerup, refusal to take a polygraph examination will not be put in the person's personnel file, is that correct?

Mr. SKALLERUP. That is correct.

Mr. KASS. Is this refusal to take a polygraph examination which the person made to a military or Defense Department polygraph operator, or is it also refusal to take a polygraph examination at some State or Federal level?

Mr. SKALLERUP. It is conceivable that an investigative file might contain information that an individual declined to undertake a polygraph examination, which was offered by a State or municipal authority. But that would remain in the investigative file.

Mr. KASS. Not in the personnel file?

Mr. SKALLERUP. Not in the personnel file.

Mr. KASS. You know we spoke about a case that was called to the subcommittee's attention, because an Army sergeant had refused to take a polygraph examination at a local police station. Authority was given by Army personnel people to remove his security clearance.

Is there any way that the Defense Department can control this type of operation?

Mr. SKALLERUP. My understanding of that case is that there was more to it than just the refusal to take the polygraph examination. There was circumstantial evidence that the individual had been involved in some activity that was very undesirable, and that this led to the questioning—whether action should be taken to withdraw his clearance. They determined that they would not withdraw his clearance.

What we are talking about, I believe, Mr. Kass, is the evaluation of the data and so long as this kind of information is kept within the investigative reports, and is not in personnel records, it seems to me that the individuals concerned will be protected and that then the problem is one of evaluation.

Mr. KASS. And these investigative reports are not made available outside of the Defense Department?

Mr. SKALLERUP. The investigative reports are made available to other Federal agencies.

For example, if you didn't have this exchange of important security information between Federal agencies, you would soon run into proliferation of investigations and an unnecessary repetitive number of investigations. So that where the national interest indicates, we exchange information with the FBI and with other agencies of the Government.

Mr. GRIFFIN. If you didn't do that, the Government Operations Committee would be investigating to determine why you didn't.

Mr. KASS. Mr. Skallerup, we have a number of questions on the Defense Department's research program. With the chairman's permission, we would like to leave the record open at this point for submission of these questions.

Mr. KING. The record will be left open for the submission of questions and answers.

(The questions and answers referred to appear in exhibit 47B, p. 610.)

Mr. KING. Are there further questions?

Mr. Skallerup, again may we express our sincere appreciation to you for your presence here, for your very competent and illuminating answers. This has been most helpful.

This subcommittee will stand adjourned until further call by the Chair.

(Whereupon, at 12 noon the subcommittee was recessed, to reconvene at the call of the Chair.)

APPENDICES

(Exhibits 1 through 44 appear in parts 1-5 of these hearings)

EXHIBIT 45—BIOGRAPHICAL SKETCH OF WALTER T. SKALLERUP, JR., DEPUTY ASSISTANT SECRETARY OF DEFENSE

Walter T. Skallerup, Jr., of McLean, Va. (1155 Crest Lane); son of Walter T. and Ruth (White) Skallerup; born in Chicago, Ill., February 17, 1921; education: Philadelphia, Pa., public schools (1938); B.A., Swarthmore College, Swarthmore, Pa. (1942); LL.B., Yale Law School, New Haven, Conn. (1947); married Nancy McGhee Baxter of Cleveland, Ohio, December 16, 1950; children: Paula (1952), Walter, III (1955), Andrew (1959), and Nancy (1962); admitted to the Bar of the District of Columbia (1948); Supreme Court of the United States (1956); Commonwealth of Virginia (1959); member, American Bar Association, Bar Association of the District of Columbia; attorney, Office of the General Counsel, U.S. Atomic Energy Commission, Washington, D.C. (1947-52); former partner, Volpe, Boskey & Skallerup, 1701 K Street NW., Washington, D.C. (1953-61); former director, Peoples National Bank of Leesburg, Leesburg, Va.; former director, Mid-Atlantic Small Business Investment Co., Baltimore, Md.; former director and vice president, McLean Citizens Association, McLean, Va.; former president, Virginia Angus Association, Charlottesville, Va.; member, Fairfax County, Va., Democratic Committee (1955-61); delegate from Virginia to National Democratic Convention, Los Angeles (1960); served in U.S. Naval Reserve on active duty (1943-45) aboard aircraft carrier U.S.S. *Hornet* (CV-12), and radar picket destroyer U.S.S. *Cushing* (DD-797); awarded Silver Star Medal, Bronze Star Medal with Combat V, and Presidential Unit Citation; sworn into office of Deputy Assistant Secretary of Defense (Security Policy), January 4, 1962.

EXHIBIT 46—UNIFORM CODE OF MILITARY JUSTICE

ART. 31. Compulsory self-incrimination prohibited.

(a) No person subject to this code shall compel any person to incriminate himself or to answer any question the answer to which may tend to incriminate him.

(b) No person subject to this code shall interrogate, or request any statement from, an accused or a person suspected of an offense without first informing him of the nature of the accusation and advising him that he does not have to make any statement regarding the offense of which he is accused or suspected and that any statement made by him may be used as evidence against him in a trial by court-martial.

(c) No person subject to this code shall compel any person to make a statement or produce evidence before any military tribunal if the statement or evidence is not material to the issue and may tend to degrade him.

(d) No statement obtained from any person in violation of this article, or through the use of coercion, unlawful influence or unlawful inducement shall be received in evidence against him in a trial by court-martial.

EXHIBIT 47A—LETTER FROM HON. JOHN E. MOSS, CHAIRMAN, FOREIGN OPERATIONS AND GOVERNMENT INFORMATION SUBCOMMITTEE, TO WALTER T. SKALLERUP, JR., AUGUST 25, 1965, REQUESTING ADDITIONAL DATA ON USE OF POLYGRAPHS

AUGUST 25, 1965.

HON. WALTER T. SKALLERUP, JR.,
Deputy Assistant Secretary of Defense,
(Security Policy),
Washington, D.C.

DEAR MR. SKALLERUP: In order to complete the Foreign Operations and Government Information Subcommittee's record on the use of polygraphs by the Department of Defense, please supply answers to the following questions:

1. In testifying before the subcommittee on August 19, 1965, you stated: "Based on the actual experience of investigators, we have determined we will continue to use [the polygraph]." What is this experience to which you refer?

2. During the course of the hearing, you informed the subcommittee that the polygraph had proved to be useful to the Defense Department in pursuing both criminal and security investigations. Please explain this statement.

3. You informed the subcommittee that the polygraph should perhaps be used in connection with the recruitment of such individuals as foreign scientists. What utility can be achieved from such tests?

4. Is there a Department of Defense policy to exclude from courtroom evidence (whether military or civilian) the fact that a participant in the trial was subjected to a polygraph examination? Is there any such policy on excluding such evidence from administrative tribunals and/or hearings?

5. Is it the Department of Defense's policy to prohibit the training of Defense Department employees at private polygraph schools? If so, is the policy in writing?

6. The new Department of Defense directive on polygraph examinations (DOD Directive 5210.48) authorizes the Assistant Secretary of Defense (Manpower) to "collect data to determine the effectiveness of the polygraph and issue such instructions regarding the use of polygraph in the conduct of polygraph examinations, including the qualifications of polygraph examiners, as may be considered appropriate." What has been done to implement this section of the directive?

7. Has the Department of Defense initiated any research programs on the validity of the polygraph? Please describe any research plans which the Department has in this area, including goals, funding, names, and qualifications of researchers.

I want to take this opportunity to thank you for appearing before the Foreign Operations and Government Information Subcommittee.

Sincerely,

JOHN E. MOSS,
Chairman, Foreign Operations and
Government Information Subcommittee.

EXHIBIT 47B—REPLY FROM DEPARTMENT OF DEFENSE TO LETTER FROM HON. JOHN E. MOSS, AUGUST 25, 1965

ASSISTANT SECRETARY OF DEFENSE,
Washington, D.C., October 6, 1965.

HON. JOHN E. MOSS,
Chairman, Foreign Operations and Government Information Subcommittee of the
Committee on Government Operations, House of Representatives, Washington,
D.C.

DEAR MR. CHAIRMAN: This is in response to your request that I supply answers to certain questions relating to testimony I had given before the subcommittee on August 19, 1965, concerning the use of the polygraph by the Department of Defense.

Attached are the questions and answers in response to each.

Please let me know if you desire any additional information.

Sincerely yours,

WALTER T. SKALLERUP, JR.,
Deputy Assistant Secretary of Defense, Security Policy.

Enclosure.

Question 1. In testifying before the subcommittee on August 19, 1965, you stated: "Based on the actual experience of investigators, we have determined we will continue to use [the polygraph]." What is this experience to which you refer?

Answer. In the course of the preparation of DOD Directive 5210.48 "The Conduct of Polygraph Examinations and the Selection, Training and Supervision of DOD Polygraph Examiners," dated July 13, 1965, numerous conferences were held with representatives of the U.S. Army Counterintelligence Command, the Office of the Provost Marshal General of the U.S. Army, the Office of Naval Intelligence, the Air Force Office of Special Investigations, and the National Security Agency. These representatives of DOD investigative organizations uniformly commented upon the desirability of continuing to use the polygraph as an aid to investigative activity. Their views were based upon years of experience in investigative work including the use of the polygraph. It is this experience to which I referred in my testimony.

Question 2. During the course of the hearing, you informed the subcommittee that the polygraph had proved to be useful to the Defense Department in pursuing both criminal and security investigations. Please explain this statement.

Answer. Use of the polygraph has proved useful to the DOD in pursuing both criminal and security investigations in that unusual physiological responses of persons being interrogated in the course of a polygraph examination may, to an experienced examiner, indicate subject matter for immediate further interrogation, suggest the desirability of further investigation or indicate specific investigative leads, and in some instances may raise the possibility that the person being examined may be practicing deception.

Question 3. You informed the subcommittee that the polygraph should perhaps be used in connection with the recruitment of such individuals as foreign scientists. What utility can be achieved from such tests?

Answer. The defense scientist immigrant program (DEFSIP) was established in 1945 to enable outstanding foreign scientists to contribute to classified defense research practically immediately upon arrival in the United States without waiting for the completion of the security investigation after arrival. DEFSIP is not a recruiting program. Only outstanding foreign scientists, usually with a doctorate degree, who apply on their own initiative for assistance in their expressed desire to immigrate to the United States are considered. Since 1955 DEFSIP has included a polygraph examination as part of its background investigation. When the scientist applies to DEFSIP he is informed during the first interview that processing requirements include a polygraph examination. Often in the case of such foreign personnel there are periods which cannot be fully investigated through conventional investigative techniques and the polygraph examination is used in this connection. To date security experience under DEFSIP has proved favorable.

Question 4. Is there a Department of Defense policy to exclude from courtroom evidence (whether military or civilian) the fact that a participant in the trial was subjected to a polygraph examination? Is there any such policy on excluding such evidence from administrative tribunals and/or hearings?

Answer. The Department of Defense policy governing admissibility of evidence regarding information which reveals whether an individual has been subjected to a polygraph examination is determined by the rules of evidence applied in the particular court. The rules of evidence applicable in courts-martial generally preclude the introduction of evidence of the results of a polygraph examination. The fact that such an examination was administered may in unusual situations be received in evidence, if otherwise relevant and competent. For example, it has been used by defendants before courts-martial to place the time sequence of the interrogation of the accused in perspective and otherwise to raise the issue of the voluntariness of the statement of the accused. Civilian courts have in general followed the same rules with respect to polygraph examinations. The initiative in the attempted presentation of such evidence is essentially a matter for counsel in the particular case, and, the admissibility of the evidence is a judicial matter for determination by the courts under the applicable rules of evidence.

Answer. Although Federal tribunals and hearings do not use the rules of evidence, they do observe reasonable restrictions as to relevancy, competency, and materiality. Under this guidance the results of polygraph examinations are generally not considered by such tribunals or boards. Whether the evidence that an individual undertook a polygraph examination would be admissible in such a hearing would depend on the facts of the particular case, but usually such

information is not admitted. It should also be noted that DOD Directive 5210.48, paragraph IV.C., provides that "Adverse action shall not be taken against a person for refusal to take a polygraph examination or for unwillingness to volunteer to take a polygraph examination."

Question 5. Is it the Department of Defense's policy to prohibit the training of Defense Department employees at private polygraph schools? If so, is the policy in writing?

Answer. There is no Department of Defense policy, in writing, prohibiting the training of polygraph examiners at private polygraph schools. Training programs for polygraph examiners will be prescribed by the Secretaries of the military departments in a manner consistent with the objectives and requirements of Department of Defense Directive 5210.48, dated July 13, 1965, "The Conduct of Polygraph Examinations and the Selection, Training and Supervision of DOD Polygraph Examiners." The implementing documents of the military departments are being prepared and will be reviewed by the Assistant Secretary of Defense (Manpower).

Question 6. The new Department of Defense Directive on polygraph examinations (DOD Directive 5210.48) authorizes the Assistant Secretary of Defense (Manpower) to "collect data to determine the effectiveness of the polygraph and issue such instructions regarding the use of polygraph in the conduct of polygraph examinations, including the qualifications of polygraph examiners, as may be considered appropriate." What has been done to implement this section of the directive?

Answer. A coordinated program of research on the polygraph has been initiated by the Office of the Director, Defense Research and Engineering, under the cognizance of the Assistant Director for Research. The validity and effectiveness of the polygraph, based on existing records of cases where evidence collected by means other than the polygraph is available, is being studied. A six-person monitoring group has been established, composed of a research and an operational representative from each military Department. Technical assistance will be furnished by the Institute of Defense Analyses, a specially qualified Government contractor. After completion and analysis of this research, any needed policy instructions will be promulgated, including, if necessary, standards for the qualifications of polygraph examiners.

Question 7. Has the Department of Defense initiated any research programs on the validity of the polygraph? Please describe any research plans which the Department of Defense has in this area, including goals, funding, names, and qualifications of researchers.

Answer. The Department of Defense forwarded to your committee lists of DOD-sponsored studies and copies of research reports involving various aspects of the polygraph. In addition to these lists and reports, the following information concerning research programs dealing with the validity of the polygraph is forwarded in response to your current request.

An interservice group noted in answer to question 6, above, composed of research representatives and polygraph operator representatives from each of the military departments currently is planning validity and reliability studies of the polygraph in relation to other aspects of interrogational procedures. In order to avoid duplication of a Central Intelligence Agency study, and to reflect activity within the Department of Defense, the studies will be directed toward criminal cases.

One study which has been initiated concerns the reliability of the sensors and recording devices currently employed in the polygraph. This is being done with the cooperation and advice of the Bureau of Standards.

The major validity study is in the design phase and awaits the results of preliminary investigations of a key problem, i.e., establishing acceptable external criteria for determining the actual facts in a case against which to compare the judgments made on the basis of the polygraph records. This is a very difficult problem, but it is deemed inadvisable to invest any considerable amount of research funds until a satisfactory answer is obtained. Precisely, we do not want to do a research study unless we are reasonably sure that definitive answers will result.

Thus far, the scientists involved, with the exception of Dr. Orlansky, have been "in-house." All are considered fully qualified to conduct such research. Included are:

Dr. S. Rains Wallace, Chief, Behavioral and Social Sciences, D.D.R. & E.
Dr. Charles Limburg, research coordinator, Science Division, Directorate of Science and Technology, DCS/R. & D., USAF.

Mr. Lewis C. Miller, project officer, interrogation aids, ARC applied science section, RADC (EMI CA), Griffiss AFB, N.Y.

Dr. Philip J. Bersh, Chief, Systems Research Laboratory, U.S. Army Personnel Research Laboratory.

Col. Sidney L. Marvin, Chief, Behavioral Sciences Research Branch, U.S. Army Medical Research and Development Command.

Dr. James W. Prescott, research associate in physiological psychology, Office of Naval Research.

Dr. Jesse Orlansky, senior technical staff member, Institute for Defense Analyses.

The determination of specific funding amounts awaits final decisions concerning research design. However, an item of \$100,000 has been set aside in the fiscal year 1966 budget for this purpose.

EXHIBIT 48—DEPARTMENT OF DEFENSE DIRECTIVE No. 5210.48, JULY 13, 1965

Subject: The conduct of polygraph examinations and the selection, training, and supervision of DOD polygraph examiners.

References:

- (a) Deputy Secretary of Defense multiple addressee memorandum concerning polygraph examinations dated April 27, 1964 (hereby canceled).
- (b) DOD Directive 5210.7, "DOD civilian applicant and employee security program," August 12, 1953.
- (c) DOD Directive 5210.8, "Policy on Investigation and Clearance of DOD Personnel for Access to Classified Defense Information," February 15, 1962.
- (d) DOD Directive 5210.9, "Military Personnel Security Program," June 19, 1956.
- (e) DOD Directive 5220.6, "Industrial Personnel Access Authorization Review Regulation," July 28, 1960.

I. Purpose

This directive (a) sets forth the conditions under which polygraph examinations may be conducted within the Department of Defense, and (b) contains requirements for the selection, training, and supervision of polygraph examiners.

II. Cancellation

Reference (a) is hereby superseded and canceled.

III. Applicability

The provisions of this directive apply to all components of the Department of Defense.

IV. General policy

It is the policy of the Department of Defense that criminal, and counter-intelligence investigations, including personnel security investigations, be oriented to depend upon evidence secured through skillful investigation and interrogation rather than upon the possibility of self-disclosure induced by a polygraph examination.

A. The probing of a person's thoughts or beliefs, and questions about conduct which have no security implication, or are not directly relevant to an investigation, are prohibited. Examples of subject areas which should not be probed include the following: religious beliefs and affiliations, beliefs and opinions regarding racial matters, political beliefs and affiliations of a nonsubversive nature, and opinions regarding the constitutionality of legislative policies.

B. No polygraph examination shall be given to personnel of the Department of Defense, or to personnel outside the Department of Defense requiring access to classified defense information, except as authorized herein.

C. Adverse action shall not be taken against a person for refusal to take a polygraph examination or for unwillingness to volunteer to take a polygraph examination. Moreover, information concerning a person's refusal either to submit to a polygraph examination or to volunteer for a polygraph examination shall not be recorded in his personnel file and shall be given the same protection afforded by subsection VII-E, below. The continuation of an investigation is, however, not considered to be an adverse action and is not prohibited by this section.

V. Criminal investigations

In a criminal investigation no polygraph examination shall be conducted unless the following requirements are met:

A. A determination shall be made (to be confirmed in writing) in accordance with subsection VII-B below, that:

1. The investigation by other means has been as thorough as circumstances permit, the subject has been interviewed, and consistent with the circumstances of the case, the development of additional information by means of a polygraph examination is essential and timely for the further conduct of the investigation;
2. The alleged crime is an offense punishable under the United States Code or the Uniform Code of Military Justice by death or confinement for a term of 1 year or more;
3. There is reasonable cause to believe that the person to be examined has knowledge of, or was involved in, the matter under investigation.

B. The person to be examined has been advised:

1. That he has the opportunity to obtain and consult with counsel of his own choice prior to the polygraph examination.
2. Of his rights, in accordance with the provisions of either (a) the "self-incrimination clause" of the fifth amendment to the Constitution; or (b) article 31 of the Uniform Code of Military Justice, whichever is appropriate.
3. That the polygraph examination will be conducted only with his prior written consent and that no adverse action will be taken against him because of a refusal to consent to take a polygraph examination.
4. Whether the area in which the polygraph examination is to be conducted contains a two-way mirror or other device whereby the examinee can be observed without his knowledge; and whether the examination will be monitored in whole or in part by any means.

VI. Counterintelligence investigations; intelligence operations; cryptologic information

A. *Counterintelligence investigations.*—Polygraph examinations may be conducted as a part of a counterintelligence investigation of Department of Defense personnel or as a part of a personnel security investigation of Department of Defense personnel or of personnel outside the Department of Defense requiring access to classified defense information, provided the following requirements are met:

1. The determination has been made (to be confirmed in writing) in accordance with subsection VII-B, below, that:

(a) The investigation by other means has been as thorough as circumstances permit, the subject has been interviewed, and further productive investigative effort is not likely without a polygraph examination, and

(b) The purpose of the investigation is to determine whether (1) to grant, deny, or withdraw a security clearance higher than confidential, or (2) in accordance with references (b) and (d), initial or continued employment, or membership in the Armed Forces, is clearly consistent with the interests of the national security; and

(c) The information furnished by the individual cannot be checked through the use of other investigative methods.

2. The person to be examined has been advised:

(a) That he has the opportunity to obtain and consult with counsel of his own choice prior to the polygraph examination;

(b) Of his rights, in accordance with the provisions of either (1) the "self-incrimination clause" of the fifth amendment to the Constitution; or (2) article 31 of the Uniform Code of Military Justice, whichever is appropriate;

(c) That the polygraph examination will be conducted only with his prior written consent and no adverse action will be taken against him because of a refusal to consent to take a polygraph examination; and

(d) Whether the area in which the polygraph examination is to be conducted contains a two-way mirror or other device whereby the examinee can be observed without his knowledge; and whether the examination will be monitored in whole or in part by any means.

B. *Intelligence operations.*—A polygraph examination may be authorized in the case of an individual who is a principal in an intelligence activity with the specific approval of, or by regulation issued by the Head of the DOD component conducting the operation, where information cannot be checked through other investi-

gative methods; in such cases, the provisions of subsection VI-A, above, are not applicable.

C. *Cryptologic information.*—Polygraph examinations may be authorized as an aid in determining the eligibility of persons for employment or access to sensitive cryptologic information by the National Security Agency pursuant to regulations issued by the Director, NSA, with the prior approval of the Secretary of Defense, and the provisions of subsection VI-A, above, are not applicable.

VII. *Conduct of examinations*

A. Nothing in this directive shall preclude the conduct of a polygraph examination in conjunction with a criminal, counterintelligence, or personnel security investigation, when the individual under investigation or associated with an investigation voluntarily seeks a polygraph examination as a means of exculpation. All such voluntary requests shall be reviewed by an appropriate supervisory official to determine the propriety of the request and to assure compliance with all other requirements of this directive applicable to examinations. The conduct of such polygraph examinations also shall be subject to all the requirements of this directive for such examinations.

B. Determinations pursuant to subsection V-A and paragraph VI-A-1, above shall be made only by officials in positions selected by the Head of the DOD component concerned or his designee for this purpose. A list of positions so selected shall be maintained by the DOD component concerned. It is intended that officials selected to make determinations in paragraphs V-A and VI-A-1, shall have had broad experience in a position of considerable responsibility, and shall be limited to the minimum possible number consistent with operational necessity.

C. Heads of DOD components, the Assistant Secretary of Defense (Administration), and the Director, Office of Industrial Personnel Access Authorization Review, OASD (M), who receive investigative support (including the use of polygraph examinations) from other DOD elements are authorized to request that polygraph examinations be conducted, and in such cases to the extent applicable shall provide to the supporting DOD component:

1. In the case of examinations conducted in connection with criminal investigations, the information specified in subsection V-A, above.

2. In the case of the examinations conducted in connection with personnel security investigations, the information specified in paragraph VI-A-1, above.

D. Information obtained in the course of a polygraph examination shall be strictly controlled.

1. Polygraph examination results may be permanently maintained only in an appropriate investigative file, at a single location determined by, and subject to the control of the Assistant Secretary of Defense (Administration) or the Head of the DOD component concerned, as appropriate, or his designee for the purpose. Additional copies thereof shall be destroyed within 3 months after close of the investigation which included the relevant polygraph examination.

2. Polygraph examination results shall be available within the DOD component conducting the examination only to the chief official thereof, his immediate advisers, and officials expressly charged with responsibility for personnel security, law enforcement, or the administration of criminal justice.

3. Polygraph examination results shall not be made available outside the DOD component conducting the examination, except to:

- (a) Officials of the Office of the Secretary of Defense or another DOD component, corresponding to those enumerated in paragraph 2, above;

- (b) Other Federal officials, charged with intelligence, security, or law enforcement responsibilities with a clear need to know;

- (c) State law enforcement officials where the results indicate an alleged violation of State law, or that a serious crime is likely to be committed;

- (d) Legal counsel for the person examined, upon request therefor (subject to provisions for safeguarding classified defense information); and

- (e) Such other persons as the head of the DOD component concerned personally may determine.

E. Polygraph examinations will not be given to persons who are not in sound physical or mental condition. Should the examiner or examinee have any doubt as to the physical or mental fitness of the examinee, the matter will be referred to the supervisory official for appropriate action.

VIII. Selection, training, and supervision of DOD polygraph examiners

A. Selection.—

1. No candidate will be selected for the position of polygraph examiner on or after September 1, 1965, unless the following minimum requirements are met:

- (a) U.S. citizen;
- (b) At least 25 years of age;
- (c) Graduate of an accredited college (baccalaureate degree), plus 2 years as an investigator with a recognized Government agency; or have satisfactorily completed 2 years training at an accredited college (a minimum of 60 semester hours, or an advanced standing as a junior), or the equivalent of 2 years of college, as defined by the head of the DOD component concerned, plus 5 years' investigative experience;
- (d) Successfully screened, on the basis of a background investigation, as being a person of high moral character and sound emotional temperament.

2. Incumbents: (a) Persons now acting as polygraph examiners may continue in that capacity, provided the head of the investigative agency concerned finds that they meet all of the following requirements:

(1) Have the education and experience set forth in subparagraph VIII-A-1(c) above, or 8 years of comprehensive investigative experience.

(2) Have been found to be of high moral character and sound emotional temperament, after completion of a satisfactory screening including a background investigation.

(3) Have been an authorized and practicing polygraph examiner for at least 6 months within the past 3 years, and are proficient in conducting such examinations.

B. Training.—

1. Training programs of polygraph examiners shall be determined by the Secretaries of the military departments consistent with the objectives and requirements of this directive. The Assistant Secretary of Defense (Manpower) will be kept currently advised of the content of such programs.

2. Training programs for DOD polygraph examiners shall be designed to assure that no person shall be designated as a qualified DOD polygraph examiner without having demonstrated an understanding of the following:

- (a) Investigative techniques;
- (b) Methods of interrogation;
- (c) The basic elements of psychology, normal, abnormal, and criminal;
- (d) Constitutional and other legal considerations;
- (e) Physiology;
- (f) The functioning of the polygraph including its usefulness and limitations;

(g) Regulations of the DOD concerning use of the polygraph;

(h) Training described in subparagraphs (c), (d), and (e), above, shall be conducted by appropriate professional medical and legal personnel.

3. Before being certified as a qualified DOD polygraph examiner by the head of the investigative organization of which the candidate is a part, each candidate shall serve an apprenticeship under a certified examiner. Such apprenticeship will be for a period of not less than 6 months following the basic training course, during which period of time the candidate shall be required to demonstrate proficiency in the use of the polygraph.

4. Appropriate provision will be made by the heads of the DOD components to assure that polygraph examiners obtain suitable refresher training.

C. Supervision of polygraph examiners.—

1. The conduct of each individual polygraph examination shall be carefully supervised pursuant to regulations issued by the head of the DOD component concerned.

2. Each examiner shall prepare a written record of each polygraph examination conducted, containing as a minimum the information shown in enclosure 1.

3. Appropriate supervisory officials shall review each record of a polygraph examination in the light of pertinent investigative information. On the basis of such review, the supervisory official shall determine whether it is appropriate to request the individual to undergo a repeat polygraph examination. Such a request should be made when it is considered desirable by the supervisory official, irrespective of whether the individual examined has made significant admissions in connection with the investigation, and irrespective of whether results of the polygraph examination disclose unusual

physiological responses. The results of repeat polygraph examinations shall also be reviewed by appropriate supervisory personnel.

4. Determinations with respect to further investigation of cases wherein a polygraph examination has been undertaken will not be made by the polygraph examiner but shall be determined by appropriate supervisory officials, in accordance with regulations of the DOD component concerned.

IX. Studies of polygraph

A. The provisions of sections V, VI, VII, and VIII of this directive shall not be applicable to the conduct of experimental polygraph examinations of volunteer subjects in the course of research performed under the auspices of a research element of a Department of Defense component. The obtaining of special measurements or other information for research purposes only during regular polygraph examinations may be authorized on a case-by-case basis with the prior written consent of the Assistant Secretary of Defense (Manpower). The use of DOD polygraph examiners is authorized for research programs.

B. The Assistant Secretary of Defense (Manpower) shall be kept fully and currently advised of all studies regarding the use of the polygraph proposed to be undertaken by any component of the Department of Defense and shall be provided with the following data:

1. Identity of agency or contractor selected to perform the work;
2. Qualifications of the agency or contractor;
3. Estimated cost of the work;
4. A description of the work and the purpose for undertaking the work;
5. Date work to be initiated and the date work to be completed.

C. The Assistant Secretary of Defense (Manpower) shall collect data to determine the effectiveness of the polygraph and issue such instructions regarding the use of the polygraph in the conduct of polygraph examinations, including the qualifications of polygraph examiners, as may be considered appropriate.

X. Exceptions

Individual exceptions to sections V and VI, above, may be made for cause by the Assistant Secretary of Defense (Administration) or the head of the DOD component concerned. Written notice of such exceptions, including the basis therefor, shall be sent promptly to the Assistant Secretary of Defense (Manpower).

XI. Effective date and implementation

A. This directive is effective immediately.

B. Two copies of proposed implementing documents shall be forwarded to the ASD(M) within 60 days for review prior to publication.

CYRUS VANCE,
Deputy Secretary of Defense.

[Sample]

RECORD OF POLYGRAPH EXAMINATION

File or reference No.: _____ Date of report: _____

Examinee:

Name: _____

Date of birth: _____ Place of birth: _____

Grade and serial number: _____

Organization (or other identifying data as appropriate): _____

Official authorizing examination:

Name: _____

Position or title: _____

Date and time of examination: _____

Duration of examination: _____

Place of examination: _____

Background data: _____

(This paragraph will state the purpose of the examination and a brief résumé of the case.)

The examination:

(This paragraph will give a brief description of the examination, and list the relevant questions asked during the examination and the examinee's response.)

Results of examination:

(This paragraph will include admissions made by the examinee, unusual physiological responses, or a statement that there were no unusual physiological responses, the degree of cooperation of the examinee during the test, and a statement as to whether all parts of the examination were completed.)

Signature of examiner: _____ Signature of reviewing officer: _____

Organization: _____ Position and organization: _____

EXHIBIT 49—MEMORANDUM RE CIVIL AND PRIVATE RIGHTS, NOVEMBER 26, 1962

NOVEMBER 26, 1962.

Memorandum for—

The Under Secretary of the Army.

The Under Secretary of the Navy.

The Under Secretary of the Air Force.

Subject: Civil and private rights.

In order to insure that inquiries and interrogations conducted in the course of security investigations and adjudicative proceedings do not violate lawful civil and private rights, or discourage lawful political activity in any of its forms, or intimidate free expression or thought, it is necessary that investigators and members of security review boards have a keen and well-developed awareness of and respect for the rights of the subjects of inquiries and of other persons from whom information is sought. Initially, this is a matter of proper indoctrination and training, and subsequently a matter of careful guidance and supervision. The civil and private rights of both the subjects of inquiries as well as of others to whom inquiries are addressed deserve equal concern and consideration on the part of Department of Defense personnel.

It is recognized that the military departments of necessity should learn a great deal about a person before a proper determination can be made with respect to entrusting him with classified defense information or placing him in an otherwise sensitive position. This applies to civilian employees of the Department, members of the Armed Forces, and employees of defense contractors. In making inquiries upon which security decisions are based, the Department of Defense usually enjoys the cooperation of all persons who reasonably may be expected to possess information bearing upon the reliability and trustworthiness of the subjects of such inquiries. This cooperation is based, we believe, in a large part upon the American public's understanding of the Government's purpose and interest in making the inquiries. Questions which are irrelevant or inconsistent with established testimonial privileges or constitutional considerations serve only to detract from the effectiveness of the security program of the Department of Defense.

Persons conducting security investigations and inquiries normally have broad latitude in performing these essential and vital functions. This places a high premium upon the exercise of good judgment and commonsense. While it is virtually impossible to establish elaborate rules which will provide satisfactory guidance in all circumstances, there are certain basic principles which have general application.

Care must be taken not to inject improper matters into security inquiries whether in the course of security investigations or other phases of security proceedings. For example, religious beliefs and affiliations or beliefs and opinions regarding racial matters, political beliefs and affiliations of a nonsubversive nature, opinions regarding the constitutionality of legislative policies, and affiliation with labor unions are not proper subjects for such inquiries.

Inquiries which have no relevance to a security determination should not be made. Questions regarding personal and domestic affairs, financial matters, and the status of physical health, fall in this category unless evidence clearly indicates a reasonable basis for believing there may be illegal or subversive activities, personal or moral irresponsibility, or mental or emotional instability involved. The probing of a person's thoughts or beliefs and questions about his conduct, which have no security implications, are unwarranted. Department of Defense representatives always should be prepared to explain the relevance of their inquiries upon request. Adverse inferences cannot properly be drawn from the refusal of a person to answer questions the relevance of which has not been established.

It is requested that your Department review its applicable regulations and instructions, and those portions of its training and refresher courses for investigators and adjudicators, which deal with civil rights and individual private rights, to determine the propriety of their content. We would appreciate receiving within 30 days a description of the steps your Department may have taken in this area. Inasmuch as it is contemplated that the attached list of prohibited questions may be incorporated in a DOD directive, your comments with respect to them would be appreciated. Any suggestions you may wish to offer along these general lines would be welcome.

WALTER T. SKALLERUP, Jr.,
Deputy Assistant Secretary of Defense, Security Policy.

TYPES OF QUESTIONS REGARDED AS IMPROPER OR IRRELEVANT IN SECURITY INVESTIGATIONS AND ADJUDICATIONS WHETHER DIRECTED TO THE SUBJECT OR ANOTHER INDIVIDUAL

A. Religious matters

1. Do you believe in God?
2. What is your religious preference or affiliation?
3. Are you anti-Semitic, anti-Catholic, or anti-Protestant?
4. Are you an atheist or an agnostic?
5. Do you believe in the doctrine of separation of church and state?

B. Racial matters

1. What are your views on racial matters such as desegregation of public schools, hotels, eating places, etc.?
2. Are you a member of NAACP or CORE?
3. Do you entertain members of other races in your home?
4. What are your views on racial intermarriage?
5. Do you believe one race is superior to another?

C. Personal and domestic matters

1. How much income tax do you pay?
2. What is the source and size of your income?
3. What is your net worth?
4. What contributions do you make to political, charitable, religious, or civic organizations?
5. Describe any physical ailments or diseases you may have.
6. Do you have any serious marital or domestic problems?
7. Are you or have you been a member of a trade union?
8. Is there anything in your past life that you would not want your wife to know?

D. Political matters

1. In political matters do you consider yourself to be a liberal or a conservative?
2. Are you registered to vote in primary elections?
3. Did you vote in the last National, State, or municipal election?
4. Are you a member of a political club or party?
5. Have you ever signed a political petition? Explain?
6. Do you write your Congressman or Senator about issues in which you are interested or to obtain assistance?
7. What are your views regarding the decisions of the U.S. Supreme Court? (I.e., the prayer in public schools, desegregation, and Communist Party cases.)
8. What are your views on the constitutionality of proposed or existing legislation?

EXHIBIT 50—REPORT ON ASSESSMENT OF LIE DETECTOR CAPABILITY BY
DR. JESSE ORLANSKY, INSTITUTE FOR DEFENSE ANALYSIS

MEMORANDUM FOR THE RECORD—PLANNING CONFERENCE BY INSTITUTE FOR DEFENSE
ANALYSIS ON TRUTH DEMONSTRATION TECHNIQUES, MINUTES OF MEETING HELD ON
JUNE 9, 1961, BY HERBERT POLLACK AND JESSE ORLANSKY, JULY 3, 1961

Planning Conference on Truth Demonstration Techniques

Minutes of meeting, June 9, 1961

The meeting was called to order at 9:30 a.m. by the chairman, Dr. Ralph Gerard, with the following participants in attendance:

Stephen Aldrich
Albert F. Ax
Lewis C. Bohn
Charles W. Bray
Leonard J. Duhl
John Ford
Ralph Hardin
Marshall Heyman

Joseph Kubis
John I. Lacey
David T. Lykken
Donald Michael
J. Mooney
Linwood Murray
Jay Orear
Jesse Orlansky

Kent K. Parrott
Herbert Pollack
Orr Reynolds
David Rhodes
John A. Talbot
Marion A. Wenger

The chairman said that the purpose of the meeting was to discuss the possible application of lie detection techniques as one means of inspection to enforce arms control agreements and also as a means of demonstrating the truthful intent of participants in negotiations. The meeting would be unclassified and only publicly available information would be discussed.

The following agenda was presented to the group:

1. Technical aspects:
 - Instrumentation.
 - Procedures.
 - Interpretation.
2. Political aspects:
 - Feasibility.
 - Appropriate channels.
 - Procedures.
3. Further steps.

The first topic to be discussed was instrumentation, of which the main purpose is the "objective" measurement of emotions. Up to some point, the interpretation of emotions improves as more variables are recorded and measured. The most useful variables are those which can be measured most accurately, such as the galvanic skin response, heart rate, pulse and blood pressure, etc., and which, of course, correlate highly with the emotional state of the subject. The interpretation of recordings with many variables requires sophisticated statistical procedures and the use of a computer. Attempts have been made to identify the most discriminating variables. There was some disagreement about the conclusion that one could identify specific emotions, such as anger or fear, by the pattern of automatic responses. It was felt that this type of identification is still a preliminary phase.

A distinction was made between "lie detection" and the "detection of guilty knowledge." The first assumes that lying involves a specific emotional arousal and that it can be detected by measuring autonomic responses. The second assumes that knowledge of guilty information is available only to the participants of a crime and therefore that a unique pattern of autonomic responses can exist only for those who possess guilty information. The use of the galvanic skin response alone has been sufficient to detect 100 percent of those who had guilty knowledge in an experiment involving students.

Much discussion was concerned with the relation between autonomic response and specific emotional states. The autonomic responses upon which lie detection depends would be influenced markedly by the context of particular words and the word habits of the individual. In one study, words with low response uncertainties gave low GSR responses, whereas words with high response uncertainties gave high GSR responses. An individual with multiple responses available to a given word tended to give GSR reactions of a highly emotional type.

The discussion continued on the techniques of how different liars lied, and on the patterning of the autonomic variables. Although there may not be a typical pattern of autonomic responses indicative of lying in general, nevertheless each individual may exhibit a consistent pattern of responses whenever he lies. From this came the concept that it might be possible to establish a man's normal responses as a basis for judging whenever he lies; this was called "titrating the man."

An individual's social role, such as chief of state, may create a situation in which it is his duty to lie and, as such, lead him not to exhibit any emotional response connected with lying. In dealing with a chief of state, the general conclusion was that subjective inference of intent would probably override any "objective" evidence collected by polygraph methods. The evaluation of false negative and false positive responses would have to be taken into account.

Countermeasures to the use of lie detection techniques were also discussed. The existence of many false positive reactions would undermine the lie detection technique. Several possible countermeasures were considered:

(a) The "Hindu" system of going into a trance may make the person oblivious to stimuli.

(b) The deliberate use of muscular tension can introduce irrelevant responses into the recording techniques.

(c) The development of an exciting image within the subject's own imagination could confuse the recording to a very large extent.

Thus, there are many ways of contaminating the responses and of increasing the difficulty of interpretation. However, the use of such countermeasures could be detected and thus the operator would be alerted to take corrective measures. The validity of the polygraph recordings depends upon the operator's ability to identify such sources of error and on the suspect's ability to induce spurious reactions which would not be noticed. The role of drugs in stripping an individual of his resistance and of altering his responsiveness was discussed very briefly. It was concluded that the use of drugs is merely an adjunct to the interrogation and measurement process. Though it may have some value, great care must be used in interpreting the results.

The discussion then moved over to political aspects in the use of lie detection techniques. Final proof of an attempt to circumvent an arms control agreement would require physical evidence. Hence, even lie detection techniques of low reliability may be acceptable if they are used to indicate a reason to search. There was a short discussion on the influence of anxiety on the individual's selected at random to represent a typical sample of scientists or political figures by methods similar to those used in questionnaire or public opinion surveys. It was considered possible that the Communists might limit the knowledge of nuclear tests to platoons or cells, as the Communist countries call them, as a means of evading nonphysical detection techniques. Clearly, an individual would not react to a lie detection technique if he did not have any guilty knowledge.

Three questions were asked but not answered in the discussion: Is the technique scientifically valid? Is it socially acceptable? Is it politically acceptable? There was a short discussion on the influence of anxiety on the individual's autonomic responsiveness, on the stabilization of the cardiovascular and vasomotor response with different age groups, and of their effects on this type of recording.

The guilty knowledge technique rests on the assumption that a guilty person will show some involuntary physiological responses to stimuli related to remembered details of his crime. If the crime is such that the investigator can discover a number of factual details with which only the guilty person should be familiar, then the guilty knowledge method can be used. The guilty knowledge items are interspersed with other similar but irrelevant items in a stimulus list. In a test ban agreement, the examiner could use a preliminary interview method to establish the details for which he would be looking in a guilty knowledge test and thereby help him search for knowledge of new weapons, with unknown characteristics, not included in a test ban agreement.

The final part of the session was concerned with future planning. The group developed the following research concepts, listed without regard to order of importance.

1. Lie detection instrumentation and techniques should be reevaluated under real field conditions.

2. Multiple variables must be chosen very carefully and only the most critical ones should be used. These were considered to be changes in respiration, muscle tension, skin resistance, cardiovascular and vasomotor reactions, and eye motion.

3. Research should be undertaken to examine the influence of a person's social and political role upon his autonomic responses.

4. Attention should be paid to the use of corneal reflections to measure the direction in which the eye is looking, as pointed out by R. C. Davis in 1958.

5. Electroencephalograms may possibly be used if sufficient research is done to understand the meaning of the phase changes.

6. Improved techniques for automatic data recording and processing are important in the evaluation of multiple recordings.

7. Equipment should be miniaturized in order to make it more portable and reliable.

8. Work should be conducted on "bugs" in a lie detection system, such as false positives and false negatives.

9. The cost-effectiveness of nonphysical and physical inspection concepts should be compared with the knowledge that they may be complementary rather than redundant.

10. Evaluation of the social acceptability of lie detection techniques is most desirable, both in our own, as well as in foreign cultures. When dealing with people from other cultures, other variables are introduced beside the subject and interrogator. These are the interpreter, the semantic differential associated with words used in the interview and the unknown social sensitivity of the individual to the test procedure. All of this must be studied if we wish to use lie detection in other cultures.

11. While it would be desirable to develop a technique which automatically gives evidence of a lie, it is conceivable that pattern reading would also be acceptable.

12. It was considered desirable to study collective or group lying.

13. Reliability checks are desirable for comparing the performance of several interrogators on the same subject or test material.

14. Further work must be done to determine the actual existence of pathological liars, and to evaluate the extent to which test records can be contaminated by such people.

15. What means, such as drugs, hypnosis, special equipment or special psychological procedures can be used deliberately to introduce spurious effects into test records.

16. A study should be made, perhaps using public opinion techniques to examine how people in the street would react to questions concerning their possible knowledge of secret work on arms development or on weapons testing. This is in recognition of the fact that the technical questions involved are only one phase of a major sociological and political problems.

17. Further work is required to study by physiological or other means whether it is possible to detect an intention to act in the future.

There was some discussion about the possibility of creating an international research group, including the United States, U.S.R.R., and other countries to explore and improve these techniques for mutual interest.

The meeting ended with the affirmation that lie detection techniques had sufficient merit to warrant their consideration as part of an inspection scheme for an arms control agreement and, possibly, for application as a truth demonstration device in political negotiations.

MEMORANDUM TO THE IDA FILE ON LIE DETECTION—MINUTES OF A MEETING,
AUGUST 9, 1961

Topic:

Research to improve the objective measurement of autonomic responses for use in lie detection, July 20 and 21, 1961.

Institute for Defense Analyses, Research and Engineering Support Division, Washington, D.C.

Attendees:

Albert F. Ax.

Lewis Bohn (July 20).

Chester Darrow.

Ralph Gerard, Chairman (July 20).

John I. Lacey.

David C. Lykken.

Martin T. Orne.

Jesse Orlansky (Chairman on July 21).

Herbert Pollack.

MINUTES

Since the last meeting it was planned to have four small meetings dealing respectively with the problem of inspection, the instrumentation of lie detection, the interview aspects of lie detection, and the diplomatic and political uses of lie detection. Further, the use of this technique in various agencies will be examined. The meeting on inspection took place on July 19, 1961, and led to the conviction that behavioral inspection (nonphysical inspection) offers a number of major advantages and does not have the serious deficiencies of the physical testing methods and that therefore it is definitely worthwhile to explore further on the state and improbability of the art.

Various autonomic responses may be used as measures of emotional state for the purpose of lie detection. There is some basis for dividing autonomic responses into those associated with attention which would be primarily cortical and might involve such responses as the GSR, and into those associated with guilty knowledge, which are primarily subcortical and might involve such responses as blood pressure. This dichotomy is by no means sharp and there is evidence that a fallen heart rate might be the most sensitive indicator of attention changes. Further, defense in the sense of social guilt is not entirely the same as defense at the physiological level of injury. Another dichotomy is suggested in terms of the instrumental situation: those which are analog or voltage measurements, and those which are time measurements. Since time measurements are easy and precise, and since it is possible to convert voltage measurements into time ones, this may be an important methodological consideration. In general, responses which are close to the basic physiological changes, which are relatively rapid, and which do not adapt out rapidly in repeated testing, would be relatively preferred; blood flow is a good indicator for these reasons.

A final dichotomy is in terms of responses which could be used on large scale field testing with great numbers of subjects, and those which would be practicable only under more limited use with very special subjects and better working conditions.

The following autonomic responses were considered especially useful:

Blood pressure: This may be feasible only under limited conditions.

Breathing rate and pattern.

GSR, especially palmar sweating.

Pulse volume, pulse rate, or pressure, depending upon the instrumental choice (photoelectric, impedance, and pressure transducers).

Velocity of pulse wave.

Systolic and diastolic blood pressure (may be available only under limited conditions).

Frontalis muscle tension and muscle potential peaks (probably only under limited conditions, unless converted from voltage into time measures).

Finger tremor (limited conditions).

Gastrointestinal reactions, using a telemeter capsule (this would need investigation).

Ocular movements (especially for observing whether attention is directed to one position or another on a map, but also in many other general situations).

EEG (especially phase differences, using a minimal five lead cap).

Reaction time (especially latency of verbal and autonomic responses to a given verbal stimulus).

Ballistocardiograph (or the ankle accelerometer).

Blood oxygen concentration (ear oximeter).

In all these there is, besides the immediate response value, the possibility of long-range shifts in baselines associated with a progressive shift in emotional state, such as the anxiety level. Some of the measures might be especially useful in this latter case.

Research should be undertaken in two directions. The first would involve laboratory testing of multisensor, multichannel systems to discover what valuable information could be obtained from patterns and combinations of autonomic responses. This involves data digitalization and the use of computers for data processing. The second involves field trials with a limited, well-established group of measurements, such as GSR, pulse, respiration pattern and rate, and relative blood pressure. This should also be done to test automatic data processing as far as possible. The field tests might involve actual work with police groups and an established criminal population, with student populations under

the stress of examinations, with any group willing to accept severe punishment for being caught and a considerable monetary reward for participating, a "genuine" test such as hiding an ICBM and interrogating the groups that might have done it, and the like.

The kinds of tests should include straight lie detection, guilty knowledge detection, and zeroing in on a location or some other attribute beyond the knowledge of the interrogator. There is disagreement as to whether these methods involve different psychological processes or whether different physiological responses occur, or whether the difference is a matter of degree of attention and emotional involvement; but there is no disagreement that there would be a methodological difference both in the measurements and the interrogation procedure, depending on what one was after.

Telemetering with sensors on the body is now quite practicable. Some measurements could be made without any body attachments, such as skin temperature, respiration patterns and rate, eye movements, and possibly pulse rate by measuring the ballistic action of the body.

An additional measure suggested after the first list is the Luria technique which involves squeezing a bulb with one hand while maintaining the other steady. This seems to measure general level of emotionality or anxiety. Further, for field work, the data should be recorded on magnetic or paper tape and the question arose as to whether the interrogator should or should not have the responses of the subject before him. For many purposes, a pretaped interrogation could be used, for others not.

The questions of kinds of situations to use in examining the polygraph technique was discussed at length, especially the transfer from the artificial lie situation of the laboratory to real life. While it was agreed that the differences which seemed to be of kind might actually be only of degree (involving response curves of different slope) nonetheless various measures are better indicators in one case than in another. The questions of experimental design, of field testing and of laboratory testing, therefore, need special scrutiny.

On the question of titrating or calibrating the individual, despite considerable detailed disagreement, there was a general consensus that certain initial test examinations would be valuable. For one thing, one could measure general reactivity and perhaps exclude certain individuals as unsatisfactory for the detailed examination. For another, one can get an idea of the general reactivity of different indicators for a particular individual. This may help the judgment as to the validity of the subsequent examination without necessarily indicating what the results of the examination would be. There was also some disagreement on the use of different stressors, different modes of stressing, the use of different methods of interrogation for lying, the validity of transferring from artificial to real life responses and the like. Some of the specific stressors that have been considered are various drugs, cold, pain, sensory isolation, and different sorts of interview situations. Drugs, pain, or sensory deprivation might also be used as sensitizers to potentiate or magnify autonomic responses to the test situations. Here is clearly one area of research.

The multiphasic personality inventory or other paper and pencil tests might also be used to calibrate the individual. Although these could easily be "faked," the mere relation of responses on these to the polygraph findings would give evidence of the use of countermeasures. The point was reemphasized that some of these preliminary tests might be highly important in indicating the degree of validity of the actual tests from individual to individual.

There was general agreement that test stimuli and judgments should be as objective as possible. Photographs or movies could be used as a stimulus situation while moving pictures of the subject could be used as an indicator of the response. It is a matter for research as to whether the polygraph response to the possession of guilty knowledge will be alike or different to that of lying, depending upon the mood and other conditions under which the subject is tested. For example, will a man who is telling a lie to benefit himself react the same way when he is telling a lie as a patriotic duty to his country?

The use of corneal reflections, retinal potential measurements, or the Macworth camera was discussed to tell what a person is looking at and how important it is to him.

There seems to be less concern with false negatives than with false positives. False negatives are relatively unimportant when a considerable number of persons who might be presumed to have guilty knowledge are examined. False positives are regarded as more dangerous and reprehensible in the courts. There

seems a reasonable chance that false positives could be rendered very rare by such techniques as: the use of multiple measurements, modifying the responsiveness of the subject with drugs (excitatory or depressed), repetition of tests, further exploration in detail of dubious responses, and the like. False negatives involve physiological lowering of activity (this might be overcome by drugs or prestressing); cultural unreactivity (this could be tested by investigating enough individuals of different cultures); or habitual lying (which could be tested by deliberate training studies, by working with trained individuals, and perhaps by selecting extreme personality types). Hypnotic and posthypnotic examination might be helpful in getting at this.

There was a discussion of amnesia, pathological lying, hypnotic amnesia, and the like. Possibly one could detect knowledge of which a person was unaware (or as to the source of which he was unaware) by the guilty knowledge procedures, even if not by straight lie detection. Research in this area is certainly possible, not only on "diplomats" but on "con-men" and "Madison Avenue" types.

On countermeasures and evasion, it is possible to recognize induced unreactivity (auto suggestion) as well as overactivity. Either of these may be detected because of abnormality in the overall record. Another type of evasion in which, as a result of specific training or conditioning, the individual is able to suppress knowledge of particular guilt areas might be a much more difficult problem. This is a matter for strength. One should distinguish between the possibility of knowing one is lying and still not giving an autonomic response from the possibility of actual suppression of lying associated with no autonomic response.

In connection with cultural and role effects, it is recognized that not only attitudes toward lying must be examined and allowed for, but also the meanings of words, the cultural usages, gestures, and the whole communication matrix. This may involve the need of linguistic experts.

Discussion of the detection of intentions went in two directions. On the one hand, it should be possible to ask questions in such a way that past events which would necessarily precede preparation for future acts are examined. On the other hand, the question arose as to whether intents are in a sense more pallid and, therefore, less likely to exhibit polygraphic responses than actually executed acts. This may be the case but it may even be the reverse, because the responses may be a measure not directly of intensity of emotion but of the range of available responses to a given individual and situation. For example, one can be more excited about a discussion of who one will vote for than who one did vote for.

Lie detection techniques may be applied to the following situations, each of which may possess some unique characteristics:

Guilt screening by police.

Arms control:

On a population sample.

On elite figures, e.g., politicians, scientists, industrialists.

On top leaders.

Security screening and rescreening.

Diplomacy.

Business credit and pilfering investigations.

Legal applications.

Psychophysiological research.

Research on the following topics was considered desirable:

1. Replicate R. C. Davis' study on repeated trials with the GSR; he found greater success on second trials whereas the opposite is found in police work.
2. Develop a taxonomy and theory of lying; significant parameters probably include degree of perceived threat to the individual, the degree of guilt (or shame) and the relation of the lying response to group identity.
3. Experiments on lying, trying to generalize from one situation to another; e.g., try deliberately to "beat" the lie detection machine; try (by lying) to convince another person in the experiment that one is telling the truth.
4. Experiment on the guilty knowledge technique; e.g., manipulate the extent to which the experimenter has complete knowledge of the guilty information; and the extent to which the "guilty" group has complete or partial guilty data.

5. Group experiments on lying; e.g., poker and bridge, an individual lying alone or in the service of a group; perhaps the autokinetic effect experiment can be adapted to such use.

6. Experiments on "training" the autonomic response; either to respond or to inhibit at will, in role-playing situations, with and without a feedback of polygraph data to the subject.

7. Experiments on the effect of repetition on autonomic response.

8. Experiments on the possible value of hypnosis and drugs to reduce the anxiety of subjects.

The following brief summary was made at the end of the meeting:

1. Increase the number of autonomic responses measured in studies of guilty knowledge and lie detection, coupled with computer data processing, as appropriate.

2. Study the effect of situational variables and of information feedback on autonomic responses.

3. Extend multiple recordings in police work to include skin temperature, plethysmograph and reliable GSR and blood pressure measures.

4. Examine the effect of drugs and hypnosis on autonomic responses.

5. Examine the extent to which differences exist between subjects, with persistent stereotyping of responses for individuals.

6. Field trials are most desirable, including measures of the lie detection ability of professional practitioners.

LIST OF ATTENDEES

- Dr. Albert F. Ax, director, Psychophysiology Laboratory, Lafayette Clinic, 951 East Lafayette, Detroit, Mich.
 Dr. Lewis C. Bohn, Lockheed Electric Co., Systems Research Center, 78 Ocean Way, Santa Monica, Calif.
 Dr. Chester Darrow, Institute for Juvenile Research, University of Illinois, Chicago, Ill.
 Dr. Ralph Gerard, Mental Health Research Institute, University of Michigan, Ann Arbor, Mich.
 Dr. John I. Lacey, Department of Psychophysiology-Neurophysiology, Fels Research Institute, Yellow Springs, Ohio.
 Dr. David C. Lykken, Department of Psychiatry and Neurology, the Medical School, University of Minnesota, Minneapolis, Minn.
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 Dr. Jesse Orlansky, Institute for Defense Analyses, 1825 Connecticut Avenue NW., Washington, D.C.
 Dr. Herbert Pollack, Institute for Defense Analyses, 1825 Connecticut Avenue NW., Washington, D.C.

TECHNICAL REPORT NO. 62-16—AN ASSESSMENT OF THE LIE DETECTION CAPABILITY,
 BY DR. JESSE ORLANSKY, JULY 31, 1962

Institute for Defense Analyses, Research and Engineering Support Division (IDA)

[Declassified May 13, 1964]

(Portions of this report have been deleted, for purposes of national defense, by the Director of Defense Research and Engineering, Department of Defense. Asterisks (three stars) indicate that less than a paragraph has been deleted and a line of seven stars indicates deletion of a paragraph or more.)

ACKNOWLEDGEMENT

The author wishes to thank many individuals who assisted this study by providing information and by reviewing a preliminary draft. This assistance is acknowledged gratefully but the author alone is accountable for the views expressed in this report. Dr. Joseph E. Barmack of the Institute for Defense Analyses is due a special thanks for his help in preparing the final report.

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SUMMARY

This report evaluates the effectiveness of the polygraph method of lie detection. In this technique, the physiological responses of a person being interrogated are observed to provide a basis for inferring whether or not an attempt has been made to deceive the interrogator. The major finding is that, although the method of lie detection has been used extensively and is regarded favorably by its practitioners, the degree of its validity is still not known. This situation is the result of a failure to collect objective data necessary to assess the effectiveness of this method of interrogation. The report describes the methodological problems which must be faced in order to collect meaningful data, recommends research which should be undertaken to increase our understanding of this technology and makes suggestions for improving professional standards in this area.

CONCLUSIONS

1. Objective data to demonstrate the degree of effectiveness of the polygraph as an instrument for the detection of deception has not been compiled by the agencies that use it in the Department of Defense. This is true despite the fact that about 200,000 such examinations have been performed over the last 10 years. Up to the present time it has proved impossible to uncover statistically accept-

able performance data to support the view held by polygraph examiners that lie detection is an effective procedure.

2. There can be no doubt that the measurement of physiological responses in the context of a structured interview provides a basis for the detection of deception by objective means. Extensive research by physiologists and psychiatrists shows that humans exhibit many physiological responses in stressful situations; however, such research was not performed to explore its relevance to lie detection. Thus, we do not know at present the increment in effectiveness which the polygraph brings over an interrogation without a polygraph.

3. There is a lack of professional standards for the regulation of lie detection activities throughout the Department of Defense.

4. Many aspects of the technology of lie detection are inadequately developed. Areas which require study are the reliability and validity of lie detection in laboratory and real life situations, the incremental value of new physiological indicators, improvement of the interview procedure, application of automatic data processing to polygraph records, and examination of the possibility that individuals exhibit unique patterns of autonomic response. Recent developments in medical electronics provide more reliable and convenient sensors than those now used in lie detection. * * * The research problems in lie detection are straightforward and there is every reason to believe that a research program would achieve its objectives.

5. There is evidence that training, possibly supported by drugs and hypnosis, can be used to introduce spurious effects into test records. The extent to which such methods could succeed or an examiner could counteract them is unknown.

6. Improvements in the art of lie detection would be useful not only for its present applications to security and criminal interrogations, but for screening foreign personnel and as one means of inspection in an arms control agreement.

RECOMMENDATIONS

1. Establish a program for research and development in the technology of lie detection: This program should include studies on the validity of lie detection, improvement of interview procedures, the development of improved sensors, the effectiveness of adding new physiological indicators to the polygraph and automatic data processing of test records. There is a need to study measures that could be taken to avoid detection on the polygraph and, if they are shown to be effective, to develop suitable countermeasures. The program should also include studies on the effect of cultural and political influences on the value of lie detection, if it were considered as one means of inspection in an arms control agreement.

2. Establish a program to develop professional standards for polygraph interrogation throughout the Department of Defense: This program should consider selection, training, and certification of examiners; methods of supervision; methods of maintaining competence; recordkeeping and performance evaluation; and relation of operating personnel to research and development activities in this area.

AN ASSESSMENT OF LIE DETECTION CAPABILITY

1. PURPOSE OF THIS REPORT

The purpose of this report is to evaluate our ability to detect deception by the objective measurement of physiological responses, a procedure known as lie detection. The Department of Defense and other Government agencies employ lie detection procedures in certain aspects of their programs and in criminal investigations. Recently, lie detection procedures have been proposed as one means of verifying compliance with the terms of an arms control agreement. Since great reliance has been placed on this method of interrogation, an assessment is in order to determine whether any improvement in the technology of lie detection is required at the present time.

2. INTRODUCTION

It has been long known that the emotional states of human beings are accompanied by observable physiological responses, such as changes in heart rate, breathing, and skin temperature. These physiological mechanisms are largely under the control of the autonomic nervous system although, to a lesser extent, some of them are also under the person's voluntary control by direct or indirect means. The inner psychological state of one person is not directly observable by another but it is possible that the pattern of physiological responses to neutral

and to probing questions could permit a useful degree of discrimination between deceptive and truthful responses.

It is undoubtedly true that the measurement of physiological responses can be used to indicate the presence of subtle emotional states in many and perhaps in most people. What is not as well known is the accuracy with which such objective measures can indicate that an individual is attempting deception. This problem exists because a person being interrogated may be upset but not guilty. He could be upset, for example, by the interrogation procedure itself or by the aggressive manner of the interrogation. He could be embarrassed by the exposure of personal information not related to the purpose of the interrogation. The problem becomes one not of determining whether the person is responding emotionally but *why* he is responding emotionally.

The history, as well as the theory, method, and legal aspects of lie detection have been described elsewhere (Inbau and Reid (1953),¹ Trovillo (1939), Marston (1938), Lee (1953), Larson (1932)) and will not be summarized here except to assist the reader.

The basic method of lie detection and its associated equipment have been in use for about 50 years and much has been written about it. Nevertheless, few data are available at the present time concerning the effectiveness of lie detection. The existing data are not easy to interpret. This is due principally to the fact that lie detection equipment operators, primarily in police, civil, and military security organizations, have not collected objective information concerning their methods and their results and probably do not appreciate the importance of doing so. On the other hand, few scientists have shown any interest in performing research on lie detection and, therefore, little has been done to clarify the problem. The inference that our knowledge about the effectiveness of lie detection is inadequate probably will be challenged by most polygraph examiners. The simple fact is that the data necessary to verify the results are not available. The use of lie detection methods has increased greatly over the last 10 years and perhaps this situation is now ready for improvement.

At one time it was believed that lie detection equipment provided direct evidence of lying. This claim is no longer made explicitly though the equipment is still referred to as "the lie box." Now, it is recognized that the equipment measures physiological responses, while it is the operator who infers deception from the physiological and other data. It has become known that fear of detection of deception is not the only emotion that may be encountered during an interrogation since other emotions, such as resentment or anger, can also be present. The individual being interviewed may be embarrassed or feel guilty because of personal experiences not related to the subject of the interrogation. The presence of such emotions could contaminate an inference about attempted deception. The polygraph examiner attempts to identify a pattern of emotional responses which recurs only with a specific category of questions and it is precisely the accuracy with which this function can be performed which has not been objectively determined.

Lie detection equipment can be regarded only as an adjunct to, and not the sole means of, conducting an interrogation. Apart from the equipment, many other factors affect the outcome, such as the method of interview, expertness, and detachments of the examiner, and the accuracy of background information used for comparison with the interview results. Each affects the accuracy of an inference as to whether or not the polygraph record indicates deception. Such matters will be examined in this report.

A. METHOD OF STUDY

For the purpose of this study, visits were made to many organizations which employ the polygraph to discuss the procedures and to examine evidence for the effectiveness of this method. Both Government and non-Government agencies were visited. The Government organizations visited were those concerned with security operations, criminal investigations, research and development—all related to lie detection. Several all-day conferences were held with polygraph examiners and research scientists. The subjects of these companies were: (1) Research to improve lie detection * * *. There is a large literature pertinent to lie detection and this was examined extensively.

B. OPINIONS ABOUT LIE DETECTION

Virtually all polygraph examiners believe that lie detection procedures are highly successful, an opinion which has the benefit of substantial repetition.

¹ A complete bibliography appears at the end of the report.

Favorable testimonials may be found in seminars held by the Academy for Scientific Interrogation (Leonard 1957, 1958) and throughout the *Journal of Criminal Law, Criminology and Police Science*. Alva Johnston (1944) wrote an entertaining series of articles on "The Magic Lie Detector" for *The Saturday Evening Post* about the work of an early exponent of lie detection, Leonarde Keeler, who is highly regarded by other polygraph examiners.

The polygraph also has detractors, three of whom may be briefly mentioned. Senator Wayne Morse (1952) regarded with disfavor the use of the lie detector in testing job applicants for the Defense Department because some interviews probing for homosexual tendencies appeared to be salacious in nature. Dwight MacDonald (1954) wrote two critical articles in *The Reporter* (a magazine) which emphasized the point that unethical practices in lie detection could constitute an abuse to civil liberties. Burack (1955) is concerned with the lack of professional standards in polygraph work and the lack of reliable data on the accuracy of the method.

There have been several surveys of opinions about the accuracy and value of lie detection tests. Cureton (1953) reports a poll of 88 psychologists conducted in 1926 by Dean C. T. McCormick of the University of North Carolina Law School. Replies were received from 43 percent of those who were polled; about half of these believed that lie detection tests furnished results of sufficient accuracy to warrant consideration by judges and jurors; about one-third indicated lack of belief.

In 1941, Dael Wolfle prepared a memorandum for the National Research Council on the use of lie detection equipment by the Federal Government. The memorandum is based on a survey of published literature, correspondence, and discussions with six expert polygraph examiners, nine research psychologists with some (but less extensive) experience in crime detection, and on observation of the work of the Chicago Police Laboratory and of some private laboratories. Thirteen of the 15 men (87 percent) felt that lie detection equipment in the hands of highly trained and experienced examiners provides accurate results where real criminal behavior is involved. Wolfle concludes that "with highly competent and well-trained operators a record of approximately 80 percent correct can be predicted."

In connection with a symposium on lie detection at the University of Tennessee College of Law, Cureton (1953) sent questionnaires to all groups and individuals known or believed to have some competence with polygraph procedures; i.e., polygraph examiners, psychologists, and criminologists. Analyses reported in the study are based on 711 completed questionnaires; i.e., 42 percent of 1,682 which were sent out. The data are shown in table 1. The belief that the polygraph is a highly valid device for recording physiological reactions may be found in decreasing order of agreement among polygraph examiners, polygraph examiners who are also psychologists, and psychologists who have observed polygraph tests. No appreciable portion of any group considers the polygraph invalid or useless when in competent hands. Psychologists who are not familiar with the device have a lower esteem for it than do those who are familiar with it.

TABLE 1.—*Opinions of polygraph examiners and psychologists as to the validity of polygraph procedures*

This table shows the replies of 711 persons. Numbers in parentheses indicate the size of each group; the total exceeds 711 because of some overlap.

Opinion	Percent of group holding opinion			
	Polygraph examiners (199)	Psychologists who have conducted polygraph tests in class or who have observed tests on suspects (230)	Polygraph examiners who are also psychologists (35)	Others (289)
The polygraph is highly valid for recording physiological reactions.....	83	63	63	15
Recommend court testimony on polygraph tests by competent examiners.....	47	51	60	42
Recommend periodic examination of certain personnel in business and industry.....	83	28	51	17

C. APPLICATION OF THE POLYGRAPH

Many agencies of the Federal Government employ the polygraph method of lie detection in the security program and in criminal investigations, as follows:

(1) Preemployment screening in sensitive agencies: To judge the accuracy of information provided by an applicant on a personal-history questionnaire (i.e., attempted deception). In one agency, the polygraph test is administered before a background investigation is undertaken while in another agency only after the investigation has been completed. Critical areas where a truthful reply is sought include membership in Communist organizations, association with Communists, relatives living in Communist countries, conviction of a felony, history of emotional instability and homosexual activities.

(2) Prior to assignment to sensitive activities: Some organizations use lie detection prior to special assignments even though a person may have been cleared previously.

(3) Periodic security review: Periodic rescreening of all members of certain organizations for recent evidence of homosexual activities, security violations, etc.; and to verify the reports and activities of individuals who have returned from special overseas assignments which may have brought them into contact with enemy agents.

(4) Screening refugees or foreign agents: To evaluate the personal reliability of foreigners when a thorough background investigation is not possible; though preferably conducted in the foreigner's language, such tests are sometimes conducted through an interpreter.

(5) Criminal interrogation: To provide independent verification of information collected by other means in criminal investigations. In the military service, this applies to thefts of personal or Government property, arson, murder, willful destruction or sabotage of Government property, and, of course, serious violations of the security regulations.

Many police departments employ lie detection equipment in support of criminal investigations; the examiner may be a police officer or a private examiner hired for the purpose. Some commercial organizations and private examiners offer lie detection services on a fee basis to banks, supermarkets, department stores, and industrial organizations. The purpose of such services is to encourage honesty in filling out preemployment questionnaires and in the handling of money or expensive merchandise.

On an experimental basis, two of the three indicators used in lie detection equipment (galvanic skin response and respiration) have been employed to measure the level of interest in advertisements and in TV programs. The responses of a group of individuals have been measured simultaneously for such purposes (Backster, private communication, 1959, 1962). This work has not been reported publicly and its value (if any) is not known.

Many physiological responses, including those used in lie detection instruments, have been studied in research on emotions, drug effects, learning, bioastronautics, environmental contamination, hospital surgery, fatigue, personality, and psychotherapy. The purpose of these researches was not lie detection though some of the results can be applied to this field and will be reported below.

D. LEGAL STATUS

Some lawyers have been attracted by the possibility that lie detection could provide a powerful assistance to the ever difficult business of assessing the validity of testimony. This type of application has both proponents and opponents (Wicker (1953), McCormick (1926), Summers (1939), Burack (1958)).

At present, information collected "solely" by means of lie detection tests cannot be entered as evidence either in a civil procedure (Inbau and Reid, 1953, pp. 122-141) or a court-martial (Everett, 1955). The major reason cited by the courts is that lie detection does not have sufficient "scientific recognition among physiological and psychological authorities" to warrant the admission of testimony (*Frye v. U.S.*, 1923; *Henderson v. State*, 1951). The word "solely" is important because confessions otherwise obtained properly are not rendered inadmissible by the fact that a polygraph was used during the interrogation (Wicker, 1953). A polygraph examiner can be permitted to testify as to a confession received during the course of an examination even though the charts themselves are not admissible.

There are two exceptions to the general statement of inadmissibility:

(1) Judges in trial courts have admitted polygraph results when both parties in a trial agree to take such a test, agree on the examiner, and with their attorneys, sign a stipulation agreeing in advance to the admission of the examiner's testimony on the same basis as other expert testimony.

(2) Some trial courts have admitted test results as evidence but whenever appeal has been made to higher courts, the latter have held that the test results are not admissible. Wicker (1953) cites 16 such cases.

A person cannot be forced to take a polygraph examination against his will and, in any case, it is doubtful that an effective examination could be accomplished on an uncooperative person. Adequate precedents have established that measurement of physiological processes and biochemical analysis of blood and urine for alcohol are not *per se* self-incriminating. However, since a person cannot be forced to testify against himself, neither can he be coerced into providing samples against his will. Thus, it is possible that the results of lie detection tests to which one has submitted voluntarily can, when and if there is greater agreement as to their validity, be introduced as evidence in legal proceedings.

The New York State Bar Association has sponsored legislation which would permit a court to order any party or witness to submit to lie detector tests and permit the results of such tests to be received in evidence on an issue of deception (Chatham, 1951). Polygraph examiners in New York, Illinois, California and the District of Columbia have supported legislation to establish licenses and standards for civil practice. Some labor unions have sponsored legislation to ban the use of the polygraph as a condition of employment. No attempt at legislation or licensing in behalf of the polygraph has yet been successful. In Boston, an act bans the use of the polygraph as a condition of employment.

Before proceeding with an examination, it is customary for the polygraph examiner to receive a signed and witnessed statement that the person who takes a test does so on his own free will. The agreement form reduces the opportunity of a disgruntled subject to claim that he had been coerced to submit to a polygraph test. The basis for this in military law is Article 31 of the Uniform Code of Military Justice which directs that no person subject to the Code shall interrogate or request any statement from an accused or a person suspected of an offense without telling him the nature of the accusation and that any statement made by him may be used as evidence against him in a trial by court-martial (Everitt, 1955). Thus, a person accused by the military has the right, as do those in civil life, to refuse a polygraph test. In one activity, the person to be tested executes a waiver which is usually witnessed by the polygraph examiner alone; in other activities, two witnesses and the examiner must sign before the examiner is authorized to proceed.

3. LIE DETECTION EQUIPMENT

Current lie detection equipment measures simultaneously three physiological responses:

	Device	Method of sensing
Physiological response:		
Breathing pattern.....	Pneumograph.....	Corrugated rubber tube around chest.
Blood pressure and pulse.....	Cardio-sphygmomanometer....	Pneumatic pressure cuff around upper arm (or around wrist and forearm to minimize discomfort).
Skin resistance to external current.	Psycho-galvanometer.....	Finger or palmar surface electrodes.

The phrases "skin conductance," "electrodermal skin response," "psychogalvanic response," and "galvanic skin response" are used interchangeably to refer to the same phenomenon. In this paper, we will use only the phrase "galvanic skin response" and the letters "GSR."

Recent developments in medical electronics have made it possible to measure the breathing pattern, blood pressure, and pulse with electrical devices that are more accurate than the pneumatic ones which are in current use. It is also possible to interpret physiological responses by the use of automatic data processing equipment. The application of such procedures to lie detection is just beginning to be explored.

Four companies produce virtually all the equipment used by professional lie detection examiners:

Associated Research, Inc., Chicago, Ill.: Keeler Polygraph.

C. H. Stoelting Co., Chicago, Ill.: Deceptograph.

Lafayette Instrument Co., Lafayette, Ind.: Polygraph.

Lee & Sons, San Rafael, Calif.: Berkeley Psychograph.

These devices cost from about \$600 to \$2,000 depending on the model and associated equipment. Though each device has its partisans, there is little to choose between them. Other equipments also exist but they are not in general use:

Darrow Photo-polygraph (Stoelting).

Higley Reactograph.

Electronic Psychometer (B & S Associates).

Cardio-pneumo-polygraph (Stoelting).

Electronic Lie Detector (Thompson Metriograph Labs).

Chatham Polygraph (Associated Research).

Pathometer (Fordham University).

The term "polygraph" refers, most precisely, to the multiple-pen subsystem which records the instrumental responses on a roll of paper; through usage, it has come to represent the entire lie detection equipment. Frequently, an extra pen is used to mark the times during the interview at which questions were put to the person being examined. A time marker is not required because the recording paper contains time marks and is run at a constant speed of 6 inches per minute. More than three physiological responses may, of course, also be recorded on a polygraph but this is not typical in routine lie detection. One examiner employs two pneumograph tubes, one on the upper and another on the lower chest; many examiners are known not to use one (it may be any one) of the three "standard" indicators.

Suggestions have been made that other physiological responses, such as face temperature, electro-cardiograph (EKG), and electro-encephalograph (EEG) should be included in lie detection work but virtually no research has been accomplished to learn whether the addition of these indicators would increase the accuracy of lie detection. On the other hand, instruments which measure 10 physiological variables simultaneously are common in medical and psychophysiological research; one such instrument can record 29 channels in a form suitable for automatic data processing.

4. "THEORY" OF LIE DETECTION

Lie detection is an empirically developed procedure without an adequate theoretical foundation; it is an art and not a science. Lying may be a widespread and popular pastime but no attempt has been made to account for the extent and variety of physiological and behavioral responses which may be observed when a person attempts deception. To the best of our knowledge, there is not even a taxonomy of lying which defines the situation and purposes for which one person might attempt to deceive another. When one considers the amount of deception thought to exist in everyday life, it is surprising that no genius has arisen to codify this area.

As early as 1917, Marston recognized that some physiological responses probably always are present during an interrogation, whether or not a person is lying, but he thought that their magnitude would be larger when a person tries to deceive. The greater response would be due to some residue of learning, explainable in such terms as conditioned responses, conflict, or a threat of punishment (Davis, 1961, p. 161). However, the theoretical aspects of lie detection still await exploration and it is difficult to believe that this area of technology can develop without a theory.

5. EFFECTIVENESS OF LIE DETECTION METHODS

It should be possible to estimate the effectiveness of lie detection by the same methods that are employed in all classes of scientific observation and we shall start by examining the reliability and validity of lie detection.

A. VALIDITY

Validity is defined as an estimate of the extent to which an instrument (or test) measures what it is supposed to measure. As applied to lie detection, validity may be estimated by comparing the agreement between conclusions derived by use of the polygraph with other, independent measures of deception (or truthfulness). For example, a judgment, based on examining a polygraph record, that a person attempted to deny a previous conviction for felony may be compared to a court record of conviction. For practical purposes, independent

evidence for validating lie detection tests would be gained from thorough background investigations. A confession of guilt (or the admission of an attempted deception) is often used for estimating validity but it is not a completely satisfactory independent criterion. It is rarely clear whether the confession came before the polygraph was attached or after; or whether a complete polygraph test was run; or whether the interrogator made his "judgment of deception based on the polygraph" before or after the confession. To put it simply, the nature of police or security work does not lend itself readily to precise experimental control. In many such cases, independent verification by other than self-incriminatory means, may not be achievable.

Lie detection would exhibit high validity when polygraph-derived data are consistent with independent data on deception, such as when those judged to be deceptive are later found to have been deceptive, and those judged to be non-deceptive are later found to be nondeceptive, etc. There would be low validity when those judged to be truthful are found later to have practiced deception; or when those judged to be deceptive are found later to have been truthful. In real life, the problem of determining validity is complicated because those who are judged to be deceptive are not ordinarily hired and that ends the matter; no further investigation is conducted to determine whether or not the person actually was deceptive, although that would be required to clarify the problem of validity. A thorough appraisal of validity would require data in nine cells:

Polygraph judgment	Independent evidence		
	Guilty	Innocent	Indeterminate
Guilty (or practicing deception).....	*		
Innocent (or not practicing deception).....		*	
Indeterminate (no conclusion possible).....			

Obviously, high validity would require that the preponderance of cases fall in the starred (*) cells; and validity would decrease as the percent increases in any of the other cells.

B. RELIABILITY

Reliability measures the extent to which a test produces consistent or reproducible results. Reliability refers to the accuracy of measurement and should not be confused with validity. A test cannot be valid without also being reliable. Various aspects of reliability can be measured in the following ways:

- (1) Comparing the results achieved by two or more examiners working independently on the same case material.
- (2) Comparing the results of two or more tests on the same person taken at separate but close time intervals.
- (3) Comparing the results of one part of an examination with another, e.g., odd versus even items on one subtest, two different physiological indexes, or two different methods of examinations (viz., peak of tension versus questionnaires).

In the current practice of lie detection, no attempt is made to measure the absolute values of the three physiological responses which are being recorded, though many such schemes have been proposed. The examiner judges the responses in a qualitative fashion, using visual inspection to compare the magnitude and pattern of responses to relevant and irrelevant questions. There is no objective method of reporting test results.

Little attention is directed to the accuracy of the three instruments used in the polygraph, though they may be precise enough for present purposes. The breathing and blood pressure instruments operate on pneumatic pressure and their response characteristics are obviously nonlinear. According to one manual,² air leaks in these two systems should not exceed a pen excursion of 0.25 inches in 30 seconds for the pneumograph and of 0.25 inches in 10 minutes for the sphygmomanometer. Disregarding the rate of leak, this is a 5-percent error over the entire scale of 5 inches; the true error would be two to three times larger than 5 percent because the three tracings share the 5-inch scale. The psychogalvanometer is a sensitive instrument which must be adjusted continuously to contain the responses on the scale; some units incorporate a self-centering feature. Darrow (1929) and Lacey (1949) have shown that, among the several possible ways of measuring the GSR responses (based on conductance or resistance), the log change in conductance is the most reliable one. Martin

² Prepared by the Office of Naval Intelligence.

(1956) reports that the reliability of the GSR, measured as average skin log conductance, was 0.95 for a series of four sessions; although the absolute conductance values may change, individuals consistently maintained a large or a small response from one session to another.

Except for Kubis (1962), no one has explored the possibility that two examiners working independently might make different interpretations of the same record. Reliability of the polygraph in the sense of the consistency of measurement, i.e., agreement among examiners, is an unknown quantity.

C. EVIDENCE AVAILABLE IN THE GOVERNMENT

It is estimated that military and security agencies have conducted almost 200,000 polygraph examinations over the last 10 years, largely in connection with security screening. However, this experience has never been summarized and it is doubtful whether data remaining in the files can be utilized to provide an assessment of its effectiveness. Despite general assurance to the contrary, recordkeeping and performance appraisal on the use of the polygraph in the Government appears not to have been accomplished. If any review has been performed, the method of analysis and the results are not available for inspection despite a specific effort made to uncover them for this study.³ A private organization which provides polygraph services on a fee basis was approached because its research director says that his reports are available for inspection by other

³ As might be expected, this statement drew some replies from examiners who reviewed a working draft of this report:

(1) "Studies have been performed at . . . correlating the results of polygraphs and background investigations. No studies have or can be made of the absolute validity or reliability of the polygraph by personnel assigned to this unit. The worth of the program in terms of confessions and information of security value has been established beyond cavil."

(2) "We feel that your report could only be improved with the inclusion and analysis of more complete statistical evidence which we both know is either nonexistent or not readily available to you."

(3) This statement "does not apply to the U.S. Army Military Police Corps. While it is true that certain data is not available in the Office of The Provost Marshal General, much information is available at major operating command headquarters and at the Provost Marshal General's School. The Provost Marshal General's School is continually testing and evaluating lie detector performance, to include improved application and examination techniques."

The Provost Marshal also provided the data shown in table 2. Indeed, these data are useful. It shows that among 1,302 examinations in which deception was indicated, 52 percent led to admissions and 19.8 percent were verified by further investigation, while 27.5 percent could not be substantiated. For examinations in which no deception was indicated, contrary results were obtained by other means in 2.3 percent (73/3,153) of the cases; 3.6 percent (167/4,622) of the examinations were inconclusive.

From the data, it is not possible to make any judgments about effectiveness of the polygraph in security investigations because success or failure to detect deception in such cases (117 among the 4,622) is not broken out in the table.

TABLE 2.—Summary of lie detection examinations performed by the U.S. Army Military Police. (See exhibit 26, p. 463.)

Total examinations conducted	4, 622
Murder	28
Rape	96
Burglary	223
Security	117
Others	4, 158
Refusals to submit to examinations	386
Admissions obtained in pretest interviews	438
Admissions obtained during or immediately after execution	478
Examinations in which deception was indicated	1, 302
Examinations in which these indications led to admissions/confessions during examination	686
Examinations in which these indications were verified by further investigation or interrogation	258
Examinations in which these indications were not substantiated through investigation, interrogation, admission, or confession	358
Examinations in which no deception was indicated	3, 153
Instances in this category in which contrary results were obtained through investigation or interrogation	73
Instances in which results of examination in this category were in accord with results of other investigative techniques	3, 080
Examinations which were inconclusive	167
Complaints, if any, made against the lie detection examination procedure by those who were tested	4

examiners or by qualified research personnel. The research director was not able to provide a record of the successes and failures of his organization.

Therefore, although the polygraph enjoys wide usage, we are not able to estimate its value. It is possible that the regard in which it is held is due largely to the ability of the examiners to conduct effective interviews and only slightly to the polygraph instrument itself; or the reverse. We do not know. Unless performance data are kept and analyzed, we cannot benefit from experience and recognize the areas in which improvement is possible. This cannot be desirable to the agencies which employ this method or to the polygraph operators who are responsible for providing an effective program. No useful purpose can be served here by providing still another testimonial of faith in the lie detector. Objective data and not testimonials are required. The simple fact is that the necessary data have not been kept and that an impartial appraisal of the polygraph has not yet been accomplished.

This implies no lack of respect for polygraph examiners. The author was impressed by the apparent sincerity, conscientiousness, and integrity of the examiners who conduct the interrogations and supervise the use of the polygraph. The author joins them in believing that the polygraph "works," and that it has been employed in a scrupulous manner. However, belief in the value of the polygraph or in the integrity of its practitioners is not evidence that the polygraph is an effective instrument.

The following claims, made verbally, show the result of nine visits to five Government organizations in search of data. Most of the data reflect experience in security screening. No records were offered for inspection; the numbers are based on notes made during the visits:

[In percent]

	Verified acceptances	Verified rejections	Inconclusive determina- tions	Demon- strated failures
Organization A	85	12	3	-----
Organization B	-----	-----	-----	3.0
Organization C	-----	-----	-----	-----
Organization D	-----	-----	5	-----
Organization E	-----	-----	-----	.1

Blank entries indicate that no data were provided in some interviews; two organizations (B and D) appear not to keep performance data. "Inconclusive determinations" refer to cases in which the polygraph tracings did not permit the examiner to infer whether or not a person was deceptive (all other determinations are considered "conclusive"). "Verification" indicates that the judgment made from the polygraph record was supported by independent evidence. When the polygraph is used as part of the preemployment procedure for security screening, the term "verified acceptance" indicates that the polygraph-derived conclusion agrees with an independent background investigation and that the candidate was hired; "verified rejection" indicates confirmation of a decision not to hire. The distinction between acceptance and rejection is not considered significant for purposes related to accuracy of the polygraph since the percentage found in either category depends upon the type of applicants who appear for employment and the current criteria for acceptability; the percent of rejections is affected by the examiner's tendency to "play safe" by rejecting applicants whose record might in other circumstances be judged "inconclusive."

The total of verified judgments was reported to range from about 95 to 97 percent. "Failures" represent individuals who were hired but later found to be unacceptable or to have been deceptive. In these data, the failure rate is given as 0.1 percent; the report of 3 percent in organization C is not regarded as typical because it represents a single individual in a sample of 37 cases.

A private research organization, which works solely for one of the military services, instituted a program of semiannual polygraph examinations for its employees. The purpose of the program was to detect and to deter the illegal disclosure of classified information; on an initial examination, employees were asked questions concerning possible falsification of the personal history form and about homosexuality. Preemployment examinations were not given and it was not mandatory to take the test.

A total of 4,573 examinations were conducted over a period of 8 years. In 27 (0.6 percent) of these cases, a report was made to the Security Office that the polygraph examination indicated certain undesirable characteristics or incidents, e.g., suspected Communist associations or homosexuality. As a result of reporting such information and of subsequent investigation by the Security Office, seven persons (26 percent of the 27 cases) were separated from the organization; the remainder (74 percent) retained their clearances and employment. Thus, among the 27 cases recommended for further investigation, reasons for separation were found in 26 percent and not found in 74 percent of the cases. The polygraph program has been discontinued at this organization though, in the view of the security staff, it was proven to be effective and it had continuing value as a deterrent.

Two comments in the open literature, probably based on security screening for two large Government agencies, supplement our table:

"Our own experience, covering more than 100,000 polygraph examinations (90 percent of which were personnel examinations) has recently been evaluated and reveals that in personnel work the proved margin of error is less than 1 percent and uninterpretable records did not exceed 2 percent" (Chatham, 1953, p. 917).

"Most well-run polygraph examinations claim accuracy of 98 percent and on up without undue exaggeration depending on the type of cases being processed" (Leonard, 1957, p. 43).

Thus, polygraph examiners believe that the polygraph produces verified results in 95 percent or more of the cases. However, data from which this conclusion may be derived are notable chiefly by their absence. In any case, they are not available for review and one may reasonably doubt whether such data exist in a form amenable to objective analysis. It is clear that no thorough review of these data has ever been accomplished and there is no demonstrable basis for an objective judgment for or against lie detection.

D. EVIDENCE REPORTED IN THE LITERATURE

Anecdotal evidence in support of lie detection is readily available in the literature. This type of evidence consists of charts collected in criminal cases, their interpretation (generally successful), and suggestions for conducting polygraphic investigations. These charts are useful for instructional purposes, but since they describe only selected cases, they provide no evidence for the percent of success or failure.

An extensive review of the literature produced data on criminal investigations and laboratory experiments which will be reported separately to preserve several distinctions between "real life" and "experimental" investigations. These distinctions relate to the degree of emotional involvement, the degree of control over the events which occur, and the precision of the data which differentiates these two situations.

(1) *Criminal investigations*

Table 3 summarizes the published data on the use of the polygraph in criminal investigations. The reports date from 1932 to 1953; no more recent data have been found. The crimes, which are not always described, involve the full range of police work, such as theft, embezzlement, and murder; one unusual report summarizes investigations concerned with claims about paternity.

It was not possible to devise a consistent means of describing the accuracy of lie detection procedures that would apply to all reports and therefore the table contains some explanatory comments. The following headings are used in the table:

(a) Verified reports: Instances where it has been possible to provide independent confirmation of a judgment based on the polygraph examination. The most frequent example is a judgment of guilt followed by a confession of guilt.

(b) Indeterminable cases: Cases where an independent confirmation has not been made. The most frequent example is a judgment (of guilt or innocence) for a crime not supported by a confession. Unfortunately, this category includes some inconclusive polygraph examinations, described below.

(c) Proved error: Cases where a judgment of guilt or innocence can be shown to be in error.

(d) Inconclusive polygraph examinations: Cases where the results of a polygraph examination do not permit the examiner to make a high-confidence judgment of guilt or innocence.

The following conclusions may be derived from the data in table 3:

(a) In criminal cases, judgments based on the polygraph often cannot be verified. When verification is possible, such as reported by Trovillo (1951), the accuracy of lie detection ranges from 50 to 85 percent, for cases in which guilty judgments were supported by a confession. (About half of the cases in this sample was judged guilty.) But Inbau and Reid (1953) estimate accuracy as the percent of cases in which the examiner made a definite determination of guilt or innocence rather than an inconclusive one. This is an unusual application of the term "accuracy" (also see below). For Larson (1932), accuracy of 100 percent is based on finding one thief among 90 college girls.

(b) There are few reports on proved error. Where data are reported, proven errors occur up to 2 percent. In these cases, the guilty are more likely to be judged innocent than are innocent persons likely to be judged guilty.

(c) Inconclusive polygraph determinations occur in 10 to 20 percent of the cases.

TABLE 3.—*Accuracy of polygraph reported in criminal investigations*

NOTE.—Numbers in parentheses do not appear in original reports but are calculations made by the author of this paper.

Type of investigation	Reference	Number of cases	Accuracy (percent)			Comments
			Verified reports	Indeterminable cases	Proved error	Inconclusive polygraph
Thefts in a college dormitory. Criminal suspects.	Larson, 1932 Do	90 861	100 79.5	20.5	0	
Murder suspects.	Luria, 1932	(1)	(2)			Based on confession of 1 guilty person. Difficult to ascertain author's meaning; 20.5 percent may refer to inconclusive category.
Criminal cases.	Summers, 1939	43	(100)			Verified by confessions; original study of muscle tremors.
Criminal suspects.	Keeler, 1941		82	16.5	(2)	"All examinations confirmed by confessions . . . or by subsequent investigations" (p. 340).
Embezzlement. Do	MacNitt, 1942 Marcuse and Bitterman, 1946	59 1	99		(4)	"Several diagnoses later found guilty . . . not guilty later found innocent" (Wolfe, 1940).
Criminal cases.	Kubis, 1950	(4)	(90)		0	Accuracy not defined; used GSR. Suspect identified by witness and judged guilty after several lie detection tests; later exonerated by another's confession. No errors of diagnosis reported. . . . However, "no decision" category was rather large.
						10.0

Some reports (e.g., Luria, Summers, Kubis) make a claim for high accuracy but offer no quantitative data. Kubis (1950) finds "no errors of diagnosis . . . (but the) 'no decision' category was rather large," i.e., 10 percent.

The report of Inbau and Reid (1953, p. 111) deserves a special comment. They determine accuracy as 95.6 percent by adding all instances in which examiners made judgments of guilt (31.1 percent) or of innocence (64.5 percent). In the remaining 4.4 percent of cases, the examiner could not make a conclusive judgment. They report no indeterminable cases. They report proved error in 0.0007 percent of the cases but this is an arithmetic mistake; using their own data (3 errors in 4,280 cases), this value should be 0.07 percent. Also, according to their data, there were confessions in 486 out of 1,334 reports of guilt; thus, verification of guilt was possible in 36.4 percent of the cases. In 323 out of 2,759 reports of innocence, another's confession confirmed the judgment; thus, verification of innocence was possible in 11.7 percent of the cases. Finally, note Kubis' (1950) report that in order to achieve zero errors of diagnosis, he had to accept 10 percent in the "no decision" category. This contrasts with Inbau's 4.4 percent.

However, the outstanding difficulty in interpreting the data in table 3 lies in the fact that, due to the circumstances of criminal work, the examiner often has independent knowledge; that is, not collected by means of the polygraph, which suggests whether or not the suspect is guilty. Therefore, his judgment of guilt (or innocence) is based to some unknown extent on a combination of polygraph responses and other information, and not on the polygraph investigation alone. It is never clear whether the judgment said to be made from the polygraph record was made before or after a confession was received. This makes it most difficult to assess the true accuracy of the polygraph when it would alone provide the information from which a judgment must be drawn.

(2) *Experimental investigations*

The advantage of laboratory studies of lie detection is that more complete control of the means of (and the reason for) collecting data is generally possible and, therefore, such data can be subjected to rigorous statistical analysis. The basic disadvantage of laboratory studies is that they may not be relevant to lie detection if they do not evoke "real" emotional responses of fear and anxiety similar to those present in real life, polygraph examinations. The latter contention is often made by lie detection experts, on the ground that less emotion can be aroused in the laboratory and that therefore the polygraph would show a lesser ability to detect deception under such circumstances. For example, Trovillo (1953) says:

"Simulated emotion in psychology classes, or the lecture platform, in drama, and in experimental laboratories has done more to clutter up and confuse honest polygraph reporting than all the quackery of 50 years" (p. 747).

"Much of the academic experimental validation of polygraphic technique is completely barren of significance. No matter how accurate and reliable the instruments used, if the controls used do not guarantee that *fear* is being measured, then all conclusions are not only irrelevant but hazardous. Future progress depends on use of experimental subjects experiencing drastic stress: the criminal suspect, not the laboratory liar; the mental patient, not the academic spoofer" (p. 762).

"The professor who buries his nose in textbooks and bores his students with myopic dronings over verbal autopsies will never be interested in conducting vital research in lie detection" (p. 762).

The results of laboratory studies, as shown in table 4, do not justify any antipathy toward experimentation on the polygraph. These studies show that polygraph judgments about deception in the laboratory are correct in about 70 to 100 percent of the cases; the median value in the table is about 92 percent. This is the range of values reported in "real life" investigations. Some recent studies, such as those of Lykken (1959, 1960), Kubis (1962), Marcuse (1946), and Baeson (1948) are well controlled and show that the polygraph can be used to detect deception (of the type which can be arranged to permit experimentation) by objective criteria in 90 percent or more of the cases. It is significant that accuracy increases when the examiner is prepared to report that some polygraph records are inconclusive, i.e., do not permit him to make a determination. Surprisingly in these studies few proved errors are reported. There may be a minority of people (perhaps 10 percent) on whom the polygraph may not work. If judgments of deception are required for such people, other means than the polygraph must be employed. Experimental data do not provide a blanket argument against the polygraph though they do remind us that the polygraph cannot deal with all cases.

TABLE 4.—Accuracy of polygraph reported in experimental studies

Type of investigation	Reference	Number of cases	Accuracy (percent)			Comments
			Verified reports	Indeterminable cases	Proved error	Inconclusive polygraph
Noncriminals.....	Marston, 1921.....	35	94.2	-----	-----	-----
Do.....	Ruckmick, 1936.....	50	86.0	-----	-----	-----
Students.....	Summers, 1939.....	221	98.0	-----	-----	-----
Experimental cases.....	MacNitt, 1942.....	194	99.1	-----	-----	-----
Imaginary crimes.....	do.....	17	99.0	-----	-----	-----
Card tests.....	do.....	36	75.0	-----	-----	-----
Innocent students.....	Bitterman and Mar- cuse, 1947.....	81	-----	-----	-----	-----
Emphasis placed on GSR and cardiac amplitude; accuracy not defined. 81 college men, all judged innocent of a dormitory theft; after 1-5 tests Cardio-vascular responses categorized on 1st test only: No reaction..... 38 Moderate, scattered..... 28 Extensive..... 25 More pronounced to relevant than irrelevant, i.e., guilty..... 9 Total..... 100 Agreement between 3 judges in categorizing responses 0.87 to 0.96 (cont. coef.) In 75 percent of cases, guilty person in each pair (rarely) that person with guilty knowledge produced evidence required for identification 1 on 2 trials insufficient but accuracy can reach 97 percent if many retests are permitted; no difference in polygraph response between delinquents and non-delinquents Errors could be reduced 50 percent and accuracy would rise to 92 percent if more indeterminate judgments made; but those on whom polygraph could be used would drop from 100 to 72 percent (for this sample). Reliability: Records could be read in same way 1 month later in 84 to 94 percent of cases.						
Distinguish guilt from knowledge about the "crime" in a mock theft.....	Besson, Chung, and Yang, 1948.....	100	86.0	-----	-----	-----
Mock theft.....	Rouke and Kubis, 1948.....	(1)	97.0	-----	-----	-----
Card guessing.....	van Buskirk and Mar- cuse, 1964.....	50	72.0-84.0	-----	-----	-----

See footnote at end of table.

TABLE 4.—Accuracy of polygraph reported in experimental studies—Continued

Type of investigation	Reference	Number of cases	Accuracy (percent)				Comments
			Verified reports	Indeterminable cases	Proved error	Inconclusive polygraph	
Mock crimes.....	Lykken, 1959.....	49	90.0-94.0				GSR only used objectively in guilty knowledge procedure; 100 percent innocents correctly identified, 88 percent guilty GSR only used objectively in guilty knowledge technique. Used objective judgments of examiners who did not know whether subject was guilty or innocent. Examiner's problem was to judge nature of crime. ²
Faking.....	Lykken, 1960.....	20	100.0				
Simulated theft.....	Kubis, 1962.....	336	73.0-92.0				
Denial of actual crime by ex-prisoners in an experiment. Retest.....	do.....	23					
Deliberate attempts to beat the polygraph in guessing a number.	do.....		40.0				Accuracy dropped from 75 to 80 percent in control session to as low as 10 percent in experimental session.
	do.....	20	29.0				

1 80 delinquents; 90 nondelinquents.

2 Described more fully on p. 447.

(3) Methodological studies

Under this heading, we wish to review several experiments in which the polygraph or some of its component indicators was used, not always for the purpose of lie detection. In general, these studies show that the polygraph is a sensitive instrument so much so that the responses it measures can be affected by a variety of influences. Therefore, adequate controls are required before the polygraph can be used as an effective instrument. For example:

(a) Greater GSR responses were observed in 40 college students when a Negro rather than a white examiner operated the GSR instrument. Rankin and Campbell (1955).⁴

(b) The GSR response adapts (i.e., becomes reduced) most quickly to a light stimulus, next to a buzzer and least to a question (i.e., an idea). Demonstrated on 54 students by Kubis (1948).

(c) Even though electric shock was used every time the subject told the truth in an experiment where he tried to deny a number he had selected, the GSR response was not reversed. This demonstrated, on 23 students, the relative stability of objective criteria of deception and the accuracy of their identification under conditions designed to obscure the criteria and to confuse the diagnosis. Block et al. (1952).

(d) Innocence (of suspected criminals) can be determined objectively with greater accuracy than guilt. Only blood pressure records were used in a preliminary, feasibility study of 17 verified innocent and 33 verified guilty polygraph tracings. Leonard (1958, pp. 118-121).

(e) Though a sudden rise in blood pressure in response to relevant questions is generally suggestive of guilt, Arther (1955) shows four verified cases in which it occurred with innocent subjects. A "control question" technique has been devised by Inbau and Reid (1953) to avoid this possible error of interpretation.

(f) Polygraph experts who conducted an examination produced no more accurate judgments than did other examiners who had access only to the records of the same examination. This was accomplished in an experiment which was virtually real-life, involving a presumed disclosure of classified information. However, accuracy of both groups was not high. In the critical retest period, the examiners (those who performed the tests) were able to detect the two experimental lie situations in 41 percent of the cases; one of the two lies in 54 percent of the cases; and neither lie in 5 percent of the cases. The corresponding average percentages for raters (having access only to the records) were: 54 percent, 36 percent, and 10 percent. In the test session immediately following, the accuracy of examiners and raters dropped to a chance level. Adaptation was rapid and appreciable within the same day of testing. Kubis (1962).

(g) In a long series of experiments, Ellson (1952) showed that objective measures of such physiological indicators as GSR, breathing rate, breathing amplitude, breathing time, systolic pressure and diastolic pressure, when taken singly, rarely distinguish between deception and non-deception in more than about 75 percent of the cases. When these indicators are combined optimally by means of statistical discriminant functions, the accuracy rises to about 90 percent correct classification of liars in experiments. Greater accuracy is possible, but was not demonstrated in these experiments, provided that improved techniques and procedures are found to increase the statistical reliability of the individual measures.

Perhaps these studies are sufficient to indicate that the polygraph can demonstrate validity of the order of 90 percent in experimental situations. However, the polygraph test is subject to error when a variety of uncontrolled influences are present, some examples of which are offered in these studies. Greater accuracy may be anticipated by combining the results of several physiological indicators in accordance with statistical rules which reflect their predictive value, provided we can also increase the reliability of measuring these indications.⁵

⁴A reviewer comments: An activity "has one Negro examiner. There has been no observable difference in the recorded patterns of his interviews of white subjects, compared with interviews conducted by white examiners." No data were offered to support this view, while Rankin and Campbell's data suggest that the reverse is probably true.

⁵A polygraph examiner comments: "Methodological studies, as well as much of the literature in the field have, for some reason, emphasized research and experimentation on the galvanic skin response. This is somewhat anomalous, in view of the fact that many experienced and expert examiners place little or not credence in the galvanic skin response. Some competent examiners admit frankly that they do not even turn on the

6. THE PATTERNING OF PHYSIOLOGICAL RESPONSES

The conventional polygraph, with its three physiological indicators, obviously can be used to detect deception more accurately than would occur by chance alone. The reported accuracies are rarely below 75 percent and sometimes approach 100 percent. Two factors which probably influence a major portion of this variability are the procedures used by the examiner and the physiological responsivity of the person being tested. Let us first consider the latter problem.

The three indicators used in the standard polygraph (breathing pattern, cardiac pattern, and GSR) measure only a few of a large number of known, autonomic response mechanisms. Measurement of autonomic responses is desirable because they are not primarily under the direct, voluntary control of the person being observed, even though some such influence is possible—more so for breathing and less so for the GSR. Activity of the autonomic nervous system can be measured by at least the following physiological responses:

Galvanic skin response	Blood volume in forefinger, leg
Breathing:	Blood oxygen saturation
Pattern of response	Skin temperature
Amplitude	Muscle tension potentials
Rate	Hand and finger tremors
Time	Eye movements
Vascular response:	Pupil diameter
Systolic blood pressure	Gastrointestinal motility
Diastolic blood pressure	Electroencephalograph
Pulse rate	Ballistocardiograph
Pulse time	Salivation
Pulse wave velocity	
Volume pulse	

This list could be extended and also replicated because there often are several ways to measure each physiological response. For example, there are at least four different ways to measure the GSR:

- Skin conductance.
- Log conductance.
- Skin resistance.
- Log resistance.

At the outset, it is important to realize that the autonomic responses are not necessarily highly correlated with each other. That is, even though all of these response mechanisms are influenced by the autonomic nervous system, the influences are not identical. Some mechanisms show large responses while others, at the very same time, show little response. Two mechanisms which show a large, initial response to an emotional stimulus may not adapt (i.e., return to their initial levels) at the same rate.

A wide range of physiological responses have been studied in connection with psychosomatic medicine, physiological correlates of personality, medical diagnosis, the measurement of anxiety states, and psychotherapy. In these areas of research, many studies may be found which clarify some of the problems encountered in the practice of lie detection.

Some investigators, such as Ax (1960), Wenger (1961), Malmo (1950), and Lacey (1958c) have measured simultaneously up to ten physiological variables and have evaluated the results in accordance with objective criteria. Methods for the simultaneous recording of up to 29 physiological processes and for automatic data reduction systems have been described by Ax (1960), Zimmer (1961), and Clark (1961).

According to Lacey (1958c), individuals exhibit idiosyncratic patterns of physiological response which tend to be repeated in various stress-evoking situations; six variables were measured. If such individual consistency is confirmed, physiological responses in emotional states would have to be interpreted on an individual, rather than on a general basis and a significant change introduced in lie detection procedures. Wenger (1961) measured eight autonomic responses in four different emotional situations. Although stable response specificity and stereotype occur to some degree, they are interpreted by Wenger as

galvanic skin response because of the impossibility of determining the source of galvanic skin response reactions. Others use the galvanic skin response as an aid but ignore it when its excursions conflict with the pneumograph and cardiophymograph patterns."

caused in part by the method of measurement and in part by significant individual differences in the resting level of the autonomic functions. He cautions against overgeneralizing the significance and pervasiveness of autonomic response specificity and stereotypy. Few reaction patterns were identical for a subject under the four emotional conditions and this is further evidence against general interpretation of physiological responses. Using 7 responses (transmuted into 14 scores). Ax (1953, 1960b) obtained distinct but different physiological patterns for anger and fear. However, his study does not show much evidence for physiological stereotypy.

In a study concerned primarily with various techniques of quantifying autonomic responses, Dykman (1959) used the three conventional polygraph indicators on 40 medical students under conditions of rest, noise and responding to a series of emotional and non-emotional questions; lie detection, as such, was not attempted. He found:

(a) Skin resistance was the easiest to evaluate and the most consistent of the three measures.

(b) The autonomic responses diminish rapidly to a relatively constant level for each series of stimuli.

(c) Subjects are more reactive in skin resistance than in heart rate or respiratory rate, both in terms of the magnitude and frequency of response.

(d) The magnitude of autonomic response is dependent on the initial level of functioning; in general, the higher the initial level, the smaller the response.

(e) An individual's reaction in one autonomic subsystem cannot be predicted from his reaction in another.

These few studies, from among a large literature, show that a simple or purely mechanical treatment of the three polygraph indicators would lead to a low accuracy of lie detection. Polygraph operators deal with this situation in an intuitive manner, shifting from one indicator to another, in an unknown fashion, in order to analyze a record. Various "schools" of interpretation have developed in which the examiner emphasizes one of the three indicators to the relative exclusion of the others; each indicator is regarded by some examiner as the single, "best" indicator.⁶

Since, as a result of learning processes, individuals undoubtedly differ in the choice of response mechanism and degree of responsivity to emotional stimuli, there is an ample basis for various examiners to build up confidence in their own methods of analysis. But since intuitive, rather than objective, rules play a large role in the evaluation of records, the idiosyncracies of various operators undoubtedly contaminate the accuracy of the results. This may not be a problem for cases which are straightforward and routine but it must limit accuracy for the cases which are ambiguous or difficult to interpret.

A striking example is the "Total Chart Minutes" concept developed and copyrighted (1960) by Cleve Backster, director of the National Training Center of Lie Detection, New York, N.Y. The term "total chart minutes" refers to the accumulation of time during which a subject has been asked questions during one or more trials on the polygraph; i.e., the time between trials is excluded. The useful purpose served by this concept is that it attempts to account for the value found by some examiners for a preferred indicator as due to the phase of interrogation during which that indicator may be especially discriminating. A series of curves is provided which describes the relative effectiveness (from "excellent" to "poor") of the three standard tracings (breathing, heart, GSR) for a "probably innocent" or a "probably guilty" person for any period with the total chart minutes structure. No data are provided to verify the schematic curves; in fact, when asked for confirmation of this intriguing concept, Backster could (or would) not provide any corroborating data to support his thesis.

It becomes clear that in real life we cannot rely solely on the individual interpretation of an examiner without verification by independent means, such as another, completely independent evaluation by another examiner, or a background investigation, or both. The addition of independent data must increase the degree of confidence we can place in the final result. Thus, there is an urgent need for (a) multivariate recording in actual interrogations, (b) independent

⁶ One polygraph examiner comments: "Granted that intuition may play a part in the analysis, but the analysis is more probably a Gestalt process, into which a great deal of experience on the part of the examiner is compounded." This reviewer noted that some examiners disregard the GSR.

judgments by more than one examiner, and (c) automatic data processing of these complex records.

We might, now, consider the implication of these studies for improving our ability to detect deception with the polygraph assuming, for this purpose, that adequate transducers and methods of measurement exist or can be devised. Although activity of the autonomic nervous system may be observed in many ways, the addition of new measures would not necessarily increase the accuracy of detecting deception. The value of additional measures depends upon the way in which deception affects various physiological processes. Assuming that the three present indicators do not adequately sample the physiological expressions of deception, it would make sense to add new response measures which fill this gap. Our knowledge on this point is slight. An estimate that the polygraph-and-examiner has a high accuracy (e.g., about 90 percent) does not provide an estimate of the variance due to each of the three polygraph responses alone or in combination or to the examiner. Therefore, we do not know whether there is room for improvement in the instrument or in the responses which are measured.

Current technology permits us to examine the value of observing the three current response mechanisms as well as the possible value of adding new ones. The essential device which has not been available previously is automatic data processing equipment. Ellison (1952, pp. 150-161) proposes that several indicators should be combined by means of discriminant functions to provide a more powerful indicator but points out that our ability to improve detection of deception will be limited by the reliability of the individual measures. The use of a computer to combine these variables for lie detection has been suggested by Zimner (1961) who has assembled equipment for such an experiment but no results are available as yet. The work of Ax, Lacey, and Wenger, mentioned above, could readily be extended into the area of lie detection.

The many autonomic responses which may be added to lie detection are listed earlier in this report but they must be chosen so that only the more diagnostic ones are used. The three variables in current use will probably remain highly useful. Promising ones to consider are blood volume in finger, muscle tension, skin temperature, eye motion and electroencephalograph, the last if additional research clarifies the meaning of the phase changes. Initial studies involving multiple sensors would have to be accomplished in a laboratory setting with possible cumbersome equipment. However, great advances have been made recently in improving sensors and in reducing their size for use in hospitals, medical experimentation and the bioastronautics program and there is no reason to doubt that the necessary equipment can be made more convenient to use. This applies also to reduction in the size of any computing equipment that might be developed to perform on-line data processing of physiological indications but further speculation in this direction is premature. It is clear that the patterning of physiological responses in lie detection is an area in which additional research can be accomplished readily by taking advantage of existing techniques which have not, as yet, been applied to lie detection.

7. CURRENT RESEARCH ON LIE DETECTION

An organized research program to improve lie detection does not exist at the present time in the Government though scattered support, at the rate of about \$100,000 per year, may be identified. Within this small budget, more funds are devoted to the improvement of equipment than to basic or applied research. Some topics enjoy interest but no financial support. Finally, we will note briefly the existence of useful work in related areas.

A. GOVERNMENT-SUPPORTED RESEARCH

Government-supported research on lie detection is directed primarily toward improving existing instrumentation and developing a few sensors and transducers. A small effort is directed toward developing new procedures. The following listing is believed to represent the entire effort:

(1) *Miniaturized polygraph*

A prototype, transistorized polygraph weighing about 10 pounds will soon be available for evaluation. (Associated Research, Inc., already markets a 21-pound polygraph instrument which operates on four flashlight batteries and fits in an attaché case. C. H. Stoelting Co. has developed a 12-pound instrument which operates on 110-volt a.c. current.) Current "portable" equipment weighs up to 40 pounds.

On the new equipment, the breathing pattern will be sensed by a strain gage and cable tied around the chest rather than by a pneumograph. Blood pressure changes will be sensed by a piezo-electric crystal on the wrist rather than by the cardio-sphygmomanometer. Conventional GSR sensing is retained. This polygraph will produce a record very similar to the present one and its primary utility, in contrast to other equipment, will be its ease of portability.

(2) *Rapid computer processing of involuntary responses*

The Air Force Office of Scientific Research is supporting a project for rapid and accurate evaluation of psychophysiological responses by means of computer analysis.⁷ The purpose of the study is to devise methods which will provide an interviewer with reliable indications of the kind of information carried by the person being interviewed. Nine involuntary reactions will be studied:

- Muscle action potential voltage.
- Intersystole time.
- Finger pulse amplitude.
- Respiration cycle duration and amplitude.
- Skin resistance.
- Skin temperature.
- Body-weight shifts.
- Reaction time.

The equipment required by this project has been assembled and is being checked out; up to now, no data have been collected. This project has been referred to, erroneously, of course, as one in which a "red light tells when the subject is lying."

* * * * *

(4) *Lie detection methodology*

Dr. Joseph Kubis (1962)⁸ of Fordham University is conducting a series of studies to improve the methodology of lie detection also on project 5534. * * *. The study consists of four parts, some of which have been described earlier in this report. The following summary is based on a conference with Dr. Kubis at RADC on January 2, 1962, and represents his preliminary conclusions:

(a) Sham theft (360 subjects, 5 examiners):

Examiners can correctly detect "innocent" or "guilty" students in 73 to 92 percent of the cases. Raters who worked only with polygraph charts (and did not see the "suspects") were as accurate as the examiners who performed the interrogations. In 112 sessions, 2 "innocent" students were called "guilty."

Of the three measures used by Kubis, the GSR response provided by far the greatest accuracy (about 90 percent for discriminating the "guilty" from "innocents"), while the other two indices (respiratory and plethysmographic) produced accuracies of only about 60 to 70 percent.

When discriminant functions are calculated based on the ratings of different individuals analyzing the same data, they are found to differ appreciably in the assignments of weights to the three response indices. This lack of homogeneity among various discriminant functions suggests inherent difficulties for the development of computer techniques to provide objective indications of guilt or innocence.

However, considering the low objectivity realized by visual interpretation of respiratory and plethysmographic responses, computer techniques may well be a valuable adjunct to lie detection in the following respects:

(i) Differentiating among complex physiological patterns.

(ii) Developing new indexes or criteria of deception.

(b) Denial of a previously committed crime by ex-criminals on parole (23 cases): Since all subjects were known to be guilty, the experiment consisted of judging the type of crime committed. The subjects were told to deny a specific previous crime and each record contained two "lies." In 40 percent of the cases, the examiner was able to detect both lies in the records of the ex-prisoners; in 48 percent of the cases one of the two lies; and in 12 percent of the cases neither of the two lies. In a retest of the same subjects, 29 percent were detected in both lies, 57 percent in one of the two lies, and 13 percent in neither of the two lies. (Based on averages of 3 examiners.)

⁷ Grant AF-AFOSR 62-110 with the University of Georgia; the principal investigator is Herbert Zimmer.

⁸ Dr. Kubis' final report, noted in the bibliography, became available while this report was being printed.

(c) "Leak" of classified information: An attempt was made to conduct a "leak of classified information" experiment but this proved to be impracticable to perform. Although this would have closely approximated a "real life" situation, Kubis had to substitute for it a situation wherein the subjects denied knowledgeability of selected items of classified information.

(d) Countermeasure experiment: Subjects were trained to use several techniques to make it difficult for an examiner to interpret a polygraph record. The test required the examiner to guess a number on a card selected by the subject. The prescribed techniques and instructions were:

(i) Yoga: "Keep your mind as blank as possible and answer 'No' to all questions."

(ii) Muscle tension: "When some questions are asked, tense your body or foot so that the examiner doesn't see it and in a way that will mislead him as to the number you have in mind."

(iii) Exciting imagery: "Think of something that is exciting to you, in a manner that will make it hard for the examiner to guess what number you have in mind."

Preliminary results for 20 subjects show about the following accuracy:

	<i>Accuracy (percent)</i>
Control (no instruction)-----	75-80
Yoga-----	75-80
Muscle tension-----	10-20
Exciting imagery-----	15-25

If a subject selected a decoy number on which he consistently tensed or used exciting imagery, he could direct the examiner to this number in 55 to 70 percent of the cases. Examiners are unable to distinguish among the known decoy and "real" numbers on the basis of the polygraph records. Though this was only a preliminary experiment, it is sufficient to show that it is possible to interfere with a polygraph. It is not clear whether an alert examiner could ascertain that the subject was trying to create a spurious response.

(5) Instrumentation and transducers

The work of Dr. David McK. Rioch at the Walter Reed Army Institute of Research, Washington, D.C., includes a continuing program for the development of new physiological sensors and transducers for research in the broad area of neuropsychiatry. And any new developments in psychiatric interview procedures, sensors, transducers or physiological recording, could be applied to improve lie detection.

* * * * *

(7) Staff studies

The Department of the Army⁹ is conducting a staff study to determine and recommend policies governing U. S. Army use of the polygraph for counterintelligence and security purposes. The method of study consists of a questionnaire and interviews directed to polygraph examiners. Results are not yet available.

The Office of the Provost Marshal General is modifying the monthly reporting procedure on polygraph examinations conducted in the Army to provide more detailed, statistical information.¹⁰

The Provost Marshal General's School is conducting research into the effect of hypnosis on interrogation. A preliminary report is that a post hypnotic suggestion can lead suggestible subjects to "forget" particular incidents.

B. PROPOSED RESEARCH

The research proposed below represents areas in which polygraph examiners have expressed interest. However, at the time this report was written, no formal projects had been established to perform these studies.

⁹ Project title "U. S. Army Use of Polygraph for Counterintelligence and Security Purposes" (U), ACSI-SC, June 8, 1961. The project officer is Maj. Uldrich H. Pettine, G-3, USA Intelligence Center, Fort Holabird, Md.

¹⁰ Operations Branch, Office of the Provost Marshal General, Department of the Army. The project officer is Lt. Col. Nicholas P. Rudziak.

(2) *New sensing devices*

A variety of new sensors, such as those listed below, have been proposed to extend the capability of the polygraph:

- (a) Infrared sensing devices for remote measurements of skin temperature.
- (b) Devices to measure breathing pattern and heart rate based upon sensitive microphones, ultrasonic or radar-type equipment.
- (c) Electro-encephalograph: A helmet mounted device with 100 sensing elements; with computer processing, this would produce an intensity modulated display of brain activity, called a toposcope. * * *
- (d) Thermistors to measure skin temperature.
- (e) Strain gage on face or jaw to measure muscle tension.
- (f) Improved blood pressure measuring devices:
 - (1) Strain gages and an EKG lead (HRB-Singer).
 - (2) Carbon microphone attached to finger tip (Texas Instruments).
 - (3) Oximeter-type device attached to ear lobe.

Among these, it will be noted, are some new sensors and some which do not have to be attached to the body. Background research to explore the possible value of new sensors for lie detection is rarely considered because their novelty is taken as *a priori* evidence of utility. In the case of new * * * sensors, it will still be necessary to demonstrate that the new physiological responses being measured actually correlate with attempts at deception.

C. RESEARCH IN RELATED FIELDS

Research of great potential value to lie detection is being accomplished in closely related fields, such as bioastronautics and medicine. No attempt will be made to summarize these efforts though the existence of several important areas will be noted.

There has been a need to monitor the physiological status of astronauts in space flight and in the experimental program associated with it, e.g., high altitude chambers, human centrifuges, protective clothing, etc. This has led to the development of new, reliable and miniaturized sensors for such responses as the cardiac pattern (EKG), blood pressure, breathing, and body temperature. Because of the need to telemeter the data from the spacecraft to ground observers, means have been developed for digitalizing the data, transmitting it to a remote receiver, and processing it automatically so that it can be read and interpreted in real time by observers on the surface of the earth. Though telemetering such data is not an obvious requirement for lie detection purposes, it provides the means (with miniaturized equipment) to conduct an interrogation under circumstances where it is desired to have the subject unencumbered with wires which restrict his movements.

There is also great current interest in using high-speed computers for better understanding of physiological, neurological, and biochemical processes. Computers make it possible to observe simultaneously many of the complex responses of the organism and to identify the significant parameters of these responses, either alone or in combination. For example, H. V. Pipberger (Mount Alto VA Hospital, Washington, D.C.) has demonstrated that 99 percent of routine electrocardiograms can be diagnosed correctly by computerized data processing equipment. The National Institutes of Health provide about \$18 million in fiscal year 1963 for medical computer facilities; the estimated amount is \$68 million for fiscal year 1964. Thus, means are now at hand to investigate many complex physiological processes on an ongoing, real time basis. This technological capability can readily be applied to improve our knowledge of lie detection by rigorous, systematic study.

8. CONTRAINDICATIONS AND COUNTERMEASURES

The emotional reactions of a person in response to certain but not all questions depend largely upon the rules of behavior being followed by the person. When there are clear, cultural distinctions between right (or truth) and wrong (or lie) attached to each answer (and assuming that the point of the question is understood equally by the interrogator and the subject), the polygraph should prove a valid instrument for most people. It is, therefore, useful to recognize that there may be several situations in which the polygraph could fail:

- (a) When the subject lacks appreciation of the difference between truth and falsity. A habituated liar (or severely disturbed personality) should not be expected to show (or indeed, "feel") emotions due to fear of detection.

(b) When there are differences in the behavioral codes of the subject and interrogator. Such differences may separate people in different cultures, or people of different social (or political) status in the same culture.

(c) When the subject attempts to "beat" the polygraph by controlling his breathing or cardiac response, by suppressing his memory, or by feigning a mental attitude, with or without the benefit of training, to produce such effects.

(d) When the subject has used drugs and, possibly, hypnosis to modify his physiological responsivity.

With such possibilities in mind, a polygraph examination can lead to three undesirable results:

(a) False positives: In which it is concluded that a person is attempting deception, when this is not the case.

(b) False negatives: In which it is concluded that a person is not attempting deception, when this is not the case.

(c) Indeterminate: When the examiner recognizes that he cannot make a reliable judgment about deception or truthfulness.

Among these three categories, indeterminate results need not confuse the examiner because he knows that some additional step, such as a reexamination or a more careful background investigation, must be taken to resolve the uncertainty. Overall accuracy should be increased when the examiner is free to employ the indeterminate category, although this obviously produces fewer resolved cases.

Kubis (1950) achieved a confirmed accuracy of about 90 percent but also made 10 percent inconclusive judgments, a larger fraction than is generally reported. Lee (1953) reports 98 percent accuracy and no inconclusive determinations, while Inbau and Reid (1953) report 95.6 percent accuracy and 4.4 percent inconclusive determinations. Although there are little data to document the errors that actually occur in lie detection, there appear to be some false positives (about 2 percent according to Trovillo (1951) and Lee (1953) and fewer false negatives (but no data appear on this point). In terms of crime, it is believed that some guilty might escape but very few innocents would be punished.

(1) *Contraindications to use of the polygraph*

Lie detection experts²² point out that a polygraph examination should not be conducted during certain transient states of an individual, such as, for example:

Excessive fatigue.

Prolonged interrogation.

Physical abuse.

Extreme nervous tension.

Evidence of drugs, especially tranquilizers and stimulants.

Sub shock or adrenal exhaustion.

Fear of detection of some other offense not related to this interrogation.

A similar restraint applies when long-term physical or psychological disorders are present:

Excessively high or low blood pressure.

Heart diseases.

Respiratory disorders.

Hyperthyroidism.

Mental abnormalities.

Feeble-mindedness.

Psychoses.

Psychopathic personality.

Any of these conditions precludes an effective examination because it introduces into the record response characteristics which are not the result of the examination itself. The professional integrity of the examiner would require him to refuse to examine individuals in whom such conditions are known to be present because an adequate examination could not be conducted. If an examiner did not know this in advance, he might detect certain unusual characteristics in the record which could lead him to terminate the examination as inappropriate under the circumstances. Various test procedures, such as repeating a test, or the "peak of tension" technique are intended to guide and alert the examiner to such effects. One obvious difficulty is that some of these conditions are not readily apparent (e.g., psychopathic personality or presence of drugs) or may not be known at the time of the interrogation. Another is that some interrogators believe they can handle every kind of case (they use the phrase "break

²² Inbau and Reid (1953), pp. 64-99; Lee (1953), pp. 126-132.

a case"). Restraint in recognition of one's ignorance about the possible presence of such conditions depends, ultimately, on the professional standards and integrity of the examiner since no control exerted outside the examination room can ever be entirely effective.

(2) *Can one beat the polygraph?*

If the aforementioned conditions represent natural limitations to the accuracy of the polygraph, we may now consider whether it is possible to fool a polygraph examiner. The machine itself cannot be fooled because it simply records a pattern of responses to a series of questions while it is the examiner who interprets their meaning. What, then, can a person do deliberately to avoid the appearance of deception or to mislead an examiner? What follows consists of a series of conjectures and the preliminary results of one experiment.

The experiment which deals with this question was performed by Kubis (1962) and has been described above. Though only preliminary data are available, they show that by tensing the muscles of the feet or by use of self-exciting images, test subjects could drop the accuracy of examiners in guessing a number from 75 to 80 percent to 20 percent. In 55 to 70 percent of the cases, it was possible to direct the attention of the examiner to a decoy number instead of the previously selected number.

Experiments on human conditioning add a significant note. In a recent review entitled "Does the Heart Learn?" Shearn (1961) concludes that both the form of the electrocardiograph cycle and the heart rate may be conditioned in accordance with classical rules. The technique is illustrated by an experiment of Petrova:

"An auditory stimulus (whistle) was combined with intravenous injections of nitroglycerin. Because the act of injecting the fluid would act as a conditioned stimulus, its effect was extinguished with repeated intravenous injections of normal saline. The whistle, on the other hand, was always sounded after the nitroglycerin had been injected (but before the effect of the drug was manifest). After about 100 pairings of the whistle and nitroglycerin, the whistle presented alone produced changes typical of those elicited by the drug (accelerated heart rate, decrease in QRS voltage, and augmented P and T waves)" (p. 452).

It is known that alterations in the breathing cycle can affect the cardiac response, thereby providing a means of conditioning the heart without intermediary use of some drug (Huttenlocher and Westcott, 1957). Preliminary experiments suggest that a person can learn to alter his GSR with the aid of a meter which permits him to observe the magnitude of his responses. There is no doubt that the EEG can be modified by means of conditioning (Ellingson, 1956). Gerard (1951) reports that alpha waves of the EEG, which normally disappear when a bright light shines on the eye, do not disappear when the observer deliberately pays no attention to the light. However, these facts do not imply that the EEG could be manipulated with the dexterity required to accomplish deception; not enough is yet known about the value of the EEG for use in the polygraph. Polygraph examiners know that a person who moves and squirms during an interrogation can alter the responses shown on the record; this effect would influence the interpretation of the over-all record if it could be accomplished systematically without the examiner's knowledge.

It is possible that a person could be taught through a series of carefully arranged conditioning experiments to bring some of his autonomic responses under his direct control. Lacey (1958c) has demonstrated that each person uses his body in a unique way to express his own emotional responses; this is the result of normal training and maturation. Kubis (1962) has demonstrated that autonomic responses can be influenced through simple instruction without formal conditioning. There can be no doubt that same degree of manipulation is possible; however, in order to accomplish deception, a person would have to learn to suppress or to excite his physiological responses in a pattern adequate for his purposes.

In recognizing the feasibility of such an attempt, we do not know whether training could be accomplished with sufficient elegance to become a useful device for an enemy agent. One method would be to learn to deaden all responses, so that no pattern would be discernible in response to significant or nonsignificant items; another method would be to overrespond to all items with similar effect. Though an examiner might be led to make an indeterminate conclusion in such cases, he might also be alerted to this unusual circumstance. It would be much more effective if a person could deliberately react to nonsignificant items and deaden his response to significant items; but in this case, he would also have to

know what type of response to each question would be most likely to create an impression of knowledge or lack of knowledge about the events of interest to the interrogation.

Since the control of autonomic responses must be regarded as feasible, research is required to explore its implications for our lie detection technology. The examiner will not be helpless because new indicators can be added to the polygraph system to observe response systems which may not have been trained. Since enemy agents would also learn about new indicators, this could lead to a cycle where it may become necessary to add still newer indicators and drop older ones from time to time. But before proceeding that far, it is useful to know the extent to which training is possible, whether the current indicators are sufficiently sensitive to remain effective despite training and, then, what additional indicators are most likely to provide useful adjunct information.

It is also of interest to know if drugs or hypnosis can be used to influence a polygraph examination, both from the viewpoint of the person who takes an examination and from that of the examiner. Fortunately, the effects of drugs and hypnosis on interrogation have been reviewed recently on behalf of the Air Force and are described in an excellent book (Biderman and Zimmer (1961)).

A person about to be examined on a polygraph could take a drug, perhaps a tranquilizer, to moderate his responses. There is a danger to him in that the action of the drug is not selective—it would affect many of his responses. A flat record is unusual and tends to attract the examiner's attention; the presence of depressed responses suggests that a drug may have been used. The use of a drug, if suspected, is easily circumvented by detaining a person for a retest after the drug effects have worn off, and prolonged examination and retest is the rule in any nonroutine polygraph interrogation.

Gottschalk¹³ says:

"There is a possibility that tranquilizers could be used by an examiner with selected personnel who are highly agitated and disturbed, and who might give information they prefer to withhold in return for the tranquillity they experience with such a sedative. Under the influence of this drug, the less emotionally upset informant might find that he can better master his anxieties and keep his resolve to remain silent. These are all speculations which require testing and experimentation. . . .

"The popular meaning of being 'drugged' or 'doped' implies that an individual in this state has lost control over his actions and that society will not hold him responsible for them. When the transmittal of information is likely to induce guilt in the source, the interviewer can forestall some of this reaction by the administration of a placebo or drug. In some cases, this will be all that is required to remove the barrier to information transmittal. In the avoidance-conflict between the source's guilt over yielding information and his anxieties over the possible consequences of non-cooperation, the 'inescapable' power of the drug or placebo serves to justify the source's actions to himself."

Whether or not a drug facilitates the interrogator's task, its use provides some people with an acceptable excuse to reveal information and in this sense it could produce useful side effects. Though a drug, such as LSD-25, may make a person more talkative, the interrogator still has the problem of judging the reliability of the information provided through its use since such drugs are also known to incite fantasy, drowsiness, and confusion (Redlich, 1951). To sum it up, though some drugs make a person more talkative, they may also make him more suggestible and less critical, providing nonsense as well as information. There is not, unfortunately, a magic way to the truth.

Orne¹⁴ has reviewed the use of hypnosis in interrogation and arrives at a conclusion similar to that for drugs except that even less is known about hypnosis. The possibility of inducing a trance on a resistant person is extremely doubtful. Hypnosis requires a trustworthy relationship between the hypnotist and the subject and such a relationship does not evolve readily in an interrogation. There is a common (although probably untrue) belief that an individual in hypnosis is not responsible for his actions. If hypnosis can be established in an interrogation (this is not likely) it could, like a drug, be used to relieve a subject of responsibility for his actions and allow him to divulge information he might not otherwise yield. The idea that an enemy agent could be hypnotized to avoid giving indications of deception appears very remote. Again, a more dangerous person appears to be one who practices deception under his own control rather than one who does so with the help of drugs or hypnosis.

¹³ In Biderman (1961), pp. 132-133.

¹⁴ In Biderman (1961), pp. 169-215.

Under AFOSR Contract AF 49(638)-728 on "Hypnosis as a Control Technique," Orne will measure autonomic responses in conjunction with research on personnel control techniques for either offensive or defensive purposes; it is too early for any results to be available. Preliminary data from Fort Gordon suggests that hypnosis assists suggestible subjects to "forget" selected incidents.

Thus, there is some reason to believe that a person could be trained to introduce misleading physiological responses on the polygraph. An examiner might be able to counteract this influence by observing response indicators in which such a person may or not have been trained. Clearly, we need to know more about the possibility of such training and how to counteract it. This is equally true of drugs and hypnosis although it appears that it will be more difficult to detect the effects of training than the effects of drugs and hypnosis.

9. RUSSIAN CAPABILITY IN LIE DETECTION

The use of lie detection equipment for security screening naturally raises the question as to whether an enemy agent could take such an examination and not be detected. If such an event occurred within the United States, its consequences could perhaps be counteracted because the polygraph provides only one source of information which could be compared with that from other sources. In screening foreign nationals, however, it is often impossible to collect any background information, in which case the polygraph provides the only data on which a judgment of attempted deception, with all its implications, can be made.

* * * * *

* * * In connection with the trial of U-2 pilot Francis Gary Powers, L. N. Smirnov, Deputy Chairman of the Soviet Supreme Court, was quoted as saying that "such methods as using lie detectors and brainwashing techniques are loathsome to our legal ideals."¹⁵ Smirnov's comment would be more credible without the remark on brainwashing.

Russian capability in technological areas closely related to lie detection is formidable and completely up to date because of their long continued interest in and research on human psychophysiological processes.

Starting with Pavlov, the Russians have studied extensively a large variety of physiological responses of the intact human organism in many different situations involving the effects of learning, drugs, surgical manipulation, and the like. Over a period of 50 years, the method of conditioning has been extended to such processes as human learning, education, social adjustment and abnormal behavior. This method of psychological research was fostered in the Soviet Union because it permitted objective and mechanistic descriptions of behavior while avoiding subjective and phenomenological explanations. This led to the development of a sophisticated technology concerning measurement of physiological processes, the autonomic nervous system and the central nervous system. The Russians have also accomplished important work on the quality and quantity of physiological response when the organism responds to new, as distinct from old, information; this is called the orienting reflex and will be discussed below.

In 1923, A. R. Luria, of the Institute of Defectology, Academy of Pedagogical Sciences, Moscow, employed muscle tremors as indicators of emotional response to judge the guilt of criminal suspects. Though his work is regarded as significant, muscle tremors have not been used subsequently in lie detection work. Luria shifted his interest from criminal interrogation to other areas many years ago. His recent interest centers on the role of speech in the regulation of normal and abnormal behavior.

E. N. Sokolov (1960), of the Academy of Pedagogical Sciences, Moscow, has extended the work of Pavlov in an area called the "orienting reflex," which he reported to an American audience in 1960. The orienting reflex is an unspecific response, common to animals and men, which occurs in the presence of any unusual stimulus, such as an increase, decrease, or qualitative change in a stimulus; it can occur on the stimulation of any sense organ. It can be observed and recorded simultaneously by such response mechanisms as the EEG in the occipital or motor region of the brain, the GSR, muscle tension, eye movement, respiration, and the like. The magnitude of these responses diminishes upon repeated presentation of the stimulus, essentially disappearing after 10 to 15 presentations.

¹⁵ D. G. Brennan (1961), p. 356.

The orienting response is a reaction to novel information (in the information theory sense) and not to the stimulus as such; it is not a conditioned response. Its significance to lie detection is that if a question is routine, orienting (i.e., the magnitude of physiological responses) should be minimal and rapidly disappear. If a question is novel, orienting should be strong and persistent. In other words, a truthful response should result in a minimal orienting reflex. A falsification requires decision, choice of words, a judgment designed for self protection and, in this case, the orienting reflex should be prominent and reinforced.

In summary, the U.S.S.R. must be regarded as highly qualified in the technology of lie detection, at least equal to that of the United States and Soviet scientists are fully competent to accomplish in this area anything that we can do.

10. KNOWLEDGE DETECTION FOR ARMS CONTROL AND POLITICAL PURPOSES

An unusual proposal to use lie detection as a means of inspecting an arms control agreement was first made in January 1956 by Lewis C. Bohn (1960, 1961) in a RAND memorandum; in later versions, he calls this idea "knowledge detection." Another suggestion, called "truth detection" has been made by Gerard (1961) that the polygraph technique be used to demonstrate truthful intent in international political affairs:

"The proposal is simply this: all key men, speaking officially for their country in private negotiations or public addresses, subject themselves to lie, or better, truth detection procedures administered by technicians from an opposing country or from the UN. More positively, when a statesman wished to convince the world that he was making a true statement he would subject himself to truth detection."

Both of these ideas assume that additional knowledge about the polygraph would increase our willingness to use it for purposes beyond those of conventional interrogation. Bohn recognizes that the accuracy of lie detection is not known and that claims for its validity may be suspect. Bohn and Gerard believe that a carefully designed, full-scale research program is desirable because it may improve the reliability of the lie detection procedure, reduce the need for subjective judgment in interpreting the results, and increase our understanding of the underlying physiological and cultural processes which influence its accuracy.

The remainder of this section is concerned solely with the application of lie detection to arms control inspection because of its possible military value. It is important to know the true reliability and validity of the lie detection method; while higher values are desirable, the actual values are not critical except that they would influence the number of people who would have to be interrogated to achieve any desired level of statistical confidence and, naturally, establish an upper bound to the value of this method.

American participation in an arms control agreement with the U.S.S.R. requires reliable assurance that no attempt is being made to violate the agreement. This assurance can be accomplished only by direct physical inspection of weapon delivery systems, fissionable materials, factories, test sites, and the like. The categories of information which are required to make an arms control agreement acceptable are described in Frisch (1961). The history of our negotiations with the Russians provides little reason to believe that they would accept on-site inspection on a scale required for reasonable assurance of compliance with an agreement. At one time they proposed a limited amount of such inspection, which we regarded as inadequate; since then their position has become even less cooperative.

Knowledge detection, assuming improved lie detection methods are feasible, provides a means around this impasse and, in certain respects, provides additional capability to the concept of inspection. Knowledge detection does not necessarily require inspectors to travel all over the U.S.S.R. Knowledge detection requires only that access be afforded to selected individuals who, by virtue of their positions as key scientists, military or political figures, would be in a position to know about current activities in such critical areas as troop movements, weapon developments, nuclear tests, and the like. Most of these people are identifiable and therefore an agreement would provide that some proportion of them could be interrogated regularly, probably on a random basis. Evidence from such interrogations that a violation may have occurred would point to the need for an on-site, physical inspection at a particular location or activity. Thus, there could be fewer physical inspections without reducing our confidence in the degree of compliance with an agreement.

Nonphysical inspection would also potentially make available a type of information beyond the capability of any physical means of inspection. This lies in the area of intent and future plans which, in general, produce limited physical

evidence. It also affords some means of knowing about technological developments for future weapons with physical characteristics beyond the detection capability of an inspection system set up before knowledge of their existence was available; or of tests conducted at remote times and places below the sensitivity level of an existing detection system.

There are some limitations to physical inspection. It is very costly, requires some selection among all the possible events of interest, and can only respond above the threshold of those sensors which have actually been installed. On the other hand, knowledge is pervasive and is not bound by time or place.

Bohn and others¹⁷ who have explored this idea recognize that it has advantages and disadvantages. The characteristics of a nonphysical inspection scheme would have to be evaluated carefully to determine whether it has a useful role, among many means of inspection, in providing the information necessary to assure us that possible military and political agreements are not being violated.

Knowledge detection is proposed by its supporters as an adjunct to and not a substitute for physical inspection. There are formidable questions as to whether lie detection would work when used by people of different cultures; or whether the records of key leaders would show indications of deception when they deliberately mislead foreigners in accord with their country's interest, as they see it. Finally, key leaders need not lie if provisions are made to keep them ignorant of significant developments. There is no evidence that the U.S.S.R. would find non-physical inspection any more acceptable than physical inspection or that an agreement with them could be reached in which it was one of the means of inspection.

To some extent, the use of lie detection in search of knowledge among a group of people is a simpler problem than whether a particular individual has committed a crime. In the latter case, extremely high reliability is required. In the former, we are searching only for leads which become significant when observed in several people and which alert us that a particular type of event may have occurred and that, therefore, a particular physical inspection may become necessary. Detection of knowledge among many people lends itself, conceptually at least, to the use of standardized, pretested questions, simultaneous testing of groups of people, multiple recorder, and automated data processing.

For purpose of the present paper, however, it is sufficient to recognize that additional research in lie detection is desirable primarily for the use to which it is now put in our own military establishment. Research and development for such purposes will also provide the information required to apply lie detection to other uses that may arise in the future, of which arms control inspection is a prime example. The question as to whether or not we should consider it for such use obviously requires that we know more about the capabilities of lie detection, the problems faced in its employment with individuals in a society competitive with our own, the sampling procedures which would be required and the value of the information derived by its use in comparison with the cost of operating such a data-gathering system. These questions can only be answered by supporting additional research and development on these topics.

11. THE INTERVIEW TECHNIQUE IN LIE DETECTION

One could write a treatise on lie detection by considering the interview technique to the neglect of the polygraph instrument. Lie detection requires the use of a delicately controlled interview in order to understand the instrumented responses which are obtained. The intimate combination of interview technique and polygraph technique is recognized by polygraph examiners and the key writers on lie detection. In describing the interview, attention is directed to the use of "relevant-irrelevant" type questions, "peak of tension" procedures, control questions and the need for repeating a test; there is clear concern with the importance of a well-controlled interview. Learning how to interview properly comprises a substantial portion of the training of a polygraph examiner. This probably accounts for the preference for polygraph examiners who have previously qualified as military investigators.

Prior to an examination, the examiner is supposed to prepare his questions in a form which permits only "Yes" or "No" answers. Before the polygraph is attached, it is general practice to review with the person the precise questions to be asked to make sure that they are completely understood. A polygraph examination is severely contaminated if a person does not understand the

¹⁷ Melman (1958), pp. 38-44; Milburn et al. (1960); Bernard T. Feld in Brennan (1961), pp. 317-332; Jerome B. Weisner in Henkin (1961), pp. 112-140; Jay Orear (1961).

questions being asked or if he is responding emotionally to embarrassing or shameful features in these questions not known to the interrogator. Every reasonable attempt must be made to reduce such extraneous influences; the meaning of the questions must be clear and obvious; the manner of the examiner must be neutral. There is no need to emphasize further the obvious significance of the interview upon the test and we may turn directly to the problems it poses as to the accuracy of the lie detection procedure.

Though the technique of an interview is an art rather than a science, certain of its aspects are amenable to standardization and evaluation and it is likely that interview techniques within a multiexaminer unit could be reasonably standardized. Nevertheless, the reliability of the interview associated with the polygraph examination has never been statistically evaluated. Yet, it is known from other studies that the reliability of interviews (agreement between different interviewers in reporting identical material) varies widely; typical values range from 40 to 80 percent (Hyman, 1954). It is entirely possible, and probably desirable, to improve the content, format of questions and the order in which questions are presented in the lie detection interview. The problem with any single question is to determine whether alone or as a consequence of the order in which it appears it presents ambiguous unclear meanings to the recipient—not to the examiner. This can only be determined by an objective method, similar to the procedure used in the development of any standardized intelligence or personality test. The method is tedious but quite straightforward. It involves collecting all the answers that may be given in response to any particular form of asking a question, including the order in which it is presented. Since ultimately only "Yes" or "No" answers are desired, the real problem is to determine what the subject had in mind with each answer. This preliminary procedure is required to assure us that all of the characteristics of the questions employed in an interview are, in fact, known. There is no evidence that this has ever been done in lie detection or that advantage has been taken of techniques that are available for dealing with this problem. This is not to deny, of course, that the importance of the interview has been recognized or that efforts have been made to improve it on an intuitive, but not an objective, basis.

A standardized lie detection interview would apply primarily to situations which permit a routine procedure, such as in interrogation based on a personal history statement. It would, in effect, provide an "optimized" interview; it would standardize the interrogation and assure us that all persons are dealt with in the same manner. It would reduce the variability due to the personal technique and competence of the examiner. It would permit comparison of an individual's responses with that of the group. It would provide a basis for training polygraph operators.

Another limitation to an interview is that the personal manner of the examiner can easily affect the outcome even if completely standard questions are used. Only anecdotal evidence is available on this point but it is obviously a matter of great importance. In psychotherapy, we know that a patient is urged to move from one therapist to another until he finds one in whom he can confide; the therapist is responsible for pointing this out if it is not otherwise obvious. Similar responsibilities concerning the mutual compatibility of the client and

Polygraph examiners acknowledge the existence of this problem and attempt to deal with it in a variety of ways, such as by supervision, attempting to "match" the examiner with the subject, observing the interview through a one-way mirror and/or over an intercom, and by encouraging an examiner to excuse himself from any interrogation in which he feels he is being ineffective. Any effort to act in accordance with such rules must be highly regarded. Here, again, the question is whether such restraints are actually adhered to in practice. Doubtless, abuses are likely to creep in when the staff are overloaded, when there is inadequate supervision or when an examiner works alone.

It would be relatively easy to determine objectively the magnitude of such influences by comparing the effectiveness of different examiners with a carefully selected sample of similar cases. An interesting idea, which is being employed on an experimental basis in psychotherapy, is to observe the emotional responses of the therapist to the patient during interviews. This notion could be adapted to research on the lie detection interview.

It would also seem highly desirable to create impartial boards of professional overseers to establish standards to guide and help the examiner as well as to assure the Government that thoroughly professional practices are being observed. It is believed that no such professional supervision and review is presently in effect anywhere in the Government.

12. SELECTION AND TRAINING OF POLYGRAPH EXAMINERS

The selection and training of polygraph examiners within the various branches of the Government proceeds along similar lines; the differences are not significant.

It is preferable, but not mandatory, that a prospective examiner be a college graduate; in some agencies, one to two years of college is acceptable. It is desirable in all agencies, and mandatory in some, that the candidate be a qualified field (or security) investigator. The ability to speak one foreign language is required for field examiners in one organization. All examiners are civilians in the Navy and military in the other services. It is highly desirable that a candidate be mature, poised, intelligent and emotionally stable but no formal measures are in effect to help screen people for these traits, such as a psychological assessment test and/or an interview with a psychiatrist. In at least one organization, an applicant's record is evaluated by a committee of senior polygraph examiners before he will be accepted for training; in another organization, the applicant is interviewed by a board of five senior examiners whose independent judgments are a basis for acceptance.

Formal training ranges from 6 to 10 weeks at full-time schools. Most curriculums appear to be derived from the Keeler Polygraph Institute and include operation of the polygraph, interrogation procedures, record interpretation, legal, medical and psychological aspects, practice, and casework.

After formal training, some effort is made to supervise the work of a novice examiner but no consistent practice is discernible. In one organization, the examiner is supervised for 18 months after schooling before he is permitted to examine a case without supervision in the field.

There is no reason to doubt that a reasonable and conscientious effort is made to select and train polygraph examiners within the limits imposed by the competition for qualified personnel and the training facilities available to military and governmental organizations. An attempt to improve the professional status and quality of this operation would afford an opportunity to review the curriculums, selection policies, training procedures, and facilities provided for this purpose. It is believed that increased support and recognition would prove helpful.

There is room for improvement by providing for psychological assessment of candidates before they are qualified. Since the examiner's manner and bearing must affect his ability to conduct an interrogation, it is surprising that an overall psychological evaluation which would include a battery of psychological tests and a psychiatric interview is not used to screen prospective examiners. An incidental value of this step would be to provide data for improving selection procedures in the future. One would initially try to select candidates with the psychological characteristics of the effective examiners and to reject the others; and confirm the effectiveness of such procedures as experience builds up. It may also be desirable to review examiners for psychological suitability every year or two after they are on the job, since changes in psychological stability are not unknown in stressful occupations.

There are also some civilian training facilities. The Keeler Polygraph Institute (Chicago) and the National Training Center of Lie Detection (New York) provide 6-week training sessions which have been attended by police trainees, Coast Guard, and a few private operators. The National Training Center sponsors 3- and 5-day work conferences for polygraph examiners which have been attended, in addition to those mentioned above, by representatives of the Armed Forces (excluding the Navy), the Treasury Department, and employees of manufacturing or sales companies. Courses are also provided at such colleges as the University of California, Washington State College, New York University, and San Jose State College (California). At one time, C. H. Stoelting, a respected manufacturer of lie detection equipment provided a 6- to 9-month correspondence course supplemented by 2 weeks of apprentice training at a police department. Several attempts to establish professional qualification standards and a certification program have led to the formation of the American Academy of Polygraph Examiners, the Board of Polygraph Examiners (now merged with the American Academy), the Academy for Scientific Interrogation, and the National Capitol Polygraph Association (organized recently in Washington, D.C.) There is no way, however, to stop anyone with \$1,000 from buying a polygraph and setting himself up as an examiner in civil life.

13. GENERAL DISCUSSION

There is a remarkable absence of objective information concerning lie detection and the polygraph. No explanation for this state of affairs appears plausible.

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

The experts themselves express divergent views:

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

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

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

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

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

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

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

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

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

methodological aspects of lie detection exist in the universities and research organizations; and in industry for the development of new equipment.

However, research and development does not possess magic properties. It is not likely that a new sensor * * * or a computer program will tell us whether a person is lying. Some research must be undertaken simply to determine whether additional sensors can improve the lie detection procedure. There is a need for experiments with, perhaps, six to ten sensors to determine the contribution each physiological indicator makes, alone and in combination, to the accurate estimation of deception by objective—that is not subjective—means. This has never been done and it is a basic step in an improvement program. Another problem is to develop a series of test situations (from simple and artificial to complex and real) in which experiments on lie detection can be performed with a reasonable expectation that the conclusions will apply to real life situations. With these considerations in mind, a research and development program based on the following guidelines should be undertaken.

A. Study the taxonomy of deception to identify the various types of deception that may exist and the types of responses that might be present in interrogation situations.

B. Develop record reporting procedures which will permit a continuing assessment of the effectiveness of lie detection. Examine the possibility of using already existing records for the purpose of evaluation. The purpose of such studies should be to determine the validity of lie detection in day-to-day operations in situations of interest to the Department of Defense.

C. Determine the reliability of the current polygraph technique by comparing the results of different examiners working independently on the same real life case material.

D. Support laboratory studies in which simultaneous recordings are made of six to ten physiological indicators to determine the reliability of measurement and the relative contribution of each indicator, either alone or in combination, to the validity of lie detection. The following indicators are suggested:

Breathing pattern.

GSR.

Heart rate.

Plethysmograph.

Blood pressure:

Systolic.

Diastolic.

Skin temperature.

Pupillary response.

Muscle tension potentials.

This research should also examine the feasibility of on-line data processing of multiple indicators to yield a product(s) useful to guide the examiner during the interrogation.

E. Develop new equipment in support of laboratory studies:

* * * Sensors: Because of recent developments in medical electronics and bioastronautics, many new sensors and transducers are now available to replace those in present use. The new sensors should be adapted to meet lie detection requirements in order to improve reliability of measurement and convenience of use. Some new sensors will also be required for experimental purposes involving the additional physiological indicators noted above.

F. We must study the possibility that prior conditioning, drugs, or hypnosis, could be used to introduce spurious effects into test records and the steps that should be taken to detect and counteract such influences.

G. The possibility that individuals exhibit unique patterns of autonomic response should be explored to determine whether a preliminary part of each examination could be directed to identify the indicators in which that individual is more likely to respond.

H. Interview procedures associated with use of the polygraph should be evaluated to insure that the content, form, and order in which questions are used contribute to the maximum possible extent to an effective interrogation.

I. Applied research directed toward specific applications of the polygraph (e.g., screening refugees from Cuba, East Germany, or North Vietnam, or for inspecting an arms control agreement with the U.S.S.R.) should be undertaken to identify the technological and procedural problems which must be solved in order to interrogate individuals in foreign languages, foreign cultures, different status systems, and with divergent political allegiances. There are, obviously,

wide differences between cultures concerning the situations in which and the purposes for which deception may be attempted as well as what constitutes mutually acceptable evidence to people of different cultures that deception has, in fact, been attempted. In these studies, we should examine such problems as the development of standard questions (perhaps given by voice tape), simultaneous testing of groups of people, rapid analyses of data, simplified and transportable equipment, and the countermeasures which might be employed to interfere with such tests.

Second, there is a need to upgrade, standardize, and regulate lie detection activities throughout the Department of Defense. This should be accomplished for the Government as a whole although such a proposal is beyond the scope of this report. Professional guidance of a high order is required to assure us that lie detection is being conducted effectively, to protect the private rights of our citizens, to establish lie detection standards, to support polygraph examiners, to advise the Department of Defense on the general level of performance in this area, and to make recommendations to improve our capability when this is required.

There is a need to establish standard methods for performing polygraph examinations, data reporting, and review procedures, and for the selection, training and certification of examiners. All such standards should be promulgated in a manual of procedures for the guidance and supervision of examiners. Accomplishment of such results will require the support and assistance of polygraph examiners and scientists in the areas of medical electronics, physiology, psychology, and psychiatry, from the civil and military services, both within and outside the Government.

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EXHIBIT 51—FEDERAL GOVERNMENT RESEARCH AND STUDIES ON THE USE OF POLYGRAPHS, 1964

On April 15, 1964, the Foreign Operations and Government Information Subcommittee asked each Federal agency using polygraphs as "lie detectors" for a list of studies and research projects on the subject. Only the Defense Department and the Atomic Energy Committee provided unclassified lists of research or studies. The AEC study is printed at page 166 of the subcommittee's hearings. Following is the Defense Department's letter listing that agency's research studies. The major DOD study, prepared under contract by the Institute for Defense Analysis, is printed at page 419 of the subcommittee's hearings.

ASSISTANT SECRETARY OF DEFENSE,
Washington, D.C., May 27, 1964.

Hon. JOHN E. MOSS,
Chairman, Foreign Operations and Government Information Subcommittee, House Committee on Government Operations, Washington, D.C.

DEAR MR. CHAIRMAN: I have been requested to respond to your letter of April 15, 1964, to the Secretary of Defense, which requested a list of studies involving the polygraph sponsored by components of the Department of Defense since 1950.

The reported pertinent studies, divided according to the sponsoring component, are as follows:

OFFICE OF THE SECRETARY OF DEFENSE

IDA Technical Report No. 62-16, "An Assessment of Lie Detection Capability," July 31, 1962, Contract SD-50, Task 8, \$50,000. (This is an approximate figure based on an estimated portion of the undivided IDA contract.)

DEFENSE ATOMIC SUPPORT AGENCY

Contract of January 8, 1952, Russell Chatham, Inc., Oak Ridge, Tenn., \$7,000.

DEPARTMENT OF THE ARMY

A. Studies of reports completed since 1950

1. *The use and evaluation of a personnel discriminator in counterinsurgency.*—Research Memorandum 63-1. Prepared by Mr. Andrew R. Molnar and Mr. Adrian H. Jones of the Special Operations Research Office, American University, under contract to the Army. Completed in September 1963. Cost: \$3,566.

2. *Testing the transistorized detector set.*—File Code MPCDA 62-55. Prepared by the U.S. Army Military Police Board, Fort Gordon, Ga. Completed in 1962.

3. *The lie detector and its use in the Army.*—File Code JAGJ 1959/5266. Prepared by Capt. Dennis A. York, Office of The Judge Advocate General. Completed in July 1959.

4. *Testing the B. & W. lie detector.*—File Code 56-12. Prepared by the U.S. Army Military Police Board, Fort Gordon, Ga. Completed in 1956.

5. *Military application of polygraph technique.*—File Code ORO-T-5(EUSAK). Prepared by Mr. George W. Haney of the Operations Research Office, Johns Hopkins University, under contract to the Army. Completed January 26, 1951. This study was a subtask of an overall ORO project and was not funded or costed separately.

B. Studies in process

1. *Studies in the detection of deception.*—File Code DA-49-193-MD-2480. Two research reports, "The Effect of 'Lying' in 'Lie Detection' Studies" and "The Effect of Perceived Role and Role-Success on Detection of Deception," prepared by Mr. Lawrence A. Gustafson and Mr. Martin T. Orne of Massachusetts Mental Health Center and Harvard Medical School under contract to the U.S. Army Medical Research and Development Command. This contract terminates August 1, 1964. Cost: \$28,825.

2. *Personnel discrimination device.*—File Code USALWL 05-B-63. Study being performed by the U.S. Army War Laboratory, Aberdeen Proving Grounds, Md. Completion date not yet determined.

3. *Prisoner of war operations in a theater of operations during the period 1965-70.*—File Code USACDC CMPA 61-2. Study by U.S. Army Combat Develop-

ment Command Military Police Agency. Estimated completion date June 30, 1964.

DEPARTMENT OF THE NAVY

A. Completed study

Detection of deception.—Contract No. N6onr-180. Indiana University, February 15, 1952, project director, D. G. Ellson—\$100,000.

B. Study in process to improve methodology relative to certain polygraph components

Psychophysiology associated with interrogation procedures.—Project director, Dr. Leon Otis, Stanford Research Institute—\$37,880. Contract No. NONR 4129(00). Expected completion date June 14, 1965.

DEPARTMENT OF THE AIR FORCE

1. Fordham University

Initial contract AF 30(602)-2270, awarded March 1960, by the Rome Air Development Center, is a cost-reimbursable type in the sum of \$24,953. The contract is complete and resulted in Report No. RADC-TR 62-205 entitled "Studies in Lie Detection, Computer Feasibility Considerations" by Joseph F. Kubis.

A second contract AF 30(602)-2634 was awarded March 1, 1962, which is now nearing completion. This is also a cost-reimbursable contract in the approximate sum of \$46,000. The principal investigator is Dr. Joseph F. Kubis.

2. University of Georgia

Initial contract AF 30(602)-3380 awarded February 1964 by the Rome Air Development Center in the approximate amount of \$25,000 is a cost-reimbursable contract. Completion is expected in early 1965. The principal investigator is Dr. H. Zimmer.

(Both of these studies were awarded on a competitive solicitation of universities considered competent.)

3. Hebrew University, Jerusalem, Israel

This grant (AF-EOAR Grant 63-61) awarded by the European Office, Aerospace Research, Air Force Office of Scientific Research. The grant was \$2,475 and the study was completed October 31, 1963, in a report "Effects of Three Levels of Realistic Stress on Differential Physiological Reactivities." The principal investigator was Dr. S. Kugelmass.

Please let me know if you desire further information.

Sincerely yours,

(Signed) NORMAN S. PAUL,
Assistant Secretary of Defense (Manpower).

EXHIBIT 52—COMPARISON OF DOD USE OF POLYGRAPHS, 1963 AND 1964

	Tests performed	Polygraphs owned	Authorized polygraph examiners	Salary costs	Other annual costs
<i>1963</i>					
Army.....	12,494	261	358	\$1,788,136	\$18,270
Navy.....	2,012	86	106	873,299	5,769
Air Force.....	1,912	72	73	494,766	28,297
OSD.....	140	3	3	19,016	1,984
Total.....	16,558	422	540	3,180,217	54,320
<i>1964</i>					
Army.....	8,370	248	270	1,146,547	56,477
Navy.....	3,861	99	97	804,546	4,453
Air Force.....	1,336	68	58	264,548	17,631
OSD.....	102	4	5	22,531	915
Total.....	13,669	419	430	1,038,172	79,476

¹ Based on estimate of 5 percent of personnel total time.

² Based on estimate of 12 percent of personnel total time.

EXHIBIT 53A—SUBCOMMITTEE SUPPLEMENTAL QUESTIONNAIRE OF MAY 6, 1965,
ON USE OF POLYGRAPHS BY FEDERAL AGENCIESFOREIGN OPERATIONS AND GOVERNMENT
INFORMATION SUBCOMMITTEE,
COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, D.C., May 6, 1965.

DEAR MR. ———: The Foreign Operations and Government Information Subcommittee is continuing a study, begun in 1963 at the direction of House Government Operations Committee Chairman William L. Dawson, into the use of polygraphs as "lie detectors" by Federal agencies. Initial hearings were held on the subject, and the committee adopted a report on which your agency has been asked to comment.

To complete its study, the subcommittee needs supplemental information from agencies such as yours which indicated, in answer to a subcommittee questionnaire dated June 11, 1963, that their policies and practices provide for the use of polygraphs as "lie detectors." Please provide complete answers to the following questions by June 7, 1965.

The answers should cover all subordinate organizations within your agency. If the subordinate organizations use polygraphs for different purposes or under different procedures, please break down the requested information by subordinate organizations in addition to providing an agencywide compilation.

Sincerely yours,

JOHN E. MOSS, *Chairman.*

QUESTIONNAIRE ON USE OF POLYGRAPHS AS "LIE DETECTORS"

1. For what specific purposes does your agency use polygraphs as "lie detectors"?
2. How many so-called lie detection tests using polygraphs or similar devices were conducted by your agency in fiscal 1964 for each of the specific purposes listed in answer to question No. 1?
3. How many such tests were conducted by other agencies, public or private, at the request of your agency in fiscal 1964? Identify the other agencies, state the number of tests performed by each agency and state the costs, if any.
4. At what location (city and State if domestic, city and country if foreign) was each of the tests listed in answer to questions 2 and 3 given?
5. How many polygraphs or other so-called lie detection devices are the property of your agency?
 - (a) How many of these devices were purchased during fiscal 1964?
 - (b) How many of these devices were purchased as replacements?
 - (c) What was the acquisition cost of the devices purchased during fiscal 1964?
 - (d) Identify by brand and model the devices purchased during fiscal 1964.
6. How many polygraphs or other so-called lie detection devices were leased during fiscal 1964? At what cost?
7. How many employees of your agency are authorized to conduct examinations using polygraphs or similar lie detection devices?

What were the total salary costs for these employees during fiscal 1964?

8. Estimate all other expenses attributable to the use of polygraphs as lie detectors during fiscal 1964, including maintenance of the devices, travel expenses for examiners, and training programs.

9. What are the minimum qualifications for employees of your agency authorized to conduct examinations using polygraphs or similar "lie detection" devices? State specifically the minimum requirements of—

- (a) Age;
- (b) Education;
- (c) Grade or rank;
- (d) Years of investigative experience;
- (e) Length of specialized training.

10. Describe, in general, any polygraph training program your agency conducts for employees of your agency; include length of academic training and on-the-job experience required as part of the training program.

11. Identify all other polygraph training facilities, either government or private, used for employees of your agency and state—

(a) The number of employees who attended such training facilities during fiscal 1964;

(b) The cost per employee exclusive of per diem.

12. What weight is given the data resulting from tests by polygraphs or similar "lie detection" devices in relation to other types of investigative information?

(a) Who makes the initial determination to use such devices?

(b) Is this initial determination subject to review by higher authority in each case?

(c) At what specific administrative level is the review made?

13. If a person connected with your agency refuses to take a polygraph or other "lie detection" test, is information about the refusal made available to any person or agency outside your agency? Does your agency have any written rules or regulations governing this procedure? If so, provide two copies.

14. Does your agency use two-way mirrors to permit observation of a polygraph or similar "lie detection" test or use recording devices during such a test?

(a) If so, in either case, are the individuals taking the tests informed of the existence of the two-way mirrors or recording devices?

(b) Does your agency have any regulations governing the use of the two-way mirrors or recording devices during interrogations? If so, provide two copies.

15. Has your agency during fiscal 1964 undertaken or contracted for any research projects involving the use of the polygraph or other so-called lie detection devices?

(a) If so, please identify the research project and the researcher (or university);

(b) Please state the total costs incurred for each of these research projects.

16. Has your agency ever been involved in any legal or administrative matter involving the use of the polygraph or any other so-called lie detection device? (This question is intended to elicit any reference,

regardless of degree of use, to the polygraph in these judicial or administrative proceedings.)

(a) If your agency holds administrative hearings, are any references to polygraph examinations admitted in evidence?

(b) If the answer to question 16(a) is in the affirmative, is the polygraph operator made available for examination and cross-examination purposes?

(c) Are polygraph charts and other related documents admitted in evidence in these administrative hearings?

17. If your agency has issued any new regulations or directives pertaining to the use of polygraphs and other so-called lie detection devices since your answer to the subcommittee questionnaire dated June 11, 1963 (or if your agency has amended any existing regulations or directives), provide two copies of each.

EXHIBIT 53B—REPLY FROM THE DEPARTMENT OF DEFENSE TO SUBCOMMITTEE QUESTIONNAIRE OF MAY 6, 1965

ASSISTANT SECRETARY OF DEFENSE,
Washington, D.C., June 22, 1965.

Hon. JOHN E. MOSS,
Chairman, Foreign Operations and Government Information Subcommittee, House Committee on Government Operations, Washington, D.C.

DEAR MR. CHAIRMAN: I have been requested to respond to your letter to the Secretary of Defense dated May 6, 1965, which requested supplemental information concerning use of polygraphs in the Department of Defense.

The information you requested is attached, as follows:

- (1) Summary providing agencywide compilation.
- (2) Data relating to use of polygraph by the military departments and the Defense Intelligence Agency.
- (3) Use of the polygraph examination by the Office of Industrial Personnel Access Authorization Review.
- (4) Data relating to use of polygraph by NSA.
- (5) Copies of regulations requested by the committee.

Please note that in the response to question 4, certain of the data are sensitive and are classified secret; further, that certain of the data provided concerning use of the polygraph by the National Security Agency also is classified.

Requests for data from the Defense Atomic Support Agency and the Defense Supply Agency were inadvertently omitted; this information should be forthcoming soon.

Please let me know if you desire any additional information.

Sincerely yours,

NORMAN S. PAUL.

SUMMARY

Question 1. See reply.

Question 2. During fiscal year 1964 the Department of the Army conducted 8,370 examinations, the Department of the Navy conducted 3,113, the Marine Corps conducted 748, the Department of the Air Force conducted 1,336, and DIA conducted 3 examinations. Department of Defense total: 13,570 examinations conducted.

Question 3. In fiscal year 1964, 20 polygraph examinations were conducted by civilian law enforcement agencies for agencies of DOD. No charge was made for administration of these 20 examinations.

Question 4. See reply.

Question 5. How many polygraphs are the property of DOD agencies? Total: 416.

(a) How many devices were purchased during fiscal year 1964? Total: 47.

(b) How many were purchased as replacements? Total: 29.

(c) What was the acquisition cost during fiscal 1964? Total: \$46,527.

Question 6. Polygraphs leased by DOD agencies during fiscal 1964: None.

Question 7. There are 426 personnel in Army, Navy, Air Force, and DIA authorized to conduct polygraph examinations.

Question 8. Total estimated expenses attributable to the use of the polygraph during fiscal 1964 for Army, Navy, Air Force, and Marine Corps: \$78,562.38.

Questions 9-14. See replies.

Question 15. Estimated cost to DOD for research projects initiated during fiscal 1964 involving the use of the polygraph was \$96,003.00.

Questions 16-17. See replies.

1. For what specific purposes does your agency use polygraphs as "lie detectors"?

Army

PMG: The polygraph, except when employed in examiner training, is used by the U.S. Army military police as a technical aid in criminal investigations.

OACSI: Army Intelligence employs the polygraph as an aid to investigation in connection with:

(a) Suitability and loyalty investigations: Used as a means of attempting to resolve conflicting suitability or loyalty information when the exploitation of leads through other investigative techniques have been exhausted or is impossible.

(b) Special counterintelligence operations: Includes its use in investigations into acts or alleged acts or incidents of espionage, sabotage, treason, or subversion primarily in overseas areas where the U.S. Army has investigative jurisdiction.

(c) Source and intelligence support personnel investigations: Used as a means to assist in controlling and checking on the reliability and veracity of source and support personnel used in intelligence operations.

(d) Alien clearances: Used in the investigation of aliens being cleared for access to defense information. A polygraph examination is used to cover those portions of a background investigation which cannot be investigated because of geographical or political considerations.

(e) Screening of military personnel: The polygraph is used to assist in selecting eligible personnel for assignment/training which requires access to cryptologic or other sensitive material.

Navy

ONI: The specific purposes for which the Office of Naval Intelligence utilizes polygraphs are as follows:

(a) As an investigative aid in complaint and criminal type cases, in conjunction with an investigation, not in lieu thereof.

(b) In connection with specific programs as directed by higher naval authority or Department of Defense, that is, screening of individuals concerning whom there exists no other avenues of investigation to determine their suitability for access to classified material.

Marine Corps: The polygraph is used as an investigative aid in interrogation of suspects and witnesses in criminal cases to assist in the evaluation of their testimony. These tests are used in felony investigations, disclosures of classified information investigations, personnel security investigations and may be authorized for use in misdemeanor investigations.

Air Force

Except in very unusual circumstances the use of the polygraph is reserved for serious criminal offenses and counterintelligence matters. It is used as an investigation aid. While the results are often useful in the interrogative process they are never relied upon independently or substituted for other logical investigative effort. The polygraph is not used by the Air Force as an employment screening device. On infrequent occasion in the course of a background investigation of an alien seeking entry into the Air Force, a period of his life during which he resided behind the Iron Curtain may be encountered. The Air Force has no way of verifying the information furnished by him concerning this period; therefore, this phase only of the overall background investigation is often conducted through resort to the polygraph.

DIA

The Defense Intelligence Agency employs the polygraph as an investigative aid when investigation by other means has been as thorough as circumstances permit and the subject has been interviewed but further productive investigative effort is not likely without a polygraph examination. It is used to assist in determinations whether to grant, deny, or withdraw a security clearance higher than confidential and when the information furnished by the individual cannot be checked through the use of other investigative methods. An essential determining factor in the use of the polygraph is that usage be clearly consistent with the interests of national security.

2. How many so-called lie detection tests using polygraphs or similar devices were conducted by your agency in fiscal 1964 for each of the specific purposes listed in answer to question No. 1?

Army

PMG: During fiscal year 1964, U.S. Army military police personnel conducted approximately 5,150 polygraph examinations for criminal investigations. Additionally, six were conducted in connection with inquiries preliminary to administrative board proceed-

ings; however, the results of the examinations were not considered by the boards.

OACSI: There were 609 examinations conducted in conjunction with suitability and loyalty investigations; 333 examinations were conducted in conjunction with special counterintelligence operations; 796 examinations were conducted in conjunction with source and intelligence support personnel investigations; 410 examinations conducted in conjunction with alien clearances; there were 1,066 examinations conducted in conjunction with screening of military personnel—a total of 3,214 examinations.

Department of the Army total: 8,370 examinations conducted.

Navy

ONI: The total number of polygraph examinations conducted by the Office of Naval Intelligence in fiscal 1964 was 3,113 divided as follows:

(a) 3,083: As an investigative aid in complaint and criminal-type cases, in conjunction with investigation, not in lieu thereof.

(b) 30 (Veterans of the Cuban 2506 Brigade in connection with their augmentation on a permanent basis into the U.S. Navy and U.S. Marine Corps): In connection with specific programs as directed by higher naval authority or Department of Defense; that is, screening of individuals concerning whom there exists no other avenues of investigation to determine their suitability for access to classified material.

Marine Corps: A total of 748 polygraph examinations were conducted within the Marine Corps during fiscal 1964. A category breakdown as relates to each specific purpose is not readily available.

Air Force

There was a total of 1,336 polygraph examinations conducted during fiscal 1964. Of this total, 1,016 involved serious criminal matters, 301 involved counterintelligence matters, and 19 were in conjunction with background investigations of aliens.

DIA

DIA: Three polygraph examinations were conducted in fiscal year 1964. All were conducted in conjunction with clearance actions for access to information higher than confidential and when the need for such examination was clearly consistent with national security interests.

3. How many such tests were conducted by other agencies, public or private, at the request of your agency in fiscal 1964? Identify the other agencies, state the number of tests performed by each agency and state the costs, if any.

Army

PMG: In fiscal year 1964, two polygraph examinations were conducted by other agencies for U.S. Army military police. One examination was conducted for Fort Bliss, Tex., by an examiner from the Borger City Police Department, Borger, Tex.; the other examination was conducted for Fort Hayes, Ohio, by an examiner from the Ohio

State Highway Patrol, Columbus, Ohio. In both instances, a military police criminal investigator/polygraph examiner was not available to conduct the examination. No costs were assessed to the Federal Government for either of these examinations.

OACSI: None.

Navy

ONI: In fiscal 1964, 17 polygraph examinations were conducted by other agencies at the request of the Office of Naval Intelligence; all were conducted without cost to the Navy. Identity and location of these agencies are as follows:

Sheriff's office, Jefferson County, Beaumont, Tex.: One examination.

112th INTC, U.S. Army, Little Rock, Ark.: One examination.

901st INTC, U.S. Army, Sandia Base, Albuquerque, N. Mex.: One examination.

46th CID, U.S. Army, Sandia Base, Albuquerque, N. Mex.: Five examinations.

U.S. Army, INTC, Panama Canal Zone: One examination.

U.S. Marine Corps, Camp Pendleton, Calif.: Seven examinations.

Police department, Phoenix, Ariz.: One examination.

Marine Corps: None.

Air Force

During fiscal 1964 other agencies conducted 45 tests at our request.

Agency	Number of tests
Pima County Sheriff's Office, Tucson, Ariz.	1
U.S. Marine Corps, San Diego, Calif.	4
U.S. Marine Corps, Mount Laguna Air Force Station, Mount Laguna, Calif.	5
U.S. Army CID, Denver, Colo.	1
Michigan State Police, Marquette, Mich.	10
Alamogordo Police Department, Alamogordo, N. Mex.	1
46th MP (CID), Sandia Base, Albuquerque, N. Mex.	1
Amarillo Police Department, Amarillo, Tex.	4
ONI, U.S. Navy, Puerto Rico Naval Station, San Juan, P.R.	5
U.S. Army CID, Fort Buchanan, San Juan, P.R.	10
INTC (CIC), U.S. Army, Fort Brooke, San Juan, P.R.	2
Central Intelligence Agency, Washington, D.C.	1
Total	45

There were no costs involved in the administration of any of the above listed polygraph examinations. The 16 examinations conducted by civilian law enforcement agencies were necessitated by reason of the temporary nonavailability of an OSI examiner. Air Force policy is being rewritten to prohibit utilization of non-Federal agencies in the conduct of polygraph examinations.

DIA

DIA did not request the conduct of polygraph examinations by any other agency, public or private, during fiscal year 1964.

4. At what location (city and State if domestic, city and country if foreign) was each of the tests listed in answer to questions 2 and 3 given?

Army

PMG: Domestic.

<i>Location</i>	<i>Number of tests</i>	<i>Location</i>	<i>Number of tests</i>
Fort McClellan, Ala.....	26	Fort Knox, Ky.....	114
Redstone Arsenal, Ala.....	37	Fort Polk, La.....	96
Fort Rucker, Ala.....	12	Shreveport, La.....	2
Fort Richardson, Alaska.....	42	Aberdeen Proving Ground, Md.....	21
Fort Wainwright, Alaska.....	41	Fort Meade, Md.....	96
Fort Huachuca, Ariz.....	16	Boston Army Base, Mass.....	12
Yuma Test Station, Ariz.....	10	Fort Devens, Mass.....	31
Fort Chaffee, Ark.....	1	Fort Wayne, Detroit, Mich.....	2
Fort MacArthur, Calif.....	30	Fort Snelling, Minn.....	7
Oakland Army Terminal, Calif.....	11	Fort Leonard Wood, Mo.....	49
Fort Ord, Calif.....	88	Fort Dix, N.J.....	91
Presidio of San Francisco, Calif.....	29	Fort Monmouth, N.J.....	34
Sacramento Army Depot, Calif.....	2	10th MP Detachment (CI), New York, N.Y.....	63
Fort Clayton, C.Z.....	33	Seneca Army Depot, N.Y.....	10
Fort Davis, C.Z.....	10	Fort Bragg, N.C.....	210
Fort Buchanan, C.Z.....	12	Fort Sill, Okla.....	63
Fort Carson, Colo.....	151	Defense Clothing and Textile Supply Center, Philadelphia, Pa.....	2
Fitzsimons Army Hospital, Colo.....	3	Pittsburgh, Pa.....	1
Walter Reed Army Medical Center, Washington, D.C.....	30	Fort Jackson, S.C.....	61
Fort Benning, Ga.....	36	Fort Bliss, Tex.....	130
Fort Gordon, Ga.....	89	Fort Hood, Tex.....	250
Fort McPherson, Ga.....	13	Fort Sam Houston, Tex.....	39
Fort Stewart, Ga.....	35	Dugway Proving Ground, Utah.....	7
Fort Shafter, Hawaii.....	45	Fort Belvoir, Va.....	43
Chicago, Ill.....	1	Fort Eustis, Va.....	59
Fort Sheridan, Ill.....	36	Fort Lee, Va.....	11
Fort Benjamin Harrison, Ind.....	28	Fort Monroe, Va.....	7
Fort Leavenworth, Kans.....	25	Fort Myer, Va.....	52
Fort Riley, Kans.....	68	Fort Lewis, Wash.....	104
Fort Campbell, Ky.....	81		

OACSI: Number of polygraph examinations conducted by U.S. Army Intelligence units in Conus by location during fiscal year 1964. (Omitted from the figures below are 137 polygraph examinations for which no record is available as to the exact place each was performed.)

<i>Location</i>	<i>Number of tests</i>	<i>Location</i>	<i>Number of tests</i>
Fort Rucker, Ala.....	1	Burlington, Iowa.....	3
Maxwell Air Force Base, Ala.....	1	Fort Campbell, Ky.....	2
Redstone Arsenal, Ala.....	6	Lexington Depot, Ky.....	18
Fort Chaffee, Ark.....	3	Fort Polk, La.....	1
Fort Ord, Calif.....	50	New Orleans, La.....	1
Fort Scott, Calif.....	11	Fort Holabird, Md.....	12
Fresno, Calif.....	1	Fort Meade, Md.....	18
Monterey, Calif.....	7	Fort Ritchie, Md.....	86
Moffett Field, Calif.....	3	Fort Devens, Mass.....	8
Oakland, Calif.....	1	Battle Creek, Mich.....	18
Pasadena, Calif.....	1	Jackson, Miss.....	1
Sacramento, Calif.....	16	Keesler Air Force Base, Miss.....	8
San Francisco, Calif.....	2	Fort Wood, Mo.....	1
Travis Air Force Base, Calif.....	2	Fort Bragg, N.C.....	23
Washington, D.C.....	355	Fort Monmouth, N.J.....	490
Cocoa, Fla.....	1	Fort Sill, Okla.....	4
Coral Gables, Fla.....	68	Fort Jackson, S.C.....	3
Eglin Air Force Base, Fla.....	1	Knoxville, Tenn.....	1
Jacksonville, Fla.....	1	Oak Ridge, Tenn.....	1
Miami, Fla.....	11	Fort Wolters, Tex.....	1
Orlando, Fla.....	1	Dallas, Tex.....	1
Tampa, Fla.....	1	Fort Hood, Tex.....	4
Fort Benning, Ga.....	36	Fort Houston, Tex.....	1
Fort Gordon, Ga.....	76	Houston, Tex.....	2
Fort McPherson, Ga.....	12	Lackland Air Force Base, Tex.....	72
Robins Air Force Base, Ga.....	1	Dugway, Utah.....	2
Turner Air Force Base, Ga.....	1	Arlington, Va.....	94
Chicago, Ill.....	2	Fort Belvoir, Va.....	1
Fort Sheridan, Ill.....	2	Fort Monroe, Va.....	3
Great Lakes, Ill.....	3	Warrenton, Va.....	1
Bloomington, Ind.....	1	Fort Lawton, Wash.....	1
Fort Harrison, Ind.....	2	Fort Lewis, Wash.....	4

Navy

Number and location of polygraph examinations conducted by ONI during fiscal year 1964.

	<i>Number of tests</i>		<i>Number of tests</i>
1st Naval District:		8th Naval District:	
Boston, Mass.....	131	Houston, Tex.....	3
Portsmouth, N.H.....	13	Corpus Christi, Tex.....	42
Newport, R.I.....	97	San Antonio, Tex.....	2
Quonset, R.I.....	129	Dallas, Tex.....	8
3d Naval District:		New Orleans, La.....	11
New York, N.Y.....	112	New Iberia, La.....	4
Scotia, N.Y.....	6	Albuquerque, N. Mex.....	1
Utica, N.Y.....	3	9th Naval District:	
Rome, N.Y.....	1	Chicago, Ill.....	7
Ithaca, N.Y.....	1	Danville, Ill.....	1
West Milton, N.Y.....	1	Glenview, Ill.....	1
Garden City, N.Y.....	11	Great Lakes, Ill.....	180
New London, Conn.....	22	Springfield, Ill.....	1
Hartford, Conn.....	3	Fort Sheridan, Ill.....	1
Windsor Locks, Conn.....	2	Bloomington, Ind.....	1
Stamford, Conn.....	2	Kansas City, Mo.....	1
4th Naval District:		St. Louis, Mo.....	3
Philadelphia, Pa.....	13	11th Naval District:	
Pittsburgh, Pa.....	8	San Diego, Calif.....	169
Erie, Pa.....	1	Long Beach, Calif.....	46
Camden, N.J.....	20	Los Angeles, Calif.....	13
Cleveland, Ohio.....	4	Corona, Calif.....	1
5th Naval District:		Camp Pendleton, Calif.....	7
Norfolk, Va.....	329	El Centro, Calif.....	2
Little Creek, Va.....	20	China Lake, Calif.....	1
Cherry Point, N.C.....	18	Yuma, Ariz.....	2
Camp Lejeune, N.C.....	85	Phoenix, Ariz.....	1
Bainbridge, Md.....	11	12th Naval District:	
6th Naval District:		San Francisco, Calif.....	58
Key West, Fla.....	10	Monterey, Calif.....	1
Miami, Fla.....	50	13th Naval District:	
Tampa, Fla.....	3	Seattle, Wash.....	33
Orlando, Fla.....	3	Moses Lake, Wash.....	1
Jacksonville, Fla.....	50	Pacific Beach, Wash.....	4
Pensacola, Fla.....	37	Coos Head, Oreg.....	11
Beaufort, S.C.....	4	14th Naval District.....	187
Charleston, S.C.....	65	Naval District Washington:	
Albany, Ga.....	2	Washington, D.C.....	70
Glynco, Ga.....	2	Quantico, Va.....	26
Memphis, Tenn.....	40	Annapolis, Md.....	7
Clarksville, Tenn.....	1	Headquarters, Office of Naval In-	
Meridian, Miss.....	1	telligence:	
Birmingham, Ala.....	2	Fairmont Building, Arlington,	
		Va.....	30

¹ Divided between Honolulu and Pearl Harbor, Hawaii.

Air Force

Location:	Number of tests given
Maxwell Air Force Base, Montgomery, Ala.....	12
Brookley Air Force Base, Mobile, Ala.....	1
Tucson, Ariz.....	3
Little Rock Air Force Base, Jacksonville, Ark.....	5
Blytheville Air Force Base, Blytheville, Ark.....	2
Edwards Air Force Base, Lancaster, Calif.....	1
March Air Force Base, Riverside, Calif.....	19
Oxnard Air Force Base, Oxnard, Calif.....	3
Vandenberg, Air Force Base, Lompoc, Calif.....	5
Beale Air Force Base, Marysville, Calif.....	8
McClellan Air Force Base, Sacramento, Calif.....	3
Mather Air Force Base, Sacramento, Calif.....	3
Travis Air Force Base, Fairfield, Calif.....	3
Hamilton Air Force Base, Ignacio, Calif.....	4
Letterman General Hospital, Presidio of San Francisco, Calif.....	1
Menlo Park, Calif.....	1
San Jose, Calif.....	5
San Diego, Calif.....	4
Mount Laguna Air Force Station, Mount Laguna, Calif.....	5
Lowry Air Force Base, Denver, Colo.....	42
Ent Air Force Base, Colorado Springs, Colo.....	2
Denver, Colo.....	1
Tyndall Air Force Base, Panama City, Fla.....	7
Eglin Air Force Base, Fort Walton Beach, Fla.....	6
Homestead Air Force Base, Homestead, Fla.....	5
MacDill Air Force Base, Tampa, Fla.....	1
McCoy Air Force Base, Orlando, Fla.....	1
Patrick Air Force Base, Cocoa Beach, Fla.....	3
Miami, Fla.....	7
Coral Gables, Fla.....	1
Atlanta, Ga.....	1
Moody Air Force Base, Valdosta, Ga.....	1
Robins Air Force Base, Warner Robins, Ga.....	19
Turner Air Force Base, Albany, Ga.....	3
Dover Air Force Base, Dover, Del.....	3
Hickam Air Force Base, Honolulu, Hawaii.....	3
Mountain Home Air Force Base, Mountain Home, Idaho.....	2
Chanute Air Force Base, Rantoul, Ill.....	4
Chicago, Ill.....	1
Bunker Hill Air Force Base, Peru, Ind.....	4
Sioux City Municipal Airport, Sioux City, Iowa.....	4
Waverly Air Force Station, Waverly, Iowa.....	1
Schilling Air Force Base, Salina, Kans.....	9
Forbes Air Force Base, Topeka, Kans.....	1
Bossier City, La.....	7
Barksdale Air Force Base, Bossier City, La.....	3
Natchitoches, La.....	1
England Air Force Base, Alexandria, La.....	3
Loring Air Force Base, Limestone, Maine.....	10
Topsham Air Force Station, Topsham, Maine.....	2
Suitland, Md.....	17
Westover Air Force Base, Chicopee Falls, Mass.....	50
Otis Air Force Base, Falmouth, Mass.....	6
L. G. Hanscom Field, Bedford, Mass.....	2
Marquette, Mich.....	10
Kincheloe Air Force Base, Kinross, Mich.....	4
Selfridge Air Force Base, Mount Clemens, Mich.....	6
K. I. Sawyer Air Force Base, Gwinn, Mich.....	1
Keesler Air Force Base, Biloxi, Miss.....	6
St. Louis, Mo.....	1
Whiteman Air Force Base, Knob Noster, Mo.....	4
Richards-Gebaur Air Force Base, Belton, Mo.....	1
Glasgow Air Force Base, Glasgow, Mont.....	2
Malmstrom Air Force Base, Great Falls, Mont.....	6

Air Force—Continued

Location—Continued	Number of tests given
Offutt Air Force Base, Omaha, Nebr.	16
Lincoln Air Force Base, Lincoln, Nebr.	5
Stead Air Force Base, Reno, Nev.	2
Nellis Air Force Base, Las Vegas, Nev.	2
Pease Air Force Base, Portsmouth, N.H.	10
Newark, N.J.	2
McGuire Air Force Base, Wrightstown, N.J.	19
Palermo Air Force Station, Ocean City, N.J.	2
Kirtland Air Force Base, Albuquerque, N. Mex.	11
Walker Air Force Base, Roswell, N. Mex.	7
Holloman Air Force Base, Alamogordo, N. Mex.	3
Alamogordo, N. Mex.	1
Plattsburgh Air Force Base, Plattsburgh, N.Y.	5
Griffiss Air Force Base, Rome, N.Y.	6
Niagara Falls Municipal Airport, Niagara Falls, N.Y.	8
New York City, N.Y.	4
Stewart Air Force Base, Newburgh, N.Y.	1
Suffolk County Air Force Base, Westhampton Beach, N.Y.	6
Seymour Johnson Air Force Base, Goldsboro, N.C.	1
Minot Air Force Base, Minot, N. Dak.	1
Wright-Patterson Air Force Base, Dayton, Ohio	7
Lockbourne Air Force Base, Columbus, Ohio	3
Tinker Air Force Base, Oklahoma City, Okla.	5
Altus Air Force Base, Altus, Okla.	7
Vance Air Force Base, Enid, Okla.	4
Clinton-Sherman Air Force Base, Burns Flat, Okla.	3
Portland International Airport, Portland, Oreg.	1
Adair Air Force Station, Corvallis, Oreg.	1
Philadelphia, Pa.	1
Greater Pittsburgh Airport, Coraopolis, Pa.	2
Shaw Air Force Base, Sumter, S.C.	14
Charleston Air Force Base, Charleston, S.C.	9
Myrtle Beach Air Force Base, Myrtle Beach, S.C.	2
Ellsworth Air Force Base, Rapid City, S. Dak.	4
Stewart Air Force Base, Smyrna, Tenn.	4
San Antonio Air Force Station, San Antonio, Tex.	20
Kelly Air Force Base, San Antonio, Tex.	12
Lackland Air Force Base, San Antonio, Tex.	6
Goodfellow Air Force Base, San Angelo, Tex.	3
Pyote Air Force Station, Pyote, Tex.	11
Bergstrom Air Force Base, Austin, Tex.	1
Ellington Air Force Base, Houston, Tex.	1
Laredo, Tex.	1
Sheppard Air Force Base, Wichita Falls, Tex.	20
Reese Air Force Base, Lubbock, Tex.	4
Dyess Air Force Base, Abilene, Tex.	12
Carswell Air Force Base, Fort Worth, Tex.	8
Perrin Air Force Base, Sherman, Tex.	2
Amarillo Air Force Base, Amarillo, Tex.	4
Webb Air Force Base, Big Spring, Tex.	2
Amarillo, Tex.	4
Hill Air Force Base, Ogden, Utah	4
St. Albans Air Force Station, St. Albans, Vt.	1
Langley Air Force Base, Hampton, Va.	8
Fort Lee, Richmond, Va.	1
Richmond, Va.	2
Roanoke, Va.	2
McChord Air Force Base, Tacoma, Wash.	4
Fairchild Air Force Base, Spokane, Wash.	4
Paine Air Force Station, Everett, Wash.	1
Larson Air Force Base, Moses Lake, Wash.	1
Milwaukee, Wis.	1
Truax Field, Madison, Wis.	1

5. How many polygraphs or other so-called lie detection devices are the property of your agency?

- (a) How many of these devices were purchased during fiscal 1964?
- (b) How many of these devices were purchased as replacements?
- (c) What was the acquisition cost of the devices purchased during fiscal 1964?
- (d) Identify by brand and model the devices purchased during fiscal 1964.

Army

PMG, total: 107.

- (a) 5.
 - (b) 2.
 - (c) \$3,557.
 - (d) Stoelting, model AN/USS-2D.
- ACSI, total: 141.
- (a) 10.
 - (b) 1.
 - (c) \$10,870.
 - (d) 3 were Stoelting, model 22530; 1 was Stoelting, model 22500; 6 were Keeler, model 6308.

Navy

ONI, total: 89.

- (a) 20.
 - (b) 15.
 - (c) \$16,550.
 - (d) 10 were Keeler, model 6303; 10 were Keeler, Model 6305.
- Marine Corps, total: 10.
- (a) 1.
 - (b) 1.
 - (c) \$1360.
 - (d) C. H. Stoelting, deceptograph, model 22508.

Air Force

Total: 68.

- (a) 10.
- (b) 10.
- (c) \$12,150.
- (d) Stoelting deceptographs, model 22500.

DIA

Total: 1.

- (a) 1.
- (b) None.
- (c) \$2040.30.
- (d) Stoelting deceptograph, model 22498.

6. How many polygraphs or other so-called lie detection devices were leased during fiscal 1964? At what cost?

Army

PMG: None.
OACSI: None.

Navy

ONI: None.
Marine Corps: None.

Air Force

None.

DIA

None.

7. How many employees of your agency are authorized to conduct examinations using polygraphs or similar lie detection devices? What were the total salary costs for these employees during fiscal 1964?

Army

PMG: During fiscal year 1964, 148 accredited military police criminal investigators were authorized to conduct polygraph examinations. In fiscal year 1964 these 148 polygraph examiners spent an average of approximately 12 percent of their duty time in the conduct of examinations and directly related activities. The total salary cost for these activities in fiscal year 1964 amounted to \$90,187.

OACSI: There are 122 Intelligence Corps personnel authorized to conduct polygraph examinations. These individuals are full-time Intelligence Corps investigators or agents who have been especially trained to administer polygraph examinations as an additional duty. The fiscal 1964 salary cost for these Intelligence Corps personnel was approximately \$563,600. However, on an average, only between 5 to 10 percent of the agent's time was utilized in conducting polygraph examinations, and therefore, salary costs are more accurately portrayed by using \$28,180 to \$56,360 as fiscal 1964 salary costs.

Department of the Army total: 270 authorized polygraph examiners at salary cost estimated to be between \$118,367 and \$146,547.

Navy

ONI: Eighty-one authorized polygraph operators during fiscal 1964. The Office of Naval Intelligence has no employees whose sole function is to conduct polygraph examinations. The 81 authorized polygraph operators are all special agents who have as their primary duty the conduct of investigations, not necessarily involving use of the polygraph. The total salary costs for these employees during fiscal 1964 was \$716,650.

Marine Corps: Sixteen members of the Marine Corps are authorized to conduct examinations using the polygraph. In this connection, it should be noted that the polygraph examiners are primarily criminal investigators who perform polygraph examinations as an additional duty. Consequently, only a small part of their salaries could be assigned as a cost to conduct polygraph examinations.

1 E-8.....	\$6,240
7 E-7.....	41,336
8 E-6.....	40,320
Total, fiscal year 1964.....	87,896

Air Force

Fifty-eight OSI special agents (18 officers and 40 enlisted men) are authorized to conduct polygraph examinations. None of these agents have as their primary duty the administering of polygraph examinations. All of the above agents have been trained as polygraph

examiners and utilize this specialized training in conjunction with their assigned primary investigative duties.

The salary costs for these 58 personnel in fiscal 1964 were \$537,903. However, inasmuch as the average examiner spends an average of only 12 percent of his overall worktime in the pursuit of polygraph examinations, the salaries paid these individuals for conducting polygraph examinations in fiscal 1964 is more accurately reportable as \$64,548.36 (12 percent of the total annual salaries of \$537,903). Since the close of fiscal 1964 and the last report to the Congress, there has been a 20-percent reduction in polygraph examiner strength. Consequently, a comparable salary cost reduction will likewise be realized.

DIA

Although DIA now has two polygraph operators, only one was employed during fiscal year 1964. The total salary cost for this individual during fiscal year 1964 was \$3,515.

8. Estimate all other expenses attributable to the use of polygraphs as lie detectors during fiscal 1964, including maintenance of the devices, travel expenses for examiners, and training programs.

Army

PMG estimated expenses are—	
Maintenance and supplies	\$3, 800
Travel expenses for examiners	1, 835
Training programs	16, 080
Total	21, 715

OACSI estimated expenses are—	
TDY and travel	21, 500
Maintenance and supplies	2, 500
Training programs	10, 762
Total	34, 762

Department of the Army total	56, 477
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Navy

ONI: No expenses for maintenance of polygraphs were incurred during fiscal 1964. Expenses for travel of polygraph operators cannot be estimated since the travel of special agents is in connection with the conduct of investigations during which the polygraph technique may or may not be used. Travel expenses therefore are attributable to the cost of investigations, not to use of the polygraph; \$3,000 was the cost of the travel and per diem for the training of polygraph operators during fiscal 1964.

Marine Corps: \$1,453.41.

Air Force

Maintenance	\$1, 625. 00
Travel (to include per diem during period of travel)	12, 584. 97
Training (to include per diem during period of training)	3, 422. 00
Total	17, 631. 97

DIA

Since the examinations conducted during fiscal year 1964 were administered to DIA-assigned personnel in the Washington area and since the personnel employed to conduct the examinations were experienced examiners, no additional expenses attributable to the use of the polygraph during fiscal year 1964 can be readily identified.

9. What are the minimum qualifications for employees of your agency authorized to conduct examinations using polygraphs or similar lie detection devices? State specifically the minimum requirements of—

- (a) Age;
- (b) Education;
- (c) Grade or rank;
- (d) Years of investigative experience; and
- (e) Length of specialized training.

Army

PMG: The minimum qualification for employees authorized to conduct examinations using polygraph or similar lie detection devices is successful completion of the course conducted at the U.S. Army Military Police School, Fort Gordon, Ga. The current minimum qualifications for entry into that course are:

- (a) Age: Minimum of 25 years of age.
- (b) Citizenship: U.S. citizen.
- (c) Mentality traits: No history of mental disorder, including pathological personality disorders.
- (d) Character traits: Suitable character, loyalty, integrity, reputation, sobriety, discretion, and stability as established by a character investigation.
- (e) Civil convictions: No convictions by a civil court for offenses other than minor traffic violations.
- (f) Courts-martial convictions: No convictions by a general or special court-martial.
- (g) Color vision: Normal color vision.
- (h) Education: Successful completion of the criminal investigation course at the U.S. Army Military Police School, Fort Gordon, Ga., and 2 years of college training at an accredited institution (a minimum of 60 semester hours or an advanced standing as a junior); or successful completion of the criminal investigation course at the U.S. Army Military Police School, Fort Gordon, Ga., and the equivalency of 2 years of college as defined in AR 621-5.
- (i) Grade or rank: Warrant officer (grades WO-1 through CWO-4).
- (j) Years of investigative experience: Minimum of 1 year's experience as an accredited criminal investigator immediately prior to application for training as a polygraph examiner. While this is a minimum requirement for application, selection techniques, except in exceptional instances, limit attendees to those with 5 or more years of investigative experience.
- (k) Length of specialized training: Seven weeks at the U.S. Army Military Police School, Fort Gordon, Ga.

OACSI: The minimum qualification for employees authorized to conduct examinations using polygraph or similar lie detection devices

is successful completion of the course conducted at the U.S. Army Military Police School, Fort Gordon, Ga. The current minimum qualifications for entry into that course are:

- (a) Minimum age: 25.
- (b) Education: Two years of college or the equivalent, with training in psychology of college level.
- (c) Grade: Warrant or commissioned officer.
- (d) Years of investigative experience: Minimum of 3 years of interrogation or investigative experience in the Intelligence Corps and operational evaluation reports for the previous 3 years must indicate a preponderance of superior to outstanding ratings.
- (e) Be a U.S. citizen.
- (f) No history of mental disorder.
- (g) Suitable character, loyalty, integrity, discretion, as established by a background investigation.
- (h) No record of convictions by a civil court for offenses other than minor traffic violations, and no record of conviction by a general or special court-martial.
- (i) Language proficiency: Passing score on the Army language aptitude test, or rating of "Fair" in the Army language proficiency test in one or more languages.

Navy

ONI: The minimum requirements requested by this question are as follows:

- (a) Age: 25.
- (b) Education: College graduate.
- (c) Grade or rank: Pay grades 9 through 14.
- (d) Years of investigative experience: 2.
- (e) Length of specialized training: Special agents basic school, 4 weeks; polygraph school, 2 weeks.

It is stressed that these are minimum requirements and as a matter of record, the average age of authorized polygraph operators during fiscal 1964 was 40.5 years; average experience as polygraph operators was 4 years; average investigative experience was 10 years; and the youngest authorized polygraph operator during fiscal 1964 was 29 years of age. It is also to be noted that while the minimum years of investigative experience required is stated to be 2, the fact is that prior to consideration for training as a polygraph operator, the selectee must have demonstrated a proficiency and skill in interrogation over a period of at least 18 months. It is very doubtful that a man would have the opportunity to acquire this experience in his first 2 years of employment with the Office of Naval Intelligence.

Marine Corps: Minimum qualification for polygraph examiners are: Pay grade E-5 or above, experienced in military police duties, no convictions by special or general court-martial, no civil convictions with the exception of minor traffic violations, GCT score of 110, high school graduate or equivalent, normal color perception, appropriate security clearance based on a background investigation, minimum age of 25, with demonstrated mental and moral stability, and be a graduate of the criminal investigations course, U.S. Army Provost Marshal General's School, Fort Gordon, Ga. In addition, operators receive training in military justice, investigative methods,

military police criminal investigations program, military police organizations and functions, scientific aids to investigations, military police raids, provost marshal statistical reports, military law, introduction to the field of lie detection, lie detector examination, mechanical training, psychology, and techniques for detecting deception. A minimum of 2 years' investigative experience is desired before an investigator attends the polygraph course at the U.S. Army Military Police School, Fort Gordon, Ga.

Air Force

- (a) Age: No less than 25 years of age.
- (b) Education: Graduate of an accredited college (baccalaureate degree) plus 3 years diversified investigative experience, two of which must have been with OSI or have satisfactorily completed 2 years' training at an accredited college (a minimum of 60 semester hours, or an advanced standing as a junior), plus 5 years of diversified investigative experience, 2 of which must have been with OSI.
- (c) Grade or rank: Staff sergeant through captain.
- (d) Years of investigative experience: See (b) above.
- (e) Length of specialized training: Seven-week basic polygraph course at the U.S. Army Military Police School, Fort Gordon, Ga.

DIA

The minimum qualifications for employment of a polygraph operator by DIA are:

- (a) Age: 25.
- (b) A natural-born citizen of the United States with no immediate foreign relatives.
- (c) Education or experience required include a minimum of 2 years of college or a demonstrated ability to perform in military staff duties requiring maturity and sound judgment.
- (d) Eight years of comprehensive investigative experience.
- (e) The individual must be a graduate of the polygraph course at the U.S. Army Military Police School, Fort Gordon, Ga., and have demonstrated professional competence in the administering of polygraph examinations during military or civilian assignments prior to employment by DIA.
- (f) Employment is contingent on completion of a background investigation to establish the high moral character, sound emotional temperament and integrity, and loyalty of the employee.

10. Describe, in general, any polygraph training program your agency conducts for employees of your agency; include length of academic training and on-the-job experience required as part of the training program.

Army

PMG: Training for Military Police Corps polygraph examiners is conducted at the U.S. Army Military Police School, Fort Gordon, Ga.

Length of course

The length of the course is 7 weeks. The program of instruction consists of 258 hours of academic subjects and practical exercises.

Curriculum

The following is an outline of subjects and time allocations in the curriculum of the U.S. Army Military Police School polygraph course:

	<i>Hours</i>
Military law:	
Evidence.....	3
Legal aspects of the polygraph.....	3
Orientation:	
Introduction to the polygraph.....	1
History of the polygraph.....	1
Polygraph considerations (drugs and interpreters).....	1
Mechanics:	
Nomenclature and functions of pneumograph, cardiosphygmograph, and galvanograph components.....	7
Mechanical disassembly and assembly of the polygraph instrument.....	3
Operation of the pneumograph, cardiosphygmograph, and galvanograph components.....	4
Operation of the polygraph.....	4
Malfunctions of the polygraph.....	2
Physiology:	
The human body.....	1
The nervous system.....	4
The cardiovascular system.....	3
The respiratory system.....	2
Psychology:	
Psychology of the polygraph.....	2
Abnormal psychology.....	7
Techniques of detecting deception:	
Pretest interviews.....	8
Polygraph test construction.....	10
Chart interpretation.....	10
Test graph markings.....	1
Polygraph interrogation techniques.....	8
Practical exercises in conducting polygraph examinations: Practical exercises.....	166
Written examinations.....	8

Methods of instruction

Approximately 75 percent of the course time is devoted to practical application exercises in pretest interviews, test construction, chart interpretation, interrogation, and the conduct of polygraph examinations. The remaining 25 percent of the time is devoted to lectures and conference-type instruction. The primary emphasis is on realism and doing practical work.

During the course, each student, under the direct supervision of instructor personnel, devotes 166 hours to conducting polygraph examinations in hypothetical criminal cases. Military personnel selected as subjects commit hypothetical "crimes" under the direction of instructor personnel. The students examine these "suspects."

These hypothetical case examinations permit the student to master the mechanics of the examination and help him to gain confidence in himself and the instrument. It also affords an opportunity for instructors to observe the student and critique his technique before he is assigned an actual case.

Throughout the course, instructors provide student guidance and individual instruction. During the practical phase of instruction each student is observed and critiqued daily in order to apprise him of his progress.

Polygraph transition course

In addition to the 7-week polygraph course, the U.S. Army Military Police School conducts a 2-week polygraph transition course. This

transition course is a postgraduate refresher training course designed to provide qualified polygraph examiners with the latest developments in polygraph techniques and to standardize the techniques employed by Army polygraph examiners.

OACSI: Training for Intelligence Corps polygraph examiners is conducted at the PMG School, Fort Gordon, Ga. The length and content of the course are as set forth immediately above in the response of the PMG. When the new examiner works as an examiner for the first time, he does so under the supervision of an experienced examiner. Subsequently, whenever he reports to a new assignment with another unit, he receives on-the-job training to assure an appropriate level of competency. The length and content of the training will vary depending upon the previous experience of the examiner and the specific operational and geographic requirement.

Navy

Polygraph operators authorized by the Office of Naval Intelligence are trained at headquarters, Office of Naval Intelligence, Washington, D.C. Length of academic training is 2 weeks after which the successful students are authorized to conduct examinations in their respective areas of assignment, under supervision, until they attain the degree of proficiency and have conducted sufficient number of examinations successfully to be considered experienced. The work of these trainees, as well as of all authorized polygraph operators, is subject to further review at the headquarters level whence additional guidance is furnished when a need therefor is indicated.

The training program itself consists of theory of the polygraph; mechanics, maintenance, and preparation of the machine; the individual attachments and their functions; types of examinations; circumstances which prescribe the use of the machine; preinterrogation; conduct of examinations; postinterrogation; question formulation; rights of test subjects; chart criteria; chart study; constant conduct of practice examinations under simulated conditions and under the supervision of an instructor; and repetitive drills on the Office of Naval Intelligence policy and instructions in relation to the use of the machine.

Marine Corps: The Marine Corps does not conduct any polygraph training programs.

Air Force

The Air Force does not conduct any polygraph training program, per se. All basic-, advanced-, and refresher-type polygraph training is conducted for the Air Force by the U.S. Army Military Police School, Fort Gordon, Ga. The basic polygraph course at Fort Gordon is of 7 weeks' duration. The advanced refresher-transition course at the same facility is of 2 weeks' duration.

No specific period of on-the-job experience is required. However, the proficiency, accomplishment, and day-to-day operation of the individual examiner is reviewed by a polygraph trained, extensively polygraph experienced staff officer at the OSI Headquarters level. This review is accomplished through careful examination of the report of investigation, the polygraph examiner's report, and other allied documents, all of which are transmitted to OSI Headquarters by the

field extensions. Where there are other trained examiners the work of new examiners is discussed and reviewed during preparation and decision stages.

DIA

Employees hired for use in the polygraph activity are hired on the basis of their sound professional experience and established competence in the use of the polygraph. Therefore, no training program by DIA was established for employees. It was recognized, however, that in order that examiners keep abreast of current concepts and new developments, they maintain an active interest in new developments as set forth in technical publications related to the polygraph. Both DIA polygraph operators, being service school trained, came to the job fully competent to perform their assigned mission. Together they have over 11 years' actual experience and each has conducted more than 2,000 polygraph examinations.

11. Identify all other polygraph training facilities, either Government or private, used for employees of your agency and State:

(a) The number of employees who attended such training facilities during fiscal 1964;

(b) The cost per employee exclusive of per diem.

Army

PMG: None.

OACSI: Five Intelligence Corps personnel attended the fourth southwestern polygraph examination clinic, University of Oklahoma. Exclusive of per diem, the clinic cost \$20 per individual for tuition fees and there was an average travel expense of \$103.96 per individual.

Navy

ONI: None.

Marine Corps: None.

Air Force

All polygraph training, including basic, advanced, and refresher courses, of Air Force examiners are conducted at the U.S. Army Military Police School, Fort Gordon, Ga.

Occasionally examiners are selected to attend polygraph seminars conducted by the University of Oklahoma, Norman, Okla., the American Academy of Polygraph Examiners in New York, and the Academy for Scientific Interrogation, Madera, Calif.

Eight OSI agents attended the 7-week basic polygraph course at Fort Gordon, Ga., during fiscal 1964. There is no charge to the Air Force for this training. Travel expenses, excluding per diem, totaling \$952 were incurred—an average of \$119 per person.

Eight OSI agents attended the 2-week polygraph transition course at U.S. Army Military Police School, Fort Gordon, Ga., during fiscal 1964. There is no charge to the Air Force for this training. Travel expenses, excluding per diem, totaling \$1,932 were incurred—an average of \$241.50 per person.

No personnel attended seminars during fiscal 1964.

DIA

DIA has not utilized other polygraph training facilities either Government or private.

(a) No employees attended training facilities during fiscal year 1964.

(b) No moneys were expended for such training during this period.

12. What weight is given the data resulting from tests by polygraphs or similar "lie detection" devices in relation to other types of investigative information?

(a) Who makes the initial determination to use such devices?

(b) Is this initial determination subject to review by higher authority in each case?

(c) At what specific administrative level is the review made?

Army

PMG: No special weight is given to data obtained from a polygraph examination. The polygraph examination is considered as a part of the entire investigation.

(a) The criminal investigator in charge of the case normally makes the initial recommendation that a polygraph examination be given to a subject of a certain investigation. Each recommendation is reviewed by the commander of his authorized representative, normally the provost marshal, a commissioned officer, who, on the basis of facts available, makes the determination whether or not a polygraph examination should be conducted in that investigation.

(b) Reviews of determinations are made by senior echelon provost marshals.

(c) These reviews are conducted at the level of major geographic area commanders, both in the continental United States and overseas.

OACSI: No special weight is given to data obtained from a polygraph examination. The polygraph examination is considered as a part of the entire investigation.

Normally, it is the senior intelligence officer of the command acting on behalf of the commander who authorizes the use of the polygraph after an individual requests or consents to an examination. Where the initial determination to use the polygraph is made by the senior intelligence officer of the command, review of this decision is not usually made since it is one of the officer's delegated authorities. If a polygraph examination is conducted pursuant to Department of the Army directives, this directive then constitutes the authority for the conduct of the investigation.

The initial determination to conduct a polygraph examination in conjunction with alien clearance is established by the DOD and the implementing Department of the Army regulations.

The initial determination to conduct a polygraph examination in conjunction with special counterintelligence operations is made either by the senior intelligence officer or the commander of the operational unit depending upon the specific circumstances of the case and status of the individual concerned.

The commander of the operational Intelligence Corps unit makes determination to use the polygraph in source and intelligence support personnel investigations.

In screening of military personnel, Intelligence Corps units perform polygraph examinations based on the request of the commanding general, USCONARC, or on requests received from other DOD agencies.

If the initial determination is made by other than a major commander or the senior intelligence officer, or unless it is performed based upon a Department of the Army or Defense directive, the initial determination is subject to review by higher authority. The review is usually made at major command or major subordinate command level.

Navy

ONI: The weight given to data resulting from polygraph examinations will vary in accordance with other investigative information available which either supports or disproves the information obtained by the polygraph. Thus, if no data supporting the conclusion of the polygraph operator is available, very little, if any weight would be given. Since the device is used by the Office of Naval Intelligence only as an investigative aid, any results obtained must be compared to and assayed in the light of information obtained by other investigative techniques in a particular case.

(a) The investigating agent: If not a polygraph operator himself, he will refer this to an authorized polygraph operator who will thereupon make the decision that the technique is/is not applicable to the particular problem in the light of the Office of Naval Intelligence policies and instructions. If affirmative, this determination will be approved by the supervising agent or other supervisory authority, time and conditions permitting. In cases where the desirability of use of the machine is clearly evident (e.g., contradictory information received from two sources, apparently equally reliable, with no other possibility of resolution) the polygraph operator may make the determination on his own responsibility. Concurrence of higher authority would be required in all other circumstances.

(1) The initial determination may be made by higher authority and the order simply relayed to the polygraph operator. If the operator in turn feels that employment of the technique in the particular case is questionable, he may request reconsideration and if necessary, the matter may be referred to headquarters for a final determination.

(b) Except when time and the exigency of the situation as well as obvious desirability of employing the technique is apparent as cited in 12(a), supra.

(c) The lowest administrative level would be the senior resident agent for the area exercising supervision over the agent and polygraph operator conducting the case. Further review up to and including the headquarters level may be made before a final determination as to use/nonuse is made, depending on the sensitivity and complexity of the investigative situation involved.

Marine Corps: The polygraph data is used for the limited purpose of evaluating the credence of statements made by the examinee and is not considered as evidence.

(a) The provost marshal.

(b) Yes.

(c) At the command level in most instances.

Air Force

Independent weight is not given to the results of the polygraph examination. The results are often useful in the interrogative process but are never relied upon exclusively or substituted for other logical investigative effort.

(a) The OSI policy set forth in paragraph 2-2-2, "OSI Manual 124-1," reserves the determining authority for utilization of the polygraph to the Director, OSI, his deputy directors, and OSI district commanders. These individuals are all mature, reliable, senior Air Force officers. In general, the district commanders have been delegated the authority to authorize polygraph examinations in all criminal investigations within their geographical jurisdictions with several minor exceptions. Paragraph 2-2-2 also sets forth these situations in which the specific approval of Headquarters, OSI, in Washington, D.C., is required prior to the administration of examinations. In essence, all counterintelligence and background investigations having a national security aspect come within this latter category. Two copies of above-referenced publication are attached.

(b) Ordinarily the initial determination made by district commanders is not subject to review by higher headquarters until after the polygraph examination is conducted. However, if a borderline situation arises during the initial stage, the district commander is obligated to obtain a Headquarters OSI decision.

(c) The review of a determination whether a polygraph examination is to be administered will be made at either the Headquarters OSI or district level and no lower within the limitations as set forth in paragraph 2-2-2, "OSI Manual 124-1," referred to in 12(a) above.

DIA

DIA considers the data resulting from tests by polygraph as only supplemental to that information resulting from the conduct of an adequate investigation. Such investigations seek to secure, through skillful techniques and interrogations, that information essential to security determinations. When either because of the nature of the investigation or the circumstances surrounding the ability to check the information or leads (for example, source data in Communist areas), direct investigation or interrogation cannot resolve the problem, then DIA resorts to the use of the polygraph. The limited use of the polygraph is well demonstrated by the fact that only three examinations were given in fiscal year 1964. The polygraph results, therefore, are only one element of the investigative process and are not solely relied on in making substantive decisions.

(a) Initial determination to use the polygraph is made by the Chief, Office of Counterintelligence and Security, DIA.

(b) The initial determination is submitted to the Office of the Director, DIA, for approval by him in each case.

(c) A determination to use the polygraph is made at the highest level within DIA.

13. If a person connected with your agency refuses to take a polygraph or other "lie detection" test, is information about the refusal made available to any person or agency outside your agency? Does your agency have any written rules or regulations governing this procedure? If so, provide two copies.

Army

PMG: Yes. The results of a polygraph examination or information that an individual refused to take a polygraph examination, is included in the completed report of investigation. The report is releasable to agencies authorized access to these reports. The procedure followed in such instances is outlined in paragraph 24, AR 195-10. Two copies of this regulation are attached.

OACSI: If an individual does not consent when requested to take an examination the investigator will include a statement of this fact in his investigative report. This agent report, together with all other agent reports pertaining to the individual become part of the investigative file and will be forwarded to the U.S. Army Counterintelligence Record Facility. Individuals from other Government investigation agencies, such as the Federal Bureau of Investigation and the Central Intelligence Agency, who have been accredited to the facility based upon need-to-know and security clearance and certified by the heads of their respective agencies, do have access to Intelligence files which contain the results of polygraph examinations. Army Regulation 381-45, attached, governs this procedure.

Navy

ONI: Not as a general rule nor even in a large number of cases.

(a) There are occasions, however, when requests for investigative assistance, to include polygraph examinations, will come from outside this agency and the results must be reported back, e.g., if an adjudicative board at the Department of Defense level requested from Department of the Navy (Office of Naval Intelligence) investigative assistance to include polygraph examination, concerning an employee of the Navy, the results of the investigative action, including the subject's refusal to take the polygraph examination, would be furnished to the requestor.

(b) In all investigations in which polygraph examinations are authorized, the results thereof or the refusal of individuals concerned to submit to examination are duly recorded as part of the investigative record. The fact of the refusal to submit to examination in itself would not be disseminated within nor outside this agency as a matter of policy or requirement. There are, however, numerous executive and departmental regulations requiring that investigative files of one agency be made available to duly authorized representatives of other Federal agencies, upon request. It is possible therefore that the refusal of a person connected with this agency to take a polygraph examination will become known to another agency as a result of these authorized reviews of investigative files.

(c) Not at the present time. There will, however, be a written regulation governing this procedure in the immediate future upon implementation of the Department of Defense instruction governing the use of polygraphs.

Marine Corps: If a member of the Marine Corps refuses to take a polygraph examination, his refusal is noted in the investigative report which relates to his case. These investigative reports, or copies thereof, are transmitted to the Office of Naval Intelligence in accordance with Sec Nav Instr 5430.13B.

Air Force

The fact that an individual refuses to take a polygraph examination is not reflected in any investigative report or other document going outside of OSI channels. However, in the event that a commander or other appropriate authority makes specific inquiry of OSI as to whether the individual was afforded an opportunity for polygraph examination, he may be orally informed that the opportunity was presented and the individual declined to consent to or volunteer for it. Two copies of OSI (USAF) Letter 124-82 are attached.

DIA

Written policy on the revealing of information connected with polygraph examinations has not been formalized pending the establishment of Department of Defense regulations. It is specifically the practice of DIA, however, not to make information available concerning a refusal to take the polygraph examination to any person or agency outside DIA. DIA will formalize its procedures in this regard upon publication of a Department of Defense directive on use of the polygraph.

14. Does your agency use two-way mirrors to permit observation of a polygraph or similar "lie detection" test or use recording devices during such a test?

(a) If so, in either case, are the individuals taking the tests informed of the existence of the two-way mirrors or recording devices?

(b) Does your agency have any regulations governing the use of the two-way mirrors or recording devices during interrogations? If so, provide two copies.

Army

PMG: Polygraph examiners assigned to the Military Police Corps are permitted to use two-way mirrors and employ recording devices during the conduct of a polygraph examination.

(a) No polygraph examination may be conducted by Military Police Corps personnel unless the subject to be interviewed has been advised (1) whether the area in which the polygraph examination is to be conducted contains a two-way mirror or comparable device, and (2) whether the polygraph examination will be monitored or recorded, in whole or in part, by any means, and (3) the individual consents in writing.

(b) AR 195-10 governs the use of two-way mirrors and recording devices employed by Military Police Corps personnel during the conduct of a polygraph examination. Two copies of this regulation are attached.

OACSI: Army Intelligence operational units do use two-way mirrors and recording devices in conjunction with polygraph examinations. However, not all units are so equipped. If a two-way mirror, recording device, or both are used, the individual undergoing the examination is so notified, and he must consent in writing prior to their use.

Extracts from Field Manual 30-17, Counterintelligence Operations, Intelligence Corps, U.S. Army, which pertain to the polygraph and

the operational procedures for its use, were furnished the subcommittee in July 1963, and/or contained in the subcommittee report, "Use of Polygraphs by the Federal Government," preliminary study, April 1964.

All elements of the Department of the Army are bound by the instructions contained in the memorandum of April 27, 1964, from the Deputy Secretary of Defense and repeated below:

No examination with the aid of a polygraph shall be conducted without advising the subject to be interviewed (1) that he has a right under the fifth amendment to the Constitution or, as appropriate, article 31 of the Uniform Code of Military Justice, to refrain from doing anything that may tend to incriminate him; (2) that the polygraph examination will be conducted only with his prior written consent; (3) whether the area in which the polygraph examination is to be conducted contains a two-way mirror or comparable device; and (4) whether the examination will be monitored or recorded, in whole or in part, by any means.

Navy

ONI: Affirmative.

(a) Affirmative.

(b) Attached.

Marine Corps: Yes. Individuals taking polygraph tests are informed of the existence of two-way mirrors or recording devices at such times as they undergo polygraph examinations. Copies of the Marine Corps directive relating to the foregoing requirement are appended.

Air Force

In the normal course of investigation, two-way mirrors or recording devices are not used. However, the nature of the investigation and the availability of these devices will determine their utilization.

(a) In every instance the individual to be examined must be advised as to whether or not either or both of these devices are located in the area in which the examination is to be conducted and whether or not the examination is to be recorded or monitored in whole or in part by either device. Additionally, in the statement of consent to examination executed by the individual there is a specific written advisement to this effect.

(b) Air Force policy concerning this matter is contained in paragraph 2-2-12b, OSI Manual 124-1 (attachment 1), and is also recited in OSI form 75, "Statement of Consent" (attachment 10 to OSI Manual 124-1). Two copies of OSI Manual (ch. 2) 124-1 are attached.

DIA

DIA has a room specially prepared where polygraph examinations take place. This room provides adequate audio security to prevent disruption of the polygraph examination by outside noises. The room is equipped with a two-way mirror to provide observation of the test during its progress without disruption of the test itself. The room is equipped to permit recording the interview when warranted.

(a) The consent form, wherein the individual agrees to take the examination, also carries for his information a notice that the room

is equipped with two-way mirrors and that recording devices are available to record the interview, where warranted. Should the interviewee object to either practice or to both practices, the special equipment is not utilized during that interview.

(b) Again, as with the paragraph above, DIA has not formalized procedures governing these practices pending the publication of the Defense directive. However, DIA has observed the spirit and intent of the directive of the Deputy Secretary of Defense Cyrus Vance concerning the use of two-way mirrors and monitoring devices.

15. Has your agency during fiscal 1964 undertaken or contracted for any research projects involving the use of the polygraph or other so-called lie detection devices?

(a) If so, please identify the research project and the research (or university).

(b) Please state the total costs incurred for each of these research projects.

Army

PMG: During fiscal year 1964, the Military Police Corps did not undertake or contract for any research projects involving the use of the polygraph; however, a research project was conducted, through contract, by the Office of the Surgeon General.

(a) "Studies in Detection of Deception" conducted by Dr. Morton T. Orne, professor of psychiatry, University of Pennsylvania Medical School, Philadelphia, Pa.

(b) \$70,632.

ACSI: None.

Navy

ONI: Negative.

Marine Corps: No.

(a) Not applicable.

(b) Not applicable.

Air Force

Yes.

(a) AF contract 30(602)3380 was let to the University of Georgia in February 1964. This contract was sponsored by the Air Force Systems Command, U.S. Air Force, to study and evaluate means of detecting and measuring physiological responses induced by interrogation, and was not undertaken at the specific request of any potential user.

(b) The cost of contract 30(602)3380 is \$25,371.

DIA

DIA during fiscal year 1964, did not undertake or contract for any research projects involving the use of the polygraphs or similar equipment.

(a) Not applicable.

(b) Not applicable.

16. Has your agency ever been involved in any legal or administrative matter involving the use of the polygraph or any other so-called lie detection device? (This question is intended to elicit any reference, regardless of degree of use, to the polygraph in these judicial or administrative proceedings.)

(a) If your agency holds administrative hearings, are any references to polygraph examinations admitted in evidence?

(b) If the answer to question 16(a) is in the affirmative, is the polygraph operator made available for examination and cross-examination purposes?

(c) Are polygraph charts and other related documents admitted in evidence in these administrative hearings?

Army

PMG: In fiscal year 1964, a Military Police Corps polygraph examiner conducted six examinations preliminary to administrative board proceedings. In each instance cited above, the results of the examinations were not used as evidence in the hearings, no testimony concerning the polygraph examinations was heard by the board except that in one instance a respondent asked the board for a polygraph examination. Even in this case, the polygraph examiner did not appear before the board in this or any other proceedings, and no other reference to a polygraph examination appeared in the records of board proceedings.

ACSI: Army Intelligence has not been involved in any legal or administrative matter involving the use of the polygraph or any other so-called lie detection device.

Department of Army: Neither of the aforementioned agencies, as such conduct administrative hearings. However, reports of investigations of either agency could be submitted to other elements of the department which do hold administrative hearings. In any such instance, the PMG follows a policy that all references to any polygraph examination will be deleted prior to the submission of the report to any board or hearing. The ACSI follows a procedure in which the report of examination, with the findings of the examiner but excluding the charts, may be part of the completed report of investigation provided a board or hearing. However, the report of polygraph examination is not formally introduced into evidence. Polygraph charts and related documents, other than the findings, are not included in the reports of investigation.

Navy

ONI: The specific answer to the primary and subordinate parts of this question is negative. Taking heed of that portion of the question in parentheses, however, it can be said that on occasions, not readily identifiable, either by name or number, defense attorneys have attempted to question special agent operators in the course of pretrial investigations and general court-martial trials. As far as is known, the presiding authority limited information to a description of the machine and its attachments and never allow questions asked during or results of examinations to be introduced.

Marine Corps: No.

(a) Yes; but only on rare occasions.

(b) Yes.

(c) Yes.

Air Force

Yes. The Uniform Code of Military Justice prohibits the use of the results of "lie detector" examinations in court-martial cases (*U.S. v. Massey*, 5 USCMA 514, 18 CMR 138), and Air Force Regulation 1-1A similarly prohibits their use in administrative proceedings. However, the fact that such an examination was administered may, if otherwise relevant and competent, be received in evidence. For example, it has been used by defendants before courts-martial to place the time-sequence of the accused's interrogation in perspective, and to otherwise raise the issue of the voluntariness of a statement of an accused.

(a) Yes; within the limitations mentioned above.

(b) Yes.

(c) No. The use of polygraph charts as evidence in administrative hearings is prohibited by AFR 11-1A. Two copies of this regulation are attached.

DIA

DIA provides for the administrative review of personnel actions by an activity known as the Personnel Advisory Board. Substantive matters affecting security, suitability, and employee retention, are referred to this Board for recommendations. Recommendations emanating from this Board are forwarded to the Chief of Staff, DIA, for approval and when he deems it necessary, may be referred to the Deputy Director or the Director, DIA, for consideration of the recommendations. When the polygraph has been utilized in conjunction with substantive cases, the Board is advised of the examination conducted and the results thereof. The Board is not provided the charts or graphs that are a product of the examination but rather is given the questions, the response by the examinee to the questions, and the polygraph operator's evaluation of the response as indicating no reaction, apparent deception, or inconclusive results.

(a) As indicated above, polygraph examinations are considered in personnel actions; however, should the individual decline to take the polygraph examination, this information, under current policies is not provided to the Board.

(b) Should it be considered necessary, the Board may examine and cross-examine the polygraph operator.

(c) As noted above, the polygraph charts are not reviewed at the hearing but the questions and answers may be considered at the hearing.

17. If your agency has issued any new regulations or directives pertaining to the use of polygraphs and other so-called lie detection devices since your answer to the subcommittee questionnaire dated June 11, 1963 (or if your agency has amended any existing regulations or directives), provide two copies of each.

Army

PMG: Applicable regulations for which the Provost Marshal General is the proponent are attached.

OACSI: Army Intelligence has not issued any new directives pertaining to the use of polygraph since June 1963. However, a

complete revision of Field Manual 30-17, "Counterintelligence Operations," which contain any necessary change with regard to polygraph operations, is scheduled for fiscal year 1966.

Navy

ONI: Other than noted in question 14, negative, pending promulgation of the Department of Defense instruction.

Marine Corps: Other than the instructions appended the Marine Corps has not implemented any new regulations or directives on this subject.

Air Force

The Air Force has issued new policy and amended existing policy since June 1963. Two copies of new and amended policy are attached. The changes and amendments are identified as follows:

OSI Manual 124-1

2-2-12b Advise as to two-way mirror and recording device.

2-2-12e(11). Determining medical condition through actual review of records.

2-2-13. Mental and physical fitness of examinee at time of examination.

2-2-14. Propriety of test questions.

2-2-23a (5) (e), (g), and (i). Right to consult counsel, physical condition, advise as to two-way mirror and recording device.

2-2-23a(10)(a) 2 and 3. Review of all examination charts at OSI headquarters level.

2-2-23a(10)(c). Nondistribution of examiner's report to requester.

2-2-29. Right to consult with counsel.

2-2-30. Statement of Consent—disinterested witnesses to same.

OSI (U.S. Air Force) Letter 124-82. Elimination from report of investigation the fact that an individual has declined to take a polygraph examination.

OSI Manual 124-6, paragraph 4-2-26c. Requires a minimum of 2 years college to be eligible for consideration for polygraph training.

DIA

No new regulations or directives pertaining to the use of the polygraph have been issued since June 11, 1963.

USE OF THE POLYGRAPH EXAMINATION BY THE OFFICE OF INDUSTRIAL PERSONNEL ACCESS AUTHORIZATION REVIEW

The Office of Industrial Personnel Access Authorization Review (hereinafter called OIPAAR) operates pursuant to DOD Directive 5220.6 in determining whether access to classified defense information by defense contractor personnel is clearly consistent with the national interest. From time to time OIPAAR requests that certain applicants undergo a polygraph examination. The examination is conducted by the appropriate investigative organization of the Department of Defense which in turn submits the results of the examination to OIPAAR.

Inasmuch as certain parts of the questionnaire are pertinent to OIPAAR use of polygraph examinations, they are answered as follows with the corresponding question number.

1. The Office of Industrial Personnel Access Authorization Review (OIPAAR) makes use of polygraph examinations in instances where there appears to be a direct conflict between information developed by field investigation and the statements made by an applicant, and the area of difference is one which cannot be resolved by further investigation.

2. In 13 cases.

12. In those instances where the polygraph examiner advises that in his opinion the applicant did not practice deception and gave truthful answers to the questions put to him during the examination, the Screening Board generally has considered this to be information favorable to the applicant. In those instances where a report favorable to the applicant was not received from the polygraph examiner, it can result in the Screening Board issuing a statement of reasons to the applicant, and the validity of the information adverse to him is weighted in the course of a personal appearance proceeding.

(a) The Screening Board which makes the initial evaluation of each case, also makes the initial determination to use a polygraph examination.

(b) Yes.

(c) All requests of the Screening Board for an applicant to undergo a polygraph examination must receive the approval of the Deputy Assistant Secretary of Defense (Security Policy) after his personal review of the investigative file and the Screening Board rationale.

16. See introductory paragraph.

(a) OIPAAR department counsel make no reference to the results of a polygraph examination as such at a personal appearance proceeding. However, should the applicant request that the results of a polygraph examination be made a matter of record at the proceeding, department counsel upon receipt of such a request would then provide the information which would be made a part of the record.

(b) No.

(c) No.

INDEX OF REGULATIONS

1. Reference question 13.

(a) Army Regulation 195-10, February 4, 1964, "Criminal Investigation—Military Police Criminal Investigative Activities" with change 1, dated June 18, 1964 (tab A).

(b) Army Regulation 381-45, May 8, 1962, "Military Intelligence—U.S. Army Counterintelligence Records Facility (USACRF)" with change 1, dated April 13, 1964 (tab B).

(c) OSI (U.S. Air Force) Letter 124-82, dated April 26, 1965, subject: "Refusal to Consent to Polygraph Examinations" (tab C).

2. Reference question 14.

(a) Army Regulation 195-10, February 4, 1964, "Criminal Investigation—Military Police Criminal Investigative Activities" with change 1, dated June 18, 1964 (tab A).

(b) U.S. Marine Corps Telecom of May 12, 1964 (tab D).

(c) ONI teletype message, dated May 1, 1964, subject: "The Polygraph" (tab E).

- (d) OSI Manual 124-1, chapter 2, "Polygraph" (tab F).
 3. Reference question 16.
 Air Force Regulation 11-1A, May 28, 1963, "Administrative Practices—Boards of Officers for Conducting Investigations" (tab G).
 4. Reference question 17.
 (a) Army Regulation 195-10, February 4, 1964, "Criminal Investigation—Military Police Criminal Investigative Activities" with change 1, dated June 18, 1964 (tab A).
 (b) OSI (U.S. Air Force) Letter 124-82, dated April 26, 1965, subject: "Refusal To Consent to Polygraph Examinations" (tab C).
 (c) U.S. Marine Corps Telecon of May 12, 1964 (tab D).
 (d) ONI teletype message, dated May 1, 1964, subject: "The Polygraph" (tab E).
 (e) OSI Manual 124-1, chapter 2, "Polygraph" (tab F).
 (f) Excerpt from OSI Manual 124-6, "Lie Detector Examiner Course" (tab H).
 (g) Army Regulation 195-11, March 8, 1963, "Criminal Investigation—Accreditation of Military Police Criminal Investigators" with change 1, dated May 12, 1964 (tab 1).

DEFENSE ATOMIC SUPPORT AGENCY AND DEFENSE SUPPLY AGENCY
SUMMARIES

- Question 1. See replies.
 Question 2. During fiscal year 1964, DASA conducted 99 examinations but DSA conducted none.
 Question 3. During fiscal year 1964, no examinations were conducted by other agencies for either DASA or DSA.
 Question 4. All DASA examinations were conducted at Albuquerque, N. Mex.
 Question 5. DASA owns three polygraphs but DSA owns none. Total acquisition cost for fiscal year 1964 was \$1,350.
 Question 6. No polygraphs were leased during fiscal year 1964.
 Question 7. Three employees of DASA are authorized to conduct polygraph examinations. DSA has authorized none.
 Question 8. DASA estimated other expenses to have been \$915 for fiscal year 1964. DSA had no such expenses.
 Question 9. See replies.
 Question 10. Neither DASA nor DSA conducts polygraph training.
 Question 11. Cost of polygraph training for DASA employees during fiscal year 1964 estimated to be \$230. DSA had no such costs.
 Question 12-14. See replies.
 Question 15. Neither DASA nor DSA has been concerned with polygraph research projects.
 Question 16. Neither DASA nor DSA has been involved in legal or administrative matters involving use of the polygraph.
 Question 17. See replies.
 1. For what specific purposes does your agency use polygraphs as "lie detectors"?

DASA

The polygraph is used as an investigative aid during the conduct of investigations concerning:

- (a) Falsification of "Statements of Personal History" (DD form 398).

(b) Falsification of sworn statements made during the conduct of an investigation.

(c) Homosexual activity.

(d) Persons suspected of having committed a crime punishable under Uniform Code of Military Justice (other than homosexual cases).

(e) The location of stolen goods, and whereabouts of wanted persons.

(f) Disaffection.

(g) Association with criminal elements.

(h) Communist affiliation.

(i) Lost classified documents.

(j) Suspected sabotage.

DSA

This agency possesses no polygraph instruments, nor does it conduct polygraph examinations. When desired, however, polygraph services are provided, at the request of DSA, by the military department concerned. The results are used as an aid to supplement basic techniques related to criminal, counterintelligence, and security investigations. The results also may be considered when making security determinations in isolated instances. These examinations are not done on a routine basis, but only in particular cases when DSA expressly desires the use of this aid.

All counterintelligence investigations of DSA personnel are performed by Army, Navy, and Air Force investigators. Polygraph examinations of DSA personnel are not a routine aspect of such investigations but are only undertaken when this agency specifically requests them. In those cases polygraph examinations of DSA personnel are requested only as a means of resolving conflicting statements made by a person under security investigation or to determine the credibility of such statements when they do not conform to facts or allegations developed in the course of an investigation. Such examinations are used as an ancillary check, and not as a means of ascertaining information which was not otherwise developed in the course of the routine investigation.

The only instance in which polygraphs are used in a primary rather than ancillary role is as a means of investigating such persons as immigrant aliens for whom, because of geographical, political, or other considerations, it is not possible to complete a routine background investigation.

2. How many so-called lie detection tests using polygraphs or similar devices were conducted by your agency in fiscal 1964 for each of the specific purposes listed in answer to question No. 1?

DASA

Total: 99.

(a) Falsification of "Statements of Personal History" (DD form 398): 1.

(b) Falsification of sworn statements made during the conduct of an investigation: 4.

(c) Homosexual activity: 15.

(d) Persons suspected of having committed a crime punishable under Uniform Code of Military Justice (other than homosexual cases): 54.

- (e) To obtain leads to the facts of an offense, the location of stolen goods, and the whereabouts of wanted persons: None.
- (f) Disaffection: None.
- (g) Association with criminal elements: None.
- (h) Communist affiliation: 1.
- (i) Lost classified documents: 24.
- (j) Suspected sabotage: None.

DSA

None.

3. How many such tests were conducted by other agencies, public or private, at the request of your agency in fiscal 1964? Identify the other agencies, state the number of tests performed by each agency and state the costs, if any.

DASA/DSA

No tests were conducted by other agencies for either DASA or DSA during fiscal year 1964.

4. At what location (city and State if domestic, city and country if foreign) was each of the tests listed in answer to questions 2 and 3 given?

DASA

All tests were conducted in Albuquerque, N. Mex., and all polygraph instruments are located at Field Command, DASA, Sandia Base, N. Mex.

DSA

None.

5. How many polygraphs or other so-called lie detection devices are the property of your agency?

- (a) How many of these devices were purchased during fiscal 1964?
- (b) How many of these devices were purchased as replacements?
- (c) What was the acquisition cost of the devices purchased during fiscal 1964?
- (d) Identify by brand and model the devices purchased during fiscal 1964.

DASA

Total: 3.

- (a) 1.
- (b) 1.
- (c) \$1,350.00.
- (d) Keeler Polygraph, model 6317.

DSA

None.

6. How many polygraphs or other so-called lie detection devices were leased during fiscal 1964? At what cost?

DASA/DSA

None were leased during fiscal year 1964 by either DASA or DSA.

7. How many employees of your agency are authorized to conduct examinations using polygraphs or similar "lie detection" devices? What were the total salary costs for these employees during fiscal 1964?

DASA

Three employees of this agency are authorized to conduct polygraph examinations as a collateral duty. These employees have a primary duty as investigators. Total salary cost during fiscal year 1964 was \$19,016.

DSA

None.

8. Estimate all other expenses attributable to the use of polygraphs as "lie detectors" during fiscal 1964, including maintenance of the devices, travel expenses for examiners and training programs.

DASA

Other expenses are estimated to have been \$915 for fiscal year 1964.

DSA

None.

9. What are the minimum qualifications for employees of your agency authorized to conduct examinations using polygraphs or similar "lie detection" devices? State specifically the minimum requirements of—

- (a) Age;
- (b) Education;
- (c) Grade or rank;
- (d) Years of investigative experience;
- (e) Length of specialized training.

DASA

Minimum qualifications are:

- (a) Age: 25 years.
- (b) Education: 2 years college or equivalent.
- (c) Grade and rank: Warrant officer.
- (d) Years of investigative experience: 3 years required by 901st Intelligence Corps Detachment and 1 year required by 46th Military Police Detachment (CID).
- (e) Length of specialized training: 7 weeks.

DSA

None are authorized to conduct examinations.

10. Describe, in general, any polygraph training program your agency conducts for employees of your agency; include length of academic training and on-the-job experience required as part of the training program.

DASA/DSA

Neither DASA nor DSA conducts a polygraph training program.

11. Identify all other polygraph training facilities, either Government or private, used for employees of your agency and state:

- (a) The number of employees who attended such training facilities during fiscal year 1964;
- (b) The cost per employee exclusive of per diem.

DASA

U.S. Army Military Police School polygraph course, Fort Gordon, Ga.

(a) None attended during fiscal year 1964.

(b) No costs involved in fiscal year 1964.

Southwestern Polygraph Clinic, University of Oklahoma, Norman, Okla.

(a) Two employees attended during fiscal year 1964.

(b) \$230.

DSA

None.

12. What weight is given the data resulting from tests by polygraphs or similar "lie detection" devices in relation to other types of investigative information?

(a) Who makes the initial determination to use such devices?

(b) Is this initial determination subject to review by higher authority in each case?

(c) At what specific administrative level is the review made?

DASA

No weight is given to results of polygraph examinations unless the results are confirmed by admissions or other investigative data.

(a) The initial determination is made by the Chief, Security Group, Field Command, DASA.

(b)/(c) The initial determination is subject to review by the Chief, Security Division, Headquarters, DASA and the Director, DASA as a result of monthly reports submitted to them by the Chief, Security Group, Field Command.

DSA

The results of polygraph examinations are used as an aid in the conduct of criminal, counterintelligence, and security investigations. Only limited recognition is given to the results of these examinations; more reliable information is used whenever possible.

(a) The intelligence officer at Headquarters, DSA or one at a major field activity of DSA normally makes the initial determination when security operations are involved. Subject to approval of the staff provost marshal or comparable staff officer, the investigator concerned normally makes the initial determination when criminal matters are involved.

(b) Yes.

(c) Recommendations by an investigator for conduct of polygraph examinations in connection with investigations being conducted within intelligence and security or provost marshal areas will be reviewed and approved by the staff intelligence and security officer or provost marshal, or when appropriate by a member of the staff designated by the head of the field activity concerned. In each instance when a determination is made that a polygraph examination is warranted, the head of the field activity is advised.

13. If a person connected with your agency refuses to take a polygraph or other "lie detection" test, is information about the refusal made available to any person or agency outside your agency? Does your agency have any written rules or regulations governing this procedure? If so, provide two copies.

DASA

Information about the refusal is included in the agent report. These reports are furnished to the appropriate service repository upon termination of individual from DASA. In certain instances, however, reports may be furnished to the Federal Bureau of Investigation as appropriate. Written regulations for disposition of investigative records are contained in volume II, appendix 2, Field Command, DASA Security Manual (enclosure 1).

DSA

Information concerning refusal of a person to take a polygraph examination is not released outside the agency. There are no written rules nor regulations governing this procedure within the agency.

14. Does your agency use two-way mirrors to permit observation of a polygraph or similar "lie detection" test or use recording devices during such a test?

(a) If so, in either case, are the individuals taking the tests informed of the existence of the two-way mirrors or recording devices?

(b) Does your agency have any regulations governing the use of the two-way mirrors or recording devices during interrogations? If so, provide two copies.

DASA

DASA uses two-way mirrors and recording devices for such purposes.

(a) Individuals being examined are always informed about these facilities.

(b) DASA policy concerning this matter is contained in change No. 1 to AR 195-10, June 18, 1964 (enclosure 2).

DSA

DSA has no equipment nor facilities of this nature, but such may be used by agencies rendering polygraph support to DSA.

(a) It is DSA policy to inform examinees regarding the existence of two-way mirrors and recording devices.

(b) DSA policy letter of July 23, 1964, deals with this matter (enclosure 3).

15. Has your agency during fiscal 1964 undertaken or contracted for any research projects involving the use of the polygraph or other so-called lie detection devices?

(a) If so, please identify the research project and the researcher (or university);

(b) Please state the total costs incurred for each of these research projects.

DASA/DSA

Neither DASA nor DSA has undertaken any research project involving polygraph or lie detector devices, nor has either of them contracted for such services.

16. Has your agency ever been involved in any legal or administrative matter involving the use of the polygraph or any other so-called lie detection device? (This question is intended to elicit any reference, regardless of degree of use, to the polygraph in these judicial or administrative proceedings.)

(a) If your agency holds administrative hearings, are any references to polygraph examinations admitted in evidence?

(b) If the answer to question 16(a) is in the affirmative, is the polygraph operator made available for examination and cross-examination purposes?

(c) Are polygraph charts and other related documents admitted evidence in these administrative hearings?

DASA/DSA

Neither DASA nor DSA has been involved in any legal or administrative matter involving use of polygraph or lie detector devices.

17. If your agency has issued any new regulations or directives pertaining to the use of polygraphs and other so-called lie detection devices since your answer to the subcommittee questionnaire dated June 11, 1963 (or if your agency has amended any existing regulations or directives), provide two copies of each.

DASA

In addition to the instructions contained in AR 195-10, as changed, DASA has forwarded to Commanding Officer, 901st Intelligence Corps Detachment, Commanding Officer, 46th Military Police Detachment (CID), and Chiefs of Intelligence and Security of all DASA bases, copies of DASA message No. 19637 dated May 7, 1964 (attached as enclosure 4), which quoted a memorandum from the Deputy Secretary of Defense dated April 27, 1964, and Director, DASA letter dated August 7, 1964, subject: "Report of Polygraph Examinations" (attached as enclosure 5).

DSA

Although DSA has no polygraph facilities, a policy letter issued on July 23, 1964, states that no polygraph examinations may be conducted without advising the subject of certain conditions. Copies are attached (enclosure 3).

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1. The first part of the book is devoted to a general introduction to the subject of the history of the English language. It discusses the various factors which have influenced the development of the language, such as contact with other languages, internal changes, and the influence of social and cultural factors. It also touches upon the methods of linguistic research and the importance of a historical perspective in understanding the English language.

2. The second part of the book is a detailed account of the historical development of the English language from its earliest known form, Old English, through the Middle English period, to the Modern English period. It traces the changes in vocabulary, grammar, and pronunciation over time, and discusses the influence of external factors such as the Norman Conquest and the Renaissance on the language.

3. The third part of the book is a collection of exercises and examples designed to help students understand the historical changes in the English language. These exercises include identifying Old English words in Middle English texts, tracing the development of specific words, and analyzing the grammatical structures of different periods of the language.

4. The fourth part of the book is a glossary of Old English words and their modern equivalents, as well as a list of references for further study. This part is intended to provide students with the tools they need to continue their exploration of the history of the English language.

