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PUBLIC ATTITUDES ON POLYGRAPH TESTING: A NATIONAL SURVEY

By

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Polygraph testing is now a topic of great controversy. In recent congressional hearings, for example, opponents alleged that not only is polygraph testing inaccurate but even if that were not at issue they would still oppose such tests because they are coercive, offensive and unwarranted under any circumstance. Opponents, therefore, urge the passage of legislation which would prohibit polygraph tests (Hearings, 1985). On the other hand, polygraph examiners and those who employ their services point out that opponents' views are simply not true. The accuracy of polygraph testing, it is said, is sufficiently high to be very useful in most circumstances; properly carried out, such testing is not an infringement on civil rights nor is it an objectionable, offensive, or unnecessary procedure.

While there is ample documentation about the positions of these two opposing groups, little attention has been given to the general public's views on the issue. Is it true, as opponents assert, that the public finds polygraph testing to be offensive and a generally unwarranted procedure? Would most people actually object to polygraph testing themselves? Would most also feel that others, particularly in sensitive positions, should not be required to undergo polygraph testing?

Questions such as these were recently addressed in a national public opinion poll carried out by Media General, Inc. for the Associated Press.* Although some results from this poll were reported in the news media, the typical presentation was merely a cursory overview of the data. The purpose of this paper, therefore, is to report these findings in greater detail. Since these are the only national data now available on public attitudes toward polygraph testing, they are of considerable importance.

Method

The Media General poll was based on telephone interviews of a representative sample of 1,512 adults in the nation who were living in households with a telephone; both listed and non-listed telephone numbers were included. The results generalize to an estimated 161 million adults in the population.

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*Media General/Associated Press Poll No. 10. February 1-8, 1986. Lie Detector Tests. Richmond, VA: Media General, Inc.

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Telephone interviews were carried out between February 1 and February 8, 1986; up to three return calls were made to the randomly selected numbers in order to question the appropriate respondent. Each respondent was asked a series of seven questions about polygraph testing and several items about his or her personal characteristics. In order to display these results a table of data has been prepared for six of the seven questions. At the top of each table each question, as it was worded by the interviewer, is listed. Following the question, base figures for various groupings of respondents are shown. For each grouping, the percentage given each of the categorized responses to each question is displayed across the rows. Respondents have been grouped according to those characteristics of greatest interest. These are: gender, age, educational background, race, political party affiliation, labor union membership, and geographical region of residence.

Results

Although the tabled data in this section are easily interpreted it is to be noted that the percentage of "favorable" responses shown does not exclude the proportion of respondents who gave "no answer" or "don't know" replies. Therefore, those results are described here.

Tables 1 & 2 display results pertaining to respondents' views on whether or not they would object to being asked to take polygraph tests either in their current employment setting (Table 1) or for preemployment purposes (Table 2). As shown in those tables, the results were identical in both cases: 65% of the respondents would not object, 30% would and 5% provided "no answer" (NA). In each of these tables, elimination of the "NA" responses shows that 68% of the respondents held "favorable" views, (i.e., "would not object").

In Tables 3 & 4 it can be seen that most respondents would not refuse to take polygraph examinations in employment context. Favorable responses relating to current employment, shown in Table 3, were given by 65% of the sample; excluding those who were not working and those who gave no answer, 78% of the respondents stated that they would not refuse a polygraph test. As shown in Table 4, 68% of the sample would not refuse a preemployment test; excluding those with "no answer", 72% of the respondents gave a favorable answer.

Table 5 displays the respondents' views regarding whether or not polygraph tests should or should not be used for periodic testing of government employees in sensitive positions. Table 5b through 5g show respondent views on the appropriateness of polygraph testing in other circumstances. Elimination of the respondents who made "no answer" to each of these questions shows the following: For Table 5, 84% of the respondents felt that periodic polygraph testing should be used in sensitive government situations; 48% felt it was appropriate to carry out periodic testing of all government employees (Table 5b); only 40% and 29%, respectively, felt that private companies should test new employees (Table 5c) or should test all current employees (Table 5d); 86% of the respondents felt that polygraph testing was appropriate for testing employees suspected of stealing from work (Table 5e); 76% and 68%, in order, of the respondents felt that polygraph tests should be used in court for the testing of suspects (Table 5f) and the testing of witnesses (Table 5g).

TABLE 1

Public Responses to an Employer's Request to Undergo Polygraph Testing

ITEM: "I'd like to know what you think about the increasing talk concerning mandatory lie detector tests in certain circumstances. How would you feel if your employer asked you to take a lie detector test? Would you object to taking one yourself, or not?

Respondent Grouping	Base	Would Object	Would Not	NA	(ST)*
All Adults	1,512	30%	65%	5%	
Male	743	35	59	6	(4)
Female	769	24	71	5	(3)
18-34 Years	594	32	63	5	(4)
35-54 Years	544	34	60	6	(4)
55-64 Years	185	22	73	5	(6)
65+ Years	186	19	75	6	(6)
Not H.S. Graduate	187	23	74	3	(6)
H.S. Graduate	563	26	69	5	(4)
Part College	345	30	64	6	(6)
College Grad.+	410	39	54	7	(5)
Black	115	28	66	6	(9)
White	1,336	30	65	5	(2)
Hispanic	26	42	54	4	(10)
Other	27	30	70	-	(9)
Democrat	465	32	64	4	(4)
Republican	443	27	67	6	(4)
Independent	523	30	64	6	(4)
Labor Union	192	35	59	6	(7)
No Labor Union	1,306	29	66	5	(2)
Northeast	292	33	62	5	(6)
North Central	386	31	64	5	(5)
South	541	25	70	5	(4)
West	293	34	59	7	(6)

*ST = Sampling Tolerances Adapted From Media General, Inc.

TABLE 2

Public Responses to an Employer's Request to Undergo Preemployment Polygraph Testing

ITEM: How about *if* you were applying for a job and the prospective employer asked you to take a lie detector test? Would you object to taking it, or not?

Respondent Grouping	Base	Would Object	Would Not	NA	(ST)*
All Adults	1,512	30%	65%	5%	
Male	743	32	62	6	(4)
Female	769	28	67	5	(3)
18-34 Years	594	33	63	4	(4)
35-54 Years	544	33	61	6	(4)
55-64 Years	185	23	71	6	(6)
65+ Years	186	20	70	10	(6)
Not H.S. Graduate	187	25	70	5	(6)
H.S. Graduate	563	25	71	4	(4)
Part College	345	31	63	6	(6)
College Grad.+	410	38	55	7	(5)
Black	115	28	66	6	(9)
White	1,336	30	64	6	(3)
Hispanic	26	31	65	4	(9)
Other	27	41	59	-	(10)
Democrat	465	33	64	3	(4)
Republican	443	26	68	6	(4)
Independent	523	31	63	6	(4)
Labor Union	192	30	63	7	(7)
No Labor Union	1,306	30	65	5	(2)
Northeast	292	34	58	8	(6)
North Central	386	32	63	5	(5)
South	541	23	71	6	(4)
West	293	36	61	3	(6)

*ST = Sampling Tolerances Adapted From Media General, Inc.

TABLE 3

Extent of Refusal Among the Public to Employment-Related Polygraph Testing

ITEM: If you are already working, would you refuse to take a lie detector test, even if it meant losing your job?

Respondent Grouping	Base	Would Refuse	Would Not	Not Working	DK/NA	(ST)*
All Adults	1,512	18%	65%	10%	7%	(2)
Male	743	23	62	7	8	(4)
Female	769	13	67	13	7	(3)
18-34 Years	594	20	69	4	7	(4)
35-54 Years	544	23	64	5	8	(4)
55-64 Years	185	11	67	17	5	(6)
65+ Years	186	5	50	38	7	(7)
Not H.S. Graduate	187	11	58	23	8	(7)
H.S. Graduate	563	16	67	11	6	(4)
Part College	345	19	67	7	7	(5)
College Grad.+	410	24	62	6	8	(5)
Black	115	21	61	14	4	(10)
White	1,336	18	64	10	8	(3)
Hispanic	26	31	61	-	8	(10)
Other	27	30	66	-	4	(9)
Democrat	465	17	65	11	7	(4)
Republican	443	15	66	12	7	(4)
Independent	523	21	63	8	8	(4)
Labor Union	192	22	62	7	9	(7)
No Labor Union	1,306	18	65	10	7	(2)
Northeast	292	20	63	10	7	(6)
North Central	386	18	62	11	9	(5)
South	541	15	68	11	6	(4)
West	293	23	62	7	8	(6)

*ST = Sampling Tolerances Adapted From Media General, Inc.

TABLE 4

Extent of Refusal Among the Public to Preemployment Polygraph Testing

ITEM: If you were applying for a job, would you refuse to take a lie detector test, even if it meant you wouldn't be hired?

Respondent Grouping	Base	Would Refuse	Would Not	NA	(ST)*
All Adults	1,512	26%	68%	6%	(2)
Male	743	29	64	7	(4)
Female	769	23	72	5	(3)
18-34 Years	594	28	67	5	(4)
35-54 Years	544	30	64	6	(4)
55-64 Years	185	17	76	7	(6)
65+ Years	186	16	73	11	(6)
Not H.S. Graduate	187	17	75	8	(6)
H.S. Graduate	563	23	72	5	(4)
Part College	345	26	68	6	(5)
College Grad.+	410	34	58	8	(5)
Black	115	26	70	4	(9)
White	1,336	26	67	7	(2)
Hispanic	26	31	65	4	(9)
Other	27	37	63	-	(10)
Democrat	465	28	66	6	(4)
Republican	443	22	72	6	(4)
Independent	523	28	65	7	(4)
Labor Union	192	28	62	10	(7)
No Labor Union	1,306	26	68	6	(3)
Northeast	292	30	63	7	(6)
North Central	386	27	65	8	(4)
South	541	20	76	4	(4)
West	293	31	62	7	(6)

*ST = Sampling Tolerances Adapted From Media General, Inc.

TABLE 5

Public Attitudes on Polygraph Testing of Government Employees in Security-Related Work

ITEM: Some people say that lie detector tests are needed in certain circumstances to make sure people in sensitive positions are honest. Other people say that lie detectors are not always accurate and should not be used. Still others say that mandatory lie detector tests are an invasion of a person's right to privacy. I will read a list of circmstances in which lie detectors might be used. For each one, please tell me whether, in your opinion, lie detector tests should or should not be used. (See Tables 5 through 5g.)

a. For periodic testing of government employees who have access to classified information.

Respondent Grouping	Base	Should	Should Not	DK/NA	(ST)*
All Adults	1,512	81%	15%	4%	(2)
Male	743	80	16	4	(3)
Female	769	82	14	4	(3)
18-34 Years	594	85	12	3	(2)
35-54 Years	544	78	18	4	(4)
55-64 Years	185	82	14	4	(6)
65+ Years	186	76	15	9	(6)
Not H.S. Graduate	187	78	13	9	(6)
H.S. Graduate	563	85	12	3	(2)
Part College	345	87	10	3	(3)
College Grad.+	410	72	25	3	(4)
Black	115	80	17	3	(8)
White	1,336	81	15	4	(2)
Hispanic	26	92	-	8	(6)
Other	27	89	7	4	(6)
Democrat	465	80	17	3	(4)
Republican	443	83	13	4	(4)
Independent	523	82	15	3	(4)
Labor Union	192	81	16	3	(6)
No Labor Union	1,306	81	15	4	(2)
Northeast	292	80	14	6	(5)
North Central	386	82	16	2	(4)
South	541	81	15	4	(4)
West	293	80	15	5	(5)

*ST = Sampling Tolerances Adapted From Media General, Inc.

TABLE 5b

Public Attitudes on Periodic Testing of All Government Employees

ITEM: For periodic testing of all government employees.

Respondent Grouping	Base	Should	Should Not	DK/NA	(ST)*
All Adults	1,512	46%	49%	5%	(3)
Male	743	40	56	4	(4)
Female	769	52	42	6	(3)
18-34 Years	594	49	49	2	(4)
35-54 Years	544	37	58	5	(4)
55-64 Years	185	54	41	5	(7)
65+ Years	186	52	36	12	(7)
Not H.S. Graduate	187	65	26	9	(6)
H.S. Graduate	563	53	42	5	(4)
Part College	345	47	50	3	(6)
College Grad.+	410	27	70	3	(4)
Black	115	54	42	4	(10)
White	1,336	45	50	5	(3)
Hispanic	26	61	27	12	(10)
Other	27	44	44	12	(10)
Democrat	465	48	47	5	(4)
Republican	443	44	51	5	(5)
Independent	523	44	52	4	(4)
Labor Union	192	41	53	6	(7)
No Labor Union	1,306	47	48	5	(3)
Northeast	292	47	48	5	(6)
North Central	386	45	51	4	(5)
South	541	52	44	4	(4)
West	293	36	58	6	(6)

*ST = Sampling Tolerances Adapted From Media General, Inc.

TABLE 5c

Public Attitudes on Universal Preemployment Polygraph Testing

ITEM: For testing of prospective new employees by companies that are considering hiring them.

Respondent Grouping	Base	Should	Should Not	DK/NA	(ST)*
All Adults	1,512	37%	55%	8%	(3)
Male	743	34	59	7	(3)
Female	769	40	51	9	(3)
18-34 Years	594	34	61	5	(4)
35-54 Years	544	32	59	9	(4)
55-64 Years	185	48	43	9	(7)
65+ Years	186	49	38	13	(7)
Not H.S. Graduate	187	49	38	13	(7)
H.S. Graduate	563	42	52	6	(4)
Part College	345	37	54	9	(6)
College Grad.+	410	25	68	7	(4)
Black	115	40	54	6	(10)
White	1,336	36	56	8	(3)
Hispanic	26	54	31	15	(10)
Other	27	33	56	11	(9)
Democrat	465	36	58	6	(4)
Republican	443	39	53	8	(5)
Independent	523	35	57	8	(4)
Labor Union	192	34	57	9	(6)
No Labor Union	1,306	37	55	8	(3)
Northeast	292	34	58	8	(5)
North Central	386	32	60	8	(4)
South	541	44	48	8	(4)
West	293	33	59	8	(5)

*ST = Sampling Tolerances Adapted From Media General, Inc.

TABLE 5d

Public Attitudes on Universal Polygraph Testing of Current Employees

ITEM: For testing of all current employees by their companies.

Respondent Grouping	Base	Should	Should Not	DK/NA	(ST)*
All Adults	1,512	27%	66%	7%	(2)
Male	743	25	69	6	(3)
Female	769	30	62	8	(3)
18-34 Years	594	25	70	5	(3)
35-54 Years	544	23	69	8	(4)
55-64 Years	185	37	56	7	(7)
65+ Years	186	37	51	12	(7)
Not H.S. Graduate	187	39	49	12	(7)
H.S. Graduate	563	33	61	6	(4)
Part College	345	27	66	7	(5)
College Grad.+	410	15	78	7	(3)
Black	115	31	63	6	(9)
White	1,336	27	66	7	(2)
Hispanic	26	38	54	8	(10)
Other	27	22	63	15	(8)
Democrat	465	28	66	6	(4)
Republican	443	26	65	9	(4)
Independent	523	27	67	6	(4)
Labor Union	192	28	65	7	(6)
No Labor Union	1,306	27	66	7	(2)
Northeast	292	24	67	9	(5)
North Central	386	26	68	6	(4)
South	541	33	59	8	(4)
West	293	22	72	6	(5)

*ST = Sampling Tolerances Adapted From Media General, Inc.

TABLE 5e

Public Attitudes on Polygraph Testing of Employee Suspects

ITEM: For testing of employees suspected of stealing from work.

Respondent Grouping	Base	Should	Should Not	DK/NA	(ST)*
All Adults	1,512	75%	21%	4%	(2)
Male	743	71	25	4	(3)
Female	769	78	18	4	(3)
18-34 Years	594	75	22	3	(3)
35-54 Years	544	69	27	4	(4)
55-64 Years	185	83	15	2	(6)
65+ Years	186	78	11	11	(6)
Not H.S. Graduate	187	83	13	4	(6)
H.S. Graduate	563	78	18	4	(3)
Part College	345	76	20	4	(5)
College Grad.+	410	64	32	4	(5)
Black	115	74	23	3	(9)
White	1,336	74	22	4	(2)
Hispanic	26	96	4	-	(4)
Other	27	74	15	11	(9)
Democrat	465	71	26	3	(4)
Republican	443	78	17	5	(4)
Independent	523	75	21	4	(4)
Labor Union	192	67	28	5	(6)
No Labor Union	1,306	76	20	4	(2)
Northeast	292	71	22	7	(5)
North Central	386	74	23	3	(4)
South	541	80	17	3	(4)
West	293	67	28	5	(5)

*ST = Sampling Tolerances Adapted From Media General, Inc.

TABLE 5f

Public Attitudes on Polygraph Testing of Criminal Defendants

ITEM: For testing in court of people accused of crimes.

Respondent Grouping	Base	Should	Should Not	DK/NA	(ST)*
All Adults	1,512	72%	22%	6%	(2)
Male	743	66	27	7	(3)
Female	769	78	16	6	(3)
18-34 Years	594	73	23	4	(4)
35-54 Years	544	69	25	6	(4)
55-64 Years	185	74	18	8	(6)
65+ Years	186	77	12	11	(6)
Not H.S. Graduate	187	82	11	7	(6)
H.S. Graduate	563	76	19	5	(3)
Part College	345	70	24	6	(5)
College Grad.+	410	65	29	6	(4)
Black	115	66	27	7	(9)
White	1,336	73	21	6	(2)
Hispanic	26	76	12	12	(8)
Other	27	74	26	-	(9)
Democrat	465	69	24	7	(4)
Republican	443	78	17	5	(4)
Independent	523	71	23	6	(4)
Labor Union	192	73	22	5	(6)
No Labor Union	1,306	73	21	6	(2)
Northeast	292	73	20	7	(5)
North Central	386	73	22	5	(4)
South	541	73	21	6	(4)
West	293	69	24	7	(5)

*ST = Sampling Tolerances Adapted From Media General, Inc.

TABLE 5g

Public Attitudes on Polygraph Testing of Witnesses in Court

ITEM: For testing in court of witnesses.

Respondent Grouping	Base	Should	Should Not	DK/NA	(ST)*
All Adults	1,512	63%	30%	7%	(2)
Male	743	57	37	6	(4)
Female	769	69	24	7	(3)
18-34 Years	594	64	32	4	(4)
35-54 Years	544	59	34	7	(4)
55-64 Years	185	66	26	8	(6)
65+ Years	186	67	18	15	(6)
Not H.S. Graduate	187	71	20	9	(6)
H.S. Graduate	563	66	27	7	(4)
Part College	345	61	32	7	(6)
College Grad.+	410	55	38	7	(5)
Black	115	56	37	7	(10)
White	1,336	64	29	7	(3)
Hispanic	26	65	23	12	(9)
Other	27	56	44	-	(10)
Democrat	465	60	34	6	(4)
Republican	443	67	26	7	(4)
Independent	523	62	31	7	(4)
Labor Union	192	65	30	5	(6)
No Labor Union	1,306	63	30	7	(3)
Northeast	292	60	31	9	(6)
North Central	386	64	30	6	(5)
South	541	64	30	6	(4)
West	293	62	30	8	(6)

*ST = Sampling Tolerances Adapted From Media General, Inc.

TABLE 6

Public Experience With Polygraph Testing

ITEM: Have you ever been given a lie detector test, or not?

Respondent Grouping	Base	Yes	No	NA	(ST)*
All Adults	1,512	15%	85%	-	(2)
Male	743	20	80	-	(3)
Female	769	10	90	-	(2)
18-34 Years	594	20	80	-	(3)
35-54 Years	544	15	85	-	(4)
55-64 Years	185	8	91	1	(4)
65+ Years	186	7	92	1	(4)
Not H.S. Graduate	187	8	91	1	(4)
H.S. Graduate	563	13	87	-	(2)
Part College	345	22	78	-	(5)
College Grad.+	410	15	85	-	(4)
Black	115	18	82	-	(8)
White	1,336	15	85	-	(2)
Hispanic	26	15	85	-	(8)
Other	27	22	78	-	(8)
Democrat	465	15	85	-	(4)
Republican	443	13	87	-	(3)
Independent	523	17	83	-	(4)
Labor Union	192	13	87	-	(4)
No Labor Union	1,306	16	84	-	(2)
Northeast	292	13	87	-	(3)
North Central	386	12	88	-	(3)
South	541	21	79	-	(4)
West	293	9	91	-	(3)

*ST = Sampling Tolerances Adapted From Media General, Inc.

Of particular interest in Tables 1 through 5g, of course, are the results for different groupings of respondents. In this regard, it is to be understood that the sample of respondents was a randomly selected one and that not all of the differences between the various groupings are statistically significant. In order to estimate if a difference between groups is significant ($p < .05$), the following method can be applied: subtract the two percentages of interest; if the difference is greater than the sum of the sampling tolerances (These are indicated in each table by an ST in the last column.) shown in the tables for the groups of interest, then the difference is significant. For example, in Table 1 the difference between males and females who would not object to taking a polygraph test is 12 (59% minus 71%): the sum of the two sampling tolerances (shown in the column headed by "ST") is 7. Therefore, the difference between males and females is "significant".

The age, gender, and educational background of the respondents were the characteristics most often related to attitudes. Respondents who were young (18-34 years), male, and college graduates were less likely to favor polygraph testing than older respondents, females, and those with lower educational attainment. On the other hand, the respondents' race and political party affiliation generally were not related to attitudes.

Table 6 shows that only 15% of the sample had actually taken a polygraph examination. These persons had also been asked the circumstance in which these examinations were given (This was the seventh question asked in the poll.) and, although not shown in a table, the results indicated the following: 52% of these examinations were preemployment tests; 29% were other work-related examinations; and, the remaining 19% were examinations carried out primarily for court and military purposes or as "demonstration" tests.

Discussion

In general these findings show a great deal of public support for the use of polygraph testing in well specified and sensitive situations such as when there is suspicion of an employee or criminal suspect or when there is a need for extra precaution in an employment circumstance. There is less support, however, for widespread, seemingly arbitrary use of polygraph testing. The public is almost evenly divided, for instance, on the issue of mandatory periodic testing of government employees. In other words, although there is considerable public sentiment contrary to the general views expressed by opponents, there seems to be little public sentiment for polygraph usage without sufficient justification.

A part of the controversy about polygraph testing concerns its use in a context in which all employees and applicants for employment in the private sector can be required to undergo polygraph testing. On these issues, there is little doubt about public sentiment: the clear majority feels that neither employees nor applicants ought to be routinely subjected to polygraph testing. Whether these views vary in relation to particular types of private employment (Employment in the drug or banking industries versus retail sales, for example.) is not possible to determine with these data. An additional point to bear in mind about these results is that national polls on other issues show even less public support for required

employment-related testing (Meddis, 1986). Thus, without additional information about how the public feels about polygraph testing relative to other forms of employment-related testing and relative to the type of employment being sought, it is difficult to determine what these findings suggest for public policy regarding polygraph testing.

Aside from this national poll, there have been six studies reported in the literature in which public attitudes toward polygraph tests were assessed (Ash, 1973; Buckley, 1980; Silverberg, 1980, 1980a, 1980b; Phannenstill, 1983). In each of these studies, however, attitudes only toward preemployment testing were assessed and only those who had actually taken such tests were included in the survey population. Although the combined results in these studies were quite favorable--almost 90% of approximately 1100 respondents reported that their preemployment test was fair, not offensive, and not an invasion of personal privacy--it is not possible to compare directly those findings to these reported here. However, the results of the prior studies considered in light of those here, reinforce the point made at the outset of this section: there is little evidence that polygraph testing is viewed with the degree of disfavor assumed by opponents.

These results show generally that gender and age are more importantly related to attitudes about polygraph testing than are other characteristics. Interestingly, a similar finding was recently reported by Horvath and Phannenstill (1985). In their survey of persons who had actually taken preemployment tests and whose attitudes were assessed after they knew the disposition of their job application, females and older persons (over 24 years) also had more favorable views than either males or younger persons. Additional research is necessary in order to clarify the reason for these differences.

In summary, public attitudes appear to be quite supportive of many uses of polygraph testing; certainly there is far greater support than that commonly asserted by opponents. Nevertheless, public support is not without limitation; only polygraph testing carried out with adequate justification seems to be viewed with favor. Since these public views are somewhat in the middle group between the positions staked out by the major groups in the controversy, they seem to reinforce the argument advanced by Hurd (1985) that a balancing of the respective interests in the debate may be the most appropriate course of public policy.

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PREEMPLOYMENT POLYGRAPH TESTING: THE ATTITUDES OF APPLICANTS AND THEIR RELATIONSHIP TO PERSONAL CHARACTERISTICS

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and

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Abstract

The purpose of this study was to determine the attitudes of persons who had taken preemployment polygraph tests toward those tests and to examine the relationship between attitudes and examinee characteristics. Between 3 and 16 weeks following voluntary agreement with a prospective employer to take a pre-employment polygraph examination, a consecutive sample of 596 job applicants was mailed a 10-item questionnaire. The questionnaire included attitudinal items as well as questions about the disposition of the job application. Anonymous responses were received from 218 (40%) persons. Analysis of the data showed that more than 70% of the respondents did not believe polygraph testing to be unfair, offensive, objectionable, or an invasion of personal privacy. Respondents' views were generally not statistically related to gender, race, or age but were related ($p < .05$) to admissions of involvement in theft from employers, use of drugs on the job, commission of crimes and the outcome of the examination; those who met employer-set standards were statistically more likely to have favorable views than those who did not. Analysis of the disposition of the job application showed that 6% of those persons who had a "favorable" polygraph outcome were not hired whereas 24% of those with an "unfavorable" polygraph outcome were hired.

Polygraph testing as a condition of obtaining employment -- preemployment polygraph screening -- is a procedure that is now extremely controversial. Although opponents of such testing often cite the lack of proven accuracy as the fundamental reason for their strong opposition (Brooks, 1985; Lykken, 1981, 1985; Office of Technology Assessment [OTA],

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1983), the focus on that issue overstates the problem. The reason for this is that most persons rejected for employment in situations in which polygraph testing is used are rejected not because of a negative polygraph result but rather because of their admission of involvement in activity believed by the potential employer to indicate an unacceptable employment risk (Barland, 1977; Horvath, 1985). In addition to this, even if polygraph testing were 100% accurate there would still be good reason to question its use; and, even if it were demonstrated to be less than 100% accurate there may still be reason to use it (Horvath, 1985; Hurd, 1985). Thus, an answer to the question of the validity of polygraph testing, though important, still leaves a number of fundamental issues unanswered. Specifically, is such testing, as opponents often claim, abusive, unfair, offensive to personal dignity and an invasion of the privacy of our nation's work force?

The critics' assertions notwithstanding, there is really very little empirical support for the claim that preemployment polygraph testing is a generally offensive and objectionable practice. In fact, the major supportive evidence is the testimony of persons who claim to have been the subject of abuse during polygraph testing. Such testimony, though frequently featured during hearings before governmental bodies considering legislation on polygraph testing (Hearings, 1985), is seldom accompanied by any substantiation. Even if it were, however, these cases represent merely anecdotal not systematic evidence of abuse in the polygraph testing industry.

The most direct evidence pertinent to critics' assertions has been derived from studies carried out to determine how people who have actually undergone polygraph testing feel about the tests. There are now six such studies (dealing with nongovernmental polygraph usage) that have been reported in the literature (Ash, 1973; Buckley, 1980; Silverberg, 1980, 1980a, 1980b; Phannenstill, 1983). In each of these, carried out at different times and in different areas of the country, persons who were given preemployment polygraph tests were asked immediately following testing to complete anonymous questionnaires to indicate their views. The combined results of these six studies show highly favorable attitudes toward polygraph testing. Of the 1000 plus persons surveyed in the six studies, 92% of them reported that the test was "fair"; 91% did not find the testing to be offensive and 87% reported that the testing was not an invasion of their privacy. On the average, 95% agreed that they would be willing to take polygraph tests again for either preemployment purposes or in the event of a specific loss in an employment situation.

At face value these results appear persuasive and certainly are not supportive of the critics claims about preemployment testing. Unfortunately, these six studies according to some, all suffer from the same fatal flaw: The respondents were asked to complete questionnaires at the time that they were in the polygraph examiners' office and before they were aware of the outcome of their job application (House of Commons, 1984). Critics, therefore, maintain that respondents' views in these studies were constrained by fear of rejection for employment.

Because of the methodological problem in the available research it is difficult to judge the merit of those findings. This study was carried

out in an effort to deal with that concern. In particular this study was designed to investigate further the attitudes of persons who have taken preemployment polygraph examinations but to get at those attitudes at a time when it was clear to respondents that their views would not in any way influence the decision about whether they obtained employment or about the result of their polygraph testing. In addition, because the attitudes towards the polygraph testing seemed likely to be related to respondents' test outcomes and demographic characteristics, the study was designed to permit exploratory testing of such relationships. It was of interest here, for example, to examine questions such as: Are preemployment tests viewed differently by males and females, by Blacks and Whites and by different age groupings? Are attitudes about tests related to admissions of certain forms of past misconduct and to outcomes on polygraph tests? These questions, though important in the controversy about preemployment testing, have never been addressed directly in the prior research on this topic.

Method

During the period starting with June 1, 1983 and continuing through January 31, 1985 there were 596 persons who voluntarily submitted to preemployment polygraph testing at the Milwaukee office of John E. Reid and Associates, a polygraph consulting firm. Each of these persons underwent a similar, standard form of testing in which they were asked questions about their involvement in theft from employers, shoplifting, criminal convictions and the commission of undetected crimes, use of illegal drugs during work hours, and falsification of their job applications. Polygraph test questions in each of these areas were restricted to specified time periods. The question about shoplifting was limited to only the previous two years and the question concerning the use of illegal drugs on the job to the previous one year period. The questions about theft from employers were limited to the previous three years and the question about involvement in undetected crimes was restricted to the five years of time preceding the date of testing. All persons were residents of the Milwaukee, Wisconsin area and were applying for positions as security officers, cashiers, clerks, managers, route people, pharmacists, warehouse workers, and jewelers. The types of businesses these persons were applying with were department stores, security firms, transportation and pharmaceutical companies, jewelry firms, hotels, theatres, bookstores, and other small retail establishments.

Between three weeks and four months after undergoing their polygraph examination each of the 596 examinees was mailed a ten item questionnaire from the polygraph testing office. Included with the questionnaire was a letter of transmittal explaining the nature of the study, and a stamped envelope with a return address to the American Polygraph Association Research Center at Michigan State University.

Each questionnaire requested the examinee to indicate his or her view about seven items related to polygraph testing and also to indicate information about the disposition of the job application. Except for the item asking the examinee if the polygraph test was unfair, which included an option for an "undecided" response, all polygraph related items were answered dichotomously, with a "yes" or a "no". Each item provided

sufficient space for additional clarification or explanation if the respondent so desired.

In constructing the questionnaire, items that had been asked in previous research were replicated so that direct comparisons could be made; also, however, several items that had not been used before were included. In brief form, the questionnaire items were:

1. Were you offered the job for which you took the polygraph test?

2. If you were offered the job, did you accept it?

3. If you answered "No" to question 2, why did you not accept?

4. Was the polygraph exam unfair to you in any way?

5. Did the polygraph exam or any part of it offend you?

6. Was the exam or any question an invasion of your privacy?

7. Was there any question asked which was objectionable or offensive?

8. Would you take another polygraph examination for a job application?

9. Should employers be permitted to use polygraph testing to screen applicants?

10. Should employers be permitted to use polygraph testing to investigate losses?

Although no identifying information was requested from respondents, each questionnaire was conspicuously identified with a code number. This number matched one that was assigned at the time of the polygraph examination and was used to enable demographic and other data to be collected and analyzed without permitting access to personal information. (The letter of transmittal explained that personal identity would not be revealed to anyone outside of the polygraph testing organization.) That is, after all questionnaires were returned to the Research Center, a master list of only the numbers on the returned questionnaires was mailed to the polygraph testing firm. There, data collected during the polygraph examination corresponding to the number assigned to each examinee at the time of testing, were recorded and those data were sent to the Research Center. Thus, personnel at the polygraph testing office were aware only of who had returned a questionnaire but not what was indicated on the questionnaire. The research staff, of course, did not have any personal identifying information and could match respondents' views only to the assigned code number.

Personal Characteristics of Population

Of the 596 persons in the survey population 375 (63%) were male and 221 (37%) were female. The mean age of all persons was 27, ranging between 16 and 66 years. The majority (506, 85%) of these persons was White. Of the 90 Nonwhite persons, 75 were Black, 12 were Latino, and one each was of Korean, Arabic, and American Indian descent. For purposes of analysis all Nonwhite persons were grouped together.

Based on the result of their polygraph examination 399 of the 596 persons (67%) were considered to be eligible for the particular employment being sought, according to standards set by each employer (Slowik, 1979); these persons were "recommended" for employment. One hundred and ninety-seven of all of the persons given polygraph examinations did not meet the employer-set standard and thus, were considered ineligible for the position being sought; they were "not recommended". It should be explained here that the outcome of the examination, that is whether or not one was recommended, was determined, not as commonly believed by whether or not the polygraph testing showed a person to be either truthful or untruthful, but by that finding considered along with whether or not the information revealed by an applicant during the polygraph testing was within employer-set guidelines for the position for which a person was applying. In other words, the polygraph test result itself would not be sufficient to make one either eligible or ineligible for the employment being sought since, for example, a person who (truthfully) admitted involvement in extensive theft from previous employers would be unlikely to meet employer-set standards irrespective of the actual polygraph result. Therefore, the polygraph examination outcome as operationalized here is actually a gross measure of the frequency, seriousness of and extent to which applicants admitted being involved in activities viewed as undesirable by employers, e.g., stealing from former employers, using drugs in past employment situations, and so forth.

In all statistical analyses the .05 level was used as the criterion for statistical significance. In addition, unless otherwise specified, all results were adjusted to accommodate both "undecided" and missing responses.

Results

In all, questionnaires were mailed to 596 persons. However, 54 of these were returned due to postal problems [i.e., no forwarding address]. Thus there were actually 542 persons who received a questionnaire; of these, 218 people responded, a response rate of 40%.

Respondent Attitudes

Table 1 displays the results regarding the attitudes of the respondents toward their preemployment polygraph tests. Because some of the questionnaire items were similar to those used in previous research the results of the present survey are displayed alongside aggregate findings derived from prior studies in order to facilitate direct comparisons (Ash, 1973; Buckley, 1980; Silverberg, 1980, 1980a, 1980b; Phannenstill, 1983).

As can be seen in Table 1, the present results, although somewhat less favorable than those previously were reported, nevertheless, still considerably weighted in favor of polygraph testing. In all areas except one at least 70% of the respondents reported attitudes that were supportive; that is, neither polygraph testing nor the questions which were asked were viewed as unfair, offensive or objectionable, nor were they considered to be an invasion of personal privacy by the majority of respondents. Similarly, the majority of the respondents, 73%, reported that they would agree to take a preemployment polygraph test again and that employers ought to be permitted to use polygraph testing to investigate losses.

One issue on which the respondents were almost evenly divided was whether or not employers ought to be permitted to use preemployment polygraph tests to screen job applicants. As shown in Table 1, 54% of the respondents gave an affirmative response to this issue.

TABLE 1
Comparison of Favorable Respondent Views in Present Study to Previous Surveys

Item	Favorable Responses: Present Study[a] (N=218) % (n)	Favorable Responses: Previous Studies[b] (N-1165) % (n)
Test Fair	72% (139)	92% (1079)
Test Not Offend	76% (165)	91% (1070)
Test Not Invade Privacy	79% (170)	87% (1008)
Questions Not Objectionable	82% (176)	-- --
Agree to Take	73% (154)	94% (1102)
Permit Tests?		
Preemployment	54% (115)	-- --
Investigate Losses	71% (151)	-- --

a = Percentages were calculated excluding missing and undecided responses.

b = Ash (1973); Buckley (1980); Silverberg (1980, 1980a, 1980b); Phannenstill (1983).

Attitudes and Respondent Characteristics

Relationships between respondent characteristics and attitudes toward polygraph testing were analyzed by carrying out Chi-square tests on respondent characteristics and the dichotomized answers ("yes" and "no") to questionnaire items. These analyses, displayed in Table 2, showed that respondent views about whether the testing was fair, offensive, invasive of personal privacy, or included objectionable questions were not significantly related to respondent race (white and nonwhite), gender or age (younger, 24 or less; older, 25 or more). As also shown in Table 2, there was not a significant relationship between respondent race or age and agreement to take another preemployment examination; females, however, were more likely than were males to agree to take another preemployment examination, 81% and 67% respectively, [$X^2(1) = 4.7$].

TABLE 2
Number and Percentage of Favorable Responses
To Questionnaire Items by Respondent Characteristics

Group	Item				
	Test Fair n (%)	Not Offensive n (%)	Not Invasive n (%)	Not Objectionable n (%)	Agree Retake n (%)
RACE					
Nonwhite	11(69)	13(81)	13(81)	14(87)	11(69)
White	126(72)	150(77)	155(80)	159(82)	142(74)
GENDER					
Female	71(77)	79(78)	82(82)	83(84)	79(81)*
Male	66(69)	84(76)	85(78)	90(80)	74(67)
AGE					
Young(<24)	66(67)	82(74)	88(79)	93(84)	77(69)
Old	73(76)	83(79)	82(79)	83(80)	77(78)

*P < .02

With respect to employer use of polygraph testing to screen applicants, White respondents favored such use slightly more than Nonwhites, 105 (55%) and 7 (47%) respectively: this difference was not significant [$X^2(1) = .38$]. Similarly, the difference between male and female respondents on this issue was not significant [$X^2(1) = .4$]; 61 (55%) of the males and 53 (53%) of the females were in favor of polygraph screening. A majority of White and Nonwhite respondents, 138 (71%) and 11 (69%) respectively, and of male and female respondents, 78 (71%) and 71 (71%), in order, favored employer use of polygraph testing to investigate losses. Chi-square test results showed that neither race nor gender were significantly related to views on this issue [For Race, $X^2(1) = .04$; for gender, $X^2(1) = .00$].

Younger respondents (24 and younger) reported that employers ought not to use polygraph testing for preemployment screening significantly more often than did older respondents, 59 (53%) and 40 (39%) respectively, [$X^2(1) = 3.8$]. There was no difference between younger and older respondents with respect to whether employers should be permitted to use polygraph testing to investigate specific losses: 73 (65%) of the younger respondents and 78 (76%) of the older respondents favored such use [$X^2(1) = 3.3$].

It would be reasonable to anticipate that those persons who are adversely affected by polygraph tests would be less favorable than those who are not. Indeed these findings confirm that expectation. Table 3 shows the number and proportion of favorable responses to each of the attitudinal items in the questionnaire for both of the outcomes of the polygraph examination (recommended and not recommended). As can be seen in that table, 86% of those persons who were "recommended" -- that is, who met the employer set standards for the position of interest -- did not view the test as unfair whereas 67% of those who were "not recommended" believed the testing to be unfair. A Chi-square test on the test outcome and whether or not the test was viewed as unfair ("yes" and "no": undecided responses were excluded) showed that this difference was significant, X^2 (1) = 51.1, and a Phi coefficient of .52 showed a relatively strong degree of relationship between the two variables. Similarly, the outcome of the examination was significantly related to other expressed attitudes about polygraph testing. Those persons who were recommended were significantly more likely than those who were not recommended to view the test as being inoffensive (85% and 52%, respectively) [$X^2(1) = 21.9$; Phi = .32], as not being an invasion of privacy (for "recommended", 85%; for "not recommended", 59%) [$X^2(1) = 11.8$; Phi = .24], and as not including objectionable questions (for "recommended, 89%; for "not recommended", 59%) [$X^2(1) = 21.4$; Phi = .32]. In addition to these findings, those persons who were recommended were significantly more likely than those who were not to agree to take a preemployment test again, 83% versus 46% [$X^2(1) = 27.9$; Phi = .37] and to agree that employers ought to be permitted to use preemployment tests, 60% to 39% [$X^2(1) = 6.9$; Phi = .18]. The difference between the "recommended" and the "not recommended" groups regarding the use of polygraph testing to investigate specific losses (69% versus 77%, respectively) was not significant [$X^2(1) = 1.4$].

As pointed out previously the outcome of the examination was in large part determined by whether or not the information revealed by an applicant during the polygraph testing was within employer-set guidelines for the position for which a person was applying. Therefore, the outcome as operationalized here is actually a gross measure of the seriousness of and the extent to which applicants admitted being involved in activities viewed as undesirable by employers (e.g., stealing from former employers, using drugs in past employment situations, and so forth). For this reason, the examination outcome and involvement in activities covered by the polygraph test questions were related and, to some extent, were merely different measures of the same phenomenon. Nevertheless, it is of interest here to examine the relationships between involvement in specific activities (which were the basis for the polygraph test outcome) and respondent views on polygraph testing. These data are displayed in Table 4 which shows the number and percentage of favorable responses to each attitudinal item for each major category of activity about which respondents were questioned during polygraph testing. To test the relationship between item responses and respondent admissions, Chi-square tests were calculated between "yes" and "no" responses to each questionnaire item and each category of admission activity as shown in Table 4. As can be seen in those data, a statistically significant relationship was obtained in all of the analyses except for those involving admissions of shoplifting and in one case admissions of theft of money from employers. In other words those persons holding favorable views about their polygraph testing were less likely

than those holding unfavorable views to have admitted involvement in employment-disqualifying activity.

TABLE 3
Number and Percentage of Favorable Respondent Attitudes Toward Polygraph Testing for the Two Examination Outcomes

Item	Polygraph Examination Outcome[a]	
	Recommended (N=158) % (n)	Not Recommended (N=56) % (n)
Test Fair	86% (121)	29% (16)**
Test Not Offend	85% (134)	52% (29)**
Test Not Invade Privacy	85% (135)	59% (33)**
Questions Not Objectionable	89% (140)	59% (33)**
Agree to Take Again	83% (128)	45% (25)**
Permit Tests		
Preemployment	60% (92)	39% (22)*
Investigate Losses	69% (108)	73% (41) n.s.

[a] = Percentages were calculated excluding missing and undecided responses

* = $P < .01$

** = $P < .001$

Although not directly relevant to other results reported here, it is of some interest to note briefly the relationships between respondent demographic characteristics and admitted involvement in the activities covered during polygraph testing. For example, statistical analysis showed no relationship between either respondents age (younger, older) or race (White, Nonwhite) and admitted involvement in theft of money or merchandise from employers (none, minor-less than $25 in value, major-$26 in value or more), involvement in illegal use of drugs (yes, no), shoplifting activity (yes, no), or involvement in the commission of undetected crimes (yes, no). The gender of the respondent was not related to the use of drugs or to involvement in shoplifting but males were more likely than were females to admit the theft of merchandise [54 (48%) and 29 (28%) for males and females, in order] and money [for males, 23 (21%); for females,

7 (7%)] from employers [$X^2(2) = 14.9$; $X^2(2) = 8.9$, respectively] and to admit the commission of undetected crimes [for males, 15 (13%) and for females, 2 (2%); $X^2(1) = 9.5$].

TABLE 4
Number and Percentage of Favorable Responses
To Questionnaire Items by Respondent Admissions
During Polygraph Examinations

	Item				
Admission Area	Test Fair n(%)	Not Offensive n(%)	Not Invasive n(%)	Not Objectionable n(%)	Agree Retake[a] n(%)
EMPLOYEE THEFT:					
Merchandise					
None	94(80)	110(85)	109(84)	111(86)	102(79)
Minor	31(67)	35(71)	41(82)	44(90)	37(76)
Major	12(44)**	18(55)**	18(60)*	18(55)**	14(47)**
Money					
None	126(78)	144(79)	149(82)	155(85)	138(77)
Minor	6(37)	12(71)	11(65)	10(59)	11(65)
Major	5(42)**	7(54)ns	8(67)**	8(67)**	4(33)**
ILLEGAL DRUG USE:					
Yes	6(40)	7(47)	8(53)	8(53)	8(50)
No	131(75)*	156(79)**	160(82)**	165(84)**	145(76)*
UNDETECTED CRIME:					
Yes	4(27)	9(53)	7(41)	9(53)	7(41)
No	133(76)**	154(79)*	161(83)**	164(84)**	146(76)**
SHOPLIFTING:					
Yes	4(57)	4(57)	6(86)	5(83)	7(86)
No	133(73)n.s.	159(78)n.s.	162(80)n.s.	168(82)n.s.	147(73)n.s.

[a] = x^2 tests were calculated separately for admission data in each area and "yes" and "no" responses to each questionnaire item.

* = $p < .05$

** = $p < .01$

Respondent and Nonrespondent Characteristics

Because some characteristics of the survey population were known it was possible to determine if the respondents differed from the nonrespondents. Analysis of the returned questionnaires showed that among the

respondents 112 (52%) were male and 102 (48%) were female. (Questionnaires with missing entries were not counted in calculating percentages for respondents.) In the nonrespondent group there were 263 (69%) males and 119 (31%) females, a Chi-square test showed that respondents were more apt to be female than male than were nonrespondents [$X^2(1) = 16.5$]. The great majority of the respondents, 198 (93%), was White, 14 (7%) were Nonwhite. A Chi-square test showed that the respondents were statistically more likely than nonrespondents (308 White; 76 Nonwhite) to be White than Nonwhite [$X^2(1) = 27.4$]. The age of the respondents ranged from a low of 16 to a high of 66 years; the mean age was 28. The mean age of the nonrespondents was 26, ranging between 16 and 59. The difference between the mean ages of the two groups was statistically significant, $Z=2.8$ (two tailed); thus, the respondents tended to be older than the nonrespondents. Finally, 158 (74%) of the respondents met the employer-established standards (recommended) and 56 (26%) did not (not recommended). Among nonrespondents 241 (63%) persons were recommended and 141 (37%) were not. The difference between the two groups in this regard was statistically significant [$X^2(1) = 7.3$]; the respondent group therefore contained a greater proportion of persons who were recommended.

Discussion

Critics of the polygraph industry maintain that preemployment polygraph testing is generally a personally degrading and humiliating experience; that, as one critic recently asserted, during a polygraph examination, "A good examiner scares the crap out of you. It's theatre." (Biddle, 1986, p. 26). Proponents, of course, have consistently maintained that such views are not true. Clearly, the position of the proponents is the one most strongly supported by these findings. It should be emphasized that the respondents knew the disposition of their job application before they provided their views on polygraph testing. Yet, the majority of them, generally over 70%, did not find the testing to be unfair, offensive or objectionable, or an invasion of personal privacy. A similar percentage of them agreed to take both preemployment tests and specific issue tests in the future if that were to be necessary. In short, these results are quite contrary to what would be expected if opponents' views were correct.

These respondents' attitudes were somewhat less favorable than those which have been reported in previous studies of this topic. The importance of this fact, however, is mitigated by the finding that the majority of the respondents were still favorable (See Table 1). Thus, even though it is possible that the highly favorable attitudes shown in the prior studies were partly due to the respondents' concern about the effect of honest answers (House of Commons, 1985), these results suggest that that issue may not be of overwhelming importance.

On the other hand, it may be that methodological differences between this and prior studies do not account for the difference in results. That might, in fact, be attributable merely to the effect of the attention given to polygraph testing in the popular media. For example, the most recent of the prior studies was reported in 1983; the data were actually collected in 1981. Thus, there was a period of four years between the collection of those earlier data and those collected in this study. In

that time media attention to the issue of polygraph testing greatly increased, primarily a result of controversy over President Reagan's directive to expand the use of polygraph testing in the government (Hearings, 1985), the publication of two government reports on polygraph testing which reached somewhat opposite conclusions (Department of Defense, 1984; OTA, 1983) and the introduction of legislation in the U.S. Congress to prohibit polygraph testing in private employment situations (Brooks, 1985). Whether and to what extent these issues contributed to differences in findings between this and previous studies is, of course, not possible to assess directly.

Perhaps proponents of polygraph testing would find the most disconcerting statistics in this research to be that only a small majority, 54%, of the respondents believed that employers should be permitted to use preemployment polygraph screening. This finding obtained, of course, even though most respondents had favorable views toward the examination itself. This somewhat anomalous situation suggests that although the respondents found nothing inherently inimical in their polygraph examination, they did find the principle involved in using polygraph screening in private enterprise to be questionable. Interestingly, a similar result was recently reported in a survey carried out by Media General, Inc. (1986). In this survey, based on a representative national sample of 1,512 adults, the majority of respondents reported that they would not object to taking a preemployment polygraph examination (65%) and that such testing ought to be used on employees with access to classified information (81%); yet, only 37% of this group felt that polygraph testing ought to be used generally to screen all new employees. Perhaps, the difference between the support for the principle versus the practice suggests merely that the business community and other users of polygraph services have not presented a very compelling case for their position (Hurd, 1985). It is also likely, of course, that any employer-initiated screening tests, irrespective of the nature of the tests, would be regarded with great skepticism by the public. The results of national surveys regarding preemployment drug tests, for instance, show less favorable views than those about polygraph testing (Meddis, 1986). In addition, all preemployment testing is controversial; and the scientific community is not settled on the actual merits of such testing (Brown, 1985; Sackett, 1985; Sackett & Harris, 1984). Thus, unless the public's view of the merit in polygraph testing is evaluated in light of its views on other testing with a similar purpose it is hard to determine specifically why there would be greater opposition to the principle than to the process of preemployment polygraph testing.

It is not surprising that those who were most adversely affected by polygraph testing were also those who were most likely to find it to be an unfair, objectionable, and offensive practice. Such a relationship, however, has not before been empirically demonstrated. Perhaps, the most important point to be made about that finding is that those who were adversely affected were generally those who were involved in activities believed undesirable by the employer, e.g., using drugs on the job, stealing from former employers, not necessarily those who had a "deceptive" test result. In other words, as has been pointed out elsewhere (Horvath, 1985), the accuracy of the testing per se is a less consequential issue than is the use of the information revealed by the examinee. In this regard the present findings are illuminating. Among those respondents who

were "recommended" 6% reported not being offered the employment sought. On the other hand, 24% of those persons who were "not recommended" reported being offered employment. Clearly, these statistics, which, by the way, are similar to those which have been reported elsewhere (Barland, 1977), show that preemployment polygraph testing is used not as a sole determinant of employability but rather as merely a source of information about applicants to enhance the decision-making process. This important fact, which mitigates some of the arguments which have been advanced against polygraph testing, tends to be ignored in much of the commentary about polygraph testing (Brooks, 1985; Lykken, 1985; OTA, 1983).

The controversy about polygraph testing has led a number of state legislatures to enact legislation to regulate, and in some cases, to proscribe preemployment polygraph testing. It is of some interest to note that the state in which these data were collected (Wisconsin) has, since 1980, been among those with rather stringent regulation. In that state an employer may not make a hiring decision on the basis of either a refusal to take a polygraph test or on the test result itself. In addition, all examinees must be advised of the test questions prior to testing and all test questions must be directly related to the employment application. Although it is not possible to assess the effect of such legislation on the results reported here it would be of great interest empirically to examine that issue. Future research in which the attitudes of examinees were investigated across, for instance, states without regulatory legislation in comparison to those with differing degress of regulation would be quite useful for shedding light on the value of legislative remedies for the controversy about polygraph testing. If the "balancing of interests" approach, as advocated by some (Horvath, 1985; Hurd, 1985), has merit, such research would be perhaps one of the most effective ways to demonstrate it.

The relatively low response rate and the demographic and other differences between the respondent and nonrespondent groups in this study dictate caution in generalizing these findings. Nevertheless, taken together with other research on this issue these data show that persons who have experienced preemployment polygraph testing do not view it with the same degree of disfavor that is commonly expressed by critics (Brooks, 1985; Hearings, 1985; Lykken, 1981; OTA, 1983). The objections to such testing on grounds that it is generally degrading, offensive, and humiliating and that it is an excessive infringement on personal privacy are without strong empirical foundation. However, whether to what extent and under what circumstances such testing ought to be permitted as a matter of public policy, turns as well on other important social, ethical and political issues (Horvath, 1985; Hurd, 1985). Clearly, there is a need for continued research on and informed public discussion of the issues involved in the controversy about the use of polygraph testing as an employee selection procedure.

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PIONEERS IN THE POLYGRAPH: THE FEDERAL BUREAU OF INVESTIGATION IN THE 1930's

By

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Abstract

In the early 1930's the FBI, under J. Edgar Hoover, surveyed all of the equipment used for lie detection and decided to purchase a Keeler polygraph. The chief of the FBI Laboratory, E. P. Coffey, was personally trained by Leonarde Keeler at the Northwestern University Crime Laboratory and received an instrument on April 1, 1935. He conducted the first criminal case with the instrument in 1936, and established a research program. The review of all of the equipment available in the 1930's is particularly interesting, and provides information not previously available.

In 1934, the FBI began making inquiries about polygraph instruments. In reply, they received two letters, one about the Chaffee instrument, developed by Milton A. Chaffee (Chaffee 1934), and the other about the Western Electro Mechanical Instrument, designed and built for Leonarde Keeler (Keeler 1934). In 1935 and 1936, FBI representatives looked at the complex Darrow research polygraph, built by C.H. Stoelting Company, capable then of a great variety of recordings. It was reportedly already in use by the U.S. Bureau of Prisons at two of their sites (Coffey 1936a, Wideman 1935). The FBI considered the purchase of a polygraph instrument built by B. R. Higley, called a "reactograph," which recorded blood pressure and pulse rate and had a recording galvanometer. Mr. Higley was then at Ohio State University. The cardio section reportedly worked at 40mm of pressure, allowing lengthy recordings. It was to be used, beginning in July 1935, by the Columbus, Ohio, Police Department in actual criminal cases (Coffey 1935d, 1936b, 1937c; Higley 1937, 1958). In 1936 and 1937, E. P. Coffey, Assistant Director of the FBI Laboratory was also considering the purchase of the recording galvanometer built for Father Walter G. Summers of Fordham University (Coffey 1936b, 1937a, 1937b).

An FBI representative looked at a "cardiotachometer" offered by a Walter M. Kraus, M.D., of New York City. Dr. Kraus said the cardiotachometer was developed by a Dr. Boas, and the machine used two electrodes on the chest to amplify electrical currents generated by action of the heart. Apparently this was a version of the electrocardiograph, developed originally by Willem Einthoven in 1906, following his invention of the string galvanometer in 1903 (Asimov 1964). The Boas apparatus had an amplifier, a galvanometer pen motor to record on a moving chart and a telegraph key to make the signal audible (Coffey 1935f, Kraus 1935, Hoover 1935c). In an internal FBI memorandum in 1935, E. P. Coffey of the Laboratory said

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they were also interested in the reports of several investigators who employed the tremorgraph, among other devices (Coffey 1935e). Mr. Coffey was probably referring to works following that of A. R. Luria (1930), in which tremors of the hand were considered significant in detecting deception.

On August 26, 1937, Mr. C. D. Lee replied to a letter from Mr. Hoover dated August 19, 1937, and sent a very detailed description of his instrument, the Berkeley Psychograph. The instrument, which then cost $350.00, featured rubber-faced tambors and was otherwise similar to the Western Electro Mechanical instrument made for Mr. Keeler. The instrument was widely used and was manufactured well into the 1950's. Mr. Lee spent some time explaining technique in his letter, emphasizing the "peak of tension" test, giving examples, and recommending articles on the technique by Mr. Keeler (1930) and Thomas J. Jaycox (1937). He also gave a version of a "peak of tension" test in which the test incorporated three choices for each of four facts in a single series. There is still another unusual version of a "peak of tension" test which has two people, one mythical, then eight things that could have happened to the victim, of which one is correct; four things that could have been done with the body, of which one was true; and three possible motives. (This letter is so instructive that it appears in its entirety in Appendix B.)

The First Purchase

As a result of the 1934 inquiries, Mr. Coffey recommended that the FBI make its first purchase of a polygraph instrument. Milton A. Chaffee, in his letter to the FBI (Chaffee 1934), admitted that his all-electric instrument, then in use in some police departments, needed improvement in recording gross blood pressure, and he was not going to produce anymore instruments until he improved the "pickup device." His instrument used no pressure cuff. Instead, it used a pickup "which attaches to the arm or leg and receives the varying impulses of heart beat and blood pressure, transmitting them to the recording pen through a galvanometer." There was no discomfort to the subject. He mentioned that the only other polygraph available was that of Leonarde Keeler at the Crime Detection Laboratory, Northwestern University. Mr. Chaffee wrote that his instruments were in use in the Honolulu, Tulsa, and Berkeley police departments.

In his letter to the FBI on November 24, 1934, Mr. Keeler told Mr. Hoover that he sold his instrument only to "police organizations, and to physicians and universities or other legitimate organizations for experimental and medical purposes" (Keeler 1934). Mr. Keeler said that through an agreement with the manufacturer, the instrument "is sold only after the prospective operator has completed a course of instruction under our supervision. By this means it has been possible to prevent the prostitution of the technique by quacks and other unqualified operators." He added, "An individual contemplating using the instrument should have a sound background in physiology and psychology and some experience in interrogating suspects." Mr. Keeler said that an "operator having the proper background can acquire the fundamentals required for operating the instrument for interrogation purposes in two or three weeks. Following this period he should use the technique eight months to a year before he ventures forth into actual case work. Two of our operators worked with it for about a

year before they undertook independent investigations." Clyde Tolson attached a note to Mr. Keeler's letter, which said, "I believe we should be fully informed on the use and practicability of the lie detector." Mr. Hoover initialed the note and wrote, "I agree." On December 18, 1934, E. P. Coffey recommended to Mr. Tolson that the Laboratory purchase a polygraph to conduct "deception tests and experiments." Mr. Coffey suggested that the Bureau could use Special Agents in training for experiments, as other research on deception has been greatly hampered by lack of subjects. He added that "if deception tests attain a degree of success at some time in the future which would warrant their application in actual cases, the Division should be already prepared for such application, having had the ground work laid over a number of years previous to that time." In a rather interesting argument for the purchase, Mr. Coffey wrote, "Should a national training school, such as was discussed at the crime conference, actually develop, such a training course would undoubtedly include some reference to deception tests and I think the Division should be prepared to disseminate such information as the circumstances may warrant." He further noted, "It seems to be a general opinion that the equipment and the functions of an up-to-date crime laboratory include apparatus and the conduct of deception work. This idea is pretty well sponsored in this country, undoubtedly because of the work done in the crime laboratory at Northwestern University, but it is also a fact that much work along these lines has been done in Paris, Berlin, Vienna, and I believe in Italy." Mr. Coffey recommended the purchase of the polygraph patented by Leonarde Keeler and manufactured by the Western Electro Mechanical Company, Second and Broadway, Oakland, California. The price was $450.00. Mr. Coffey also recommended that someone in the Laboratory take the course of training from Mr. Keeler (Coffey 1934).

On December 21, 1934, Mr. Hoover wrote a brief memorandum directing that the instrument be purchased (Hoover 1934). On January 8, 1935, he wrote to D. M. Ladd, Special Agent in Charge of the Chicago Field Office, mentioning the purchase order and asked Mr. Ladd to arrange with Mr. Keeler for the instruction to be given to Mr. Coffey of the Laboratory. Mr. Hoover added, "The Division at this time views work in deception to be strictly experimental and it is desired the Division's position in this regard be maintained confidential (Hoover 1935a). Mr. Ladd replied on January 12, 1935, that the course was $35.00 a week, and that price was not included in the price of the instrument. A tentative arrangement was made for Mr. Coffey to be trained by Mr. Keeler during the week of February 18, 1935, at Northwestern University (Ladd 1935a). Although the arrangement was confirmed on January 17 by Mr. Ladd (Ladd 1935b), it appears that Mr. Coffey actually received his training from February 24, 1935 to March 3, 1935 (Coffey 1935b). In a three-page memorandum for Mr. Tolson, E. P. Coffey described his training in some detail. He described an actual case he worked on with Mr. Keeler which involved the theft of $115.00 from the Federal Reserve Bank. Only eleven of the thirty-five suspected employees had been tested when Mr. Coffey left Chicago. The thief had not been located, but a five-year-old theft of $250.00 was solved and other irregularities were uncovered (Coffey 1935b). (For the entire contents of this memorandum, see Appendix C.)

Mr. Keeler received the FBI's instrument and checked it out before shipping it to the FBI Laboratory, where it arrived on April 1, 1935

(Hoover 1935b, Coffey 1935c). Messrs. E. P. Coffey, Quinn Tamm and Don Parsons proposed a research plan to Mr. Tolson which involved student Special Agents being tested on items in their past which could be checked against personnel files. He suggested questions involving arrests, amount of salary previously earned, and age (Coffey 1935c).

Two Instruments the FBI Did Not Buy

A less than businesslike situation involved the Affect-O-Meter, a lie detector manufactured by the Maico Company, well known then and now for their acoustic instruments. The FBI was initially interested in a demonstration of the device but quickly decided against the demonstration when an article in Time magazine implied an FBI interest or use of the equipment. The FBI considered the article to be improper and exploitive (Coffey 1940d). The President of Maico, L. A. Watson, wrote to Mr. Hoover, explaining that the writer and editor at Time had been asked to delete any mention of the FBI's intended use or interest in the instrument, but they didn't. The letter apologized for any inconvenience and misunderstanding, but complained that the Minneapolis Special Agent who called on them "was a little positive in condemning us for something we feel was a matter of misunderstanding rather than a deliberate effort to mislead or misrepresent matters" (Watson 1940). Unfortunately, none of the material available now describes the instrument. We know only that it was a galvanometer (Coffey 1940a).

Even shorter shrift was given to the "Official Lie Detector," offered free to law enforcement agencies by A. A. Studios of West Haven, Connecticut. The owner of the one-room establishment was the operator of a hot dog concession at a summer resort. When interviewed by a Special Agent of the FBI, Albert Reiss explained taht he had been interested in psychology and had been trying to market a lie detector since 1922. In this 1937 interview, Mr. Reiss told of his various marketing schemes, including a giveaway of half a million of his devices by the producers of a radio program, such as "Gang Busters." Although the machine was not characterized in the report, one source described it as a toy (FJW 1937).

A New Instrument - 1940

On January 9, 1940, E. P. Coffey recommended the purchase of a new polygraph, manufactured by the Associated Research Company, 16 North May Street, Chicago (Coffey 1940a). The instrument incorporated a psychogalvanometer and the entire unit cost $995.00 (Inman 1939). Because Mr. Coffey was trained by Mr. Keeler, and he had trained G. W. Dingle of the Laboratory, Mr. Coffey thought it unnecessary to have Mr. Keeler train another operator, at $50.00 a week (Coffey 1940a). Although a meeting of the FBI Executive Conference on the evening of January 9, 1940, was evenly split on the question of purchasing a new polygraph instrument, Mr. Hoover approved the purchase (Tolson 1940). Mr. Coffey ordered the instrument on January 23, 1940, with detailed specifications (Coffey 1940b. Specifications in Appendix D). Associated Research had taken over the manufacturing of instruments for Leonarde Keeler in June 1939. The Model 302 included the galvanometer, while the Model 301 had only the cardiovascular and respiration units (Inman 1939).

With this purchase of a Model 302, the FBI entered the 1940's with the finest equipment available. E. P. Coffey had brought it about, with the support of his chief, J. Edgar Hoover. Mr. Coffey was the first FBI polygraph examiner, and probably the first examiner in the Federal Government. His training with Mr. Keeler in 1935 included real cases (Coffey 1935). He conducted his first test for the FBI on June 11, 1936, a case involving extortion. Because Mr. Coffey knew the subject was an arsonist, he compared the reactions to questions about the number of fires set by the subject to reactions to questions about the extortion case. He hesitantly found that the subject was probably not the principal actor in the extortion case because his reactions to those questions were less than his reactions to the arson questions (Coffey 1936b). Whether Mr. Coffey learned this control question technique from Mr. Keeler or conceived of it as a means of evaluating his charts is unknown. The test results were made available to his supervisors, but not to the investigators.

It is unfortunate that so little attention has been given to E. P. Coffey. He was the first Federal Agent trained in polygraph technique, the first Special Agent to conduct examinations of criminal suspects, and he established the first Federal polygraph research program.

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Coffey, E.P. (1934) Memorandum for Mr. Tolson, December 18, 1934. FBI memo recommends the purchase of a polygraph instrument and suggests a long term research program. The Keeler instrument manufactured by Western Electro Mechanical Company is singled out.

Coffey, E.P. (1935a) Memorandum for Mr. Tolson, March 4, 1935. FBI memo notes an attached news clipping from the Chicago Daily News of February 25, 1935 describing the first case of polygraph results being admitted into court.

Coffey, E.P. (1935b) Memorandum for Mr. Tolson, March 4, 1935. FBI memo describes in considerable detail his training under Keeler, describes a federal bank case, screening, and the extent of use by Keeler.

Coffey, E.P. (1935c) Memorandum for Mr. Tolson, April 1, 1935. FBI memo mentions receipt on that day of the Keeler instrument and his plan to have Mr. Tamm and Mr. Parsons assist him in his research, and the need for subjects for research tests.

Coffey, E.P. (1935d) Memorandum for Mr. Edwards "Re: B.R. Higley; Lie Detector for Deception Tests," July 31, 1935. Describes an extensive interview with Mr. Higley and is highly complimentary on his approach to research and the instrument Higley had developed at Ohio State University where he was working with Dr. Samuel Renshaw and Doctor Harold E. Burtt. Memo is of two pages, with additional page(s) missing.

Coffey, E.P. (1935e) Memorandum for Mr. Edwards "Re: Visit of Dr. D.J. Stout," November 3, 1935. Describes the visit of a Dr. Stout who spent two hours at the laboratory where they ran some trial tests of the polygraph with Tamm, Parsons, Pfafman and Coffey. Dr. Stout made some suggestions about the instrument, they discussed testing for types of subjects before conducting polygraph examinations, and there was mention of a tremorgraph. Stout was dubious of the value of the polygraph for detecting deception but was enthusiastic about its possibilities in determining the presence of emotion.

Coffey, E.P. (1935f) Memorandum for Mr. Edwards "Re: Conference with Dr. Walter M. Kraus at New York," November 13, 1935. Coffey describes a "cardiotachometer" offered by Dr. Kraus, which was apparently an electrocardiograph. Kraus also thought it would be useful to develop a method for measuring the tone and pitch of the subject's voice as he responded to questions. Coffey saw no use for Kraus' instrument. Coffey then visited Maurice Holland of the National Research Council where Holland told Coffey about a tour of laboratories, recommended a "soft" x-ray for the FBI laboratory, and said he had submitted the Bureau's problem in sound listening devices to the American Bell Laboratories. Finally, Coffey describes a visit to the Psychological Corporation of America where he talked with Mr. Paul S. Achilles, Managing Director, who described the corporation. Coffey asked for the names of psychologists who might be doing research on deception, and Achilles mentioned Marston (misspelled in the memo as Marsdon) and Keeler. They also talked about personnel tests for selection of personnel.

Coffey, E.P. (1936a) Memorandum for Mr. Edwards "Re: Visit to C.H. Stoelting Company, April 10, 1936. Describes the Darrow polygraph instrument in favorable terms, mentions that it is in use at the Penitentiary at Lewisburg and the Narcotic Farm in Kentucky by the Bureau of Prisons. Notes that one has also been shipped to Poland.

Coffey, E.P. (1936b) Memorandum for Mr. Edwards "Re: Orville Miller; Mrs. Stephen McKevett Farrand, Victim; Extortion," June 12, 1936. Describes the polygraph test of Orville Miller, including a peak of tension on the number of fires Miller had set which was not the reason for the investigation, and the test on the extortion. Coffey compared the results of the reactions to the arson case questions to those reactions that came from questions on the extortion case, and hesitantly found that Miller was probably not the principal actor in the extortion case because his reactions to those questions were less than the reactions to the arson questions.

Coffey, E.P. (1936c) Memorandum for Mr. Nathan "Re: Purchase of an additional lie detector," December 19, 1936. He mentions that the purchase of an additional lie detector was approved by the Director and he

considers the Higley polygraph, an improved Keeler polygraph with a psychogalvanometer, and the psychogalvanometer of Father Walter G. Summers. He planned to go personally and look at these units.

Coffey, E.P. (1937a) Memorandum for Mr. Nathan "Re: Conference with Father Walter G. Summers on the detection of deception," January 27, 1937. He describes in some detail his interview with Summers at Fordham and describes briefly the results of some of Summers' research.

Coffey, E.P. (1937b) Memorandum for Mr. Nathan "Re: Purchase of additional lie detector and further inquiries into possibilities of hypnotism," March 31, 1937. He briefly describes his views of Summers' equipment, the addition of the psychogalvanometer by Keeler as a separate but additional piece of equipment which he said Keeler had not yet mastered and considered experimental, and the need for a trip to see Higley and his equipment at Ohio State University. He said he would have Tamm make that trip, and then he would recommend what the Bureau should purchase. He mentions that he will have Tamm visit Dr. Erikson at Eloise, Michigan to determine first hand what Erikson is doing with hypnotism in the criminalistic field. Nathan was asked for approval of Tamm's trip.

Coffey, E.P. (1937c) Memorandum for Mr. Nathan "Re: Mr. Quinn Tamm's interview with Mr. Bernard R. Higley of Ohio State University," April 13, 1937. There is a lengthy description of Higley's equipment, and suggests that if it is produced commercially, the FBI should consider purchasing one because of its advantages over the Keeler equipment.

Coffey, E.P. (1937d) Memorandum for Mr. Nathan "Re: Visit of Mr. Quinn Tamm with Father Summers of Fordham University," July 16, 1937. A description of the Fordham Pathometer and the associated recording apparatus made by Esterline-Angus Company of Indianpolis. There is also a description of Summers' testing technique. Tamm recommended the FBI construct a galvanometer like Summers' unit and purchase a recording unit.

Coffey, E.P. (1938) Memorandum for Mr. Nathan "Re: Father Walter G. Summers. Detection of Deception," April 22, 1938. Describes a visit of Summers to the FBI Laboratory. There is mention that Summers severed his relationship with Jacques L. Bril in regard to the manufacture of lie detection equipment, and the discussion of an extortion case.

Coffey, E.P. (1939) Memorandum for Mr. Ladd "Re: Leonarde Keeler's Questionnaire on the Lie Detector," November 3, 1939. Mentions their lack of reply to a questionnaire sent to the Bureau on the use of the polygraph in law enforcement.

Coffey, E.P. (1940a) Memorandum for Mr. Ladd "Re: Purchase of New Lie Detector," January 9, 1940. Recommends purchase of the new polygraph instrument built by Associated Research Company of Chicago which incorporates a number of improvements including a built-in galvanometer. Price $995.00. Recommends against spending $50.00 a week for training as he has trained Mr. G.W. Dingle of the laboratory on the operation of the old polygraph. Coffey mentions that the Affectometer is "a straight galvanometer without the polygraph features."

Coffey, E.P. (1940b) Memorandum for Mr. Ladd "Re: Specifications for the Psychogalvanograph," January 23, 1940. Mentions the attached specifications of the polygraph to be purchased from Associated Research. The specifications are detailed on one page.

Coffey, E.P. (1940c) Memorandum for Mr. Ladd "Re: Dr. Joseph F. Kubis, Lie Detector Expert," (undated, mentions visit on January 24, 1940). Describes visit by Dr. Kubis who has taken over the Department of Psychology at Fordham following the death of Father Summers.

Coffey, E.P. (1940d) Memorandum for Mr. Ladd "Re: MAICO Company, Minneapolis, Minnesota," April 22, 1940. Mentions that the FBI stopped the shipment for demonstration of Maico's Affectometer lie detector because of an apparent attempt on the part of Maico to use the connection with the Bureau for promotional purposes in an article that appeared in Time magazine.

Coffey, E.P. (1940e) Memorandum for Mr. Ladd "Re: Publicity on the use of the Polygraph," June 12, 1940. Mentions a clipping from the Washington Star of June 6, 1940 and the use of the polygraph by 23 law enforcement agencies, including the FBI. A press release of the International City Manager's Ass'n. Coffey mentions in his memo that delivery of the new polygraph is expected shortly.

Higley, Bernard R. and Renshaw, Samuel. (1937) "An Improved Device for the Continuous Pneumatic Recording of Respiration and Changes in Blood Pressure," The Journal of Psychology 4 (1937): 281-285. This is a detailed description of the laboratory apparatus devised by Higley. It includes a photograph of the essential proportions of the apparatus and some sample charts.

Higley, Bernard R. (1958) "Interrogation With Instrumentation." In V.A. Leonard (Ed.), Academy Lectures on Lie Detection, vol. 2, Springfield, Illinois: Charles C. Thomas, 1958. A lengthy discussion of instrumentation with some comments on techniques, and on early instruments.

Hoover, John Edgar. (1934) Memorandum for Mr. J.W. Gardner, General Agent and Chief Clerk, December 21, 1934. Directs Gardner to purchase a polygraph instrument from Western Electro Mechanical Company, Inc., Oakland, California for $450.00.

Hoover, John Edgar. (1935a) Letter to Mr. D.M. Ladd, FBI Office in Chicago, January 8, 1935. Asks Ladd to make arrangements with Leonarde Keeler to train E.P. Coffey and asks Ladd to keep their interest in deception work confidential.

Hoover, John Edgar. (1935b) Letter to Mr. Leonarde Keeler, Scientific Crime Detection Laboratory, Northwestern University, Chicago, Illinois, March 26, 1935. Hoover notes that the instrument purchased by the Department of Justice has been shipped to him from Oakland. Hoover asked for expeditious handling of the inspection of the apparatus by Keeler so that it may be delivered to Washington as early as possible. (It was delivered to the FBI on April 1st.)

Hoover, John Edgar. (1935c) Letter to Dr. Walter M. Kraus, 572 Park Avenue, New York City, November 15, 1935. Hoover thanked Dr. Kraus for his discussion with Mr. Coffey on the tachometer and returned a clipping from the New York Law Journal.

Inman, James F. (1939) Letter to J. Edgar Hoover, November 22, 1939. Inman describes the Associated Research instruments in detail, mentions training by Keeler and the fact that his company took over the manufacture and sale of the Keeler Polygraph in June of 1939. Enclosed an advertisement for the instrument with a photograph of the instrument.

Jaycox, Thomas H. (1937) "Scientific Detection of Lies," Scientific American 156 (June 1937): 370-373.

Keeler, Leonarde. (1930) "A Method for Detecting Deception." American Journal of Police Science 1(1)(January-February 1930): 38-52.

Keeler, Leonarde. (1934) Letter to J. Edgar Hoover, November 24, 1934 on Northwestern University letterhead, 469 East Ohio Street, Chicago, Illinois. In reply to a request, Keeler describes his instrument, purchase agreements, mandatory training, and the background of a person should have before training. There is a note to Hoover by Tolson attached to the letter.

Keeler, Leonarde. (1939) Letter to J. Edgar Hoover, June 29, 1939. Mentions a questionnaire he sent to the FBI and not receiving a reply. Also mentions that 23 police organizations are now using polygraph in detection of deception. Said he needs the information for a chapter in a book he is writing. (The FBI did not reply, see Coffey, E.P. 1939).

Kraus, Walter, M.D. (1935) Letter to E.P. Coffey, November 12, 1935. Kraus thanks Coffey for inspecting his "cardiotachometer."

Kubis, Joseph F. (1939) Letter to John Edgar Hoover, June 17, 1939, enclosing a brief description of the pathometer and thanking Hoover for the kindness of the Bureau in his recent visit to the Laboratory.

Ladd, D.M. (1935) Letter to Director, January 12, 1935. Ladd is writing from his office in Chicago, and describes the arrangements made with Leonarde Keeler for the training of E.P. Coffey the week of February 18, 1935. Ladd mentions that the delay is because the Scientific Crime Detection Laboratories were moving from 469 East Ohio Street to 222 East Superior Street, Chicago, Illinois. The date for training was confirmed by Ladd in a brief letter to the Director on January 17, 1935.

Lee, D.C. (1937) Letter to John Edgar Hoover, August 26, 1937 on the letterhead of Lee & Sons, 1909 Delaware Street, Berkeley, California. Lee describes his instrument, the Berkeley Psychograph, in considerable detail, describes polygraph techniques in detail, and includes a personal note about the local agent who is about to be a father.

Lester, W.H.D. (1934) Memorandum for the Director, April 23, 1934. Lester describes an article by Leonarde Keeler, stating it is a matter of interest to the Technical Laboratory.

Lowdon, G.N. (1937) Memorandum to All Agents, April 13, 1937. Lowdon is the SAIC of the Philadelphia office of the FBI. He mentions a letter of April 8, 1937 from the Bureau, and quotes it in detail. The letter asks them to call to the attention of agents that the laboratory is doing experimental work in detection of deception and they should be alert for situations arising during the course of their investigations in which these experiments could be used. However, cases must be selected with caution so that no unfavorable publicity will result. The letter asks for one case a month, a day of advanced notice, and notes that the persons to be questioned do not have to be in custody for a long period of time.

Luria, A.R. (1930) "Die Methode der Abbildenen Motorik in der Tatbegtands-Diagnostic." Zeitshrift fur Angewandte Psychologie 35(1930): 130-183. ("The Method of Recording Movements in Crime Detection.")

Tolson, Clyde. (1946) Memorandum for the Director, January 11, 1940. Reports on an evening meeting of the Executive Conference, January 9, 1940, at which there was an even split on a vote to purchase a new polygraph instrument, with a galvanometer. On the same memorandum there is a handwritten note "I approve the purchase. H."

Trovillo, Paul V. (1939) Letter to Mr. J. Edgar Hoover, August 4, 1939, from the Northwestern University School of Law, Chicago, Illinois. Trovillo sent to Hoover as an enclosure of an article which recently appeared in the press, but the letter does not identify the article.

"United States Patent Office: Leonarde Keeler, of Berkeley, California - Apparatus for Recording Arterial Blood Pressure." Application filed July 30, 1925. Serial No. 46,986. Reprinted in Polygraph 3 (2)(June 1974): 210-215.

Watson, L.A. (1940) President, MAICO Co., Minneapolis, to Mr. J. Edgar Hoover, April 26, 1940. The letter apologizes to Hoover for any inconvenience from the misunderstanding, but states that the company was not trying to capitalize on any association of their new meter, galvanometer, which was mentioned in an article in Time magazine, with lie detection work at the FBI. The writer of the article and the editor misunderstood the information furnished by MAICO.

Wideman, W. (1935) Letter to the Department of Justice, from the C.H. Stoelting Company, 424 North Homan Avenue, Chicago, Illinois, dated July 18, 1935. The letter gives a very detailed description of the "Darrow Behavior Research Polygraph." An illustration was enclosed. It recorded respiration, galvanic skin response, two tremorgraph recordings - one for each hand, and a verbal stimulus - response record. The two tremorgraph tambours could be used instead for a stabilometer, bed movement, abdominal respiration, gastrointestinal balloon, plethysmograph, and carotid or radial pulse records. The photographic shadographic method avoids the problems of inked pens. The price was $999.00.

F.J.W. (1937) Letter to Director from the New York Field Office, April 13, 1937. (Signature block not with first two pages of a longer letter.) Refers to their investigation of the lie detector allegedly produced by the A.A. Studios of West Haven, Connecticut.

Appendix A

Edmund P. Coffey

In January 1975, Grapevine, the publication of the Association of Former Special Agents of the FBI, reported that Edmund P. Coffey, who was with the Bureau from 1930 to 1945, died at his home in Garden City, New York, on November 4, 1974. He was 71 years old.

E.P. Coffey
[Courtesy of the Federal Bureau of Investigation]

The Grapevine added: Mr. Coffey was born on April 11, 1903, in New Haven, Connecticut, where he obtained his early education. He attended Catholic University and Georgetown Law School at Washington, D.C.

He was appointed a Special Agent of the FBI on May 19, 1930, and after serving in several Field Offices was brought back to the Seat of Government and subsequently was appointed an Assistant Director. While serving at FBI Headquarters, he was sent by Director Hoover to Europe to study foreign police methods in more than one dozen countries. Following his return, he was designated as supervisor of the Identification Division where he helped set up the single fingerprint system.

In 1934 the FBI Laboratory was begun with only three technicians. Director Hoover selected Mr. Coffey to head the Laboratory, then a section within the Identification Division. Under Ed's leadership, the Laboratory grew to 300 technicians with all the latest scientific crime detection equipment. He resigned in 1945.

The newly formed Thoroughbred Racing Protection Bureau then obtained his services to assist in the fight to rid thoroughbred racing of unscrupulous practices and undesirable elements. Mr. Coffey's expertise in the fields of identification and scientific crime detection led to practices that uncovered and prosecuted the wrongdoers in the racing world. He retired from the TRPB in 1964. He was an active member of the Long Island Chapter of the Society of Former Special Agents of the FBI.

Appendix B

Letter by C.D. Lee

This letter was on the letterhead of Lee & Sons, 1909 Delaware Street, Berkeley, California, dated August 26, 1937.

John Edgar Hoover, Director
Federal Bureau of Investigation
Washington, DC

Dear Mr. Hoover:

I am more than pleased to have your inquiry of August 19 concerning our "lie detector," THE BERKELEY PSYCHOGRAPH.

I believe the enclosures will give you the desired information concerning the construction and appearance of our instrument. The price is $350 delivered there, complete with all needed extras-two spare pens, ink and ink bottle, three chart rolls, and our Instruction Manual. The only additional item of expense will be for chart paper when needed, which costs $1.20 per roll of approximately 100 feet.

I believe you are familiar with the construction and operation of the Keeler Polygraph. This is a well made instrument, with many good features. However, in my opinion the principle underlying the reproducing element is its weak spot. The metal tambour expands as the pressure increases, which means that the pen must be adjusted to its zero position with each stroke of the inflating bulb. This is bothersome. Further, the moving end of the tambour which activates the pen is under the full pressure of the system, which means that its action in response to the slight added pressure of the pulse is restricted. This necessitates long pen levers to gain amplitude in the pulse waves. These long pens I consider objectionable.

The tambours are well made and should last a long time. They do, however, fracture from the constant flexing, causing leakage, which of course is disastrous. Any malalignment of the segments may also interfere with the proper functioning of the tambour, which I understand sometimes results from the jarring incident to transportation of the instrument.

In undertaking to construct an ideal instrument, I was early convinced that an elastic membrane would yield much better results than one merely flexible (as in the metal tambours). I found that an elastic membrane would operate over a wider range of pressure, give a smoother recording, would not fracture under the strain of movement of subject's arm while under pressure, as well as being much cheaper than the metal or other membranes.

But the rate of natural deterioration of elastic membranes is probably higher than of others, depending of course on the thickness and composition of the rubber. This suggested the desirability of an arrangement whereby the diaphragms could be quickly renewed, as well as the use of the heaviest membrane possible. I designed a unique tambour which takes care of both these requirements. We are now able to obtain perfect recording with a membrane approximately 1/16 inch thick. These diaphragms are inside an air-tight chamber, which means they are affected but slightly if at all by atmospheric conditions. Extreme heat would affect them, of course, but their greatest natural enemy, sunlight, is excluded.

I have been speaking above of the diaphragms which operate under the full force of the pressure system. The "receiving diaphragms" we call them. There are two in each cardiac unit. Now there is a third diaphragm, the "'transmitting' diaphragm", which transmits the movement of the receiving diaphragms to the recording pens via the pen shaft. The tambour holding this latter is integral with the high pressure chamber.

The principle involved is similar to that utilized in Berkeley's original detection, patterned after Erlanger's early principle. The weak spot in these early devices with their light rubber diaphragms was the nuisance of frequent renewals. The transmitting diaphragm was dental dam, which had to be renewed every month or so. The membrane was tied on with waxed string or thread. I have overcome this difficulty by means of two unique features:

(1) I use a membrane much heavier (about 1/32 inch thick) and more durable than the dental dam. This is made possible by the use of a tension ring (my own idea) which gives just the right stretch to the membrane after it is made fast to the tambour. This diaphragm remains at zero pressure during inflation and until the valve is closed. Then the only pressure exerted on it is the pulse pressure, which of course is slight, and should add nothing to its natural rate of deterioration. The fact that it remains at zero pressure until ready to operate, also means that the pen remains in its zero position. This is a desirable feature lacking in Keeler's instrument.

(2) The membrane used here is made by the Buffalo Dental Manufacturing Company, and is designed for long usage under considerable pressure. It will probably not need replacing under five years or more, but when that time comes the change is easily made without tools. The whole unit is held in the case by means of a single thumb screw. When the unit is removed from the case, releasing another thumb screw renders the element accessible. Unscrewing four thumb nuts releases the plate holding the diaphragm in place, when the new membrane is easily slipped into place. The heavy receiving diaphragms are renewed in the same way, though these

latter probably will not need to be changed under ten years or more. But if all three needed renewing every year, the task would not take over ten or fifteen minutes and would entail an expense of not to exceed $1,50; or the unit may be expressed to us (just the unit, not the whole instrument) and we will make the necessary changes promptly at nominal cost.

When the lid of our instrument is opened, everything is before you, ready for instant use without fussing. The pneumograph and cardiograph applicators are attached, as with other instruments, but there is no screwing on either of these two elements and the pump bulb to the instrument, no loss of time in the make-ready. There are only two panel knobs, one to start the motor, the other the pens. It couldn't be simpler.

If you wish it, we shall be very happy to send an instrument to you for a workout of a few weeks. If it fails to deliver, send it back at our expense and no harm will be done.

Vollmer and Keeler dropped into my shop the other day for a chat. Keeler's father died recently. Keeler says he is getting out a book on the subject of lie detectors, to be published this fall. I told him that was the best piece of news I had heard in a long time.

Both of these authorities agree that there is still room for improvement in the technique of the examination. The weak spot of Larson's original system of asking the direction questions, "Did you rob so and so?" "Did you kill John Doe?" seems to be that in many cases the examiner is unable to determine definitely whether the resulting reaction is due to a consciousness of guilt or to the implication of the question itself. It is possible that it might be advantageous to apply the stimuli in the form of a statement rather than a question. Thus we might say, "So and so was robbed." "John Doe was murdered." In this way there is no direct implication that suspect is the guilty man.

In those cases where suspect is not familiar with all the angles of the crime under investigation, certain key words or facts are available. Keeler explains the use of such stimuli in his most interesting article, "A Method for Detecting Deception." published in The American Journal of Police Science, Jan-Feb. 1930. Jaycox, polygraph operator in Wichita, also mentions it in his splendid article, "Scientific Detection of Lies," in Scientific American of June, 1937. This procedure, when possible, should leave no doubt in the examiner's mind as to the guilt or innocence of suspect, a more difficult problem is presented, and here is where more research is needed. Keeler has a new idea, as yet not thoroughly tested, in which the suspect will be asked just four questions and to which he is to answer as instructed by examiner. After explaining the crime of which he is suspected, he is instructed to answer "yes" to the first two questions, and "No" to the last two. The questions are -

1.	Are you innocent?	Yes.
2.	Are you guilty?	Yes.
3.	Are you innocent?	No.
4.	Are you guilty?	No.

The suspect, then, whether innocent or guilty, will lie on two of the

questions. If innocent, suspect should react only to those on which he lies, if at all. If guilty, he should react to all four questions. I believe this has possibilities.

In the booklet enclosed I have outlined a dozen different situations in which the detector has been used. There is another that occurred to me since writing this material, to make a suspect identify himself as connected with a crime committed in a distant state or city and where there are no other clues available than suspect's own consciousness. In the Weyerhausser kidnapping I think it was, an alarm was spread for an accomplice of whom there was no photograph nor fingerprints available. A suspect answering the description was picked way down south. I believe in Texas (it doesn't matter). He denied ever having been in Portland, so the Texas authorities wired Portland asking what to do. The only witnesses who could identify suspect were the young companions of the kidnapped boy the night he was snatched. So it was either a case of taking the witnesses to Texas from Portland or taking suspect from Texas to Portland.

Supposing a lie detector had been available in the Texas city and suspect had been tested at the outset about as follows:

"You are suspected of a recent crime. I am merely going to mention some of the facts connected with the crime. If innocent, they will mean nothing to you; but if you are guilty, your consciousness will associate them with your crime. You need say nothing. Just hold still and listen."

1. You were recently in Chicago.
2. San Francisco.
3. Portland.
4. An old woman was clubbed and robbed.
5. A woman criminally assaulted.
6. A young boy kidnapped.
7. The boy was kept in an apartment house in town.
8. In a barn in the hills.
9. In an old house in the country
10. His captors demanded $10,000.
11. $20,000.
12. $50,000.

If the peaks in the blood pressure curve correlated with questions 3, 6, 9, and 12, there could be little doubt that suspect was the right man. Failure to do so would surely eliminate him.

Another problem is to make suspect reveal details not known to the authorities. In cases of persons who disappear for unknown reasons and foul play is suspected, the preliminary procedure suggested above would be followed, and stimuli in the following form presented to suspect:

1. The Bank of America was robbed this morning.
2. Jones was found dead in bed. (Mythical)
3. Brown has been missing for two weeks. (Brown is the missing man.)
4. He has lost his mind.
5. He was accidentally drowned.

6. He was murdered.
7. He was shot.
8. He was poisoned.
9. He was beaten to death.
10. He was strangled.
11. He was stabbed.
12. His body was buried.
13. His body was hidden.
14. His body was thrown in the water.
15. His body was cut up or destroyed.
16. The motive was financial gain.
17. Revenge.
18. Jealousy or hatred.

If our stimuli here is properly balanced, the consciousness of an innocent suspect should react about equally to all the suggestions, but if guilty there should be pronounced reactions at certain points which would indicate the real facts of the case. Supposing we find such reactions to 3, 6, 7, 14, and 16, we may fairly assume that suspect shot the missing man for the purpose of robbery (or similar motive) and threw his body into the water somewhere. Following up on these clues, similar stimuli could be used to elicit information concering the gun, disposal of the gun; the river, lake or other water into which the body was dumped, until finally we might locate both the weapon and body, provided suspect didn't break at the end of the first test, and voluntarily reveal these facts.

At the risk of boring you, I have gone to some length here to suggest the possibilities of this thing, which I consider almost unlimited. And your bureau has a wonderful opportunity for doing valuable research in this field, so that finally a perfect technique may be developed to handle any situation, with the story of innocence or guilt so plainly written that even the lay mind can read the answer. Then the courts will have to sit up and take notice in those rare instances where a confession is not forthcoming.

I thank you for the inquiry, and hope for an opportunity to serve you.

Faithfully yours,
C. D. Lee

CDL

P.S.-Your agent Wayne Listerman is to be a papa some of these days. He is a splendid fellow and well liked by the gang here.

Appendix C

1935 Memorandum by E.P. Coffey

[This memorandum on U.S. Department of Justice letterhead at Washington, D.C. dated March 4, 1935, was addressed to Mr. Tolson. The subject was "Polygraph Study."]

A study of the Polygraph and its application in the detection of

deception was made by me at Chicago, from February 25th, 1935 to March 3, 1935, under the instruction of Leonarde Keeler, the designer of the instrument. A review was made of the physiological and psychological aspects of emotions during deception and the several methods which have been devised in an effort to evaluate and record these emotions. A study was made of the mechanics of the present Polygraph, and subsequently tests were made on subjects, including both laboratory tests and tests on thirteen subjects in actual cases under investigation. These tests are being set forth in greater detail subsequently.

As a result of this work I am of the definite opinion that the Polygraph is very valuable in connection with the detection of deception and that this value can be adequately realized in certain types of criminal cases such as where the guilty subject maintains his innocence and makes a gesture to cooperate in the investigation by answering questions. Keeler maintains that results can also be obtained from the non-cooperative defendant by recording his emotional reaction to certain select questions, pictures, maps, etc., pertaining to the crime, and in spite of a refusal on the part of the defendant to talk. Such a case as the latter did not present itself during my study and I prefer to reserve opinion on the value of the apparatus in such a case until demonstrated. I am further of the opinion that successful results with the instrument depend, to a considerable extent, upon the ability of the interrogator: his choice of questions, ability to interpret the resulting charts, and knowledge of psychology in following up the indications of the mechanical apparatus. In this respect I might remark that Keeler impressed me as a man of extraordinary ability in interrogation, having remarkable patience and a good understanding of human nature.

In reaching these conclusions as to the value of the Polygraph, it may be interesting to note that previous to this study, I had, after reviewing the literature on the subject, been inclined to doubt its practicability in criminal work. I was, therefore, rather surprised to find that it is being used successfully daily in Chicago (and, I am informed, in Berkeley, Cal.) in investigative work. Keeler tells me that in the last four years he has examined approximately 8,000 subjects in personnel or investigative matters. Sixteen of the larger banks in Chicago, including the Federal Reserve Bank, utilize the services of Keeler and the Polygraph from time to time for investigating thefts or examining applicants.

The Polygraph is designed to make a record in the form of a graphic chart, of changes in respiration, blood pressure, and pulse rate. For deception tests, advantage is taken of the fact that emotional changes in the individual are reflected to a greater or lesser extent by the respiratory system and the cardiac system. The mechanics of the instrument are very simple and will not be described here other than to state that a blood pressure cuff is affixed to the upper arm of the subject and a rubber tubing tied around the chest.

Tests conducted in the Laboratory involved the selection of a number by the subject whereupon the operator endeavored to determine the selected number in spite of the denial of the subject. In a similar manner the age of the subject was determined.

Subsequently, I worked on actual cases with Keeler. Investigation was conducted at the Federal Reserve Bank in connection with a recent theft of $115.00. About 35 employees were selected by the bank management to be tested, in that they had had access to the missing money. I was present during the examination of eleven of these people. The theft in question had not been solved when I left Chicago, but other irregularities were uncovered among those tested, and in one instance an employee confessed to a theft which has puzzled the bank for five years, and admitted stealing a total of $250.00.

All subjects first agreed to submit to the test which was explained to them. Two sets of questions were asked each subject. If no adverse responses on the graph chart were noted to these questions, he was finished, otherwise additional questions were asked in an effort to obtain further information. The questions asked on this case were as follows:

1st Set

1. Your name is _____?
2. Have you had breakfast today?
3. Do you know who took the missing money?
4. Did you take the missing money?
5. Have you told the truth on this test?

2nd Set

1. Your first name is _____?
2. Do you know who took the missing money?
3. Did you take the missing money?
4. Have you had your lunch?
5. Have you taken any money from this bank?
6. Are you married?
7. Have you taken any money from this bank?

The irrelevant questions are asked in order to obtain normal reactions and the essential questions appear at least twice in an effort to obtain identical responses.

Eight of the subjects tested at the bank cleared on the two sets of questions. Three individuals showed emotional responses on the charts when asked if they had taken any money from the bank. Two of the latter, after questioning, admitted petty thefts over a period of years, while the third confessed to an old loss and will probably be discharged from the bank.

An impressive method used in the subsequent tests on subjects whose records indicated some guilt, is known as the "amounts test". The subject is asked whether his thefts from the bank exceed any of a series of amounts which are called off to him and which generally range from a nominal sum to twenty thousand dollars. Invariable the charts would indicate relief in emotion as the amounts passed into the larger sums and according to Keeler the amount of theft on the mind of the subject is accurately indicated on the charts. Later confessions seemed to bear him out on this statement.

Another investigation at which I was present part of the time was conducted at Wheaton, Illinois, and involved a series of small thefts from the safe of a department store. About 20 employees were examined and Keeler selected one as the guilty party. He refused to admit the theft, however, although the examination disclosed that he had obtained a key to the store, unknown to the owner and had been seen in there on nights before the thefts were discovered. Although the amounts of the losses were supposedly known only to the victim and to the examiners, this subject reacted quite definitely to that sum when it was called to him with a series of other amounts.

One applicant for a bank position was examined in my presence. He was questioned about his past record and his honesty, and was recommended by the examiner.

I do not believe the results outlined above are to be expected without considerable experience with the apparatus. When the instrument purchased by the Bureau is delivered, I recommend that a definite schedule of experimentation be laid out and that volunteers from the personnel of the Bureau and of the Training School be used as subjects in simple laboratory tests.

Respectfully,
E.P. Coffey

Appendix D

1940 Specifications for an Associated Research Polygraph model 302

E.P. Coffey, by memorandum on January 23, 1940, sent to Mr. Ladd the specifications describing the "psychogalvanograph (lie detector)," and suggesting that invitations to bid [purchase] be addressed to Associated Research, Incorporated, 16 North May Street, Chicago, Illinois. The attached page said:

SPECIFICATIONS FOR THE PSYCHOGALVANOGRAPH
(LIE DETECTOR)

The contractor shall furnish one Psychogalvanograph and Polygraph, an instrument designed for lie detection experimentation. The instrument furnished shall in all operating respects be equal to the Recording Psychogalvanograph, Model #302, manufactured by the Associated Research, Incorporated, a division of the J.W. Murphy Company, 16 North May Street, Chicago, Illinois.

The equipment shall consist essentially of (1) a portable carrying case into which has been built a pneumatic system for determining and registering on moving graph paper changes in blood pressure volume as measured on the arm of a subject; (2) there shall be incorporated in the instrument an independent pneumatic system for making a recording on the graph paper of the breathing of the subject; and (3) there shall be incorporated the psychogalvanomic system which provides for a determination of the electrical resistance of the skin surface and changes therein a recording of these determinations on the moving graph paper.

The instrument shall be portable in every respect and built in a substantial manner with a view to withstanding considerable handling and shipment. It must be equipped to operate on 110 to 120 volt electrical current of a 60 cycle alternating type. The instrument must be substantially built with leak-proof tambours and connections throughout the pneumatic system. Syphon ink pens or similar pen systems should have ample ink capacity. There should be incorporated in the instrument an electrically controlled stimulus pen. All results from the blood pressure pneumatic system, the breathing pneumatic system, and the electrical skin resistance are to be recorded as obtained on one strip of graph paper and the instrument should be so constructed that this graph paper may be fed through the same for marking at constant speed which may be adjustable from 6 inches in one instance to 12 inches in another instance per minute.

In addition to the instrument, the contractor shall supply a suitable carrying case which will completely cover and protect the case of the instrument when it is being carried from one point to another.

* * * * * *

DEPARTMENT OF DEFENSE POLYGRAPH PROGRAM: Report to Congress for Fiscal Year 1986

Background Information

Historically, the Department of Defense (DoD) has been an active proponent and employer of the polygraph since WW II. Principal application of the polygraph has traditionally been in the criminal and exculpatory arena but personnel screening was begun by the National Security Agency in 1951 and expanded into other components starting in 1982. The utility of the polygraph has been amply demonstrated in both applications. In fact, the Army's Criminal Investigation Command, which is the greatest user of the polygraph for law enforcement purposes in the Federal Government, can statitically demonstrate a crime solving rate of at least three times the national average primarily due to their use of the polygraph as an investigative tool. Additionally, the services report a drug use confirmation rate of up to 98% during exculpatory examinations in support of urinalysis testing. Such vividly supportive statistics are more difficult to compile with personnel screening where the polygraph's principal utility is in deterrence. However, there are now documented instances where persons were indeed bent upon penetrating classified areas and programs for the purpose of espionage but were deterred or detected as a result of a polygraph examination. Recent illustrations of the utility of the polygraph in counterintelligence are set forth later in this report.

The FY 85 Defense Authorization Act allowed for 3500 counterintelligence-scope (CI) examinations to be conducted under a "test" program. The FY 86 Defense Authorization Act continued the test program at the 3500 level for FY86; and 7000 in FY87 to be applied to persons possessing TOP SECRET as well as Special Access Program Information. The bill exempts persons assigned or detailed to the National Security Agency (NSA) as well as persons "assigned to a space where sensitive cryptologic information is produced, processed, or stored." The FY87 Defense Authorization Act directed that "cryptologic" be changed to "cryptographic" which more aptly reflects Congress's intent to restrict the exemption to a more limited number of persons with extremely sensitive "communications security" access. DoD had anticipated the true intent of the bill and, despite the language of the '86 bill, limited the exemption to persons with access to cryptographic information. It should be noted that the FY87 Defense Authorization Act also authorized the continuation of a limited exemption for a specific program initially exempted in the supplemental appropriations bill for FY86. This program employs CI polygraphs that are conducted by DoD but which come under the purview of the Director of Central Intelligence.

An overview and historical perspective of the DoD Polygraph Program can be found in the following breakout:

The author of this report is Dan L. Jacobson of DUSD/P.

Year	Criminal (%)	Exculpatory (%)	Counter Intelligence Scope Only* (%)	All Others** (%)	Total
1980	5754 (44.6)	1111 (8.6)	92 (0.7)	5947 (46.1)	12904
1981	5267 (37.0)	1003 (7.0)	216 (1.5)	7761 (54.5)	14247
1982	5879 (31.1)	1035 (5.5)	1449 (7.7)	10517 (55.7)	18880
1983	5237 (24.7)	1622 (7.7)	4606 (21.7)	9726 (45.9)	21189
1984	4817 (21.8)	2344 (10.6)	4644 (21.0)	10261 (46.5)	22066
1985	4366 (17.5)	2922 (11.7)	6505 (26.1)	11146 (44.7)	24939
Jan-June 1986	2037 (15.3)	1644 (12.3)	3577 (26.9)	6064 (45.5)	13332

* - Includes examinations conducted for the DoD Counterintelligence-Scope Polygraph Test Program, military members being detailed to NSA and other approved special programs.

** - Includes examinations conducted by NSA, screening examinations on polygrapher applicants, specific issue investigations and those examinations conducted in support of counterintelligence and intelligence operations.

FY 86 Test Program Results

The report which follows is as required in paragraph (c)2 of Section 1221, Defense Authorization Act, 1986. It should be noted that in addition to the 2976 exams reported below, 418 examinations have been initially conducted under the test program but had to be subtracted after the FY86 supplemental authorization bill exempted a specific program. Had those examinations not been excluded, DoD would have completed 3397 examinations out of an authorization of 3500.

A. Number and Purpose of Examinations Conducted

(1) Special Access Programs (SAP)

(a)	Initial	1865
(b)	Aperiodic	511
(c)	Termination	208
	Total for SAPs	2584

(2) DIA Critical Intelligence Positions (CIP)

(a)	Initial	392	
(b)	Aperiodic	0	
(c)	Termination	0	
	Total for CIPs		392

(3) TOP SECRET (TS)

(a)	Initial	0	
(b)	Aperiodic	0	
(c)	Termination	0	
	Total for TOP SECRET		0

(4)	Interim Access to Sensitive Compartmented Information (SCI)	0
	Test Program Total	2976

B. A detailed accounting of those cases in which more than two examinations were needed to resolve discrepancies is as follows: NONE.

C. Results of the Examinations:

(1)	No opinion	5
(2)	Inconclusive	3
(3)	No Deception Indicated	2958
(4)	Deception Indicated	11

D. Uses of the Examination Results:

(1) No Opinion: In five instances, no opinion could be rendered due to the incompleteness of the examination process. In one instance, the examination was suspended due to concerns about the individuals health. The examinee has been referred for a medical evaluation. Four other individuals failed to show for follow-up testing. Coordination revealed one had been fired in the interim due to tardiness and absenteeism and two had been reassigned to other positions and no longer required polygraph examination. Details concerning the fifth individual are as follows:

- Subject, a contractor employee with a TS clearance, was being considered for a special intelligence position. During a multiple series of interviews aided by polygraph, the subject consistently ran deceptive to relevant questions regarding espionage. Subject made no admissions beyond stating "it would be detrimental to the welfare of the US for (his) access to be denied due to error." He also expressed concern about discussing the relevant issues because of "what happened to the Rosenbergs" (Julius and Ethel Rosenberg were executed in 1953 after being found guilty of espionage). Subject declined further testing stating he planned to retire in a month and did not want to "cloud his records." Subject was denied access to the position and the entire matter was referred to the Federal

Bureau of Investigation (FBI) who reportedly closed their case after an unproductive interview with Subject. The actual security significance of this matter can not be determined.

(2) Inconclusive:

(a) An individual was examined in April 1986 and evaluated as inconclusive due to abnormalities in the tracings. He was referred for medical evaluation. He was medically cleared and the examination was continued in October 1986. The final series resulted in a finding of no deception indicated. The individual was granted the access.

(b) A contractor employee with a TS clearance was being considered for access to a SAP. Multiple series resulted in a final evaluation of inconclusive. Due to security requirements outside the purview of DoD, the employee was subsequently assigned to another position of equal pay and responsibility which did not require access to the SAP.

(c) A civilian employee with a TS clearnace was being considered for a CIP. Multiple series resulted in an evaluation as inconclusive. The requester has deferred the matter for a six month time period after which the individual will again be examined.

NOTE: Final evaluations of inconclusive are rare in the DoD Polygraph Program. It is standard to afford a scheduled break between testing of 30 days or more when multiple series result in a finding of inconclusive. In past instances, the hiatus usually served to eliminate or neutralize the factor or factors which caused the erratic chart tracings and a final evaluation can be rendered.

(3) No Deception Indicated: In all instances, clearance for the access required or approved for assignment to the position concerned was approved.

(4) Deception Indicated: See the following section on the utility of the polygraph.

Utility of the Counterintelligence Polygraph

A total of eleven instances of deception occurred in the DoD polygraph test program during FY '86. A grand total of 29 cases of deception have occurred in all CI-scope polygraph examinations conducted over the last two years. Seven of the eleven deceptive cases for FY '86 and fifteen additional cases (22 out of the total of 29) were instances where security violations or unauthorized disclosure of information to spouses, family and friends were revealed. One such instance resulted in the compromise of the entire classified movement schedule for a naval vessel and the spouse received a security debriefing. In all 22 the damage was assessed as minimal or none at all. Accordingly, the subjects received security briefings and obtained the positions they were being nominated for.

Following are various categories of anecdotal accounts of interviews conducted with the aid of a polygraph which produced data of vital

security importance which was not otherwise obtainable. The first section details seven accounts which were developed through application of a CI-scope polygraph; 3 occurred in FY '86. Throughout, the accounts are formated to disguise the identities of the subjects and to sanitize data on sensitive intelligence sources, methods and specifics on contributing agencies.

Counterintelligence-scope Polygraph Examinations

Contact with Hostile Intelligence and Vulnerability to Blackmail:

Subject, a U.S. citizen under consideration for access to Special Intelligence Information (SII) initially was deceptive but subsequently admitted to feelings of vulnerability due to numerous homosexual liaisons including several while traveling in the Soviet Union. He further related that while in the Soviet Union, he was interviewed by members of a hostile intelligence organization during which he revealed his "talents" plus his intention to secure a specific position with SII access. He believes his homosexual liaison was "arranged" subsequent to the meeting with hostile intelligence "probably for blackmail." Subject had no subsequent contact with hostile intelligence. He was denied the SII access and eliminated from the military service. No damage to national security occurred but it is believed the subject would have been contacted by hostile intelligence had he obtained the access.

Probable Espionage:

Subject, a U.S. citizen, possessed a TS clearance and had access to SCI. During numerous interviews conducted with the aid of a polygraph, subject continually showed deception to questions involving espionage. During these interviews, the subject progressively admitted to more and more contacts with female Soviet nationals. He also unsuccessfully attempted to distort the examination through employment of countermeasures. Unfortunately, this matter could not be fully resolved due to the subject's untimely death in an automobile accident. However, based upon the results obtained up until his death, it is firmly believed that subject did, in fact, reveal classified information to a "female lover" who was a Soviet national. An investigation is continuing in an attempt to determine the extent of damage to national security.

Transporting Technology to Eastern Block Countries:

Subject, a contractor with a TS clearance was being considered for access to a SAP. During a pre-test interview, subject advised that within the last several years he was involved in a scheme to smuggle high technology equipment out of the U.S. through intermediaries to Eastern "Block" countries. The subject claimed to have been "duped" during the entire operation in that he was not aware of the nature of the cargo he transported nor its ultimate destination. However, during an interview aided by the polygraph the subject appeared deceptive to relevant questions regarding the matter. He subsequently confessed to being aware of both the nature of the equipment he transported and its ultimate Eastern Block destination. The subject was denied access to the SAP and the results of the polygraph examination were referred to the proper authorities. This

matter is considered of security significance because of the potential for loss of high technology. Actual loss was prevented by denial of access.

Illegally providing U.S. Defense Information:

Subject, a civilian employee with TS access was being considered for access to a SAP. During an interview aided by a polygraph subject initially showed deception but subsequently advised that his job involved travel to foreign countries and collection of information on various systems. Subject, who is involved in U.S. weapons development, revealed he had illegally provided U.S. defense information to foreign nationals but never for personal gain. He claimed that he provided information to gain information from foreign governments but on occasion had exceeded his authority. This matter was investigated and initially resolved in favor of the individual. However, subject's actions are again under review for possible reinvestigation.

Blatant Disclosure of Highly Classified Information:

Subject, an employee of a defense agency, has TS/SCI access and was being considered for a CIP. During an interview conducted with the aid of a polygraph, subject initially was deceptive but subsequently revealed having released information classified SECRET-No Foreign Dissemination to representatives of a foreign government because he believed it was in the best interest of the U.S. He also advised he regularly and routinely divulged special access information to individuals not authorized to receive it essentially because it was "inconvenient" not to. A background investigation has been initiated and the matter is pending.

Disclosure of Classified Information to Foreign Nationals:

Subject, an employee of a defense agency, has access to TS-SI-TK and G, and was being considered for a CIP. During an interview conducted with the aid of a polygraph, the subject, who was initially deceptive, admitted to the disclosure of highly classified information to uncleared individuals some of whom were foreign nationals. The matter is currently pending adjudication.

Unknown Circumstances:

Subject, a civilian with access to TS/SCI, was being considered for a SAP. Throughout interviews conducted with the aid of a polygraph, subject attempted to employ countermeasures to defeat the examination. The only admissions made by the subject were to contact with foreign nationals whose interests may or may not be inimical to that of the U.S. The matter is under investigation.

Results Obtained from Aperiodic CI-scope Reexaminations

Counterintelligence Issues:

Subject, a military member with TS/SII assess who was assigned to NSA was interviewed with the aid of a polygraph under an aperiodic reexamination program. Subject initially attempted to explain his reactions to

polygraph questions pertaining to the unauthorized disclosure of classified information by admitting to minimal discussions of classified information with uncleared individuals. Further interviews resulted in more admissions of unauthorized disclosures of classified information which he claims to have done simply to impress the individuals. Subject further admitted to having regular thoughts of defecting to the country of Vietnam. He advised that he would prefer defection to Thailand but since the U.S. has ties to that country, a defection there would not result in the same benefits as a defection to a country such as Vietnam. Subject opined that the benefits of defecting would include additional money and power as well as a better lifestyle for himself. Although subject has done much planning toward defection, he had never actually initiated action toward doing so. His primary reason given for not taking such action was he simply didn't know how to approach a given country to inquire about defection. Subject's access was withdrawn and he was returned to his parent military service. He was subsequently evaluated and treated by a clinical psychologist who recommended he be retained in the service but not in a security position. The psychologist's recommendations were accepted.

Counterintelligence Concerns:

Subject, an NSA employee with access to TS/SII, was interviewed with the aid of a polygraph in conjunction with an aperiodic reexamination program. He was initially deceptive but subsequently expressed concern over his roommates persistent attempts to obtain NSA intelligence information regarding a Central American country. Subject's roommate is an attorney who specializes in immigration law and has frequent contact with refugees from that country. Subject expressed surprise and concern over how much sensitive information his roommate seemed to know regarding the country. Subject also mentioned that his roommate recently traveled to the Soviet Union for a legal conference. Subject also admitted that he intentionally transported a SECRET document in an improper fashion between two secure areas in order to expedite his work mission. Subject further admitted to accidentally placing a CONFIDENTIAL document in his briefcase and repeatedly transporting it between his work space and residence for several months. Subject was given a security briefing and returned to his duties.

Improper Handling of Classified Information:

Subject, a military member with TS/SII access assigned to NSA was interviewed with the aid of a polygraph in conjunction with an aperiodic CI-scope reexamination program. Subject was intially deceptive but subsequently admitted to involvement in a series of security violations including improperly transporting classified material, providing classified information to subordinates without them being properly cleared, and working on classified material at his residence. Subject circumvented security procedures simply to facilitate the timely completion of his duties. Subject further admitted to divulging classified information to his spouse and discussing classified information over non-secure telephones. Subject was given a security briefing and returned to his duties.

Improper Handling/Divulgence of Classified Information:

Subject, a military member with TS/SII access assigned to NSA, was interviewed with the aid of a polygraph in conjunction with an aperiodic reexamination program. After initially showing deception, subject admitted to improperly reporting the loss of sensitive work material and hardware as well as discussing classified information with his spouse and a friend, neither of whom had security clearances. Subject also disclosed an association with a West German national who was employed with a West German Government security agency. As a result of the above interview, a special investigation was conducted and the issues resolved. Subject was given a security briefing and returned to his duties.

Improper Removal of Classified Information:

Subject, an NSA employee with TS/SII access, was interviewed with the aid of a polygraph in conjunction with an aperiodic reexamination program. After initially showing deception, subject admitted to inadvertently taking classified material to his residence. Subject also admitted taking a classified photograph to his residence several years prior to the date of the polygraph because the photo was of interest to him. Subject indicated the photo was still at his residence. A special investigation was initiated which resulted in the recovery of the photo. Subject was given a security briefing and returned to his duties.

Improper Handling of Classified Information:

Subject, an NSA employee with TS/SII access, was interviewed with the aid of a polygraph in conjunction with an aperiodic reexamination program. After initially showing deception, subject admitted to improperly removing classified information from NSA areas which she then took to her residence. She further admitted to creating classified information while at her residence on a three times yearly basis over a ten year period. Subject believed the above information was classified no higher than SECRET. Subject also disclosed that on occasion SCI documents have been missing from her work area and she has made no effort to report their possible loss. Subject rationalized not reporting the possible loss of classified information because she believed the documents were probably borrowed by an authorized individual who "simply forgot to return them." Subject was given a security briefing and returned to her duties.

Use of Polygraph in Personnel Security

A defense contractor employee with TS access became the subject of an investigation when an industrial security inspection of a facility disclosed unauthorized documents classified up to TS/codeword in a locked file cabinet assigned to the subject. The documents were confiscated by agents from Defense Investigative Service (DIS) and the subject claimed to have no other classified information in his possession. An interview conducted with the aid of a polygraph revealed him to be deceptive when he claimed to have no additional classified information. Subject subsequently admitted having a substantial amount of classified information at his home entered into his personal computer. DIS investigators recovered 16 floppy discs at his home which contained data classified up to TS/SCI. It

was further disclosed the subject was residing with a female foreign national who had access to the personal computer. The FBI has assumed jurisdiction in this matter.

Positive Collection Effort Against U.S. Intelligence

An Austrian national walked into the offices of a U.S. intelligence operation in Berlin, West Germany. The individual carried several classified documents from a U.S. Federal agency and claimed to have access to more which he would be willing to trade for U.S. assistance in getting his "girlfriend" out of East Germany. A second meeting was arranged. At the second meeting the individual agreed to be polygraphed and showed deception to questions concerning espionage. The individual subsequently confessed that he had been sent by the East German Ministry for State Security (MSS) with orders to "case" the office and gather intelligence about means and methods. He further confessed to having been debriefed by MSS after his first visit and to having previously conducted two other intelligence missions. However, he indicated he had not been forewarned about the polygraph. In fact, after his confession, he gazed at the polygraph instrument and observed "They (MSS) must not know you have this!" Subject was turned over to West German authorities and later convicted and imprisoned for espionage.

Counterespionage Operations

The polygraph is employed in intelligence and counterespionage operations. Such applications have revealed a number of instances where double agents have compromised intelligence operations.

Damage Assessment Following Espionage Convictions

(1) In Chicksands, UK, an Air Force enlisted man who had been convicted of espionage was granted immunity to certain charges in exchange for his agreement to participate in 60 hours of interview and polygraph. Subject previously held TS/SCI access, had a photogrphic memory and was considered one of the best "Order of Battle" analysts in the military service. During the limited time allowed for polygraph aided interviews, the subject reluctantly disclosed having provided hostile intelligence with the location of nuclear storage sites in Europe and all Pershing missile site locations. Additionally some 85 lbs of documents classified up to TS/SCI were recovered. It was also disclosed the subject was within three days of defection at the time he was apprehended.

(2) A U.S. military member known to have committed espionage against the U.S. agreed to submit to polygraph examination for purposes of damage assessment under a total grant of immunity. During examination, it was disclosed that information subject provided to hostile inteligence could have caused the most grievous damage to U.S. national security.

Deterrent Value of the Polygraph

The principal utility of the polygraph in CI applications is as a deterrent against espionage. Debriefings which have followed recent convictions for espionage have provided us with valuable insight into just

how powerful a deterrent the polygraph really is. A few of the more recent examples are as follows:

(1) Ronald William Pelton, convicted of espionage in 1986, caused irreparable harm to national security by passing classified information to the Soviet KGB concerning certain intelligence operations he was familiar with due to his previous employment with NSA. Pelton reports that prior to April 1985, the KGB asked him to seek reemployment with NSA. Pelton advised the KGB that he would not be able to pass the required polygraph at NSA and, therefore, would have to seek the information they desired through some other means. One can only speculate as to the additional damage to national security which would have resulted had Pelton been able to obtain reemployment at NSA and been specifically targeted by the KGB.

(2) John Anthony Walker, Jr., also convicted of espionage in 1986, has stated subsequent to his conviction that had a CI type polygraph program existed during the '60s and '70s, he would never have become involved in espionage. In fact, he claims it was the fear of being polygraphed that resulted in his leaving the military in 1975 and ending his own positive intelligence collection efforts against the U.S. Walker believed that had he remained in the service, he would have been subject to a background investigation which, to his way of thinking, would have resurfaced enough irregularities that he would have been interviewed and then polygraphed. He firmly believed that he could not have beaten the polygraph. Instead, he recruited Jerry Alfred Whitworth to, essentially, pick up where he had left off.

Walker reports that during every meeting he had with his KGB handlers, he received a security briefing which always included strict instructions not to allow anybody in the operation to obtain employment in a position which would required a polygraph. Walker also related that at one time he discussed with his KGB handlers that Whitworth might become subject to a polygraph. The handlers attempted to instruct Walker in polygraph countermeasures but Walker, who had become a polygrapher himself, recognized the proposed countermeasures as ineffective. It is of interest to note that the only polygraph Walker has passed since his arrest was in relation to his testimony against Whitworth. Walker is quoted as stating afterward that "I'm in (trouble) now; they know I can pass a polygraph!"

Walker also attempted to recruit his daughter into his spy ring. He encouraged her to secure employment with the Navy or Air Force in a job where she would require a security clearance. He strictly enjoined her, however, not to secure employment which would require her to take a polygraph.

(3) The modus operandi of foreign intelligence services directing the operatives they handle to avoid the polygraph at all costs has been consistently applied in other espionage cases.

Refusals:

A total of six persons declined to take the CI-scope polygraph examination during FY '86. Two were retained in their original positions and

simply denied access to the sensitive program which necessitated the polygraph. Two were excepted service personnel employed with AFOSI in a sensitive program. Both were unhappy with aspects of their employment but had few options due to their excepted service status. Being aware of the DoD policy of not taking adverse action against those who refuse to take the polygraph, both declined to be examined. Each was removed from the program and reassigned within AFOSI to positions of equal status. The remaining two are of recent vintage and are presently in adjudication. If their refusals were not motivated by matters of counterintelligence significance, both will be retained in the same or equal positions.

Polygraph Program Expansion

DoD has remained resolute in its commitment of slow controlled growth in its polygraph capability. An Air Force program has served as a model for our expansion and the characteristics which made it worthy of emulation are now standard throughout DoD. For example, all components have the same hiring standards, training program and OJT requirements. They all employ the same examination techniques, numerical scoring of polygraph charts and 100% quality control. An examination conducted by one DoD component can be evaluated and quality controlled by any other DoD component. In fact, initial efforts to standardize polygraph forms have begun within DoD with the intent of further facilitating overall program consistency.

Further growth within the DoD Polygraph Program is expected for exculpation, resolution of certain personnel security investigations and for those programs which employ CI-scope polygraphs. Those CI programs include the current test program (TS, approved SAPs, CIPs within DIA and interim or detailees to NSA and those with extensive cryptographic access. Moreover, the components are desirous of increasing the use of the polygraph in support of counterintelligence operations. Examinations in support of counterintelligence require considerably more time and usually the services of two examiners. Accordingly, such examinations have been limited due to resource constraints. In fact, the total number of examinations conducted DoD-wide has been dictated primarily by the availability of resources. In light of our previously stated emphasis on controlled, quality growth, this limitation is likely to affect DoD for years to come.

One aspect of the polygraph planning process which has become readily apparent is that forecasting polygraph requirements has become a complex variable which almost defies establishment of absolute numbers. However, given resource limitations, a 10,000 annual limit for the foreseeable future on test program examinations and a DoD population with sensitive cryptographic access numbering about 60,000, the following is an estimated forecast for CI-scope polygraph examinations:

	'88	'89	'90	'91	'92	'93
Test Program	10,000	10,000	10,000	10,000	10,000	10,000
NSA Detailees	2,400	3,200	3,900	4,000	4,200	4,300
Crypto Access	5,650	8,900	12,425	20,358	19,543	21,890
TOTALS	18,050	22,100	26,325	34,358	33,743	36,190

It is further estimated that to meet the CI-scope growth forecast as well as address the DoD Polygraph Program in its totality, the following DoD polygrapher growth is projected:

	'87	'88	'89	'90	'91	'92	'93
Total Examiners	226	315	375	436	462	471	486
Full Time*	172	239	283	327	346	356	362

*Full time examiners are those within the total figure who are not involved in management, supervision or quality control. This figure is variable and will constantly fluctuate.

The DoD annual examiner attrition rate employed in the forecast is 15% which is probably conservative considering the projected increase in CI-scope examinations. It is recognized that the "burnout" will be higher in such programs but a base rate has yet to be established.

Polygraph Training

It has been one year since finalization of the program for expansion of the Defense Polygraph Institute (DPI). Part of the expansion has included the employment of double shifts during training which is not desirable for the long term but has served on an interim basis to substantially increase the output of trained examiners with no appreciable loss in quality of training. All newly established instructor billets are committed and those not already filled are being covered by use of temporary duty personnel. New equipment has been purchased and installed, administrative support obtained, an independent group of representatives from the research and academic community has reviewed the curriculum, the FY '88 MCA funds required for construction of a new building to house DPI are on track, a research coordinator has been selected, the remaining research money is being transferred to DPI, and the initial steps of development of a career polygraph training program are underway.

One temporary setback has been our inability to as of yet surface a suitable candidate to serve as Director of DPI. To date candidates responding to five competitive service announcements have not been accepted by a selection recommendation panel comprised of representatives from each of the DoD components plus five Federal agencies. However, effective November 20, 1986, DoD has been granted excepted service hiring authority by the Office of Personnel Management. The Director position is being readvertised as of the date of this report and we have every confidence that the flexibility afforded under excepted service will provide us the opportunity to select a highly qualified Director for DPI.

The current expansion of DPI enables the scheduling of three basic polygraph training programs per year with a total capability to train 36 students per class or 108 examiners annually. In addition to training all DoD polygraphers, DPI also trains polygraphers for the following Federal agencies and departments:

Federal Bureau of Investigation
U.S. Secret Service
U.S. Department of Customs
Bureau of Alcohol, Tobacco and Firearms
Drug Enforcement Agency
Internal Revenue Service
U.S. Postal Service
Immmigration and Naturalization Service
U.S. Marshals Service
Capitol Hill Police Department*

In order to facilitate planning among DoD and Executive Branch agencies, it has been decided that the general composition of each class will be 70% DoD and 30% other agencies. This equates to 25 billets per class or 75 per year for DoD. Obviously more can be used by DoD depending upon utilization of the remaining billets by other Executive Branch agencies. The following chart depicts DoD component forecasts for basic polygraph training during FYs 87-93.

	'87	'88	'89	'90	'91	'92	'93
AFOSI	15	25	21	18	23	28	13
ARMY CID	5	5	5	5	5	5	5
ARMY INSCOM	28	30	25	25	20	15	15
DIA				1		1	
DIS	2	4	5	6	7	8	9
DOD IG		1		1		1	
MARINES	11	9	10	4	4	4	4
NIS	11	8	8	8	8	8	8
NSA	9	6	6	7	8	8	8
TOTALS	81	83	80	75	75	78	62

Another aspect of DoD's expansion plans at DPI is our intent to enhance the curriculum with career development training programs. Obviously our initial emphasis will be on basic training but, within the next two years, we intend to augment the curriculum with a true advanced course in addition to the current refresher course. Also in the formulative stages are courses in such areas as specific format testing, polygraph interrogation, instrumentation, fraud examination and the use of the polygraph in damage assessment. Those badly needed curriculum enhancements will require classroom space which can only be accommodated through construction of a new facility. Also, the new structure will be essential for DPI to establish a continuing research program as directed by Congress. In essence, the current physical plant does not accommodate basic training to a satisfactory degree much less allow for Congressionally directed research and badly needed advanced examiner training.

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*The United States Capitol Police. In addition, the DPI has been training examiners for the Metropolitan Police of Washington, D.C. since 1951. [Ed.]

Polygraph Research

The report segment which follows is as required in paragraph (d)(2) of section 1221, Defense Authorization Act, 1986.

The field of polygraph is somewhat enigmatic as, despite 60 years of effective utilization (45 years in DoD alone), its scientific validity has never truly been established. This lack of scientifically demonstrated accuracy has endured principally because very little research has been conducted and that which has been conducted is flawed particularly as it relates to the polygraph examination screening process. In recognition of this shortcoming as well as the public controversy associated with the polygraph, Congress directed in the Defense Authorization Act, 1986 that the Secretary of Defense established a continuing polygraph research program and authorized $590,000 for Fiscal Year 1986 in order to initiate the program.

Dr. Gordon H. Barland, a preeminate psychophysiologist, with extensive polygraph experience, has been selected as the DoD polygraph research coordinator. Dr. Barland's vitae is Enclosure A of this report, He is currently completing the clearance and processing phase of hiring and will be in place at Ft. McClellan, Alabama, in January 1987. With Dr. Barland on board, we now have the capability to finalize plans for a long term orchestrated research program. Furthermore, requests for research proposals can be initiated and the remaining research money committed for meaningful research as envisioned by the Congress. The Army, as executive agency for DPI, has budgeted appropriate research money for outyears beginning FY 88.

Although the effort to conduct and coordinate polygraph research at a DoD level has just begun, some moderately successful research was completed over the last year plus a number of studies are currently pending. A summary of research projects completed during Fy '86 are as follows:

Screening Examinations and Retest Effect

A contracted research project in which simulated preemployment screening examinations were conducted using a standard relevant-irrelevant technique. Each subject was given three polygraph examinations on separate days. Each was told he failed the first and the second examination. Of eighty subjects, thirty were guilty of either a mock crime, falsification of an application form or concealing a staged visit to a psychologist. Of these thirty, seven were false negatives on the first examination for an error rate of 23%; nine were false negatives on the second examination for an error rate of 30%; and eight were false negatives on the third examination for an error rate of 27%. The average FN rate was 27%. This may overestimate the error rate in real life. Five of the test subjects who had FN results on the second or third test had produced deceptive results on the preceding examination. Under field conditions they would have been interrogated and the resulting admissions would have altered the outcome of those cases.

There were fifty "innocent" subjects. There were eight false positives in each of the first two series of tests, and seven false positives

in the third. The error rate was 16% for the first and second examinations, and 14% for the third examinations against a chance expectation of 38% [30/80ths]. However, in the field, any finding of non-deception drops the person out of the reexamination cycle. There were only two people who were false positives on all three examinations which in the field would be a false positive rate of 4%. What is artificial is that all of the truthful people were told they failed both the first test and second test, which at least reduced their confidence. In terms of utility, there were two people whose test results were inconclusive for all three examinations. The research also provided valuable information on the validity of the six channels of physiological information: electrodermal recordings taken by dry field electrodes and by silver/silverchloride electrodes, thoracic and abdominal respiration, a blood pressure cuff, and a plethysmograph.

This research, using the standard field relevant-irrelevant technique in simulated screening, provided an overall detection rate of 63% across all three tests, ignoring interrogation that would normally occur if the person were deceptive on any one of the three tests in a field situation, and retaining truthful outcomes for reexamination. The cumulative effect of retesting (employing decision criteria used in the field) produced only two false positives for an error rate of 4%. The detection rate in the mock deception in the screening tests was below the accuracy of laboratory validity for specific issue tests. Surprising is the error rate of only 4% for the truthful, much lower than that found in most mock specific issue tests.

Comparison of Keyword Answer With Yes/No Answer

The first phase of a long-term study on the mode of answer as a variable in polygraph testing has been completed. Since the 1930's most polygraph techniques have required a dichotomous question with a one word reply, either "yes" or "no". Longer answers were not only thought undesirable from a testing viewpoint but were known to disrupt the respiration pattern. However, we have recently hypothesized that if we required the subject to couple a keyword from the question with his "yes" and "no" answer, it would increase his attention and serve as an anti-countermeasure against dissociation.

A first phase study examined the practical problems associated with selection of the key word, the chart interpretation problems associated with the longer answer and the effect on the inconclusive rate.

There were 120 subjects taking a preemployment examination administered by one of three experienced, certified, federal polygraph examiners employing standard federal instruments in a professional polygraph suite. Subjects were randomly assigned to one of two groups; one group in which subjects used the standard answering technique, the other group in which subjects answered with a keyword from the question and a "yes" or "no". In all cases the federal relevant-irrelevant split-phase counterintelligence/suitability screening technique was employed.

From the initial study it was learned that most subjects had no difficulty in following the instructions, that the keyword method had no

effect on chart interpretation, there was no effect on the inconclusive rate and examinations averaged only seven minutes longer. Future studies will examine: 1) the effectiveness of the key word technique against the dissociative countermeasure, 2) the effectiveness with subjects whose previous examinations were inconclusive and 3) the effects on validity with various specific and multiple issue techniques.

Specific Examinations and Retest Effect

A research project conducted under contract involving a mock crime and employing a standard format for specific issue testing; the Zone Comparison technique. The examiner was blind to the role of each of the 72 subjects. The controller saw to it that one-third of the subjects were told results of their test were accurate, in keeping with their role; one-third were told results that were contrary to their role leading them to believe the polygraph results were wrong; and one-third were not told the results of their test. The results given to the subjects had no relationship to the real analysis of the charts by the examiner. Each subject was then tested again on another day. The examiner's results on the first test series was 56 correct, 4 incorrect and 12 inconclusive. The errors were all false negatives. The overall accuracy was 93% without the inconclusives. When these subjects were reexamined the accuracy was 86%. There was no statistically significant difference between those who were correctly informed of their results on the first test, those who were misinformed, and those who were not informed.

The overall accuracy of detection of the deceptive group (who committed the mock crime) in Test 1 was 87%. The accuracy in the reexamination of the deceptive group was 73%. The overall accuracy of detection of the truthful group was 100% in the first test series and 96% (one error) in the second series. The retesting produced a slight decline of accuracy and substantial increase in inconclusives. In both tests the examiner was more accurate in decisions about truthful persons than about the deceptive subjects.

This study ignored interrogation that would normally occur if a person were deceptive during testing in a field situation.

Pending Research

An overview of polygraph research currently in a pending status is as follows:

Physiological Arousal in Laboratory and Field Polygraph Tests - One of the major problems associated with evaluating laboratory research on polygraph techniques is that the level of arousal of subjects is unknown. If the level of arousal of subjects of laboratory tests is significantly below the level of arousal of subjects of real tests, the inferential value of validity, and some of the other laboratory results to the field situation, is diminished. A current study is comparing heart rate and respiration rate data from research cases, training cases conducted in a polygraph school, and real cases conducted by federal examiners. In addition to providing information on arousal, which will help in evaluating research results, this study will also provide information on the relative

effectiveness of various research and training scenarios. There will additionally be information on the relative physiological arousal of deceptive and nondeceptive subjects.

A Field Assessment of Polygraph Reactions in Security Screening Polygraph Examinations - In a study currently in progress, the outcome of polygraph examinations being administered to applicants for certain government intelligence positions are being tabulated. Each case in which the applicant is not cleared on the first test is followed through the system to determine how it is resolved: 1) by admissions which indicate that the applicant had lied; 2) by explanations which indicate that the applicant had reacted because of idiosyncratic reasons or 3) by a subsequent polygraph examination which yields truthful results which would suggest the possibility that the previous examination(s) had been false positive error(s). The purpose of the study is to estimate the maximum false positive error rate in security screening examinations, and what may cause them.

Recording Covert Muscle Movement by Electromyography - Research by contrast at a medical school is investigating the minimum key muscle recordings needed to reliably indicate deliberate muscle activity in all major regions of the body. Deliberate covert muscle activity is one of the countermeasures being used in attempts to produce physiological reactions on polygraph charts that mimic genuine autonomic reactions. The object of the covert muscle movement is to produce counterfeit autonomic reactions to control questions that are greater in amplitude and duration than the reactions to the relevant questions that are of autonomic origin. An appropriate anticountermeasure is a polygraph instrument capable of recording deliberate muscle movements and identify the responses attributable to or enhanced by covert muscle activity.

Comparison of Two Standard Screening Techniques - A research contract is in progress which compares the results from a relevant-irrelevant technique with results from a control question technique in a mock screening scenario. Results will provide information on the relative advantages and utility of each of the techniques and each scoring method.

A Study of Acquaintance/Stimulation Tests - Most specific issue polygraph examination techniques include an acquaintance or stimulation test as an integral part of the procedure. A pilot study revealed that the Guilty Knowledge Test format is superior to the Peak of Tension format in detecting the correct answer in the procedure. Current and future studies will evaluate various formats and consider the effect on the validity and the inconclusive rate of tests when the stimulus test is placed in different positions. Various stimulus test formats will also be evaluated for their effectiveness in detecting specific countermeasures.

Decision Support System - A cooperative effort is underway with the Secret Service on development of an "Expert" or Decision Support System for polygraph. This venture is part of a program at the University of Utah geared toward development of more sophisticated, accurate polygraph techniques and instrumentation.

Polygraph research under funding consideration is as follows:

Covert Facial Activity As a Countermeasure in Lie Detection - It has recently been determined that covert facial activity can produce autonomic nervous system changes and thus be used as potential polygraph countermeasures. A recent article in Pravada noted this application. Consequently, it is important that DoD determine the threat of covert facial activity to personnel security screening polygraph examinations.

Factors Influencing Polygraph Examination Validity - The project will determine how characteristics of the polygraph examinee influence polygraph test outcome. Critics maintain that individuals with certain demographic and personality characteristics are particularly prone to false positive errors. The project also will establish the relationship between polygraph test outcome and various measures of truth and deception.

Polygraphy and Signal Processing - Applied research is needed toward construction of a next-generation polygraph based on automated feature detection and classification. Current analysis is occasionally unreliable and a human is not always able to visually extract all of the available features from polygraph charts. Additional features in the physiological data, such as those in the frequency domain, could be extremely relevant to the detection of deception, including the ability to detect countermeasures.

Noninvasive Measurement of Adrenergic Synpathetic Influences on the Heart - An Improved Measure for the Detection of Deception - It is generally assumed that the cardiovascular changes of interest in detection of deception are mediated by the sympathetic nervous system. However, there are strong parasympathetic nervous system effects on cardiovascular functions necessary to develop procedures to noninvasively partial out sympathetic and parasympathetic influences on cardiovascular function.

Heart Rate Variability Analysis - Recent scientific advances make it possible to develop a technology which will provide a continuous real-time sensitive and specific measure of alterations in the activity of the autonomic nervous system. Such advancements have the potential to greatly facilitate the detection of deception because this technology is inherently more sensitive and specific than the measures currently in use.

Comparison of Various Techniques Commonly Used in the Detection of Deception - This study will digitize two unique data sets comparing different polygraph examination techniques. The data sets compare different types of control question tests using exclusive and nonexclusive control questions. There also are some polygraph examinations containing only relevant and irrelevant questions.

Future Research Priorities

Polygraph research priorities in DoD are as follows:

(1) Validation of the polygraph in counterintelligence screening (this will be the definitive study of the test program approach).

(2) Detection of countermeasures.

(3) Expanded development of "Expert" or Decision Support Systems to support and assist the polygraph examiner.

(4) Instrumentation automation.

(5) Validation of the various polygraph techniques.

(6) Identifying and evaluating new parameters for use in detection of deception.

In addition to conducting and coordinating polygraph research in accordance with the above priorities, Dr. Barland will be monitoring polygraph research conducted in both the public and private sector. An indication of the volume this may entail can be obtained through the review of a bibliography of recent scientific research studies on the polygraph which is Enclosure B of this report.

Difficulties in Program Expansion

In last year's report to Congress, DoD noted that the Stilwell Commission, in its report to the Secretary of Defense entitled "Keeping the Nation's Secrets," commented upon the expansion of the counterintelligence polygraph program, stating "It is clear that the limited, year-to-year authorization---is impeding the planning and successful execution of the expansion of the DoD training facility and, accordingly, the program as a whole. It is simply not feasible to concert long-term arrangements and attract high-caliber personnel to commit to them based upon an uncertain, year-to-year authority."

This assessment is particularly relevant now that the "test" of counterintelligence-scope screening in DoD is scheduled to end this fiscal year. In fact, failure on the part of Congress to now legislate an expanded program to be maintained by DoD at appropriate levels for the foreseeable future will only serve to foster the perceived temporary nature of the program and further exacerbate problems associated with planning and execution of the program. Specific aspects of program administration and management which are particularly impacted are as follows:

(1) It is difficult to justify additional manpower spaces for examiners against other claimants based upon a requirement which may not last beyond this fiscal year. A further "temporary" extension, particularily in the current restricted budget environment, will only make it more difficult to negotiate staff augmentation with program and budget staffs;

(2) The temporary nature of the program continues to impede recruitment of the highest caliber service personnel into the polygraph ranks. We regularly hear of field commanders understandably advising their best people to avoid committing to the polygraph program until its future has been determined.

(3) Components are hesitant to establish new offices and geographically place polygraphers so as to most effectively address the examination workload. Instead, a disproportionate number of examinations are being conducted in the Washington, D.C. area while extensive TDY funds are required for the remainder.

Summary

This report describes 1) the implementation and management of counterintelligence polygraph screening within DoD; 2) the utility of the counterintelligence-scope polygraph, particularly as a deterrent and 3) plans and programs that are underway which will serve to validate and enhance the DoD Polygraph Program in general. Without legislation authorizing the Secretary of Defense to maintain a continuing polygraph program on a discretionary basis, it will be exceedingly difficult for DoD to carry out the kind of program necessary to the Department's vital security needs.

* * * * * *

SENATE REPORT ON COUNTERINTELLIGENCE AND SECURITY

- Excerpts on the Polygraph -

The following excerpts are from the report of the Select Committee on Intelligence, United States Senate, "Meeting the Espionage Challenge: A Review of United States Counterintelligence and Security Programs," 99th Congress, 2d Session, October 3, 1986, report no. 99-522.

The excerpts are only those references and recommendations that mention the use of the polygraph.

Findings

This report groups many security issues by discipline, but the Committee feels strongly that many, and perhaps most, of those issues will remain unresolved until a more effective security policy structure is implemented. There is a need to upgrade security across the board, with improved recruitment, improved training of personnel ranging from security clearance adjudicators to polygraphers and technical security personnel, and upgraded job classifications that reflect the increased importance and sophistication of modern security specializations. (pp. 6-7.)

The Committee has supported Defense Department efforts to develop counterintelligence polygraph programs with the highest quality controls, pursuant to the test program approval by the House and Senate Armed Services Committees. (p. 7)

The Executive branch has reassured the Committee regarding the risk of over-reliance on the polygraph in testing sources and defectors and has demonstrated sensitivity to issues concerning the management of U.S.-controlled double-agent operations. (p. 52)

The Committee shares a concern, expressed initially by the Permanent Subcommittee on Investigations, about the potentially serious risks in issuing security clearances to foreign-born individuals whose background cannot be verified adequately. The Stilwell Commission's proposal for use of the polygraph in such cases is comparable to the FBI's policy of

polygraphing foreign nationals employed for specialized purposes. Agencies must guard against over-reliance on the polygraph, of course, especially when independent corroboration is so difficult to obtain. (pp. 68-69)

The Committee is concerned about the tendency to place an over-reliance on the polygraph, thereby allowing apparent passage of an examination to validate the reliability of an individual who may be intent on espionage. Other concerns are the persistent underfunding for implementation of some high-quality polygraph programs and the risks that incompetent or improper use of the polygraph may harm the careers, reputations or well-being of loyal Americans. Adequate research on personnel screening polygraph practices is also lacking. (pp. 71-72)

An essential prerequisite for any wider polygraph programs in DoD or other agencies is a significant upgrading of the national polygraph training school managed by the Army. This training program should be the focal point for development of a government-wide approach to personnel security polygraph examinations including equipment requirements, question format, quality controls, and use of individuals as training subjects. A model that should be studied is the Air Force Seven Screens program, which is described in a recent report to the Senate Armed Services Committee. This is a screening program that uses only counterintelligence-related questions and is designed to establish and maintain strict quality controls and respect for individual rights. The establishment of an Oversight and Review Committee and the conduct of regular inspections are especially valuable features of the Seven Screens that should be considered for use in other sensitive DoD programs. The Committee is pleased that other sensitive DoD programs are adopting the Seven Screens approach. (p.72)

The Stillwell Commission recommended that Congress replace the current statutory authority for a limited DoD "test program" with permanent legislation authorizing the use of polygraph examinations for personnel screening with counterintelligence-related questions for DoD personnel. Any such legislation should incorporate standards for quality control and respect for individual rights and should provide a means whereby those standards can be enforced. DoD has prepared draft legislation for this purpose. The legislation deserves serious consideration in the next Congress, after thorough review of the current test program. If Congress does not yet have sufficient test data to decide this issue, then the current test program should be extended for a specific period, at the end of which a decision on permanent authority will be made. (p. 72)

The DoD-proposed polygraph legislation would apply only to the most sensitive positions and would include both quality control and oversight requirements. The Secretary of Defense and the Armed Services Committees would agree in advance to an annual numerical ceiling on examinations to be given, and no adverse action could be taken solely on the basis of polygraph results except with approval at the highest levels in special circumstances. In reviewing this proposed legislation, Congress should consider the adequacy of DoD policy oversight and inspection arrangements to ensure consistent implementation and quality control for all DoD components. As recommended elsewhere, this requires augmentation of OSD security policy staff personnel. An oversight and review committee comparable to Seven Screens should also be considered. (p. 72)

The difficulties with expanding the use of polygraph examinations in DoD and other departments suggest a need for caution at the national policy level. There is widespread misunderstanding about the use of polygraphs for personnel security screening with CI-related questions and strict quality controls. While a uniform national policy for access to certain types of highly sensitive data is desirable in theory, more needs to be done to explain the procedures and safeguards to federal employees, the Congress and the public and to compile data on employee reactions to such examinations before a government-wide policy is implemented. (pp. 72-73)

Legislative Proposals

The Committee supports recent Defense Department efforts to develop a counterintelligence polygraph program with strict quality controls, modeled on the Air Force's successful Seven Screens program. The Committee recommends that the Armed Services Committee either propose legislation to establish a permanent authority for this polygraph effort or extend the current test program under which DoD is operating and set a date by which the issue of permanent authority will be decided. (p. 11)

The Committee endorses vigorous implementation of most of the Stillwell Commission's recommendations on gaining and maintaining access to classified information and on detection and investigation security violations. For Top Secret information many more reinvestigations, more polygraph primarily for reinvestigations, better workplace controls (a personal reliability program and a ban on one man access), and a special crypto-access responsibility. (p. 66)

The National Strategic Security program should ensure full coordination of departmental policies and practices for the use of polygraphing in personnel security screeing so as to maintain stringent quality controls and safeguards for individual rights to prevent over-reliance on this technique, to provide for necessary rights to prevent over-reliance on this technique, to provide for necessary research and funding, and to improve understanding of the procedures. (p. 74)

Congress should consider permanent legislation authorizing DoD to use polygraph examinations for personnel security screening with CI-related questions, based on the most recent DoD proposal. If a decision cannot be reached in 1987 because of insufficient test data, then Congress should extend the current test program for a fixed period. (p. 74)

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THE STATUS OF POLYGRAPH EVIDENCE IN FEDERAL COURTS

By

Norman Ansley

The Supreme Court has not yet ruled on any case of polygraph admissibility. Their only comment on stipulations appears in Israel v. McMorris, 102 S.Ct. 1479, 71 L.Fd.2d 684 (1982). The issue was the authority of a prosecutor to refuse an offer of stipulation without articulating his reasons. The Supreme Court let stand the decision of the Seventh Circuit in McMorris v. Israel, 643 F.2d 459 (1981); a decision which held that the prosecutor's refusal to enter into a stipulation, under Wisconsin rules, must be for justifiable reasons. The appellate court observed that Wisconsin could abolish stipulated tests as an alternative, and in an apparent fit of pique, the Wisconsin Supreme Court did just that. The decision in McMorris has had little effect on stipulated admissibility outside of the Seventh Circuit. Because Wisconsin abolished stipulated admissibility and Illinois has never permitted it, the ruling directly involves only Indiana, which does have stipulated admissibility, and McMorris has not had an impact there if the reported appellate cases are an indication. Except for McMorris, the comments by the Supreme Court on polygraph testing have avoided the topic of stipulations.

In Schmerber v. California, 86 S.Ct. 1826 (1966) the Supreme Court observed that polygraph evidence, unlike physical evidence, is essentially testimonial evidence which evokes the spirit and history of the Fifth Amendment.

On the issue of the need for a second Miranda warning immediately after a polygraph examination which indicates deception, the Supreme Court reversed an 8th Circuit decision and said the Miranda warning given prior to the examination was sufficient. Wyrick v. Fields, 103 S.Ct. 394 (1982).

A word of caution about the following federal circuit court of appeals decisions. While many of them speak of the wide discretion of the trial judge, no appellate court has ruled that polygraph evidence is always admissible. Moreover, admissibility of polygraph evidence is not common in federal courts as federal judges more often than not use their discretion to exclude the evidence. In addition, federal prosecutors are reluctant to stipulate, despite the very frequent use of polygraph tests in federal investigations.

In the United States Court of Appeals, First Circuit, admissibility appears to be at the discretion of the trial judge, United States v. Winter, 663 F.2d 1120 (1st Cir. 1981), although in that case the judge exercised his discretion to refuse admissibility of an ex parte test. A stipulated test has not been decided.

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In the Second Circuit admissibility is also at the discretion of the trial judge. In United States v. Hart, 344 F.Supp. 522 (E.D., N.Y. 1971) the judge excluded polygraph results of tests given the defendants because the government didn't observe them, but told the government they would have to reveal to the jury the results of a polygraph test on a witness which indicated he was lying, and explain why it had no significance. In United States v. Diogardi, 72-1102 (E.D., N.Y. 1971) the court refused to accept the results of polygraph tests proffered by the defendant, but said that if the defendant and his witness would take polygraph tests by a court appointed examiner, he would admit the results. They did, were reported truthful, and the charges were dismissed.

In the Third Circuit there are no criminal cases on stipulated admissibility or a federal trial judge's discretion to admit polygraph results as evidence.

In the Fourth Circuit polygraph results are apparently admissible at the discretion of the trial judge. In United States v. Grant, 473 F.Supp. 720 (1979) the court considered the results of two polygraph examinations, one of the defendant, in a motion to dismiss. In Jackson v. Garrison, 495 F.Supp. 9 (1979) a judge said polygraph results are more reliable than many of the accepted ways of trying to prove whether somebody is lying or not. In United States v. Webster, 639 F.2d 174 (4th Cir. 1981) the Court of Appeals, commenting on a judge's refusal to consider the defendant's offer to take a polygraph examination with the results admissible, said "the broad discretionary powers of the district judge perhaps would have made admission of polygraph evidence proper."

The Fifth Circuit holds polygraph evidence is inadmissible, United States v. Clark, 598 F.2d 995 (5th Cir. 1979), cert. denied 449 U.S. 1128, 101 S.Ct. 949, 67 L.Ed.2d 116 (1981).

The Sixth Circuit admissibility may be at the discretion of the trial judge, United States v. Mayer, 512 F.2d 637 (6th Cir. 1975). The court, in dicta, said admission of polygraph evidence by mutual consent is within the discretion of the trial judge. In United States v. Ridling, 350 F.Supp. 90 (1972) the trial court set forth some rules to be met for the introduction of polygraph in federal trials.

In the Seventh Circuit the admissibility of polygraph test results as evidence is a matter within the sound discretion of the trial judge, United States v. Burstein, 560 F.2d 779 (7th Cir. 1977).

The Eighth Circuit has accepted stipulated polygraph test results in a case in which the proffer of an ex parte test was refused and a stipulated test was worked out at the bench. United States v. Oliver, 525 F.2d 731 (8th Cir. 1975). It is not error to refuse unstipulated polygraph evidence, United States v. Alexander, 526 F.2d 161 (8th Cir. 1975).

The Ninth Circuit said in United States v. Marshall, 526 F.2d 1349 (9th Cir. 1975) "although polygraph results may be admissible, the trial court has wide discretion in refusing to admit polygraph evidence. A trial court will rarely abuse its discretion by refusing the evidence. Five years later the court sustained a case in which polygraph evidence

was admitted and results of a second examination in which the questions were phrased by the trial judge, United States v. Estrada-Lucas, 651 F.2d 1261 (9th Cir. 1980). See also United States v. Falisia, 724 F.2d 1339 (9th Cir. 1983) said the burden of laying foundation testimony is on the proponent, adding that the admission or exclusion of expert polygraph testimony is in the sound discretion of the court. In the Ninth Circuit, the appellate court said "our circuit has been inhospitable to contentions that a district court has abused its discretion in refusing to admit polygraphic evidence", United States v. Demma, 523 F.2d 981 (9th Cir. 1975). The circuit has not ruled against admissibility, nor has it supported any case specifically on the point of stipulations. In an unusual case in which a trial judge admitted polygraph evidence, the Ninth Circuit court reversed and remanded the case when the judge at the second trial refused to admit polygraph results allowed at the first trial. The court said that was error, as the defendant's credibility was crucial and the ruling should not have been altered at the second trial to exclude relevant defense evidence on her credibility, United States v. Estrada-Lucas, 651 F.2d 1261 (9th Cir. 1980).

The Tenth Circuit court of appeals has not yet ruled on stipulated polygraph evidence. In United States v. Wainwright, 413 F.2d 796 (10th Cir. 1969), cert. denied 90 S.Ct. 566, 396 U.S. 1009, 24 L.Ed.2d 501, the court supported the decision of a trial judge to exclude polygraph evidence because the defendant laid no predicate for its admissibility. The court commended that in a proper case polygraph evidence may be admissible. The burden on making a proper showing to admit polygraph evidence will be on the proponent.

The Eleventh Circuit in United States v. Beck, 729 F.2d 1329 (11th Cir. 1984) upheld the government's refusal to stipulate to a polygraph test, and said it did not deny the defendant his constitutional rights. The court noted that the defendant "took a test before he sought stipulation." The Court said that "if a defendant intends to seek admission of polygraph results he should seek stipulation before any test is administered, so that the stakes are even for both sides."

The United States Court of Appeals for the District of Columbia adheres to the 1923 Frye rule, excluding polygraph evidence. Frye v. United States, 54 App. D.C. 46, 293 F. 1013 (1923).

The United States Military Courts of Appeal do not permit admission of polygraph evidence, stuplated or not, into evidence. United States v. Barber, 35 CMR 779 (1964), and United States v. Ledlow, 29 CM 475 (1960). However, it is established practice to admit polygraph evidence, if the test was conducted by a federal or military examiner, at pretrial hearings and in the post-conviction review by the convening authority which occurs after every conviction by a general courts martial. So polygraph test results may be admitted before and after a trial, but not during the trial. United States v. Massey, 5 USMA 514, 18 CMR 138 (1958) and United States v. Helton, 10 MJ 820 (AFCMR 1981). Another review of polygraph acceptance is expected in United States v. Gipson, Docket 48, 376 of CMR. In that case the court has asked for briefs from all interested parties, federal, military, law schools, and professional organizations.

Recent cases are particularly important in the military courts because of their adoption of the federal rules of evidence, replacing parts of the Manual for Courts Martial. So much of the argument in these precedent setting cases involve the Military Rule of Evidence relating to scientific testimony. The final decision in Gipson may become a firm precedent for military courts.

U.S. Merit Systems Protection Board

There are two kinds of polygraph issues that may come before the MSPB. One relates to the propriety of using the polygraph in federal personnel actions, and considering the results in making determinations. The second is whether the MSPB will consider polygraph results in their determinations. Both questions have been addressed, but there is only one case on each point. In Linda Cruz v. Federal Bureau of Investigation, MSPB Decision BY 075-2810249, August 30, 1983, the results of Cruz' polygraph examination was probably considered in the the termination of Cruz, although the evidence against her was overwhelming without it. In Meir v. Department of the Interior, Docket No. SE 075209007, September 26, 1980, an MSPB hearing officer in Alaska admitted polygraph evidence, considered it, then cited an Alaskan case in deciding the polygraph evidence was not probative. Pulakis v. State, 476 P.2d 474 (Alaska 1970). On appeal by the Bureau of Indian Affairs, the MSPB said the presiding official correctly cited Pulakis for assessing the weight to be given the results of the test of an alleged victim, and the decision to not exclude the evidence was also proper. In addition, the MSPB said the presiding officer was correct in not drawing an adverse inference from the respondent's decision not to submit to a polygraph examination. In support of the latter the MSPB cited United States v. Bando, 244 F.2d 833 2d Cir. cert. denied, 355 U.S. 844 (1957) and Aetna Insurance Company v. Barnett Brothers, Inc., 289 F.2d 30 (8th Cir. 1961).

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DOD POLYGRAPH INSTITUTE GRADUATES ITS FIRST CLASS

By

Sergeant Derryl Fields

The U.S. Army Polygraph School at Fort McClellan, Alabama graduated Polygraph Examiner Basic Court 1-86 and was officially established as the Department of Defense (DoD) Polygraph Institute last spring.

The dedication and graduation ceremony culminated a day's activity of polygraph tours and briefings hosted by BG David H. Stem, Fort McClellan deputy commander and commandant of the U.S. Army Military Police School (USAMPS). The featured guest and keynote speaker of the ceremony was retired General Richard G. Stilwell, former deputy undersecretary of defense for policy, and a devout advocate of the polygraph.

The significance of the institute dedication is that it will now be a part of the Policy Department of DoD, overseen in its day-to-day operations by the commandant of the USAMPS. The change will result in an extension of curriculum and more available resources for institute operations.

The dedication of the institute culminates the changes in the first of a two-phase expansion program. The increased funding has already provided new polygraph desks, chairs and monitoring equipment. Pending congressional approval of funding, phase two of the expansion will result in a new building for the polygraph institute. Also, it will now be staffed by members of several DoD activities, as well as by the Army.

Counterintelligence Program

The main justificaiion for the schools' new designation and accompanying funds is that it will now include significant polygraph training for counterintelligence purposes. In 1985 the Secretary of Defense was authorized to institute a program of counterintelligence polygraph examinations on a selective basis for military, civilian, and contrator personnel with duties involving access to classified information.

Later that year the Secretary of the Army was designated as executive agent for polygraph training within DoD, and the polygraph school at Fort McClellan was designated as the DoD Polygraph Institute.

General Stem was credited with significant work to improve the schools' training. He became aware of the school's inadequate equipment and resources while he was assistant commandant at USAMPS, and when he became commandant he continued a concerted effort to obtain financing for improvements.

Sergeant Darryl Fields is Editor of The Shield, the U.S. Army Criminal Investigator Command newspaper. Article reprinted with the kind permission of the Editor of Military Police, where it appeared in the Fall 1986 edition. [Ed.]

The Army Polygraph Training Course was established in 1951 as part of the Provost Marshal General School, which eventually became USAMPS. It has trained over 1200 students and almost all government agency examiners. Notable alumni include the president of the American Polygraph Association and the chiefs of polygraph for the Army, Navy, Air Force, Marine Corps, Secret Service, and Federal Bureau of Investigation (FBI).

DoD students have first priority for polygraph training, with other government agencies such as the FBI, Secret Service and Customs Service next. State and local law enforcement agencies are accepted when spaces are available.

The institute has expanded the format for the Polygraph Examiners Basic Course to incorporate more counterintelligence training with the traditional criminal investigations instruction. Because of the growing counterintelligence concerns and some agencies' missions, many of the graduates will use the polygraph almost exclusively for counterintelligence purposes.

The course is fourteen weeks long. During the first four weeks the students are taught law, physiology, psychology, polygraph instrumentation and testing procedures. The remaining ten weeks are used for practical application of the polygraph exam. Each student must conduct at least 50 practice exams as part of completing the course.

Expansion Planned

The institute will increase the number of graduates annually from 48 to 108 through expansion of the facility and staff and through the interim use of double shifts. Phase two of the expansion is scheduled to conclude the double-shift instruction and complete the new facility, culminating the $3.3 million project. The school will continue to maintain its 2-to-1 student-to-instructor ratio.

Polygraph Examiner Basic Course 1-86 included graduates from the U.S. Air Force's Office of Special Investigations (OSI), FBI, Secret Service, U.S. Army Intelligence and Security Command, National Security Agency, U.S. Army Criminal Investigation Command, Naval Investigative Service and Defense Criminal Investigative Service.

Distinguished guests accompanying General Stilwell during the dedication and graduation ceremony were Ronald E. Decker, Acting Director of the DoD Polygraph Institute; John Donnelly, Director of Counterintelligence and Investigative Programs for the Office of the Deputy Undersecretary of Defense (Policy); General Donald Eckelbarger, Director of Human Resources Development, Office of the Deputy Chief of Staff for Personnel, HQDA; William Scheve, President of the American Polygraph Association; Detective Sergeant John Wojnarowski, President, Michigan Association of Polygraph Examiners; and Floyd Parks, Awards Chairman, Michigan Association of Polygraph Examiners.

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HISTORICAL NOTE

Chloroform for Interrogation, c. 1865

In the book, In The Shadow of Lincoln's Death by Otto Eisenschiml, New York: Wilfred Funk, Inc., 1940, the author described in chapter 2 the many suggestions for solving Lincoln's assassination, knowledge of the plot beforehand, and one suggestion on what to do with the suspects. On p. 29, Eisenschiml states:

> With so many suspects in the clutches of the government, it proved a difficult task for the authorities to examine them adequately. Hence, one Dr. Charles E. Cady, a military surgeon, recommended a novel method for obtaining confessions. During his three years' experience in the army, he had upon numerous occasions procured from Rebel officers much important information while they were partially under the influence of chloroform, information which they had positively refused to communicate in their normal state. The worthy doctor had even figured out the exact method of procedure. He respectfully advised that the experiment be conducted by men thoroughly skilled in the administration of chloroform and in a large room free from furniture. The patient was to be placed flat on his back with his head slightly elevated. Two or three windows were to be thrown open so as to insure perfect admixture of air with the vapor of the anaesthetic. Pure unadulterated chloroform was then to be carefully but rapidly administered, and while the patient was in a semiconscious condition he was to be questioned bluntly and pointedly.

Although the author carefully noted his sources for most of the chapters, for Chapter 2 he simply states: "All the letters or excerpts quoted in this chapter, unless otherwise indicated, may be found in the War Department Archives, State, War and Navy Building, Washington, D.C."

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ABSTRACTS

Theory

Stewart Wolf, M.D. "Rules of Evidence in Psychophysiological Investigations." The Pavlovian Journal of Biological Science 21 (2)(April-June 1986): 44-49.

Conventional rules encourage an investigator to focus primarily on quantifiable data. In psychophysiological studies, however, the most relevant data may be nonquantifiable, at least at the present time. Behavior, visceral or general, does not necessarily depend on the quantity of a particular stress, but rather is the result of a complex interactive central processing of afferent signals, reflecting more the relevance of actuating factors than their quantitative features. Thus, the rules of

evidence must ask not only for measurement, when possible, but for context as well and for data on related intangibles that determine the significance of an experience to an affected individual. Despite problems of bias, lack of replicability, and the need to persist in efforts toward precise measurement, progress continues in understanding the contribution of psychosocial stresses to a variety of gastrointestinal, cardiovascular, respiratory, cutaneous, and other bodily disturbances and the pathways and neurohumoral mechanisms whereby they are mediated. Today, despite the availability of a profusion of sophisticated, often noninvasive instrumentation capable of precise measurement, few investigators take the opportunity to study living, behaving human beings.

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Svenn Lindskold and Pamela S. Walters. "Categories for Acceptability of Lies," Journal of Social Psychology 120 (1983): 129-136.

A total of 311 subjects in three studies responded to alternate forms of questionnaires in which evaluations were made of the reprehensibility of various types of lies. The subjects in study 1 rated a variety of lies suggested in the ethical philosophy literature. From the results, six categories of lies were inferred. These categories were validated on two separate forms in study 2 by having subjects rate the permissibility of lies described in vignettes which were created to operationalize the categories. The results on both forms were consistent with the predictions. In study 3 subjects rated the category statements in the abstract, i.e., the experimenter's definitions of the categories - precisely as predicted. The author concludes that the evaluation of lies by American undergraduates is not uniformly negative and is, instead, keyed to the apparent intentions or social motives of the liar.

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Svenn Lindskold and Gyuseog Han. "Intent and the Judgment of Lies," Journal of Social Psychology 126 (1)(1986): 129-130.

In a study following that abstracted above, they rewrote 15 of the lies used previously, chosen to represent all categories, without any lying to describe social behavior of a similar nature. Therefore, "telling a lie to say that the product you are selling has a quality or characteristic the buyer is looking for when you are not sure it has" was rewritten as "delivering a product to a buyer when you're not sure it is the same quality as the one you originally sold," etc. A total of 68 subjects were then asked to rate these actions on the scale used to rate lies, an 11-point scale ranging from extremely wrong to permissible. The same subjects were asked on a concluding page of their questionnaires to rate 12 lies on a scale ranging from least wrong to most wrong. This task was designed as an attempt to obtain a fourth replication of earlier results. The mean rating for the 7 statements that directly represented the previous categories fell in the precise order predicted, r = 1.00. The

lie categories seem very stable and are apparently evaluated in terms of general motives. The author concludes that the average American college student is clearly a relativist, lacking an absolutist's unquestioning condemnation of all forms of intentional deception.

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Expert Opinion

David Faust, "Declarations versus Investigations: The Case of the Special Reasoning Abilities and Capabilities of the Expert Witness in Psychology/Psychiatry." Journal of Psychiatry & Law 3 (1985): 33-59.

> Arguments regarding the credibilitiy of psychologists' and psychiatrists' expert testimony are commonly restricted to impressions about whether claims to special reasoning powers or capabilities are justified or not. Although clinicians are not purposefully being misleading in their claims of special reasoning powers or capabilities, there is no evidence to support them. Claims that expertise enhances judgment accuracy; experience enhances judgment accuracy, or that it is possible to reach more accurate conclusions by gathering a more extensive data base are not supported by the evidence, and there is substantial counterevidence. As to a claim that more accurate judgments can be reaching by considering interrelationships among a complex set of data, the author states there is no supportive evidence, and a great deal of counterevidence. The author states there is massive counterevidence to the proposition that the use of clinical impression produces more accurate judgments than straightforward analysis of the data and permits one to recognize when the data is misleading. Finally, the claim that training and knowledge provide the capacity to distinguish truth telling from dissimulation finds a minimal supportive evidence and a modest amount of counterevidence.

For reprints write to the author, David Fause, Ph.D., Division of Child & Adolescent Psychiatry, Rhode Island Hospital, 593 Eddy Street, Providence, Rhode Island 02902.

Electroencephalograph - P300 Site

T. Radil. "Psychophysiological Experiments in Prague." Perceptual and Motor Skills 63(1986): 742.

Psychic states reflected in physiological processes: Stimuli inducing both evoked potentials (a physiological phenomenon) and psychic (perceptual-cognitive, emotional) processes are given repetitively and relationships between them analyzed by classifying evoked potentials according to the actual psychic state, processing them separately and comparing the results. Subjects had to detect the number of simultaneously presented visual items (a variant of the 7 +/- 2 task). The late positive (P300)

wave was of higher amplitude for correct than for incorrect (a binary cognitive criterion) as well as for certain versus uncertain recognition of similar stimuli. When subjects were asked to give intentionally false answers on the number of items P300 waves were of higher amplitude for correct than for false answers only for simple "lies," whereas elaborate false and "true" answers were associated with similar amplitudes of P300. Stimuli both with positive (erotic) and negative (horrific) impact induced high P300 waves in comparison with indifferent ones. [author abstract]

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BOOK REVIEW

THE POLICE OF BRITAIN

Macmillan Publishing Company
866 Third Avenue
New York, New York 10022
185 pages, indexed, $19.95

By
Philip John Stead

A BOOK REVIEW
By
N. Ansley

For centuries, horrified by the centralized militaristic police forces of Europe, the British opposed every effort to install a professional police force, preferring instead the unpaid constabulary of ordinary citizens who had tended England's laws for 500 years. Only the extraordinary lawlessness of 18th and early 19th-century London led the British reluctantly to accept the first disciplined, uniformed police force in 1829.

The comprehensive work by Philip John Stead on the police in Britain is excellent. The history of law enforcement from the hundredmen and reeves of Saxon England through the constables and sheriffs of the Norman kings to the modern forces of England, author Stead gives us perspective to understand the events and social conditions that shaped police history in the British Isles, and to a large degree shaped law enforcement in the United States. An excellent work.

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