LABORATORY PROFICIENCY TESTING PROGRAM

REPORT NO. 7

FIREARMS EVIDENCE

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PROJECT STAFF

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FOREWORD

The analysis summarized in this report is the seventh of a series that will be made in conjunction with this proficiency testing research project.

In the course of this testing program participating laboratories will have analyzed and identified ten different samples of physical evidence similar in nature to the types of evidence normally submitted to them for analysis.

The results of Test Number Seven are reflected in the charts and graphs which follow.

The citing of any product or method in this report is done solely for reporting purposes and does not constitute an endorsement by the project sponsors.

Comments or suggestions relating to any portion of this report or of the program in general will be appreciated.

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BACKGROUND

This laboratory proficiency testing research project, one phase which is summarized in this report, was initiated in the fall of 1974.

This is a research study of how to prepare and distribute specific samples; how to analyze laboratory results; and how to report those results in a meaningful manner. The research will be conducted in two cycles, each of which will include five samples: a controlled substance; firearms evidence; blood; glass; and paint.

Participation in the program is voluntary. Accordingly, invitations have been extended to 235 laboratories to share in the research. It is recognized that all laboratories do not perform analyses of all possible types of physical evidence. Thus, in the data summaries included in this report, space opposite some Code Numbers (representing specific laboratories) may be blank, or marked "No Data Returned."

Additional evaluations of individual tests will be published in a separate report.

The Project is under the direct control of the Project Advisory Committee whose members' names are listed on the Title Page. Each is a nationally known criminalistic laboratory authority.

Supporting the Project Advisory Committee in their efforts is the Forensic Sciences Foundation with additional support from the National Bureau of Standards in the areas of sample evaluation and data analysis and interpretation.

SUMMARY

Test Sample #7 consisted of three bullets and two cartridge cases. The samples were mailed on July 10, 1975 with instructions to handle the sample in a manner similar to like evidence submitted for analysis.

The basic roster of 235 labs was reduced to 165 by removing those laboratories who previously indicated that they do not perform firearms examinations. Two of the 165 laboratories who received Test Sample #7 served as referees, reducing the number to 162.

In the accompanying data summaries, 130 laboratories responded with completed data sheets, 9 laboratories responded that they did not do firearms examinations and no response was received from 26 laboratories. This represents a participation rate of 80%.

No effort was made in this report to highlight areas wherein laboratory improvements might be instigated.

ANNEX A

FIGURE I

LAB CODE A-_____

☐ CHECK HERE (AND RETURN) IF YOU DO NOT PERFORM FIREARMS EXAMINATIONS

DATE RECEIVED IN LAB _____

DATE PROCESSED IN LAB _____

DATA SHEET

PROFICIENCY TESTING PROGRAM
TEST NO. 7

FIREARMS EXAMINATION

Examine according to your normal laboratory procedures and complete portion(s) below which complies with your laboratory policy.

SCENARIO: Two homicides have occurred, approximately ten days apart. At the scene of homicide #1 there were recovered one projectile and one cartridge case. At the scene of homicide #2 there were recovered two projectiles and one cartridge case.

(All bullets are marked with a letter on the base; cartridge cases, with a number on the side near the open end, read with the open end to your right.)

1. BULLET AND CARTRIDGE CASE COMPARISONS

a. Which, if any, of the three projectiles were fired from the same gun?

☐ None

☐ Projectiles fired from same gun
(List letters)

_____

_____

_____

☐ Inconclusive
Explanation of inconclusive answer:

b. Were the two cartridge cases fired in the same gun?

☐ Yes

☐ No

☐ Inconclusive

2. ADDITIONAL COMMENTS

ANNEX B

National Bureau of Standards Analysis

LABORATORY TESTING PROGRAM

Test No. 7 - Firearms

A set of test objects consisting of three bullets and two cartridges was sent to 165 laboratories; 130 responded with data, 9 indicated they do not perform firearms analysis, and 26 did not respond. A tabulation of the codes for laboratories in each of these last two categories is given in Table 1.

The laboratories were asked two questions about the five test objects: 1a) Which, if any, of the three projectiles were fired from the same gun; 1b) Were the two cartridge cases fired in the same gun? Space for additional comments was available on the data sheet but in most cases, no additional comments were given.

According to the supplier of the five test objects, the copper-jacketed bullet from "Crime Scene 1" (marked on the base with any one of the following letters: A, B, C, D, E, F, G, H, J, K, L, O, P, Q, R, S, T, U, V, Y) was fired from a Colt .32 Auto pistol, Serial #214325. The cartridge case (marked on the side with any of the following numbers: 5, 7, 8) was also fired in the Colt .32 Auto pistol, Serial #214325. The copper-jacketed bullet from "Crime Scene 2" (marked on the base with any one of the following letters: A, B, C, D, E, F, G, H, J, K, L, O, P, Q, R, S, T, U, V, Y) was fired from the same gun as the bullet from "Crime Scene 1", the Colt .32 Auto pistol, Serial #214325. The other copper-jacketed bullet from "Crime Scene 2" (marked on the base with any one of the following letters: I, M, N, X, Z) was fired from a second Colt .32 Auto pistol, Serial #521524. The cartridge case (marked on the side with any one of the following numbers: 2, 3, 4) was also fired in the same Colt .32 Auto pistol, Serial #521524.

The two referee laboratories identified bullets J and U and H and L as being fired from the same gun. One referee lab concluded that the two cartridge cases were not fired in the same gun while the other stated that "based on class characteristics, the cartridge cases could have been fired in the same type of weapon. Although the examiner found a minute area of apparently matching breech face impression on these cartridge cases they exhibit certain dissimilarities which would rule out an identification at this time. The examiner would like a suspect weapon so that he could test fire with the two brands of ammunition to determine how well the weapon reproduces its characteristics and a reexamination made."

Of the 130 laboratories returning data, 124 (95.4%) answered question (1a) about the projectiles in a way that is consistent with the supplier's statement and 101 (77.7%) observed that the cartridge cases were not fired in the same gun, which is also consistent with the supplier's description of the test objects

This annex was prepared by the Law Enforcement Standards Laboratory (LESL) of NBS. The anonymous test results reported by participating forensic laboratories were analyzed and tabulated by James McLeod and Charles Leete of the NBS Laboratory Evaluation Technology Section, and Alvin Lewis of the NBS Hazards Analysis Section. This work was supported by the National Institute of Law Enforcement and Criminal Justice, Department of Justice.

Table 1

Code Numbers of Non-responding Laboratories

THE FOLLOWING LABS INDICATED THEY DO NOT DO FIREARMS ANALYSIS*

735	806
752	870
756	889
767	891
791	

Total Labs = 9

THE FOLLOWING LABS DID NOT RESPOND

710	773	834	964
728	782	850	969
733	792	864	985
737	795	869	988
741	812	887	999
759	817	896	
772	825	914	

Total Labs = 26

* Eleven laboratories who previously indicated they do not perform firearms examination did not receive this sample.

Table 2

Tabulation of Responses to Question 1

RESPONSES TO QUESTION 1:

	a. Which, if any, of the three projectiles were fired from the same gun?		b. Were the two cartridge cases fired in the same gun?
703	J, Y		NO
707	G, O		NO
708	L, Y		NO
709	R, U		NO
712	A, J		NO
713	A, S		YES*
715	D, R		NO
717	O, P		NO
718	E, S		INCONCLUSIVE
719	INCONCLUSIVE		NO
722	B, G		INCONCLUSIVE
724	Q, S		NO
727	H, Q		NO
729	A, J		NO
730	D, E		NO
731	B, T		NO
732	G, K		INCONCLUSIVE
736	D, J		NO
738	L, Y		NO
739	Q, V,	Q and M are inconclusive V and M are inconclusive	INCONCLUSIVE
740	F, T	N probably not fired from the same barrel	INCONCLUSIVE
742	Q, T		INCONCLUSIVE
745	H, U		INCONCLUSIVE

*response inconsistent with supplier's characteristics

Table 2 continued

746	G, K		NO
747	P, V		NO
748	G, P	N did not appear same	INCONCLUSIVE
750	A, H		NO
750	O, V		NO
751	B, K		NO
754	C, G		NO
755	B, O		NO
757	D, G		NO
760	E, R		NO
761	C, D		YES*
762	A, O		NO
763	C, U	Inconclusive matching I with either C or U	INCONCLUSIVE
765	H, P		NO
766	E, H		NO
768	J, O		NO
769	A, Y		NO
777	D, G	Inconclusive - unable to determine if bullet X fired from same gun as G and D	NO
779	B, V		NO
781	J, U		NO
783	J, U		NO
784	Q, S		NO
785	K, O		NO
786	D, K		NO
787	F, U		NO

*response inconsistent with supplier's characteristics

Table 2 continued

789	B, U	INCONCLUSIVE
790	D, P	NO
794	A, H, Z through different barrel	NO
797	I, L, R*	YES*
798	B crime scene 1, B crime scene 2	NO
799	K, O	NO
802	A, L	NO
805	J, P	NO
811	K, V	NO
813	D, J	NO
814	G, K X fired in same kind of gun	NO
815	D, E	INCONCLUSIVE (PROBABLY NOT)
818	E, J	NO
820	D, H	NO
821	A, H	NO
823	D, K Projectile X similar class Characteristics, however, no positive identification was made	INCONCLUSIVE
827	A, G	NO
829	B, Q	NO
830	C, K	NO
831	I, Q, S*	INCONCLUSIVE
832	F, U	NO
833	U, V	NO
835	D, K	NO
837	D, J	NO
838	D, S	INCONCLUSIVE
839	E, G	NO

*response inconsistent with supplier's characteristics

Table 2 continued

842	A, O	NO
843	A, H	NO
847	D, R	NO
848	H, T	NO
852	K, V	NO
853	C, P	NO
854	R, U	NO
855	A, F	NO
856	A, F	NO
859	J, Q	NO
860	S, V	INCONCLUSIVE
861	B, L	INCONCLUSIVE
866	A, C	NO
868	A, B	NO
873	B, L	INCONCLUSIVE
874	J, P	NO
876	L, S	NO
880	F, Y	INCONCLUSIVE
883	F, H	NO
884	E, F	NO
888	F, T	NO
892	E, L	NO
894	P, Q	INCONCLUSIVE
895	C, E	NO
897	O, U	NO
899	E, T	INCONCLUSIVE
902	E, G	INCONCLUSIVE PROBABLY NOT FIRED IN SAME GUN
903	J, X, Y*	INCONCLUSIVE
904	H, I, K*	NO

*response inconsistent with supplier's characteristics

Table 2 continued

907	C, L	NO
908	A, P	NO
915	F, G	NO
920	H, P	INCONCLUSIVE
923	K, Q	NO
925	F, P	INCONCLUSIVE
927	B, D	NO
935	J, T	NO
938	H, R	NO
942	N, U*	INCONCLUSIVE
944	B, H	NO
948	B, O	NO
958	A, D	NO
961	L, P	NO
962	C, L	NO
970	F, R	NO
973	J, K	NO
974	F, U	NO
975	F, G	NO
978	C, R	NO
979	E, F	NO
980	F, Q	NO
984	T, Y	INCONCLUSIVE
989	A, G	NO
994	C, R	NO
995	E, R	NO
998	C, Q	NO

QUESTIONS:	1a	1b
correct responses	124	101
incorrect responses	5	3
inconclusive	1	26

*response inconsistent with supplier's characteristics

END