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LABORATORY PROFICIENCY TESTING PROGRAM

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THE FORENSIC SCIENCES FOUNDATION, INC.
11400 ROCKVILLE PIKE • ROCKVILLE, MARYLAND 20852 • (301) 770-2723

LABORATORY PROFICIENCY TESTING PROGRAM

REPORT NO. 6

DRUG ANALYSIS

PROJECT ADVISORY COMMITTEE

J.F. Anderson
Spokane, Washington

J.D. Chastain
Austin, Texas

Richard H. Fox
Independence, Missouri

Anthony Longhetti
San Bernardino, Ca.

Charles McInerney
Pittsburgh, Pa.

Andrew H. Principe
Highland Park, Illinois

John Thornton
Berkeley, Ca.

B. Edward Whittaker
Miami, Florida

PROJECT STAFF

K. S. Field

E. Fabricant

Prepared for the Department of Justice, Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal Justice, under Grant 74-NI-99-0048.

Points of view or opinions stated in this document are those of the authors and do not necessarily represent the official position or policies of the U.S. Department of Justice

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FOREWORD

The analysis summarized in this report is the sixth 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 Six 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.

October 1975

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 #6 consisted of a white powder packaged in a glassine envelope. The samples were mailed on June 11, 1975 with instructions to handle the sample in a manner similar to like evidence submitted for analysis.

Test Sample #6 was sent to 233 laboratories. Two of those laboratories served as referees, reducing the number to 231.

In the accompanying data summaries, 179 laboratories responded with completed data sheets, 8 laboratories responded that they did not do drug analysis and no response was received from 46 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 1.

LAB CODE A-_____

☐ CHECK HERE (AND RETURN) IF YOU DO NOT PERFORM DRUG ANALYSIS

DATE RECEIVED IN LAB _____

DATE PROCESSED IN LAB _____

DATA SHEET

PROFICIENCY TESTING PROGRAM

TEST #6

DRUG ANALYSIS

1. The enclosed substance was a street buy. The agent needs all the qualitative and quantitative information you can give him.

2. Indicate method(s) used:

ANNEX B

National Bureau of Standards Analysis

LABORATORY TESTING PROGRAM

Test No. 6 - Controlled Substance

A package containing a white powder alleged to be a "street-buy" was sent to 233 laboratories for analysis. 179 laboratories returned data, 8 labs indicated they do not perform drug analysis, and 46 labs did not respond. See Table 1 for the code numbers of the laboratories in the last two categories.

Table 2 is a supplier's description of the composition and preparation method of the controlled substance. The three referee laboratory findings are given in Table 3.

125 laboratories reported that the white powder contained the two controlled substances, heroin and cocaine. 52 laboratories identified only heroin; some local laws make it unnecessary for laboratories to do additional analysis after one controlled substance has been identified. One laboratory reported only cocaine, and one laboratory could not identify the white powder. Table 4 lists the relative frequencies with which the substances were reported.

The relative frequencies with which the various methods of analysis were reported are shown in Table 5. Table 6 lists the relative frequencies with which the various types of color tests were reported. Table 7 lists the relative frequencies with which the various microcrystalline tests were reported.

Tables 8 and 9 show the relative frequencies of the reported methods of analysis, as does Table 5, except that the numbers in Table 8 are tabulated for those laboratories that identified both heroin and cocaine, and the numbers in Table 9 are for those laboratories that identified only heroin. By comparing these two tables, it can be seen that methods such as gas chromatography/mass spectrometry, extraction, and gas chromatography were used more frequently by those laboratories that identified both heroin and cocaine. Conversely, microcrystalline tests were used more frequently by those laboratories that identified only heroin.

Table 10 tabulates the substances and methods reported by each responding laboratory. Refer to Tables 5, 6, and 7 for the identity of the methods referenced in Table 10.

Table 11 is a tabulation of the reported quantitative measurements. The average reported heroin composition for the 115 laboratories reporting quantitative values (excluding two outlying values of 23% and 82%) is 2.7%. The average reported cocaine composition for the 77 laboratories reporting quantitative values is 2.6%.

This annex was prepared by the Law Enforcement Standards Laboratory (LESL) of NBS. The anonymous test results reported by the participating forensic laboratories were analyzed and tabulated by James McLeod and Charles Leete of the NBS Laboratory Evaluation Technology Section, Alvin Lewis of the NBS Hazards Analysis Section and Robert Mills of LESL. 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 DRUG ANALYSIS:

736	826
761	891
774	962
791	984

Total = 8

THE FOLLOWING LABS DID NOT RESPOND:

707	733	792	862	912	988
708	738	795	865	914	
710	741	810	867	917	
711	749	816	869	927	
722	767	817	874	931	
723	772	830	879	937	
724	773	834	883	944	
728	776	836	887	964	
732	782	858	905	972	

Total = 46

Table 2

Supplier's Characterization of Sample

The sample was prepared from the following substances:

100% Heroin Hydrochloride	4.5 grams
100% Cocaine Hydrochloride	4.5 grams
100% Procaine Hydrochloride	4.5 grams
Lactose	136.5 grams
Total weight	150.0 grams

The four substances were placed in a glass jar and rotated to mix.

Table 3

Referee Laboratory Results

Lab 1.

Substances Found	Quantity
Heroin Hydrochloride	2.9%
Cocaine Hydrochloride	2.8%
Procaine Hydrochloride	3.0%
Lactose	remainder

Methods Used

Thin Layer Chromatography
Optical Crystalography
Microchemical Tests
Gas Chromatography/Mass Spectrometry

Quantitative results by Gas Chromatography.

Lab 2.

Substances Found	Quantity
Heroin Hydrochloride	2.5%
Cocaine Hydrochloride	2.4%
Procaine Hydrochloride	3.2%
Lactose	remainder

Methods Used

Thin Layer Chromatography
Gas Chromatography/Mass Spectrometry
IR Spectrometry

Quantitative results by Gas Chromatography.

Table 4

Frequency of Substances Reported

	number of laboratories reporting this substance	% of total labs (total = 179)
Heroin	177	98.9
Procaine	130	72.6
Cocaine	126	70.4
Lactose	59	33.0
Reducing sugar	31	17.3
Monoacetylmorphine	12	6.7
Starch, carbohydrate	4	2.2
Acetylcodeine	3	1.7
Morphine	2	1.1
Chlorine	2	1.1
Quinine	1	.6
Methapyrilene	1	.6

Since most laboratories indicated more than one substance, the total number is greater than the total number of laboratories reporting.

Table 5

Frequency of Methods Used in Determining Substance

	number of laboratories reporting use of this method	% of total labs (total = 179)
1. Color Tests	154	86.0
2. Thin Layer Chromatography	120	67.0
3. Gas Chromatography	118	65.9
4. UV Spectrometry	118	65.9
5. Microcrystalline Tests	96	53.6
6. IR Spectrometry	66	36.9
7. Gas Chromatography/Mass Spectrometry	29	16.2
8. Extraction	26	14.5
9. Column Chromatography	17	9.5
10. Melting Point Test	6	3.4
11. Precipitation	4	2.2
12. Nakamura's Procedure	3	1.7
13. X-ray Diffraction	2	1.1
14. Odor Test	2	1.1
15. Fluorescence Exam	2	1.1
16. General screen for acid and neutral drug	2	1.1
17. Ashing	1	.6
18. Tollens Test	1	.6
19. Arthur and Smith test for Cl^-	1	.6
20. X-ray fluorescence	1	.6
21. Paper Chromatography	1	.6
22. Alpha-napthol test for carbohydrates	1	.6
23. No methods indicated	3	1.7

Since most laboratories indicated more than one method, the total number is greater than the total number of laboratories reporting.

Table 6

Frequency of Color Tests Used in Determining Substance

1. Color Tests	number of laboratories reporting use of this test	% of specifying labs (total = 102)
a. Marquis	102	100.0
b. Cobaltus Thiocyanate	71	69.6
c. Mecke	61	59.8
d. Froehde	57	55.9
e. Dille-Koppanyi	35	34.3
f. Sanchez	33	32.4
g. Nitric Acid	27	26.5
h. Van Urk	19	18.6
i. Ferric Chloride	11	10.8
j. Mayers	8	7.8
k. Fehlings reagent	7	6.9
l. Mandelins test	7	6.9
m. Benedicts test	5	4.9
n. Ruybals test	5	4.9
o. Scotts test	4	3.9
p. Mollisch test	3	2.9
q. FPN	3	2.9
r. Liebermans test	3	2.9
s. Salicylate reagent	3	2.9
t. Zwikker	2	2.0
u. Tannic acid	2	2.0
v. Lafons test	2	2.0
w. Bleach (Dopper's reagent)	2	2.0
x. Silver Nitrate	2	2.0
y. Iodoplatinate	2	2.0
z. Trinders test	1	1.0
aa. Olivers test	1	1.0
bb. Tantaure acid	1	1.0
cc. Stannous Chloride	1	1.0
dd. Oxyacid test	1	1.0
ee. Potassium Permanganate	1	1.0
ff. Picric acid	1	1.0
gg. Roberts test	1	1.0
hh. Parri test	1	1.0
ii. Potassium Hydroxide	1	1.0
jj. Glycerol Cobalt	1	1.0
kk. Chen's test	1	1.0
ll. Starch test	1	1.0
mm. Barium Chloride	1	1.0

154 laboratories reported using color tests.
52 (or 33.8%) did not specify which color test(s).
102 laboratories did specify color test(s) used.

Since most laboratories indicated more than one color test, the total number is greater than the total number of laboratories reporting.

Table 7

Frequency of Microcrystalline Tests Used in Determining Substance

5. Microcrystalline Tests	number of laboratories reporting use of this test	% of specifying labs (total = 64)
a. Mercuric Iodide	43	67.2
b. Mercuric Chloride	13	20.3
c. Gold Chloride	13	20.3
d. Platinum Chloride	12	18.8
e. Wagners test	10	15.6
f. Gold Bromide	6	9.4
g. Sodium Acetate	4	6.3
h. Acetic Acid	3	4.7
i. Lead Iodide	1	1.6
j. Potassium Acetate	1	1.6
k. Platinum Bromide	1	1.6
1. Sodium Chloride	1	1.6

96 laboratories reported using microcrystalline test(s).
32 (or 33.3%) did not specify which microcrystalline test(s).
64 did specify which microcrystalline test(s) used.

Since many laboratories reported more than one microcrystalline test used, the total number is greater than the total number of laboratories reporting.

Table 8
Frequency of Methods Used in Determining Substance
for Laboratories that Identified Heroin and Cocaine

		number of laboratories reporting use of this method	% of total labs (total = 125)
1.	Color Tests	104	83.2
2.	Thin Layer Chromatography	93	74.4
3.	Gas Chromatography	101	80.8
4.	UV Spectrometry	82	65.6
5.	Microcrystalline Tests	55	44.0
6.	IR Spectrometry	46	36.8
7.	Gas Chromatography/Mass Spectrometry	26	20.8
8.	Extraction	22	17.6
9.	Column Chromatography	13	10.4

Table 9
Frequency of Methods Used in Determining Substance
for Laboratories That Identified Heroin Only

		number of laboratories reporting use of this method	% of total labs (total = 52)
1.	Color Tests	48	92.3
2.	Thin Layer Chromatography	27	51.9
3.	Gas Chromatography	18	34
4.	UV Spectrometry	35	6
5.	Microcrystalline Tests	33	63.
6.	IR Spectrometry	18	34.6
7.	Gas Chromatography/Mass Spectrometry	1	1.9
8.	Extraction	3	5.8
9.	Column Chromatography	4	7.7

Table 10

Substances Reported and Methods Used

Lab Code	heroin (diacetylmorphine)	cocaine	procaine	lactose	reducing sugar	monoacetylmorphine	Other	The numbers listed below refer to Table 5. The letters following the numbers 1 and 5 identify various color and crystal tests found in Table 6 and Table 7 respectively. Method(s)
A703	X	X	X					1; 2; 3; 6
A705	X	X	X		X			1; 3; 4; 5; 6; 8
A706	X	X	X					1; 2; 3; 4; 7
A709	X	X						3; 4; 6; 9
A712	X	X	X		X			1; 2; 3; 4; 5
A713	X							3; 5; 6
A717	X	X	X					1a,b,e; 2; 3; 4; 6
A718	X		X					1a,b,c,d,e,f,h; 2; 5a,e
A719	X	X	X	X		X		1; 3; 5; 13
A720	X	X	X					2; 3; 7
A721	X		X		X			1a,b,d,m; 3; 4; 12
A726	X	X	X	X				1a,b,c,i,aa; 2; 3
A727	X	X	X	X				1a,b,c,d,f,t; 2; 3; 5a,f; 14
A729	X	X	X		X			1a,b,c,d; 2; 5a,d
A730	X			X				1; 2; 4; 6
A731	X			X			morphine	1a; 3; 4; 5a; 6
A734	X		X					no methods indicated
A735	X							1; 4; 5; 6; 8

Table 10 (con'd.)

Lab Code	heroin (diacetylmorphine)	cocaine	procaine	lactose	reducing sugar	monoacetylmorphine	Other	Method(s)
A737	X	X				X		1a,b,c,d,e,g,i,l,r,z; 2; 4; 5c,i,j
A739	X	X	X					1; 2; 3; 4; 6; 9
A740	X	X		X				1a,b,c,d; 2; 3; 4; 5a; 6
A742	X	X	X	X				1a,b,c,f; 3; 6; 7
A743	X	X	X	X		X		1; 2; 3; 4; 6
A744	X		X					1a,b,c,d,e,f,h; 2; 3; 4; 5a,b,d
A745	X	X	X	X				1a,b,d,e,i,m; 2; 4; 5a,c,d; 6; 10
A746	X	X			X			1a,b; 2; 3; 6
A747	X	X	X	X				1; 3; 4; 5a; 6; 9
A748	X	X	X		X	X		1; 2; 3; 4; 5
A750	X	X		X				1a,b,c,d; 2; 5a,b,d
A751	X	X	X	X				1a,b; 3; 6
A752	X	X	X	X				1a,b,e,f,g,h,k; 2; 3; 4; 5a,b,c,d,e
A753	X	X						1a,b,e,h; 2; 3; 4
A754	X	X	X	X				1a,b,c,d,s,t; 2; 3; 5
A755	X							1a,c,f,m; 2; 3; 4; 5e
A756	X	X	X		X			1a,b,e,f,h,p; 2; 3; 4; 5a,d; 6
A757	X	X						1; 2; 5a,b,d
A758	X							1a,b,c,e,j,bb; 3; 4; 5a
A759	X		X	X				1a,c,d,f; 2; 3; 4; 6

The numbers listed below refer to Table 5. The letters following the numbers 1 and 5 identify various color and crystal tests found in Table 6 and Table 7 respectively.

Table 10(con'd.)

Lab Code	heroin (diacetylmorphine)	cocaine	procaine	lactose	reducing sugar	monoacetylmorphine	Other	The numbers listed below refer to Table 5. The letters following the numbers 1 and 5 identify various color and crystal tests found in Table 6 and Table 7 respectively. Method(s)
A760	X		X					1a,c,d; 2; 4; 5a; 9
A762	X							1a,j; 4; 5a
A763	X	X	X	X				1a,c,d,e,f,g; 2; 3; 4; 5a
A764	X		X	X				1a,c,d,e,f,h; 2; 3; 4; 5a,e
A765	X	X	X					1a,b,c,d,e,f,h; 2; 3; 4; 5a
A766	X	X	X	X				1, 3, 4, 5, 6, 7
A768	X	X	X	X				1a,b,c,d; 2; 3; 4; 5a
A769	X	X	X	X				1a,b,c,d,f,g,i,o,p,s; 2; 3; 4; 5c,h;
A770	X		X		X			1; 3; 5
A775	x	x	x		x			1a,b,f,g; 2; 4; 5d,h
A777	X							1a,c,d; 2; 4; 6; 9
A778	X	X	X					1, 3, 4, 5
A779	X				X			1a,b,e,h,k,l; 2; 4; 5b; 9
A780	X			X			quinine	1; 4; 5; 6; 10
A781	X				X			1a,b,e,f,p,r; 2; 4; 5b,c
A783	X		X	X				1a,c,d,f,k; 5a,e
A784	X	X	X	X			acetyl-morphine	1a; 2; 3; 4; 7; 13
A785	X	X	X	X				1; 2; 3; 4; 5
A786	X	X	X	X				1; 2; 3; 4; 5; 7
A787	X							2; 3

Table 10(con'd.)

Lab Code	heroin (diacetylmorphine)	cocaine	procaine	lactose	reducing sugar	monoacetylmorphine	Other	The numbers listed below refer to Table 5. The letters following the numbers 1 and 5 identify various color and crystal tests found in Table 6 and Table 7 respectively. Method(s)
A788	X		X					1; 6
A789	X		X	X				1a,c,d; 4; 5a; 10
A790	X	X	X		X			1a,b,e; 3; 4; 6; 8; 11
A793	X							1a,d,i; 2; 4
A794	X	X	X		X			1a,b,c,d,f,m; 2; 3; 12
A796	X		X	X			Starch,Carbohydrate	1; 6
A797	X	X	X					2; 4; 5a; 8
A798	X	X	X					1a,b,c; 2; 3; 4
A799	X	X	X	X		X		1; 2; 4; 5; 8
A803	X	X						1a,b,d; 2; 3; 5a,c
A805	X		X					1a,c; 2; 3; 4
A806	X	X	X					2; 3; 4; 8
A807	X	X						1a,b,c,d,e,ee; 2; 3; 4; 5a,c; 6
A809	X	X	X					1a,b,c,d,g; 2; 4; 6; 9
A811	X							1a; 2; 4
A812	X	X	X					1a,b,c,d,e,g,h; 2; 4; 5c,f
A813	X	X	X	X				1a,b,n; 3; 4; 6; 20
A814	X	X	X		X			1a,c,d,e,h,j,k,n,ff; 3; 5b,c,e
A815	X	X						1a,b,c; 3; 4; 5; 9

Table 10 (con'd.)

Lab Code	heroin (diacetylmorphine)	cocaine	procaine	lactose	reducing sugar	monoacetylmorphine	Other	The numbers listed below refer to Table 5. The letters following the numbers 1 and 5 identify various color and crystal tests found in Table 6 and Table 7 respectively. Method(s)
A818	X	X	X					1a; 2; 3; 5; 8
A820	X	X	X					1a,b,c,d,e,f,h; 2; 3; 5a
A821	X	X	X					1a,b,c,d,e,g,i,u; 2; 3; 4; 6; 7
A822	X							1; 2
A823	X	X	X					1; 2; 7
A824	X	X	X					1a,b,e,h; 2; 3; 4; 7
A825	X	X	X	X	X			1a,b,c,w,gg; 2; 3; 4; 5a
A827	X	X	X					1a,b,c; 2; 3; 4
A828	X	X	X					1a,b,c,d,f,g,n,t,hh; 2; 4; 5
A829	X	X	X		X			1a,b,c,d; 2; 3
A831	X							1a,c; 4; 5a,g
A832	X			X				1a,c; 3; 5a
A833	X	X		X				1a,b; 2; 3; 4; 5d,g; 10; 11; 18
A835	X	X	X		X	X		1a,b,d,e,f,g,j,v,ii; 3; 5a,d; 7; 11
A837	X		X	X	X			1; 2; 4; 8; 16
A838	X	X	X		X			1a,c,f; 4; 5a,b,c
A839	X	X	X					1; 2; 3; 6; 8
A841	X	X	X		X			no methods listed
A842	X	X	X		X			1a,k,jj; 2; 3; 5h; 7; 8; 12
A843	X	X	X	X		X	morphine	2; 3; 4

Table 10(con'd.)

The numbers listed below refer to Table 5. The letters following the numbers 1 and 5 identify various color and crystal tests found in Table 6 and Table 7 respectively.

Lab Code	heroin (diacetylmorphine)	cocaine	procaine	lactose	reducing sugar	monoacetylmorphine	Other	Method(s)
A844	X		X	X			Chlorine	1a; 2; 4; 6; 11; 19
A845	X		X	X				1a,c,h,k,w; 2; 4; 6
A847	X	X	X					1; 2; 3; 4; 6
A848	X	X	X		X			1a,b,f,g; 3; 5a,d,e,g; 7
A849	X		X					1a,c; 2; 3; 4; 9
A850	X	X						1a,d,g,l,o; 2
A852	X	X	X					1; 3; 4; 5; 6; 8
A853	X	X	X					1; 2; 3; 4; 6; 8
A854	X	X	X	X				1; 3; 5; 7
A855	X	X	X					1; 2; 3; 4
A856	X	X	X			X		2; 3; 4; 6; 9
A859	X	X	X	X				1; 2; 4; 5; 6
A860	X	X	X	X				1a,b,c,d,e,f,g,k,o,; 2; 3; 4; 5a,c,d;10;15
A861	X	X	X		X	X		2; 3; 8
A863	X	X	X					1a,b,c,d,g,n; 2; 4
A864	X	X	X					1; 2; 3; 4; 6
A866	X	X	X					1a,b,c,d,e; 2; 3; 4; 6
A868	X							1; 4; 5; 6
A870	X	X				X		1a,b,d,j,l; 2; 3; 10

Table 10(con'd.)

Lab Code	heroin (diacetylmorphine)	cocaine	procaine	lactose	reducing sugar	monoacetylmorphine	Other	Method(s)
A871	X	X	X					2; 3; 4
A872	X	X	X					1; 3; 4; 6; 21
A873	X			X				1a,c,d; 5a
A875	X				X			1a,b,d,m,q; 2; 4; 5
A876	X	X	X					1; 2; 3; 4; 8
A877	X	X	X					1a,b,c,d,g,i; 2; 3; 4
A880	X	X	X	X				1a,d,h,p,r; 2; 3; 6; 9
A884	X							1a,c,g,j; 5a
A885	X	X	X	X		X		1; 2; 3; 6; 9
A886	X							1; 4; 6
A888	X		X				starch, carbohydrate	1a,b,d,e,g,v; 3; 4; 5a
A889	X	X	X					1a,b,d,e,f,h,i,kk; 2; 3; 4; 5a,e
A892	X	X	X		X			2; 3; 4; 6; 7
A894	X	X	X			X	acetyl-morphine	7; 8
A895	X	X						1; 2; 4
A896	X	X	X	X				1a,b,c,e,i,q; 2; 3; 4; 6; 16
A897	X	X	X	X				2; 3; 6
A898	X	X	X					1a,b,c,f; 3; 4; 5f,k; 7
A902	X	X	X					1; 3; 4

The numbers listed below refer to Table 5. The letters following the numbers 1 and 5 identify various color and crystal tests found in Table 6 and Table 7 respectively.

Table 10(con'd.)

The numbers listed below refer to Table 5. The letters following the numbers 1 and 5 identify various color and crystal tests found in Table 6 and Table 7 respectively.

Lab Code	heroin (diacetylmorphine)	cocaine	procaine	lactose	reducing sugar	monoacetylmorphine	Other	Method(s)
A903	X	X	X					1a,b; 2; 3; 4; 6
A904	X	X	X					1a,b,d,e,f,h,l,q,s,y; 2; 3; 4; 5; 8; 17
A907	X							1a,b,c,d,e; 4; 5b,l; 7; 8
A908	X	X	X	X				1a,b,c,d,f,m; 2; 3; 4; 8
A913	X	X	X	X				1a,b,c,d,e,f,g,i; 2; 3; 4; 5a,e
A915	X		X		X			1; 3; 4; 6
A918	X	X						1; 2; 3; 4; 6; 8; 9
A920	X	X						1; 2; 6
A921	X	X	X					1a,b,c,d,l; 2; 3; 4; 6; 9
A923	X	X	X	X			starch, carbohydrate	3; 4; 7; 8
A925	X	X	X				acetyl-morphine	3; 7; 8
A926	X							no methods indicated
A932	X	X	X					3; 4
A935	X	X	X		X			1a,b,m; 2; 3; 4; 6
A938	X		X		X			1a,b,c,f,g,m; 3; 5a,c; 6
A942	X	X	X	X				2; 3; 6
A946	X	X	X					1; 2; 3; 7
A948	X	X	X		X			1a,b,f,g; 2; 3; 7
A950	X		X					1a,b,c,e,f,g,h,j,y; 2; 5; 6
A951	X	X	X					3; 7

Table 10(con'd.)

Lab Code	heroin (diacetylmorphine)	cocaine	procaine	lactose	reducing sugar	monoacetylmorphine	Other	Method(s)
A953	X	X	X					2; 3; 4; 9
A958	X	X	X					la,c,d,g; 2; 3; 4; 6; 7
A960		X					methapyrilene	la,b,l; 5; 7
A961	X		X	X				1; 2; 4; 5; 6
A966	X							la,d,j; 2; 5a,b
A969	X	X	X					no methods listed
A970	X	X	X	X				1; 2; 4; 5; 9
A973	X							la,b,c,d; 2; 5f
A974	X	X	X					la,d,e,n; 2; 3; 4; 5; 6; 8
A975	X	X	X	X				la,b,c,e,f,g,h,m,u,x,mm; 3; 4; 5a;6;7;15
A978	X	X	X	X				3; 4; 5; 7
A979	X	X	X		X			1; 2; 3; 4
A980	X	X	X	X				1; 3; 4; 6; 7
A983	X	X		X				la,b,d,g; 3; 6; 8
A985	X		X		X			1; 4; 5
A986	X	X	X					la,b,c,d,g; 2; 3; 4; 9
A987	X	X						1; 2; 4
A989	X	X	X	X				2; 3; 5; 6
A992	could	not	identify					1; 5f

The numbers listed below refer to Table 5. The letters following the numbers 1 and 5 identify various color and crystal tests found in Table 6 and Table 7 respectively.

Table 10(con'd.)

The numbers listed below refer to Table 5. The letters following the numbers 1 and 5 identify various color and crystal tests found in Table 6 and Table 7 respectively.

Lab Code	heroin (diacetylmorphine)	cocaine	procaine	lactose	reducing sugar	monoacetylmorphine	Other	Method (s)
A994	X	X	X	X				1; 3; 4; 5; 6
A995	X	X	X	X				1a,b,c,d,e,f,i,cc,dd; 2;3;5b,f; 7
A998	X			X				1; 2; 4; 5a,g
A999	X						starch, carbohydrate	1a,b,d,e,f; 2; 3; 4; 5; 6

Table 11

Summary of Quantitative Results

Lab Code	Heroin	Cocaine	Procaine	Other
705	≃2%			
709	2.7%	2.6%		
712	2.3%	2.6%	2.0%	
719	<5%	<5%		
720	2.2%	2.4%	2.0%	
721	4%			
726	2.63%	1.01%	1.62%	lactose 94.74%
727	2.5%	2.5%		
731	3.5±2%			Morphine <1%
739	1.9%	2.6%		
740	≃3.5%			
742	2.2%	2.0%		
743	4.3%	3.2%	1.7%	
744	≃1%			
745	≃2%	≃2%	≃2%	
746	2.6%	2.6%		
747	1.25%	2%		
748	2.1%	2.1%		
751	2.3%	3.1%	1.3%	
752	2.5%	1.4%		
753	23%	2.4%		
754	2.3%	2.5%		
755	2.7%			
756	2.1%	1.9%		
759	∝1%	∝1.3%		
760	2.6%			
762	1.51%			

Table 11 (con'd.)

Lab Code	Heroin	Cocaine	Procaine	Other
763	2.5%	3%		
766	2.4%	2.4%	1.0%	lactose 92%
768	3.5%	2.4%		
769	3%	6%	6%	lactose 85%
775	≈4%	6%		
777	2%			
780	5.493%			
784	≈1%			
785	1.7%	1.5%		
786	3.6%	3.5%		
789	2%			
790	1.5%	2%	2%	
793	4.1%			
794	2-3%	2-3%		
797	2%	3.5%	3.5%	
798	2.6%			
799	3%		>90%	monoacetylmorphine + cocaine + procaine =3%
803	3.2%	2.8%		
805	2.9%			
807	.5%			
809	3%	2%		
813	4.2±.5%	2.6±.5%	2.7±.5%	
818	3%	2-3%	2-3%	
820	<5%			
824	3.7%	2.4%	1.5%	
825	4.0%	2.5%	2.0%	
827	2.9%	2.7%		
829	2.8%	2.09%	2.6%	
832	2.02%			
833	2.7%	2.3%		
835	2.5%	3.5%	2.8%	
837	1.3%		7.8%	
838	2.4%			
839	1.7%	2.7%	2.7%	
841	2.3%	2.34%	3.18%	
842	1.6%	<5%		

Table 11 (con'd.)

Lab Code	Heroin	Cocaine	Procaine	Other
843	3.3%	2.4%	3.6%	
844	≈6%		40%	
845	3-4%		3-5%	lactose 90%
848	2.8%	2.2%	0.7%	
849	2.3%		≈4.5%	
852	≈4-5%			
853	3%	1%		
854	1.8%	2.3%	1.5%	
856	est. 2.5%	est. 4.9%	est. 1.6%	
860	3.05%	2.85%	1%	
861	1.2%	2.3%	2.3%	
863	2%	1%		
864	2.05%	2.48%	2.05%	
866	1.8%	2.4%	2.1%	
871	4.22%	3.97%	2.63%	
872	3.3%			
877	2.53%	3.10%		
880	2.8%	2.6%		
884	est. $\underline{<}$1%			
888	2.6%			
889	3%			
892	2.37%	3.75%		
895	82%	.07%		
896	3.0%	2.1%	2.4%	
897	1.8%	1.3%	1.1%	
898	2.8%			
899	5%$\underline{+}$			
907	2%			
908	3.5%	1.5%	3.0%	lactose 92.0%
913	1.6%	2.0%		
915	.8%			
918	1%	1%		
921	2%	3%	3%	
923	1.7%	2.3%	1.2%	

Table 11 (con'd.)

Lab Code	Heroin	Cocaine	Procaine	Other
925	1.27%	1.97%		
932	ca 3%	ca 11%	ca 2%	
935	2.3%	2.6%	3.6%	
938	≈2%			
942	1.9%	4.6%	0.8%	Lactose 92.7%
946	3%	3%		
948	2.84%	2.04%		
950	10-15%			
951	3.6%	2.7%	2.4%	
958	2%	2%		
961	≈5%			
974	2.9%	2.7%	2.7%	
975	2.2%	3.8%	2.0%	Lactose 92.0%
978	3.0%			
980	3.0%	2.6%	2.4%	Lactose 92.0%
983	1%	1%		
986	2%			
989	≈7%	≈2%	≈4%	Lactose ≈87%
994	3.0%	3.5%	2.5%	
995	2%	2%	1%	
998	≈5%			
999	2.4%			

total labs = 120

END