CRIMINALISTICS OPERATIONS OF THE NATIONAL POLICE, THE REPUBLIC OF GUATEMALA: A SUMMARY AND FOLLOW-UP REPORT

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MEMORANDUM FOR THE RECORD

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SUBJECT: Public Safety TDY Assistance - Criminalistics, November 1970

Attached is a report made in response to the request for technical assistance (Refair TOAID A-317, dated August 10, 1970). The scope of this assignment was to appraise the criminalistics operations (its quarter, equipment, physical layout, personnel qualification, technical procedures) and to submit a report with recommendations to the Director General of the Guatemalan National Police.

During this evaluation a number of USG and GOG officials were consulted. While brief discussions were had with the US Ambassador, USAID Director, the Director and Second Director of the National Police, the data for the report were obtained principally from the Chief Public Safety Advisor and the Public Safety Division staff, from the National Police Identification Division Chief and his staff.

The report attempts to summarize past USG and GOG inputs toward the development of criminalistics, to evaluate their present capabilities and needs. Recommendations are made as to the strategy for future input. Targets for development are suggested, along with proposed courses of action.

While each target can be accomplished independent of each other and of other Public Safety projects, it is strongly suggested that, if the National Police and Judicial Police do unify and if future USG support will be given the latter agency, Target No. 4 (Developing a training team) should receive priority and should be very closely coordinated with any investigative assistance to be provided. National Police action should be transferred to the investigation element who in turn should select qualified detectives to undertake the training.

I. SUMMARY

It has been only in the last five years of the almost half century history of the Identification Division/Laboratory Section that emphasis has been placed on the development of the Guatemalan National Police's criminalistics capabilities.

And today, in 1970, the police laboratory manifests a measurable improvement in terms of better accommodations and completeness of equipment. On the other hand, its technical capability, the practical use of this facility as an investigative aid and the ability to function on a day-to-day basis has still not improved significantly in comparison with the situation in 1965 when the laboratory was first evaluated. However, the potential to grow and develop has greatly increased and should be pursued.

The most basic problem discovered in the development and utilization of this police science is that the physical evidence is not being taken to the laboratory for examination. There is a great need for the police personnel in the field to properly protect and process the crime scene, to properly collect and preserve physical evidence and to understand the value and limitations of criminalistics.

The laboratory itself need not to expand but rather need to reinforce its present operations. It needs to be literally put into operation, more closely reflecting today's laboratory practices; the staff should be increased; its operational budget needs to be increased to a more practical level.

II. RECOMMENDATIONS

A. Strategy of Future Input

It is recommended (1) that the police laboratory be assisted only to the extent of improving and strengthening its present operations.

(2) That it not be overly developed relative to the investigative capability in Guatemala, by expanding the laboratory into expertises not presently being performed nor by overly equipping the laboratory with additional instruments not presently justified.

(3) That in concert with the above, USAID Public Safety input be directed at encouraging the police personnel in the field to employ the assistance of the laboratory and to adhere to recognized practices of handling physical evidence, of processing the crime scene and of the criminalistics field itself.

(4) That the stimulus for initiating any future input must come from the National Police through the fulfillment of specialized self-help actions.

(5) That in response to these self-help actions USAID Public Safety should be prepared to follow up with immediate, priority assistance.

B. Targets and Courses of Action

TARGET No. 1: TO PUT THE LABORATORY ON AN OPERATIONAL BASIS AND MORE IN LINE WITH TODAY'S CONCEPT OF CRIMINALISTICS.

Courses of Action (National Police): That the National Police increase the Identification Division's monthly operating fund to $200 for the replacement of routinely exhausted supplies and chemicals.

Courses of Action (USAID Public Safety):

(1) That USAID provide the Division Chief with administrative/operation training by means of a 2-week study/observation tour of small identification and police laboratory sections in the U.S.

(2) That the laboratory be furnished with the necessary chemicals (Attachment #1) in order to carry out their programmed objectives and with reference texts (Attachment #2) in order to familiarize them with accepted criminalistics practices.

TARGET No. 2: TO STRENGTHEN THE FIREARMS IDENTIFICATION AND RELATED EXPERTISES THROUGH TRAINING AND ADDITION OF ONE TECHNICIAN TO THE LABORATORY.

Courses of Action (National Police):

(1) That one candidate be selected by the National Police in cooperation with the Identification Division Chief and USAID Public Safety.

(2) That a revolver, pistol, rifle (semi-automatic), shotgun and submachine gun be made available for familiarization by the candidate and for firearm safety training; that 6 rounds of ammunition for each weapon be provided to carry out the above.

(3) That a bullet recovery box be constructed (Attachment #5) and 25 rounds of revolver ammunition and 25 rounds of pistol ammunition be provided for the specialized instruction.

(4) That funds (approximately $100) be authorized to initiate a bullet and cartridge case file and to locally purchase supplies necessary for the identification and examination of gunpowder residue.

Courses of Action (USAID Public Safety):

(1) That familiarization in firearms be provided the selected candidate prior to the arrival of the TDY advisor and that he be thoroughly familiar with the safety precautions and mechanical devices on the weapon.

(2) That TDY assistance be provided for at least one month (the exact duration depending on the progress of the training) to train this one candidate in the following fields: Principles of firearms, determination of distance of fire, comparison of fired bullets and cartridge cases, photomicrography related to firearm expertises and maintenance of a bullet/cartridge case file.

TARGET No. 3: TO STRENGTHEN AND ADD TO THE LABORATORY STAFF A SECOND TECHNICIAN TRAINED IN THE FIELDS OF BODY FLUID EXAMINATIONS, LATENT FINGERPRINT COMPARISONS, GUNPOWDER IDENTIFICATIONS.

Courses of Action (National Police):

(1) That the National Police select one candidate for this training and assign him full time to the instructions; that the selection be made in cooperation with the Identification Division Chief and USAID Public Safety.

(2) That the appropriate funds (approximately $150) be authorized for this specialized training in order to locally purchase the required chemicals and serums.

Courses of Action (USAID Public Safety):

That TDY assistance be provided to conduct the specialized training for at least one month (the duration depending on the progress of the instructions).

TARGET No. 4: TO ESTABLISH A SPECIAL 6-MAN TRAINING TEAM WHO WILL PROVIDE UPDATED AND INTENSIFIED INSTRUCTIONS RELATED TO CRIMINALISTICS, CRIME SCENE PROCESSING AND PHYSICAL EVIDENCE REFLECTING THE PRESENT PRIORITY OF THIS POLICE SCIENCE.

Courses of Action (National Police):

(1) That the National Police, Judicial Police and/or whatever agency principally responsible for the investigations of crime

place and manifest the high priority required in developing these capabilities as well as in fully utilizing the criminalistics facilities.

(2) That six police personnel be selected to serve as future instructors in this police science; that they be made up of two photographers, two field technicians of the laboratory and two identification technicians.

(3) That the National Police authorize sufficient funds ($200) for this specialized assistance in order to locally purchase the required materials (for instance, plaster of Paris, silicone rubber casting compound, photographic and drafting supplies).

Courses of Action (USAID Public Safety):

That TDY assistance be provided to program and implement the course and to instruct the necessary subject; that the duration of this assistance be equivalent to one man-month.

III. SITUATION

A. Past Development in Criminalistics

In 1922 the National Police's Identification Division was established, followed 5 years later by the initiation of a police laboratory. Since those years until just recently one man had served as the sole leader and technician of this facility -- Mr. Desiderio Menchú.

A study of the laboratory was made in 1965 1/ and described the overall operations as principally an identification facility which concerns itself in fingerprint classification and files, but which is also capable of providing basic criminalistics assistance in a few areas, namely, latent fingerprint comparisons, firearms identifications and questioned document examinations.

The laboratory lacked the necessary equipment, supplies and suitable quarters to perform their functions. It had not kept abreast with the developments within the criminalistics field, finding itself often employing outdated methods of analysis or not being aware of newly developed techniques. Moreover, the overall operations had been plagued with inadequate budgetary support and, as a consequence, had been unable to purchase equipment nor replenish the expended chemicals.

1/ "The Criminal Investigative Operations of the National Police of Guatemala", Arlen W. Jue, September 21, 1965.

The survey recommended that the laboratory be moved to other quarters where there would be electricity and running water; that its operations be developed to carry out all examinations necessary in the higher priority expertises; that this training be provided to two technicians through a third-country; that the facility be equipped with additional instruments and supplies in order that it may perform all examinations in the selected expertises; and that a mobile laboratory unit be created, equipped and staffed to process crime scenes within the metropolitan area of Guatemala City.

In 1966 steps were taken to implement the above recommendations 2/. A more suitable quarter was selected; laboratory work benchesand cabinets were designed and their construction initiated; training was arranged for the technicians to be selected by the National Police.

And in 1967 the new laboratory facility was equipped with USAID-purchased commodities to supplement what they already had. 3/

2/ Memorandum "Technical Assistance to the Guatemala Police Laboratory", from Arlen W. Jee, December 14, 1966.

3/ Memorandum "TDY Technical Assistance -- Criminalistics", from Arlen W. Jee, June 2, 1967.

After 48 years of operating the identification/laboratory facilities Mr. Menchú retired. Soon to replace him in 1970 was Mr. Sergio Lima, opening still another door towards the development of this police science in Guatemala.

B. Public Safety and National Police Contributions

US technical assistance towards the development of the National Police criminalistics capability has been previously provided through TDY assignments (September 1965, December 1966, June 1967). In addition, non-technical assistance has been provided on a limited basis by the resident Public Safety Advisors.

In terms of training and commodities the Public Safety Division has contributed over $17,000 (see Tables 1 & 2). Of this total, over $15,000 has been provided to equip the laboratory and mobile crime scene investigation unit with the necessary basic equipment (such as microscopes; weighing and measuring instruments; glass-, porcelain- and metal-wares; portable electric generator; photographic outfit; casting and field investigative kits).

Two National Police officers received third-country training at the crime laboratory of the El Salvador National Police. The first participant, Sergio Lima, presently is serving as the Chief of the Identification/Laboratory Division. The second participant, Carlos Ramírez, had been and

is still employed in the Fingerprint Section. (Two other participants from the Border Patrol had also been trained along with the National Police officers but do not serve as laboratory technicians).

The National Police has contributed over $2,000 in material, labor, air fares towards the improvement of their laboratory and the development of a mobile crime scene investigation unit (see Table 3).

Table 1 - Public Safety Commodity Input

PIO/C	Item	Cost
(Pre-1966)	Microscopes (Chemical, Bullet Comparison, Stereoscopic)	$ 5,000 (Est.)
60056	Van-type vehicle with VHF-FM mobile transceiver	4,800
60058	Stereoscopic microscope, weighing balance, centrifuge, plus laboratory apparatuses and supplies; crime scene investigation equipment	5,000
09160	Fingerprint comparator, document examination plates	300
	Total -	$15,100

Table 2 - Public Safety Training Input

PIO/P	Student's Name, Organization, Duration of Training	Cost
70078	Sergio Lima M., National Police, 14 weeks	$ 1,100
90114	Carlos Ramírez D., National Police, 16 weeks	1,150
	Total -	$ 2,250

Table 3 - National Police Contribution

Nature of Contribution	Estimated Cost
Material (lumber, hardware, etc.) to construct cabinets for van	$ 600
Material (lumber, hardware, etc.) to build laboratory benches	600
Estimated labor cost (two-month working time)	180
Salary of two students during training periods, plus air fare	690
Total -	$2,070

2. Other Related Technical Developments

Although not the principal subjects of this report, three other technical operations - photography, mobile laboratory and records/identification - are necessarily, if only briefly, discussed here. Firstly, also scientific aids, they are an important part of the overall police investigative picture, and, secondly, on many occasions will contribute directly to the police laboratory's effectiveness.

1. Photographic Laboratory

In 1966 the National Police photographic operations were evaluated 4/ and were found to be adequately carrying out their functions, although the section was seriously handicapped by small quarters and was equipped with a conglom-

4/ Memorandum "The Capabilities and Facilities of the Photographic Laboratory of the Guatemalan National Police," from Arlen W. Jee, December 9, 1966.

erate of apparatuses, most of which were in poor condition.

Subsequently, through limited U.S. commodity support and advisory assistance the photographic laboratory had been moved to larger quarters; some equipment and supplies had been furnished, although for the most part it has been to replenish exhausted processing chemicals and materials.

This section operates around the clock with six technicians. They receive an approximate monthly average of 250 requests, resulting in 604 negatives and 1811 prints processed (based on August, September, October 1970 data). An estimated 20% of these requests were for field services (for instance, photographing the crime scene and at the morgue the cadavers).

While the photographic laboratory appears to still be meeting its workload today, it could stand some minor improvements in their records and work area to provide for a more efficient operation. However, two serious situations still exist which will only continue to be contraproductive.

Firstly, the photographic technicians are supplied with equipment ranging from the 35 mm size to 5 x 7. For purposes of economy and uniformity, the equipment should be standardized for 35 mm. Other forms of standardization, such as using only the polycontrast type of printing paper,

would also be economical as well as practical measures.

Secondly, the very low operating budget for the Identification Division does not provide sufficient funds to fulfill their day-to-day needs of photographic supply. The National Police should take steps to remedy this, by substantially increasing the routine monthly operating expenses.

3. Mobile Laboratory Unit

Guidelines and requirements were set down in 1966 to establish a mobile unit for crime scene processing 5/. This unit was to have available at the scene the necessary equipment and supplies that would be needed.

Cabinets for storing the materials were built by the National Police and installed in a USAID-purchased van-type vehicle. Unfortunately, the van was not equipped as recommended and the idea was soon abandoned.

With the cabinets removed, the vehicle now serves as a personnel carrier, transporting the laboratory technician(s) to the crime scene or transferring prisoners.

Today the mobile laboratory unit for the metropolitan area of Guatemala City does not exist. In view of this situa-

5/ Memorandum "Equipping the Mobile Crime Laboratory Unit," from Arlen W. Jee, December 15, 1966.

tion, it is felt that the present van should be converted to provide a more useful purpose than that of a personnel carrier. At the same time, the Identification Division should be furnished with a smaller vehicle (sedan or station wagon) to transport the technician and his paraphenalia to the crime scene.

3. Records/Identification Section

The most significant development in this operation must be the conversion from the Oberis modification of the Vucetich fingerprint classification to the Henry System.

After intensive US and in-country training of technicians, the conversion was made approximately 2 years ago. Today a monthly estimated 6,000-7,000 fingerprint cards are processed for one reason or another employing the Henry System.

On an "as required" basis the fingerprints based on the old system is converted to the new. For example, if a file check is required on an individual, his fingerprints are first compared with the Vucetich cards. If found, the old classification is transferred to the Henry System file. This type of conversion is said to average 15 per day.

On a 24-hour basis 18 technicians process the fingerprint cards classifying the impressions into the Henry System. It is said that the Section processed an average of 70

sets of fingerprints per day. While no accurate count is available, it was indicated that there are 30,000 - 50,000 cards in the Henry System files.

The adoption of the Henry System of classification and the conversion from the Vucetich System have gone outstandingly well. However, the problem of storage rooms will soon arise. It was observed that full-size file cabinets (empty) were stacked on top of others, a situation which is not only dangerous but also impractical and certainly not warranted.

The National Police should take steps to relocate and centralize the different records the Identification Division is maintaining. The rooms already assigned to this Division will be adequate, if they remove some of the rarely used desks and unused cabinets, plus relocate some of the specialized records. It is strongly recommended that USAID assist in this relocation and centralization of records through TDY Public Safety assignments.

IV. EVALUATION

A. Present Capabilities

In comparison with the criminalistics facilities in 1965, today's laboratory represents a marked improvement and reveals a much greater potential in growing and developing as an investigative aid.

1. Quarters/Furniture

At one time the laboratory had entirely inadequate working accommodations - no water, drainage nor appropriate furnishings. However, during the last 5 years the National Police had moved the laboratory to different quarters where there was at least a sink and running water. Their carpentry shop then built the necessary work benches and cabinets.

As it now exists, the overall layout of the laboratory is certainly more functional and will be adequate for at least the next 5 years, if not longer.

2. Equipment/Supplies

All the required basic instruments, apparatuses and supplies for a criminalistics operation have been furnished to meet the National Police's current as well as foreseeable future needs. The laboratory is equipped to adequately examine physical evidence related to firearms, prints/impressions of all types, body fluids, documents, narcotics and the more

common trace materials (for example, paint, glass, hairs, fibers).

Any further expansion, such as into toxicology and the general chemical analysis fields, will require considerably more sophisticated instrumentation and technical capability. This increase of responsibilities is not warranted.

However, the laboratory is unfortunately not supplied with the full array of expendables - chemicals, serums - required to examine the physical evidence to its fullest. For instance, for the lack of serums the laboratory is presently unable to perform some tests on blood - to identify its specie, and if human, to determine the blood group. By the same token, the laboratory with its very limited supply of chemicals is not able to carry out new or improved tests, such as the acid phosphatase reaction for seminal stains or the ninhydrin technique for developing latent prints on paper.

3. Staff

The laboratory examinations are conducted by the Chief of the Identification Division, Mr. Sergio Lima, and occasionally are assisted (in the paraffin test for nitrates) by members of his staff.

In 1967 Mr. Lima received 14 weeks of laboratory train-

ing with the El Salvador National Police. After completing this course, he was assigned to the Identification Division and voluntarily took further training in physics and chemistry. In 1970 Mr. Lima assumed command of the Division.

Discussions with Mr. Lima on technical matters, his completion of physics and chemistry courses, his initial attempts to collect reference material for his analysis, plus his ideas in developing the criminalistics operations, all reflect his desire, capabilities and potential in this police science field.

However, Mr. Lima is still inexperienced (having only 5 months as the Chief) and will require time as well as assistance to mature professionally. He will need to learn the practical applications of criminalistics, their capabilities and limitations. He will need to learn that this police science is, first, an investigative aid, and, second, an arm of the courts.

Other Identification Division technicians assist the laboratory in the form of fabricating paraffin gloves and testing them supposedly for gunpowder residues. Their function here is more mechanical (the fabrication and testing) than professional (the interpretation of the test remaining the duty of Mr. Lima).

4. Operations

The laboratory is one section of the Identification Division. However, excluding the Division Chief, there is no technician permanently staffing this criminalistics laboratory.

The examinations (as reflected in Table 4) fall principally into four areas: Documents, Paraffin Tests, Firearms and Latent Fingerprints.

In terms of frequency of requests and technical capability, the questioned documents field is the strongest. These examinations are made up of handwriting identifications, detection of counterfeit monies and typewriting identifications.

Firearms make up another big field for the laboratory. Comparison of bullets or cartridge cases, plus determination of the distance of fire, are performed with relative frequency.

Table 4 - Sample Laboratory Examination Statistics, 1970

Types of Examinations	Feb	Mar	Apr	Jul	Aug	Oct
Documents	5	8	7	13	19	30
Fingerprints	4	4	9	6	12	4
Firearms	2	5	6	7	9	13
Blood Stains	-	-	-	2	2	1
Paraffin Tests	5	7	6	7	6	16
Cadavers (Identt. of)	3	6	5	8	6	8
Others	2	-	1	4	-	1
Total -	21	30	34	46	54	73
Requested by Courts	13	26	30	42	47	67
Requested by Police	8	4	4	4	7	6

One of the common problems encountered in the above two fields is the absence of providing the detectives with helpful investigative information. For instance, in the search for a typewriter which was used to make a letter of threat or a firearm which was used to injure or kill a person, it would be helpful to the investigators to know the make and model of the responsible instrument. However, this type of information is not being provided.

While blood examinations are not one of the more frequently encountered, this field too suffers from incomplete processing. The laboratory is requested to only deter-

mine if the questioned stain is blood. No attempt is made to identify blood species or blood group.

Insofar as the latent fingerprint comparison and paraffin tests are concerned, the techniques were generally adequate. However, with respect to the latter expertise the validity of this test to identify gunpowder has been clearly disproved by US and European police scientists. The use of it in Guatemala is even more strongly questioned when the laboratory technician here can report, "I can affirm that the suspect fired a weapon recently."

Of particular interest in this laboratory's operations is that about 90% of the requests for examinations come from the courts, only approximately 10% from the police. Normally the reverse is true. These lop-sided data strongly suggest that the laboratory is not being employed as it should - a police investigative aid.

Field investigations are handled by the photographers and/or identification technicians. By far, most of their cases involve thefts, including burglaries, and followed in frequency by personal injury/death investigations which include traffic accidents. As Table 5 reflects, an average of 125 field investigations is requested.

The requests may be for photographs, search for latent

prints or collection of physical evidence. The requirements are dictated by the officer at the scene and not by the technician or any standard operating procedure.

Table 5 - Sample Field Investigation Statistics, 1970

Types of Field Investigations	Feb	Mar	Apr	Jul	Aug	Oct
Thefts (inclu. burglaries)	72	120	61	93	98	92
Robberies (e.g., armed)	-	2	-	2	4	2
Bombs	3	1	-	-	2	1
Fires	-	1	-	-	1	1
Others	3	-	-	-	-	-
Personal Injury/Death	35	35	28	35	34	41

A comment frequently made is that the crime scene is not being protected and unauthorized police officers, citizens, etc. are allowed to walk over the questioned area. Also, it has been said the crime scene is not completely processed. These two situations preclude the possibility of fully recording and searching the scene, hence greatly increasing the chance of losing or destroying physical evidence.

Excluding the problems encountered in the laboratory operations which can be principally resolved through experience, a small commodity input, and some technical assistance, one can readily observe that the most

basic difficulty in developing criminalistics for the National Police is that the physical evidence is not being brought to the laboratory for examination. The reasons for this situation are multiple but generally are: (a) the lack of opportunity to process the scene (absence of crime scene protection), (b) the lack of understanding of what the police laboratory can do (insufficient training of police officers and detectives in physical evidence and the laboratory) and (c) the inability to completely and properly process the scene (lack or absence of technical training in this specialty field).

It is believed that the above analysis is additionally substantiated, in view of the small number of cases received by the police (average of 5 per month) versus the relatively high average (124 per mo.) of field investigations involving incidents (thefts, personal injury/death) which are generally fruitful in terms of uncovering physical evidence, plus the fact that only 10% of the examinations are originated by the police.

Hence, in overall evaluation it can be concluded that the police laboratory has improved considerably and measurably in terms of better accommodations and completeness of equipment. However, with respect to its

technical capability, the practical use of this facility as an investigative aid and the ability to function on a day-to-day basis, there has been no significant improvement in comparison with the situation in 1965, although the potential to grow and develop has greatly increased.

B. Present Needs

The greatest needs in the development of criminalistics in Guatemala lie in the creation of the demands for laboratory examinations. And it is to ensure that the criminalistics operation will be capable of handling the expected increase of requests.

1. Field Needs

Basically, there is a need to train all police officers in the field in their roles toward full utilization of criminalistics. They must know how to protect the crime scene, how to process the scene fully, how to properly collect and preserve physical evidence.

Not only to learn the procedures, these officers need to become aware of the importance of their role in the overall; of how criminalistics is applied to crime investigations, its value as well as limitations.

This training should be given in three levels: the most

basic for the general police officers, the intermediate for the detectives, and the most advanced to the special crime scene technicians and the laboratory personnel.

2. Laboratory Needs

The criminalistics operation need not to expand but to reinforce their present operations. The chemical supply must be supplemented to permit all tests on the physical evidence now being examined; the staff should be increased to two full-time, permanently assigned technicians who will perform specialized, high priority expertise; these technicians and the Division Chief must be allowed to keep abreast with developments and current procedures in the criminalistics field.

While the Division Chief can handle the document cases, one new technician should be trained to perform all (not the paraffin test) examinations related to firearms. The second should be trained to examine body fluid stains, the paraffin tests, the latent fingerprint comparisons.

Not until the above two have been trained and qualified in their respective fields should any priority be placed on increasing their capabilities to the examinations of narcotics, trace materials and other forms of prints/ impressions.

Probably one of the greatest detriment to the laboratory's (and the Identification Division's) development is the operating budget of $50 per month. The Division should be allowed at least $200 per month to replace the routinely expended materials.

In terms of the laboratory quarters, furniture, equipment, there is no immediate need nor is there expected to be for the next 5 or more years.

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ATTACHMENT #1

LIST NO. 1: CHEMICALS AND REAGENTS

ITEM	QTY	UNIT COST	TOTAL COST
ACETIC ACID, Glacial, BAR, 310064, 1-pt	4	$3.50	$14.00
ACETONE, BAR, 31025, 1-pt	4	0.99	3.96
8-AMINO-1-NAPHTHOL-3,6-DISULFONIC ACID MONO-SODIUM SALT, Tech, T-380, 250-gm	4	2.45	9.80
AMMONIUM HYDROXIDE, BAR, 32210, 1-pt	4	1.66	6.64
AMMONIUM MOLYBDATE, BAR, 32260, 1-lb	1	4.94	4.94
AMMONIUM THIOCYANATE, BAR, 32440, 1-lb	1	3.99	3.99
AMMONIUM m-VANADATE, BAR, 32450, ¼-lb	1	1.84	1.84
BARIUM HYDROXIDE, BAR, 32765, 1-lb	1	3.31	3.31
BENZENE, BAR, 32865, 1-pt	4	1.01	4.04
BENZIDINE BASE, 32874, 10-gm	8	1.85	14.80
BISMUTH NITRATE, BAR, 32955, ¼-lb	1	3.25	3.25
BROMINE WATER, 33094, 4-oz	4	0.70	2.80
BROMOBENZENE, BAR, 33094E, 1-pt	4	6.16	24.64
BROMOFORM, Purif, 33095, ½-pt	4	6.24	24.96
CADMIUM IODIDE, BAR, 33175, ¼-lb	2	4.92	9.84
CALCIUM CHLORIDE, Purif, Anhydr, 33306, 1-lb	10	1.24	12.40
CANADA BALSAM, 33560, 1-oz	4	1.30	5.20
CARBON TETRACHLORIDE, BAR, 33595, 1-pt	4	1.55	6.20
CHLOROBENZENE, CX-855, 1-kg	1	2.00	2.00
CHLOROFORM, BAR, 33710, 1-pt	4	2.24	8.96
CHROMIUM CHLORIDE, BAR, 33765, 1-lb	1	3.87	3.87
CHROMIUM SULFATE, BAR, 33830, ¼-lb	1	1.91	1.91
CHROMIUM TRIOXIDE, BAR, 33842, ¼-lb	1	1.98	1.98
COBALT ACETATE, BAR, 33900, ¼-lb	2	3.23	6.46
CUPRIC CHLORIDE, BAR, 34200, ¼-lb	2	2.08	4.16
CUPRIC SULFATE, BAR, 34285, ¼-lb	2	1.31	2.62

(Continued on next page)

NOTE: Codes and Prices: As per W. H. Curtin Catalog Nr. RC-63

Weights & Volumes: Recommended unit-size of item

Chemical Grades: BAR = Baker Analyzed Reagent Grade
Tech = Technical Grade
Pract = Practical Grade
Purif = Purified Grade

ITEM	QTY	UNIT COST	TOTAL COST
DEXTROSE, BAR, 34405, 1-lb	1	1.33	1.33
p-DIMETHYLAMINOBENZALDEHYDE, 34429Q, 25-gm	2	2.20	4.40
DIPHENYLAMINE, BAR, 34460, ¼-lb	4	2.52	10.08
ETHYL ACETATE, BAR, 34515, 1-pt	1	1.88	1.88
ETHYL ALCOHOL, Absolute, 34523D, 1-gal	1	2.27	2.27
ETHYLENEDIAMINE, 34538M, 500-gm	2	3.90	7.80
FORMALDEHYDE, BAR, 34850, 1-pt	4	1.30	5.20
GLYCERINE, BAR, 34910, 1-pt	2	2.88	5.76
GOLD CHLORIDE, BAR, 34921, 15-gr	4	2.77	11.08
HYDROBROMIC ACID, BAR, 34977, 1-lb	1	3.47	3.47
HYDROCHLORIC ACID, Reagent, 34978, 1-pt	4	1.80	7.20
HYDROGEN PEROXIDE, 3%, BAR, 34985, 1-pt	6	1.07	6.42
IODIC ACID, BAR, 35024, 1-lb	1	26.43	26.43
IODINE, BAR, 35025, 1-oz	12	1.30	15.60
ISO-PROPYLAMINE, 875, 500-gm	5	2.55	12.75
LEAD ACETATE, BAR, 35170, ¼-lb	2	0.97	1.94
MAGNESIUM, Ribbon, Purif, 35505, 1-oz	6	2.07	12.42
MERCURIC CHLORIDE, BAR, 35870, 1-oz	2	1.65	3.30
METHANOL, BAR, 36033, 1-pt	4	0.97	3.88
METHYL RED, BAR, 36050, 1-oz	1	2.24	2.24
METHYLENE BLUE SOL'N, SAT'D Alc, 36063, 1-oz	4	0.75	3.00
METHYLENE IODIDE, DX-1485, 100-gm	1	4.10	4.10
NAPHTHOL YELLOW "S", 36119C, 25-gm	2	2.30	4.60
a-NAPHTHYLAMINE, 172, 100-gm	2	3.75	7.50
NICKELOUS ACETATE, BAR, 36170, 1-lb	1	6.91	6.91
NITRIC ACID, 90%, BAR, 36317C, 1-lb	2	6.62	13.24
PALLADIUM CHLORIDE, 36362K, 1-gm	2	2.35	4.70
PARALDEHYDE, USP, 36370, 1-pt	4	2.19	8.76
PHENOLPHTHALEIN SOL'N, Reduced, 36410D, 4-oz	4	1.00	4.00
PHOSPHOMOLYBDIC ACID, BAR, 36432, ¼-lb	1	7.22	7.22
PHOSPHORIC ACID, 85%, BAR, 36433A, 2-lb	1	3.38	3.38
PHOSPHOTUNGSTIC ACID, BAR, 36471, ¼-lb	1	8.63	8.63
PICRIC ACID, BAR, 36473, 1-oz	4	1.33	5.32

(Continued on next page)

ITEM	QTY	UNIT COST	TOTAL COST
PLATINUM CHLORIDE, BAR, 36480, 1-gm	4	$9.20	$36.80
POTASSIUM ACETATE, BAR, 36500, 1-lb	1	1.96	1.96
POTASSIUM BROMIDE, BAR, 36655, 1-lb	2	1.84	3.68
POTASSIUM CHLORIDE, BAR, 36705, 1-lb	2	1.61	3.22
POTASSIUM CHROMATE, BAR, 36730, ¼-lb	2	1.32	2.64
POTASSIUM DICHROMATE, BAR, 36770, ¼-lb	3	1.20	3.60
POTASSIUM FERROCYANIDE, BAR, 36795, ¼-lb	2	1.38	2.76
POTASSIUM FERRICYANIDE, BAR, 36780, ¼-lb	2	2.06	4.12
POTASSIUM HYDROXIDE, BAR, 36832, 1-lb	2	1.91	3.82
POTASSIUM IODIDE, BAR, 36871, 1-lb	2	5.91	11.82
PYRIDINE, BAR, 37135, 1-pt	2	4.53	9.06
SILVER NITRATE, BAR, 37280, 1-oz	8	2.04	16.32
SODIUM ACETATE, BAR, 37325, 1-lb	2	2.55	5.10
SODIUM BENZOATE, USP, 37385, 1-lb	1	1.53	1.53
SODIUM BORATE, BAR, 37505, 1-lb	1	1.88	1.88
SODIUM CARBONATE, BAR, 37590, 1-lb	1	1.28	1.28
SODIUM CHLORIDE, BAR, 37625, 1-lb	2	1.33	2.66
SODIUM CHLORIDE SOL'N, o.85% Norm Saline, 37646, 1-oz	72	o.60	43.20
SODIUM HYDROXIDE, BAR, 37763, 1-lb	2	1.73	3.46
SODIUM NITROPRUSSIDE, Pract, P-2394, 100-gm	2	3.25	6.50
SODIUM TUNGSTATE, BAR, 38245, 1-oz	2	1.65	3.30
STANNOUS CHLORIDE, BAR, 38305, ¼-lb	1	2.04	2.04
SUCROSE, BAR, 38485, ¼-lb	2	o.95	1.90
SULFANILIC ACID, (Chlorine-Free), 238, 250-gm	1	5.10	5.10
SULFURIC ACID, Fuming, BAR, 38523Cl, 1-lb	4	3.20	12.80
TITANIUM DIOXIDE, BAR, 38635, 1-lb	1	2.44	2.44
TRIETHANOLAMINE, NF, 38657D, 1-pt	1	2.32	2.32
1,2,3-TRIKETOHYDRINENE (Ninhydrin), 2495, 5-gm	6	2.60	15.60
XYLOL, Tech, 38798, 1-gal	1	2.81	2.81
ZINC, 40 Mesh, BAR, 38825, 1-lb	3	3.11	9.33
ZINC CHLORIDE, Reagent, 38945, ¼-lb	2	1.14	2.28
	TOTAL		$640.71

ATTACHMENT #2

GENERAL CRIMINALISTICS TEXTS

Crime Investigation, Paul L. Kirk, Interscience Publishers, New Yrok, 1953.

The Scientific Examination of Crime, L.C. Nickolls, Butterworth Co., London, 1956.

An Introduction to Criminalistics, Charles O'Hara and James Osterburg, The MacMillan Co., New York, 1949.

FIREARMS AND TOOLMARKS

Introduction to Tool Marks, Firearms and the Striagraph, John E. Davis, Charles C. Thomas Publisher, Illinois, 1958.

Firearms Investigation, Identification and Evidence, Julian Hatcher, Frank Jury and Jac Weller, Stackpole Co., Pennsylvania, 1957.

Firearms Identification, Vol. I & II, J.H. Matthews, University of Wisconsin Press, 1962.

QUESTIONED DOCUMENTS

Suspect Documents, Wilson R. Harrison, Frederick A. Praeger Publisher, New York, 1958.

BLOOD AND SEMEN

Human Blood Groups: Utilized in Disputed Paternity Cases and Criminal Proceedings, P.H. Andersen, Charles C. Thomas Publisher, Illinois, 1952.

Blood Grouping Techniques, F. Schiff and W.C. Boyd, Interscience Publishers, New York, 1942.

Attachment #2 (Cont'd)

CRIME SCENE & PHYSICAL EVIDENCE

Scientific Investigation & Physical Evidence: A Handbook for Investigators, Leland Jones, Charles C. Thomas Publisher, Illinois, 1959.

Molding and Casting, C.D. Clarke, Standard Arts Press, Maryland, 1946.

CRIMINAL INVESTIGATION

Homicide Investigation, LeMoyne Snyder, Charles C. Thomas Publisher, 1959, (9th Rev. Ed.)

Modern Criminal Investigation, Harry Soderman and John O'Connell, Funk & Wagnalls, New York, 1962 (5th Rev. Ed.)

Fundamentals of Criminal Investigation, Charles O'Hara, Charles C. Thomas Publisher, Illinois, 1956.

ATTACHMENT #3

BULLET RECOVERY BOX

USE

This box will contain appropriate absorbing material to stop the projectile fired from a small arm (revolver, pistol, submachine gun and rifle). The bullet will remain intact and the minute markings left by the rifling of the weapon's bore will not be harmed, permitting microscopic examinations related to firearm identifications.

1. The box is to be completely filled with soft, long fiber textile material. Preferred are bundles of hospital grade, absorbent cotton. Acceptable are scraps of soft wool material.

2. At 18-24 inch intervals are placed sheets of paper to assist in locating the fired bullet. One can examine these sheets to see how far the bullet had travelled.

3. The barrel rest is to be adjusted to accommodate the muzzle blast which should dissipate outside the box. The farthest distance from the muzzle to the box opening would be for rifles and the closest for the revolvers and pistols.

OVERALL SPECIFICATIONS

The overall dimensions are 18" high x 18" wide x 60" long. If one desires, the box can be permanently and conveniently placed on a stand of such heighth as to place the center of the opening 36"-40" from the floor.

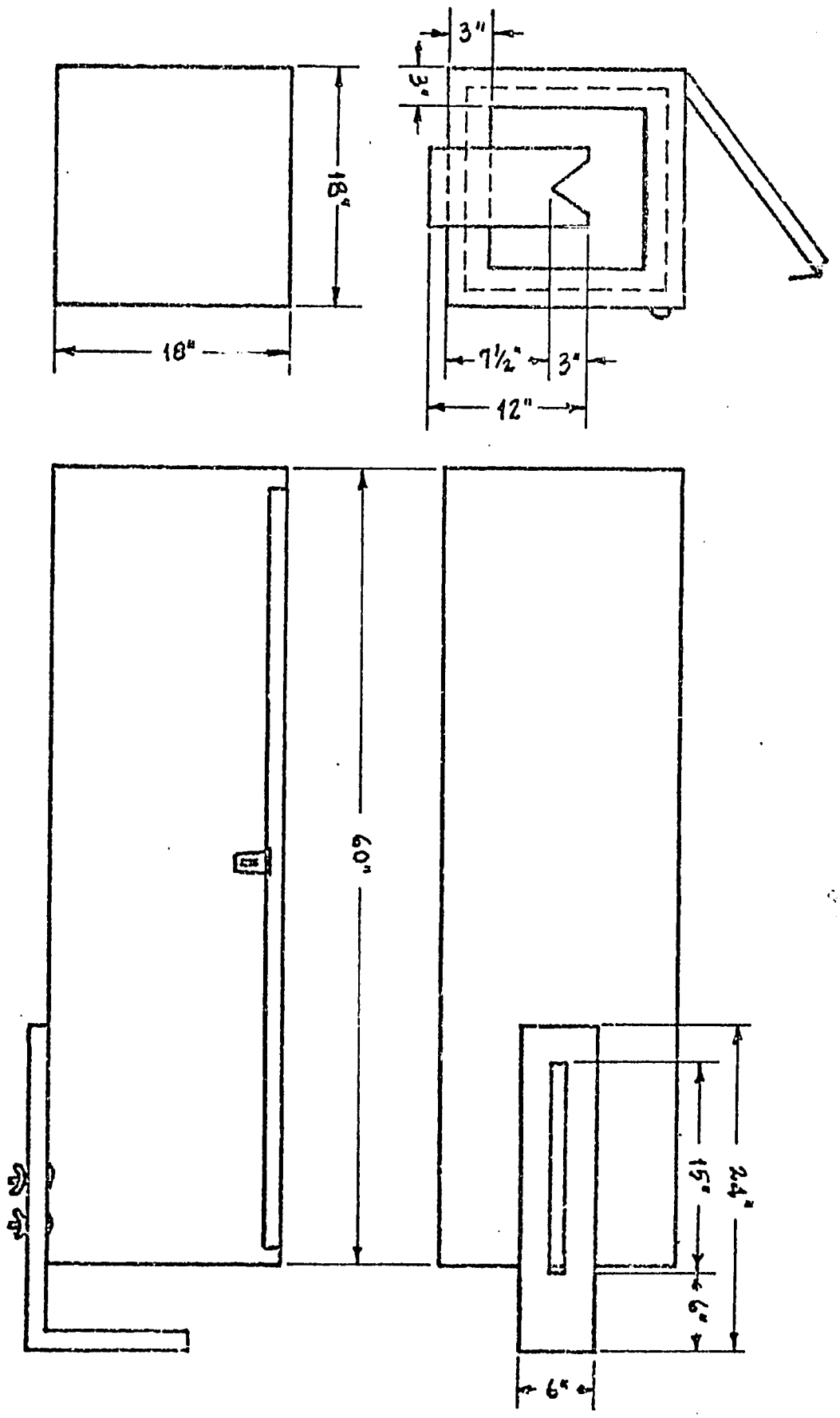
1. The entire box and barrel rest is to be made of 1½" thick solid wood planks.

2. The cover should have at least one hasp lock to secure it when closed and a weapon is fired into the box.

3. The barrel rest is to be movable from the closest distance of 6" to the farthest of 18". It is to be secured and aligned by tightening two wingnuts and bolts.

4. The front end of the box (the end through which the bullet is fired) is to have a 12-inch square opening.

5. The back or reverse end is to be reinforced with a double thickness (total of 3") of wood.


3"
3"
18"
18"
7½"
3"
12"
60"
15"
24"
6"
6"