

(UNCLASSIFIED)

STUDY OF THE CRIMINALISTICS
FACILITY OF THE PUBLIC
SECURITY FORCES OF THE
HASHEMITE KINGDOM OF JORDAN

Office of Public Safety
Agency for International Development
Department of State
Washington, D.C.

January 15, 1969

INTRODUCTION

A study of the criminalistics facility of the Public Security Forces (PSF) of the Hashemite Kingdom of Jordan was conducted by Mr. Charles Leister, Jr. of the Office of Public Safety, United States Agency for International Development, Department of State, during the period November 11-22, 1968. The study was requested by USAID/Jordan in Amman's 7268 of October 30, 1968.

The purpose of the study was threefold: to determine the extent to which the PSF needed scientific laboratory facilities and services; to evaluate the present capability of the Jordanian Public Security Forces to conduct scientific crime investigation; and to recommend necessary and appropriate action, if any, needed to improve the capability.

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

A criminalistics operation consists of the whole group of services which facilitate the scientific investigation of crime. At the center of and administering and supporting this group is the criminalistics laboratory.

A criminalistics laboratory serves to provide for the scientific examination of physical materials involved in the commission of a crime and for the interpretation of the results of these examination to facilitate the investigation of the crime or the trial of the accused in court.

A criminalist is a man trained and experienced in the science of identification and in the many subactivities involved in the scientific examination of evidence. Such a man must guide the criminalistics operation in order that it function according to established standards.

He may require a staff of persons employed as specialists in their own subactivities in the operation.

The foundation has been laid for a criminalistics operation within the Public Security Forces (PSF) of the Kingdom of Jordan but it is not yet properly functioning. This is mainly because of (1) staffing problems, (2) the lack of preparation in the laboratory for analytical work, and (3) a lack of an adequate evidence collection and handling capability.

With regard to personnel as far as could be determined in this study there is no person in the employ of PSF nor in Jordan who qualifies, at this time, as a criminalist. There are Jordanian officers, several of whom are or have been A.I.D. participant trainees, who will be available for assignment as specialists in the laboratory. Their level of competence is such as to require supervision by an experienced criminalist. Some of these specialists may develop to the point where they can assume responsibilities of a criminalist: the process of development will take several years.

The PSF Criminalistics Laboratory is located within the PSF Headquarters building. It occupies 2112 sq. ft. and is sectioned into a photographic work area, evidence examination and analysis area and utility rooms. Additional floor space, better overhead lighting, desk-height work tables and additional laboratory plumbing is needed. Area security is inadequate.

Classroom facilities for the training of field personnel in evidence handling are available at the nearby Royal Police Academy.

With respect to equipment needs, the laboratory now has more than enough major apparatus for at least the next year. Funding for a number of small purchases and for a constant supply of expendable items should be provided. Apparatus present in the laboratory has not yet been installed, properly checked-out and aligned nor calibrated.

An extensive collection of sample materials of known composition, the samples being used as reference standards in analytical work, must be kept by all criminalistics laboratories. The PSF laboratory does not have such a collection, and should.

The establishment of the capability within PSF to conduct scientific crime scene searches, and to collect, preserve and transport evidence appears feasible. There are indications that the Public Prosecutor will continue to rely more heavily upon PSF to conduct scientific investigations. The courts generally appear to be receptive to the introduction of scientific testimony. Taking these factors into consideration and after a review of convictions statistics and of typical modus operandi in significant crimes committed, it is concluded that the need exists for a criminalistics facility in the Jordanian Public Security Forces. The population of the country is large enough to require it.

The recommendations made in this study are summarized as follows:

1. That PSF prepare a general plan of development for its criminalistics operation, covering a period of five years.

2. That an adequate crime scene investigation and evidence handling capability be developed by PSF, primarily by way of an evidence technician training program.^{1/}
3. That a program of instruction, lesson plans and training materials for the evidence technician training program be prepared by the Criminalistics Laboratory.
4. That a plan be developed by PSF to provide training to its criminal investigators^{2/} on the nature of physical evidence, its potentialities and limitations.

^{1/} The term evidence technician is used herein to mean an officer who, by virtue of special training, is qualified to conduct crime scene searches, collect evidence, mark it properly and to preserve and transport it to the laboratory. He is not a criminalist nor is he capable of performing analytical work in the laboratory.

^{2/} The term criminal investigator is used to mean an officer, who, by virtue of special training, is qualified to coordinate the overall investigation of a crime, to conduct interviews and interrogations, to conduct observation and surveillance operations, to develop and use informants and other sources of information, and to assemble facts and evidence so that the case may be prepared for prosecution.

5. That the laboratory establish a reference standards collection.
6. That security in the Criminalistics Laboratory wing of the PSF Headquarters building be improved.
7. That steps be taken by PSF to determine whether students graduating from the University of Jordan in June, 1969 with Bachelor of Science degrees in chemistry, physics or related subjects would be available for employment in the criminalistics operation.
8. That PSF establish and implement a plan to provide maintenance and repair service for the electronic instruments in the laboratory.
9. That PSF defer purchase of additional major laboratory apparatus to the future.
10. That literature on criminalistics be reviewed and selectively translated into Arabic by the PSF Criminalistics Laboratory personnel.
11. That the laboratory staff test and calibrate its major pieces of apparatus.
12. That standard procedures of analysis be tested, selected and adopted by the laboratory, where appropriate.

13. That the Director-General, PSF, apprise the Public Prosecutor of the PSF program to improve its criminalistics operation.
14. That consideration be given to the amount and type of support which A.I.D. is to provide in connection with development of the PSF Criminalistics Laboratory.

Implementation of the above recommendations will require contribution of funds and personnel by the Government of Jordan.

Funds will be needed for the purchase of reference standards materials, supplies to make training aids, spare parts for the electronic apparatus in the laboratory, materials needed to erect physical barriers to improve laboratory security, and for expendable laboratory supplies and small items of equipment. Savings resulting from revision of the FY/CY-69 laboratory budget should more than offset the cost of these purchases.

Personnel will be required for crime scene investigations and evidence handling in the field. A recommendation is made that this need be the object of a special study, to determine the number and deployment of personnel required. It is suggested (as part of the recommendation) that a cadre of full-time evidence technicians be assigned throughout the Kingdom. Other personnel required: a criminalist will eventually have to head the overall criminalistics operation and the sooner he appears on the scene the better. Specialists

conducting analyses in their field of study in the laboratory will be promoted or may leave the operation (this should be avoided whenever possible) and will need to be replaced. The University of Jordan is suggested as a site for recruitment.

Implementation of the recommendations will require contribution by the United States government, or some other government, in proportion to the amount of emphasis to be placed upon the criminalistics facility's development. While the presence of an advisor doesn't guarantee development, the lack of one would be a major factor limiting future growth. The full-time services of a criminalistics advisor, beginning August 1969, is seen as optimum support. A series of TDY assignments of such an advisor would be beneficial but is, all factors considered, a far less satisfactory, if not totally impractical, alternate.

Decisions regarding the advisability of additional participant training programs and commodity support should be deferred until the matter of advisory support is settled.

HISTORY OF A.I.D. ASSISTANCE IN CONNECTION WITH THE JORDANIAN
PUBLIC SECURITY FORCES (PSF) CRIMINALISTICS FACILITY, AND
OF THE USE OF SCIENTIFIC INVESTIGATION METHODS BY PSF

In 1963 the Office of Public Safety conducted a survey of the civil security forces of the Kingdom of Jordan in which it was pointed out that scientific methods of evidence collection, preservation and examination were not employed by the Public Security Forces (PSF) of Jordan. Subsequent to, and in connection with the survey, a five-year Public Safety program under the auspices of the USAID Mission to Jordan was approved and activated.

One of the several responsibilities of the first Records and Identification advisor assigned to this Public Safety project was to formulate the basic plan for a criminalistics operation for the PSF. The plan called for (1) a gradually increasing amount of technical advice by qualified Public Safety Advisors, (2) the initiation and support of in-country and U.S. participant training, and (3) limited commodity support.

Implementation of the plan has been manifested as (1) a rapidly increasing amount of time devoted to the criminalistics operation by the present Records and Identification Advisor, (2) the issuance and use of PIO/Ps in FY-1965 (one participant), 1966 (one participant and 1968 (four participants), and (3) the programmed providing of basic supplies and equipment in minimum quantities in FY-64, 65 and 67.

Results of action based upon the plan are apparent. Within two years of the original survey the first U.S. trained participant returned to Jordan and construction of the laboratory in the new PSF headquarters was complete. Beginning January, 1967 equipment was installed and on March 16 of that year His Majesty King Hussein formally dedicated and opened the criminalistics facility.

Prior to this opening the very few scientific examinations of physical evidence which were made (estimated at 2 to 3 per year) were conducted by other Arab or foreign laboratories in Cairo, Damascus and the United Kingdom, or by the laboratory operated by the Jordanian Ministry of Public Health in Amman. The latter facility is neither equipped nor staffed properly to do criminalistics work and every

indication is that, regardless of which laboratory was employed, chain of custody was not controlled and appropriate methods of evidence collection, identification and preservation were not applied.

Subsequent to the opening of the new PSF criminalistics operation the situation began to improve with fewer cases going to outside laboratories and increasingly more attention being given to the proper handling of evidence. A Jordanian officer, with training in food testing and toxicology techniques, was employed on March 15, 1968 by PSF to head the criminalistics operation. Four PSF personnel are now receiving training in the U.S. designed and administered by the Office of Public Safety in documents identification, forensic chemistry, firearms identification and criminalistics laboratory procedures.

Support of the operation by the PSF hierarchy and an appreciation on their part of the scientific approach seems to be increasing.

The history of the use of scientific crime investigation techniques by the PSF is a brief one. An interest in the improvement of their methods has been recognized by the USAID. Some progress in developing the criminalistics operation has been made.

THE PRESENT SITUATION

THE PSF CRIMINALISTICS LABORATORY. The laboratory is operated within the Criminal Investigation Branch (CIB), Public Security Forces, Ministry of Interior. It is located at PSF Headquarters, Amman, Jordan. It was officially opened March, 1967.

Within the laboratory there are (functionally) two subsections, the Photographic Unit and the Evidence Analysis Unit. This study deals mainly with the Evidence Analysis Unit as part of the total criminalistics operation. The Photographic Unit, now operational and nearly ready to support the criminalistics activity, is being assisted by the Public Safety Records and Identification Advisor.

Personnel. (Total: 9) (see Part I of Tab B) The laboratory Director, Dr. Hashem M. Moghrabi (a Lt. Colonel in PSF) is the only person presently examining evidence in the laboratory. Four A.I.D. participant trainees, Messrs. Al-Hamad, Attiyat, Qaqish and Al-Tarawneh are studying in the United States and are due to return to Jordan between August and October, 1969. The remaining four employees, Messrs. Salem, Mustaphah, Dbrahim and Hashem, are assigned to the Photographic Unit. Two former criminalistics participants were transferred out of the laboratory after returning from the United States: Mr. M. H. Abu Hassan (who studied bio-anthropology and criminalistics) was reassigned to head the Identity Card program in PSF; Mr. A. S. Moghrabi (having studied criminalistics as a participant) was separated from PSF after returning to Jordan.

The total cost to date of participant training in subjects allied to criminalistics (excluding training in photography) is \$38,943 U.S.

The Director, Dr. H. M. Moghrabi, received his Ph.D. in the field of Agriculture at the University of Illinois (having done some work in biochemistry) and has studied toxicology in Britain. His experience includes work in food analysis and toxicology. He has had no training in criminalistics nor in the specific fields of firearms identification,

questioned documents and fingerprint identification, nor in the techniques of evidence collection and preservation. Until March, 1968 he had no experience in any of these skills. Since that date he has personally conducted examinations in 83 cases (see Tab E) involving the skills, using methods outlined in Tab J.

Equipment. (see Part I of Tab C) The bulk of the minor supplies and utility equipment, microscopes, and cameras (for evidence work) have been furnished by A.I.D., for which \$19,260 has been spent to date (this does not include expenditures for photographic darkroom equipment and supplies). Additionally, the PSF has furnished a large share of the funds to equip the laboratory with its more expensive and sophisticated apparatus. The equivalent of approximately \$8,000 U.S. was spent by PSF in July, 1968 for equipment selected by Dr. Moghrabi. The laboratory's estimated FY/CY-69 budget amounts to 11,900 JD (\$33,320) (see Tab H). Thus, a total PSF contribution of approximately \$41,320 will have been made for laboratory equipment.

The laboratory is just being established and for some time will be handling the simpler examinations. For the basic, straight-forward type of examinations which all "young" criminalistics laboratories conduct the equipment presently in the PSF facility is, in general, adequate. A constant supply of expendable materials and some small items of equipment will be required.

Most of the pieces of apparatus in the laboratory are in place but have not yet been properly installed and checked-out. None have been calibrated.

In the listing of major pieces of apparatus and categories of supplies now in the laboratory (in Part I of Tab C) no reference is made to photographic equipment other than items particularly needed for evidence and crime scene examination. Suffice to say, the dark-room and other photo facilities in the Criminalistics Laboratory are adequate for the present needs of PSF, assuming that accessory parts, such as missing enlarger lenses, will be received and installed soon.

Space. The Criminalistics Laboratory (combination of photographic unit and evidence examination and analysis laboratories) is located in one wing of the 3rd floor of the PSF headquarters building in Amman. The total working area is 2112 sq.ft. The photographic section occupies approximately half of this space leaving 1,136 sq.ft. for the evidence work. The latter space is laid out as shown in Tab D. It is fairly well lighted but brightly illuminated work areas for the visual examination of materials are lacking. A minimum of electrical outlets have been provided. Plumbing for hot and cold water has been provided, but the hot water heater has not yet been installed properly. Utility gas, compressed air, vacuum and distilled water was not provided for, however. Cupboard, drawer and shelf space is minimal and barely adequate. Utility closet space and evidence storage space is inadequate by all standards. Sufficient high-bench (at which work is done while standing or sitting on a tall stool) space is present but table-height working area is needed. The rooms are not air conditioned, but are heated during cold weather by steam radiators. There have been few precautions taken in connection with security.

Case load. (see Tab E). The time period covered by the table in Tab E commences when Dr. Moghrabi first began casework (March 15, 1968) and runs to the present. No statistics regarding cases handled prior to that date were available.

Methods presently being used. In general, the procedures being used and bases of conclusions being reported are open to considerable criticism on scientific grounds. The most serious deficiency observed was the absence of control procedures. Several other systematic errors can be cited.

Methods in use in the PSF laboratory are listed in Tab J.

Actual capabilities to perform criminalistics work. A criminalistics operation must have the capability of collecting, preserving, transporting, examining and the identifying physical evidence. It also must be able to provide training to police investigators and technicians in crime scene investigation and evidence handling. Furthermore it must be capable of reporting the results of its analytical work verbally or in writing and must be prepared to explain the rationale of its approach and to show that tests conducted were appropriate, properly controlled and correctly interpreted.

With time the PSF criminalistics operation will develop the capability of doing criminalistics work. As the reference standards (see recommendation # 5 terminology) collection of reference samples is established then increases in size, as the number of known samples tested increases, as data regarding the sensitivity and specificity of tests used is developed, and as methods of identifying and protecting

evidence are established, the capability for doing good and complete criminalistics work will develop automatically.

THE HEALTH DEPARTMENT LABORATORY. Operated by the Ministry of Public Health. Located at the Ministry of Public Health Headquarters, Amman, Jordan. Not visited.

According to Dr. H. M. Moghrabi and several other persons generally acquainted with it, the laboratory is a modern and reasonably well equipped facility capable of performing the conventional tests and examinations made by a public health laboratory. This includes serology work, pathology, bacteriology, food examination and analysis, isolation and/or identification of disease-causing organisms, etc. It has in the past examined evidence and conducted tests for PSF. The laboratory is reported to be well stocked with antisera (grouping sera) and does make some of its own immune preparations. Animals are maintained by the laboratory.

It is regretted that time limitations prevented the obtaining of more data regarding this laboratory. The matters of case-load, specific methods in use and capability to perform criminalistics work were not looked into.

THE CUSTOMS LABORATORY OF AQABA. Operated by the Ministry of Finance and Customs. Located at Aqaba, Jordan (5 hours by car, 1 hour by air from Amman). Just constructed, not yet operational. Not visited.

Personnel. (Total: 1) (see Part 2 of Tab B) The Director of the Laboratory, Mr. Abdul Rahim Abdul Nabi, was trained in the United

States as an A.I.D. participant in a 26 week program at the U.S. Customs Laboratory, New Orleans, during the period August 1967 February 1968. A second participant, Mr. Ibrahim Kakish, studying under the same PIO/P was transferred off of the Aqaba laboratory rolls after returning from the U.S.

Equipment. All laboratory apparatus and utility equipment has been procured under specifications written by Mr. O. M. McCombs, Senior Customs Advisor, Foreign Customs Assistance, U.S. Bureau of Customs (New Orleans laboratory). (Mr. McCombs is due to return to Jordan on another TDY to assist in the final stages of equipment installation and check-out.) A listing of the major pieces of apparatus and categories of supplies which have been purchased appears in Part 2 of Tab C. Total cost (excluding cost of building construction and of reagents) equivalent to \$48,000.00 US.

Space. The laboratory plant consists of offices, utility and storage rooms, and a work area of 1,590 sq.ft. in a single room (30 x 53 feet) with three central but separate work benches. Storage cabinets, the refrigerator and freezer and additional work areas are located around the room against the walls. The central benches are plumbed for hot and cold water and are wired for 115 VAC. A water heater and distillation apparatus are provided. The air conditioning system for the examination room has a capacity of 15 tons. No information is available regarding plant security. Construction of the stone block building was completed October, 1968.

Case load. As of the date of this study the facility was not yet operational and no cases had been handled.

Methods in use. Considering the purpose of the laboratory and the technical assistance which has been given by the U.S. Bureau of Customs, it is surmised that methods to be used will be the standard ones employed in the examination of items exported and imported; in order that proper duty is charged and that minimum legal standards of quality and quantity are met.

Actual capabilities to perform criminalistics work. Most of the work done in a Customs Laboratory is usually performed according to very specific, written procedures which have been developed over the years in research laboratories. The Aqaba laboratory will perform these standardized tests on a repetitive basis and eventually will undoubtedly be turning out reliable work.

The nature of the task in a criminalistics operation is different. There is no standard, fixed approach to a crime case. There are no written step-by-step instructions to follow when scientifically examining evidence. Each case is itself a research project in miniature. Therefore, the Aqaba laboratory does not have, nor will it have in the foreseeable future under its present manifest, the capability of conducting criminalistics operations for the Kingdom of Jordan.

There may be instances in which a very special piece of apparatus is needed by the PSF Criminalistics Laboratory or where an unusual chemical reagent is required. On the basis of mutual assistance the

Aqaba laboratory may be able to make such items available for short-term use or loan. It must be anticipated, though, that if the PSF criminalistics laboratory develops as it should the Aqaba laboratory may have occasion to call upon it for consultation or for the performance of special tests.

OTHER LABORATORIES. Several other laboratories of various types are in operation in Jordan. They were not visited.

1. The Jordanian National Resources Authority Minerological Laboratory, Amman.
2. The Jordanian National Resources Authority Soils Laboratory, Amman.
3. The Jordan Petroleum Refinery Laboratory.
4. The Veterenary Service Laboratory, Ministry of Agriculture, Amman.
5. The Sanitary Engineering Service Laboratory, Ministry of Public Health, Amman.
6. The Research Soils Laboratory, Ministry of Agriculture (Land Classification and Soils Division), Amman.
7. The Materials Laboratory, Ministry of Public Works, Salt Road, Amman.
8. The Jordan Phosphates Company Laboratory.
9. The Jordan Cement Company Laboratory.
10. The Al-Hussein Pharmaceuticals Company Laboratory, Salt.
11. Clinical laboratories at the several hospitals located in the Amman area and elsewhere in Jordan.

12. Commercial Clinical laboratories (most doing only ABO and Rh blood grouping and chemistry work) in Amman and other cities.
13. The Amman Municipal (Prefectural) laboratory.
14. Laboratories (teaching and research) of the University of Jordan.

SUMMARY. There are at least 21 individual laboratories of several types in Jordan. In total, they are staffed by an estimated 75-100 persons of varying qualifications. A few of these persons have had some limited training in the science of identification but as far as is known there is no person in these laboratories nor in the country with sufficient experience in this science to qualify him as a criminalist. There are a few ex-AID participants with limited laboratory training who are not currently employed in or assigned to laboratory positions. Approximately 85 students at the University of Jordan (see Tab G) will receive their Bachelor of Science degrees in June, 1969 and constitute a manpower pool which might be recruited from to fill vacancies in a criminalistics operation.

There is a wide and excellent assortment of laboratory apparatus available in Jordan; the majority of it is in use in laboratories in or near Amman. It will be a rare occasion when a test cannot be performed simply because equipment or apparatus is not available. The laboratory best furnished with apparatus to do criminalistics work is the one operated by the PSF. It is, in general, stocked with more than sufficient

items to do the type of work which it should perform in its first several years of operation. Expendable supplies and some minor equipment will be needed on a continuing basis.

While there is no laboratory in Jordan at the present which is capable of doing proper criminalistics work, the PSF criminalistics operation has potential of becoming a functional and even outstanding facility in a few years.

PRESENT NEED FOR A CRIMINALISTICS OPERATION IN JORDAN

The need for a criminalistics operation in any locale is mainly governed by the amount and type of crime committed there and the usefulness of information which can be provided by a criminalistics facility. The need is also governed to some extent by the ability of the police to examine crime scenes and collect evidence properly. The need often becomes particularly apparent when efforts are made to improve the investigative capability of law enforcement agencies serving the area. At the time these efforts get underway, regardless of how great the need for criminalistics appears to be, it is important to assure that certain conditions exist before the actual laboratory analysis work begins. It should be assured that:

1. there is availability of manpower to staff the operation:
its Director must be a person trained in the science of identification and must have substantial experience in managing a criminalistics facility; each of his professional

staff must have formal training in at least one of the physical sciences.

2. there is an established and working arrangement for the proper examination of crime scenes and for the proper collection, preservation and transportation of evidence.
3. there is receptivity on the part of the Prosecutor and courts to the idea of scientific investigation of crimes.
4. there is a willingness of the local government to support the operation and to allow it sufficient time (several years) to grow and develop into a useful facility.
5. there is availability of sufficient money to properly equip, staff, and operate the criminalistics operation over a period of several years.

With the above conditions met the planning of the development of the criminalistics facility can proceed.

In connection with need for a facility, the type and quantity of crime in the Kingdom of Jordan would best be indicated by statistics showing the number of citizen complaints or number of persons arrested for crimes in various categories. These statistics are not available, but data reflecting convictions has been so analyzed and appears in Tab F. The figures provide some insight but it should be kept in mind that crimes with the least number of convictions may be the very ones in which the aid of scientific investigation is most needed.

The criminalistics laboratory can frequently give assistance in investigations of homicide, assault (particularly when the weapon is carried away from the scene of the act by the perpetrator) some types of theft (particularly when tools are used in the crime), forgery and falsification of documents, rape, indecent acts, arson and the illegal possession or use of alcoholic beverages or drugs. Under ideal circumstances the criminalistics facility could, and should, assist in the investigation of nearly every case of crimes in these categories. On this basis, in Jordan in CY-67 (according to the conviction figures) evidence at least 700-1000 cases would have been collected and submitted for examination. It is highly probable that information of importance to the investigation would have been developed in many of these cases. The length of time required for many of the investigations would have been reduced, particularly if the criminalistics laboratory developed information early in the inquiry which excluded a person under interrogation as a suspect in the crime. The laboratory in its completely neutral and objective role, of course, may serve in the interest of the accused as well as in the interest of the prosecutor's case against him.

A review of the crime cases listed in Tab F suggests several ways in which scientific investigation may be of assistance to the PSF.

Guns are frequently involved in homicides and assaults in Jordan. A skilled and experienced firearms examiner can often provide investigators with useful information to guide them in their work and may, under the right conditions, be able to identify the weapon which fired a certain cartridge. Knives also are frequently used and in connection

with their examination blood grouping and (specie) identification, hair and fiber studies and latent fingerprint development may be worthwhile. The results of this work are, again, often useful in sorting out the many knives which may be found by investigators by excluding those knives which are not of interest in the case. Other objects such as clubs or stones may bear microscopic evidence and can be examined by the laboratory. In many instances tiny pieces of material hardly visible to the naked eye are of importance.

It should be noted here that such particles are easily destroyed or contaminated if the weapon is improperly handled. This is why it is absolutely essential that crime scene searches be done only by well trained technicians skilled in the collection, preservation and transportation of evidence. Microscopic particles on items of evidence are of the greatest importance but are vulnerable and will be made worthless by improper handling of the object. It cannot be stressed enough that handling of evidence and careful control of chain of custody is absolutely essential. The slightest carelessness in this regard may make all of the laboratory work valueless.

The microscopic marks made by a prying tool when a thief opens a locked container to remove valuables may enable the laboratory to identify the exact tool which was used.

The false certificates of graduation which are sometimes used in Jordan may be detected as false by the laboratory. In these cases the very printing outfit used to produce them might be identified on the basis of microscopic flaws in typefaces, peculiarities of the paper, unique properties of the ink, and so forth.

Evidence in rape and cases of indecent acts may bear gross or microscopic deposits of seminal or other body fluids and may bear hairs, fibers or other tiny particles of significance.

The assistance of the laboratory in cases of arson may prove to be helpful to the criminal investigator, especially if the use of volatile solvents is suspected.

Important information may be developed by the laboratory also when it examines evidence in cases involving illegal possession or use of drugs or alcoholic beverages. The investigator finding an unidentified white powder, unmarked pill or suspicious liquid is (or should be) faced with a dilemma unless the laboratory is ready and prepared to identify it for him. In many instances the laboratory is able to determine whether or not a person behaving in an unusual manner has ingested alcohol or drugs through analysis of his blood or urine.

In summary, statistics indicate that many crimes committed in Jordan are of the type which lead themselves to scientific investigation as an adjunct to the usual procedures of modern criminal investigation. It was pointed out that certain conditions must exist before a criminalistics laboratory's work is useful, and that these conditions must be satisfied prior to the start of analytical work, regardless of how acute the need is for the service.

RECOMMENDATIONS

The most immediate problems facing PSF in connection with its criminalistics operation are defined on the following pages and a recommended course of action leading toward reduction of the problems is given. Target dates are not specified, but it is essential that they be set at the outset to govern the program of improvement.

Problem: There is no firm plan governing the development of the PSF criminalistics operation.

Recommendation No. 1: It is recommended that PSF develop a time-phased general plan of development upon which future activities and development of the PSF criminalistics operation will be based.

Comments: It is essential that development of this facility occur in an orderly and timely way. It is futile effort to examine evidence which has not been properly collected, identified and preserved in the field. It is impossible to conduct valid laboratory tests until good analytical methods have been developed. It is impossible to judge whether or not a method is good until a collection of reference standards (known samples) is gathered to permit initial and continuous evaluation of the method. Each of these steps must be taken in sequence. The process cannot be rushed nor can steps in it be eliminated.

It is suggested that the other recommendations of this study be used in preparation of the general plan of development. Personnel staffing requirements and commodity needs should be specified in the plan. It is further suggested that beginning when the plan is activated the

Director-General, PSF, require a weekly status report on it so that he may know whether work is on schedule and, if not, so that he can take appropriate measures to bring the project back onto its time frame.

Problem: There is no adequate program, nor written plan for a program, to provide cadet and in-service training in the essential matters of crime scene examination and collection and preservation of evidence.

Recommendation No. 2: It is recommended that PSF develop a time-phased plan by which a cadre of policemen throughout the Kingdom of Jordan will be trained in (1) crime scene examination and (2) the collection, preservation and transportation of evidence, and that this plan be activated and the evidence technician training program begin at the earliest possible date with the establishment of formal courses of instruction, after which a comprehensive examination is given and a certificate awarded. The number of policemen to be trained in the program is a key factor to be decided upon early in the planning stages.

Comment: The ultimate objective of this plan should be to guarantee that policemen skilled in the tasks of crime scene search and evidence handling are spotted throughout the Kingdom. There should be enough of these technicians so that when one is transferred from a District others remain behind to carry on the work. It may be desirable to assign men in the population centers of the country to crime scene investigation as a full-time job. Further, it would seem advisable to train additional men to do crime scene work as an "on call" assignment which, as

the need arises from time to time would take priority over their regular tasks for the short period needed to do the job.

The evidence technician training program plan should include details such as the length of the course, general scope of instruction, the names of those persons who will be responsible for administering the course and who will be doing the teaching, and the arrangements to be made for classroom space, work areas in the field for simulated crime scene searches, sleeping quarters and messing facilities for those officers brought in from the Districts. The plan should be time-phased on a realistic schedule and it is suggested that the Director-General, PSF, require a weekly status report on the project. The administrative procedure by which policemen will be detailed on temporary duty to attend the course should be noted, enrollments for at least the first few courses should be set and the method of funding the project should be agreed upon and specified.

This plan and the one proposed in Recommendation No. 1 should be thought of as the foundation upon which the PSF criminalistics operation will be built. They should be assisted in this fundamental and major task by a qualified consultant to assure that it is done properly.

Problem: Recommendation No. 2 creates the need for technical training materials, lesson plans and for lecturers capable of making technical presentations.

Recommendation No. 3: It is recommended that the PSF Criminalistics Laboratory be given the responsibility of providing technical assistance in the giving of the evidence technician training program, that this responsibility shall include the preparation of a program of instruction, detailed lesson plans, the translation of appropriate literature and preparation of written material in Arabic to be given to the trainees, the preparation of training aids such as charts, displays of photographs and other exhibits, and that the responsibility shall also include the presentation of the majority of the lectures and the conducting of the practical exercises.

Comments: It is now generally recognized that a complete criminalistics operation has the responsibility for providing training in crime scene procedures and evidence handling. There are numerous reasons why this is so. It is of particular importance that at least the first several sessions of the course include practical exercises (simulated crime scenes) set up and operated by the criminalistics laboratory staff.

It is recognized that this teaching responsibility will place a heavy burden on the laboratory and that there will be little time left for analytical work. It is suggested, however, that the training project proposed above is of critical importance at this point and that it must be given priority over all other activities.

Problem: Criminal investigations of the PSF and Public Prosecutor's office need special training on the potentialities and limitations of

physical evidence, and on the nature of services offered by a criminalistics facility.

Recommendation No. 4: It is recommended that PSF develop a plan whereby all officers of the PSF and Public Prosecutor's office who conduct criminal investigations will attend a criminal investigator's evidence training program, covering the potentialities and limitations of physical evidence, and that the Director-General and Public Prosecutor jointly authorize and then implement such training.

Comments: Criminal investigators must understand the purpose of physical evidence before using it. They should accept the fact that it is only valuable when properly handled and properly examined, and that the results of the examination (expressed as a scientific report by the analyst) are only a supplement to the essential work which they do. The myth that evidence, by itself, will bring a guilty man to justice must be shown as false. These ideas can be presented to investigators in the form of a training program which need not be lengthy nor expensive to conduct. It might consist of classroom lectures, followed by seminars, followed over the months by continuous in-service training activities. It is suggested that the PSF criminalistics facility be given the responsibility for preparation of the basic plan for the program and for preparation of all training aids such as charts, written material for distribution (in Arabic, possibly translated from the rich resource of material on this subject printed in English), photographic displays, etc. It is also suggested that the criminalistics laboratory staff take an active part in the actual teaching job in the program.

Problem: The PSF Criminalistics Laboratory cannot conduct valid tests without a collection of reference standards (known samples).

Recommendation No. 5: It is recommended that the PSF Criminalistics Laboratory assemble a reference standards collection (known samples) of the drugs (such as hashish) and poisons commonly found in Jordan, ammunition and weapons of the type most frequently used in the commission of crimes, aged body fluid stains, paper, ink, soils, hairs, fibers, paint and glass. These must be collected with great care, precisely identified and then properly stored and indexed. The Director-General of PSF should authorize the release of funds for the purchase of samples, containers and index files. He should also provide for one additional room near the laboratory in the PSF headquarters building exclusively for the collection.

Comments: A reference standards collection is not a luxury but is a basic necessity in the reputable criminalistics laboratory. Control procedures must be used in nearly every test performed and the standards collection serves as the source of materials for one type of control, the known positive sample. Before an analytical method is adopted by a laboratory, it must be very thoroughly tested and evaluated in terms of its sensitivity, specificity and reproducibility. Known samples from a reference standards collection must be available for this purpose. After the method is adopted by the laboratory, known samples are also used each time the method is employed to assure the analyst that he is making the proper observation. The importance of a reference standards collection cannot be overemphasized.

Problem: Persons within the PSF headquarters building have free access to the criminalistics laboratory. Evidence being examined and stored there is improperly protected from tampering, contamination and unauthorized use or removal by these persons.

Recommendation No. 6: It is recommended that the Director-General, PSF, issue an order that access to the Criminalistics Laboratory wing in the headquarters building be restricted to members of the laboratory staff only. Other members of PSF or outside visitors (regardless of their rank or position) should be allowed to enter the laboratory only with the permission of and when accompanied by a member of the laboratory staff (who is thereby responsible for their actions in the laboratory). Special funds should be provided for the purchase and immediate installation of whatever physical barriers are necessary to implement the Director-General's laboratory security order.

Comments: Evidence is highly susceptible to contamination or alteration which can invalidate findings of the laboratory. Pieces of evidence are often items which the curious person is irresistably tempted to pick up and look at. The souvenir hunter may feel there is no harm in taking some small thing lying unattended on a table. And, it is conceivable that a person involved in a crime may visit the laboratory on some pretext with the intent of destroying or removing evidence. While this study was being conducted, it was observed that a man involved in a case of disputed paternity visited the laboratory and was present in a room containing evidence; it was also observed that weapons involved in a shooting case were left unguarded when taken outside of the laboratory for test firing and that they were handled by

curious onlookers without authorization. It is suggested that, as an immediate first step towards improvement of security, a pin-tumbler lock be installed on the doors leading to the criminalistics laboratory area from the 3rd floor lobby, that these doors be kept locked 24 hours per day, and that keys be given only to regular members of the laboratory staff. It is further suggested that a survey of the security situation in the laboratory area be made, both before and after the physical barriers are installed. Lastly, it is suggested that the Director-General make it clearly understood to the higher echelons of officers that the security rules apply to them as much as to anyone, and that the orders are his and not rules established by the laboratory administration.

Problem: There will be a continuing need through the years for candidates for employment in the PSF Criminalistics Laboratory who have good academic qualifications.

Recommendation No. 7: It is recommended that PSF establish liaison with the University of Jordan's Faculty of Science and make known their future needs for qualified scientists. A specific request should be made by PSF of the University for a list of the 85 students scheduled to receive their Bachelor of Science degrees in June, 1969 so that the list can be reviewed and candidates for interview selected.

Comments Persons with a degree in one of the sciences are the best source of recruitment for assignments in the criminalistics laboratory. Such persons are not qualified to do general criminalistics work until they have several years of experience in the identification of physical materials and the handling of evidence, but their academic background

properly prepares them for the work they will do under the supervision of a trained and experienced criminalist. . . With time they will become experienced and then truly qualified themselves. It is good planning to prepare for the inevitable resignations or transfers-out which can cripple the laboratory operation if qualified replacement are not available.

Problem: Highly sophisticated electronic apparatus has been purchased by PSF for its Criminalistics Laboratory and no provision has been made for periodic (preventative) maintenance nor for repairs when break-down occurs.

Recommendation No. 8: It is recommended that the Director-General, PSF, assign responsibility for technical maintenance of the electronic apparatus (such as the spectrophotometers, pH meter, high-voltage power supplies, etc.) to the Chief Communications Technician, PSF. He should be required to develop and then follow a plan of periodic inspection and routine maintenance. He should prepare himself for this task and the inevitable break-downs by immediately familiarizing himself with the equipment and with the accompanying repair manuals, schematic diagrams and operating instructions.

Comments: While the electronic apparatus in the laboratory is working properly, the expert in electronics (who will be called in to repair it someday) should have the opportunity to view it, examine the layout of parts and possibly make certain measurements of voltages, etc. Before a break-down occurs, he should have studied the repair manuals and schematic diagrams. If any of this important literature

is missing, he should procure it. He may choose to recommend to the Director-General, PSF, that certain spare parts be ordered, such as electronic tubes, transistors, rubber belts and reference cells (batteries).

Problem: The FY/CY-69 budget proposed by PSF for its Criminalistics Laboratory includes items which the laboratory is not yet ready to use and probably will not need in the next five years (see Tab H).

Recommendation No. 9: It is recommended that the purchase of a spectrograph, gas chromatograph and other major laboratory apparatus by PSF for its Criminalistics Laboratory be delayed to the time when the laboratory has the capability of using these items.

Comments: The laboratory is now equipped with a more than adequate stock of major apparatus. Considering its present stage of development, items, which are most needed now and for the next year or two are small and inexpensive tools, evidence containers, expendable supplies and other such minor items.

Problem: There will be a growing need for information, written in Arabic, regarding the criminalistics operation, its purpose, methods and capabilities. This will be needed for briefing interested officials of the Government of Jordan, and officers of PSF and trainees entering service in the laboratory.

Recommendation No. 10: It is recommended that a plan be developed whereby literature describing the purpose, methods and capabilities of a criminalistics operation is reviewed and selected, and then portions

translated into Arabic. A part of this material should be non-technical so that it can be understood by any intelligent person, regardless of his training or experience. A part of it should be technical in nature, especially written for new employees in the laboratory or other scientists.

Comments: The purpose of a criminalistics laboratory is often misunderstood by laymen and it is of great importance that well prepared statements are available as to what the laboratory is and how it operates. Some of these statements will be very general and others very specific; the latter will contain details of identification procedures and discussions of the evaluation of results of analytical tests. All of the material prepared should be as brief and clear as possible. It is suggested that there are many textbooks in print, several of which are now in the PSF library, which can be used as a source of information and basis for the translations.

Problem: Apparatus presently in the Criminalistics Laboratory is untested and uncalibrated.

Recommendation No. 11: It is recommended that each piece of major apparatus in the PSF Criminalistics Laboratory (including the microscopes, cameras, balances and spectrophotometers) be thoroughly tested for adequacy of performance; that each be calibrated in a very careful and accurate manner and that the calibration data be kept with the instrument to permit frequent and easy reference to it.

Comments: The usefulness of any piece of scientific apparatus is limited by the operator's knowledge of it. In testing and calibrating it, he will necessarily learn a great deal about its inner workings, its characteristics and its limitations. Mechanical apparatus and electronic instruments frequently go out of adjustment or may break down. It is important to continuously check them and compare their performance against the original calibration data. Finally, many test results are expressed in terms of "readings" taken from or observations made with the instrument used for the test. The significance of such data depends greatly upon information obtained during calibration of the apparatus.

Problem: Standard procedures for making certain chemical and physical tests should be developed and adopted by a laboratory and the PSF Criminalistics Laboratory does not yet have such procedures.

Recommendation No. 12: It is recommended that the PSF Criminalistics Laboratory develop a plan to guide them in selecting and adopting standard procedures for performing specific chemical and physical tests, that these procedures be described in writing, and that they be followed when such tests are performed.

Comments: The recommendation just made should not be interpreted to mean that there is a standard method of examining evidence or of performing criminalistics work. As mentioned earlier, each case handled by the laboratory is a small research project in itself and the criminalist must have sufficient training and experience to decide how

to proceed with his investigation, what tests to make and then how to interpret the results he obtains. The tests which the criminalist chooses to use are, however, subject to standardization and the recommendation is made to assure that the PSF laboratory develops and then uses the standard, written method whenever possible.

Problem: Elements of the Jordanian judicial system are not fully aware of the potentialities and limitations of physical evidence, when scientifically examined, nor are they aware of the steps which PSF anticipates taking to develop its criminalistics capability.

Recommendation No. 13: It is recommended that formal briefings of the Public Prosecutor be prepared and given by the Director-General, PSF, for the purpose of apprising the Prosecutor of the PSF program to improve its criminalistics operation, and that in these briefings the time element of the program be made clear beyond a doubt so that he understands that the capability is increasing at a planned rate and that examinations will be conducted by the laboratory only as soon as it is completely ready and prepared and staffed and equipped to do the work properly. The first briefing should be followed by a second one after a period of approximately six months.

Comments: The basic data for these briefings should be assembled by the Criminalistics Laboratory staff and they should prepare all necessary exhibits such as charts, graphs and tables of statistics. The Director-General may choose to give the first briefing at PSF headquarters and include a tour of the evidence technician training program activities

at the Royal Police Academy. In conjunction with the second briefing, he may wish to offer a tour of the laboratory to emphasize its newly developed capability.

Problem: The amount and type of assistance which the United States is to provide, in connection with the development of the PSF criminalistics operation, needs to be re-evaluated.

Recommendation No. 14: It is recommended that the three following courses of action be considered as major alternatives for a program to provide technical support to development of the PSF criminalistics operation:

1. assignment to Jordan of a Public Safety Advisor-Criminalistics for at least one full two-year tour;
2. assignment of such an advisor for a series of short TDY visits to the PSF laboratory;
3. a continuation of the present arrangement whereby the Records and Identification Advisor is obliged to do as much as he can to assist the laboratory.

Comments: The first alternative above would facilitate the growth of a sound and useful criminalistics operation in a reasonable amount of time. Assuming that a Criminalistics Advisor would begin his assignment just prior to the return to Jordan of the four U.S. participant trainees to be assigned to the laboratory, he would arrive sometime in July, 1969 and by July, 1971 the facility should have developed the capability of handling cases involving many of the more straight-forward and important analytical procedures.

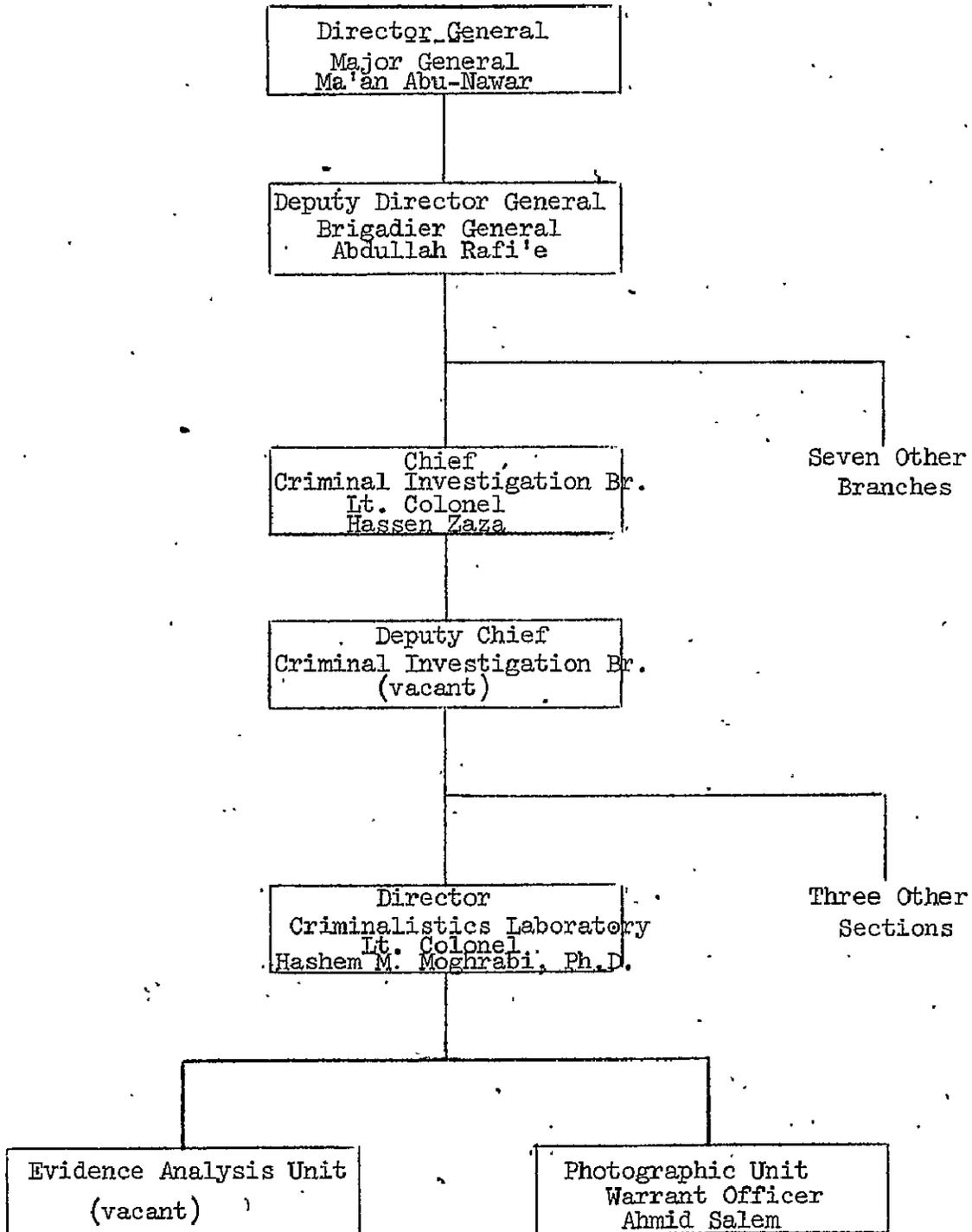
The second alternative will result in some progress but will delay the ultimate date at which the laboratory becomes functional; i.e., able to handle casework. What can be accomplished in two years with a full-time Advisor may take 5-10 years if frequent TDY visits are employed. One of the several factors dictating against the use of TDYs is the possibility that casework may proceed or be embarked upon during the absence of the Advisor and that, in their eagerness, partially trained and inexperienced personnel will overextend themselves and cause serious damage to the reputation of the laboratory and of PSF itself. An arrangement dependent upon a series of TDY assignments of a criminalist to any country involves serious administrative problems. There are few AID/OPS Advisors in this specialty and all are fully committed in their permanent assignments throughout the world.

The third alternative will result in lack of development of a useful criminalistics facility in Jordan; it is felt that, in spite of participant training investments, progress towards a working facility will be difficult without the assistance of an Advisor. It should be restated here that by all indications the PSF needs a criminalistics operation, the population of Jordan is large enough to justify it and crime statistics are such as to suggest its applicability.

ATTACHMENTS

- TAB A: Organization chart of the PSF Criminalistics Laboratory.
- TAB B: Personnel.
- TAB C: Laboratory equipment in the PSF and Aqaba laboratories.
- TAB D: Floor plan of evidence analysis area of PSF Criminalistics Laboratory.
- TAB E: Case load, at present, of PSF Criminalistics Laboratory.
- TAB F: Criminal conviction statistics for the Kingdom of Jordan.
- TAB G: The University of Jordan.
- TAB H: Budget (proposed by PSF Criminalistics Laboratory Director) for FY/CY-69 for the PSF Criminalistics Laboratory.
- TAB I: Persons conferred with during the study.
- TAB J: Methods presently being used by the PSF criminalistics laboratory.

PSF CHAIN OF COMMAND FROM DIRECTOR-
GENERAL THROUGH CRIMINALISTICS LABORATORY



Part I. Staff of PSF Criminalistics Laboratory

MOGHRABI, Hashem M., Ph.D., F.R.I.C.

Director. Rank: Lt.Col. DOB: Jordanian. Married.
Wisconsin University (B.S.), South Dakota State University (M.S.),
University of Illinois, School of Agriculture (Ph.D.). University
of London, Department of Forensic Toxicology (F.R.I.C.). Formerly with
Ministry of Public Health Laboratory, Amman. (1960-68), during which
period he was also self-employed, operating a laboratory.

AL-HAMAD, Asim Abdul Karim

Studying presently in U.S. as AID Participant (PIO/P 80064) at the Post
Office Department Laboratory, Washington, D.C. Rank: 2nd Lt. DOB:
Jordanian. Single. Obtained secondary certificate in
1962 from Ibrahimia College, Jerusalem. Studied in Naharin Secondary
School in Cairo (1962-63). In 1964 returned to Ibrahimia College,
Jerusalem, and obtained Metric certificate in 1965 (a Metric is equivalent
to the College freshman level in the United States). Lt. Al-Hamad joined
PSF in 1965 (was never employed before). He departed for questioned
documents training in USA on 15 October 1968 and is expected to return to
Jordan during October of 1969.

ATTIYAT, Abdul Karim Shaban

Studying presently in U.S. as AID Participant (PIO/P 80059) at John Jay
College, New York, N.Y. Rank: 1st Lt. DOB: Jordanian.

Single. Prior to joining PSF was employed by the Ministry of Education, Amman, as a school teacher. He was a teacher of chemistry and Acting Director of School Laboratories. He obtained his secondary (high school) certificate from Salt Secondary School in 1962 and his B.Sc. from Cairo University in 1966. Departed for forensic chemistry training in USA on 31 August 1968 and expected to return to Jordan during September of 1969.

QAQISH, Muin Issa

Studying presently in U.S. as AID Participant (PIO/P 80057) at the U.S. Army Criminal Investigation Laboratory, Ft. Gordon, Georgia. Rank: 2nd Lt. DOB: Jordanian. Single. Lt. Qaqish graduated from Irbed Secondary School in 1963 and joined the Royal Police College in 1965, graduating in 1967. It is believed he was unemployed from 1963 thru 1965 when he joined PSF. He departed for firearms training in USA on 3 September 1968 and is expected to return to Jordan in October of 1969.

AL-TARAWNEH, Abdelkarim Musa

Studying presently in U.S. as AID Participant (PIO/P 80056) at Michigan State University, East Lansing, Michigan. Rank: 2nd Lt. DOB:

Jordanian. Single. Lt. Al-Tarawneh, prior to joining PSF in 1965, was a school teacher with the Ministry of Education, Amman. He was a teacher of mathematics and chemistry of preparatory classes (preparatory classes are equivalent to Junior high school in the United States). Lt. Tarawneh obtained 5th Secondary Certificate (high school) in 1962 and joined the Royal Police College, Amman in 1965, graduating in 1967. He departed for training in the US on 20 August 1968, and is expected to return during August of 1969.

Part II. Staff of the Aqaba Customs Laboratory

ABDEN-NABI, Abden Rahim Abdel Hamid

Rank: Civilian. DOB: Married. Jordanian. Mr.
Abden-Nabi obtained his secondary certificate from Rashidya Secondary School in 1951. He travelled to West Germany in 1956 for the purpose of studying. In 1963 he obtained his Diploma in Chemistry from the Technical University of West Berlin. He travelled to West Germany on vacation in 1965. Prior to joining the Ministry of Finance/Customs on 27 December 1966 he was employed at the Arab Potash Company, Amman, as Chief Engineer (Jan. 1, 1965-October 31, 1966). He went for training to the United States as an AID Participant (PIO/P 083-1-70053) on 4 August 1967 and returned to Jordan on 20 February 1968.

PART III. Ex-A.I.D. Participants

ABU HASSAN, Mohammad Hamdan

Formerly Director of the PSF Criminalistics Laboratory. Now Chief of the PSF Identify Card project. Rank: Major. DOB: Jordanian.
Married. Major Abu Hassan prior to joining the PSF in 1961 was employed by the Government of Jordan (GOJ) as a Medical (Laboratory) Technologist during the period 1953-1961. Education: In 1956 he obtained the Medical Laboratory Certificate at the American University in Beirut (AID); in 1960 he obtained a Diploma in Law (LL.B.) from the Damascus University, Syria; in 1962 he received a diploma from London University in Medical Jurisprudence. He received his Masters Degree in Anthropology from Indiana University as an AID Participant (PIO/Ps 50045 and 60041) studying from June 2, 1965 thru 18 August 1966.

MOGHRABI, Abbas Salim

Formerly intended for assignment in the PSF Laboratory. No longer a member of PSF. Rank: Sergeant. DOB: Jordanian.

Married. Sgt. Moghrabi was dismissed from the Crime Laboratory PSF in August 1967. Prior to joining PSF he was employed by the Kuwait Oil Company, Kuwait (1953-1956) (his position title was General Clerk).

Sgt. Moghrabi obtained his 5th Secondary Certificate from Beir Zeit College, Beir Zeit, in 1948 (5th Secondary Certificate is more or less equivalent to a highschool certificate in the United States). He received criminalistics training at Michigan State University, East Lansing, Michigan, as an AID Participant (PIO/P 50046) from 9/15/65 to 8/25/1966.

TAB C

Part 1. The following is a listing of major equipment and apparatus presently located in the PSF Criminalistics Laboratory (Evidence Analysis Unit only). Detailed specifications were not included here in the interest of time.

- 1 Refrigerator, 15 cu. ft. with 1 cu. ft. freezer
- Miscellaneous wall cabinets, cupboards, cases, work tables and benches
- 1 Incubator, with internal glass door (Chicago Surgical and Electrical Co., Model 400)
- 1 Oven, drying (Boekel, 1200 watt)
- 1 Fume hood
- 1 pH meter (W. G. Pye, Model 290)
- 1 Melting point apparatus consisting of microscope (Reichert, 10X eyepieces and 10X N.A.0.25 objective, without polarization), hot stage (Reichert) and variable transformer, without calibrated thermometer
- Thin layer and paper chromatography apparatus, without spreader
- 1 Balance (Sauter, 4000 gm), single-pan, automatic, 1 gram sensitivity (inoperative)
- 1 Spectrophotometer, near ultraviolet (Unicam SP 800 A)
- Miscellaneous laboratory glassware
- Miscellaneous reagents and other chemicals
- 1 Kit, "evidence analysis", "complete crime lab" (Sirchie)
- Electrophoresis apparatus (Shandon), with power supply (400 VDC, 80 MA)
- 1 Spectrophotometer, infrared (Unicam, Model SP 200)

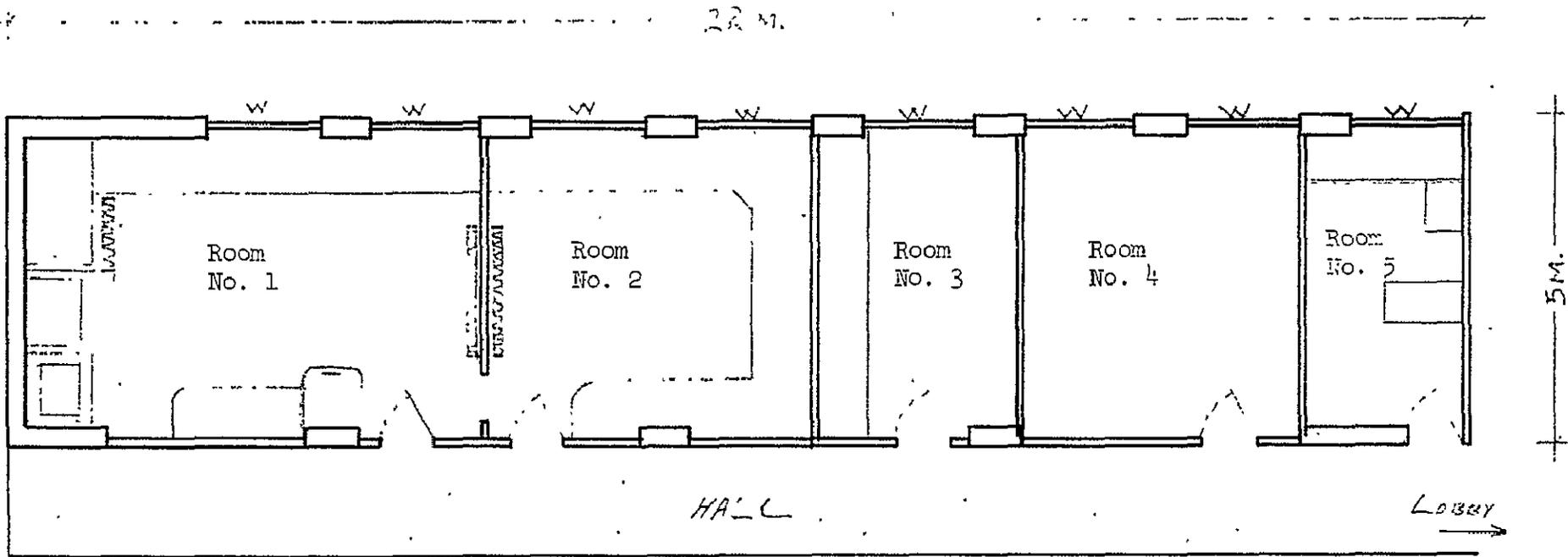
- 1 Balance, double pan, utility, double beam
- 1 Mount with arm and base for stereobinocular microscope (Band L)
- 1 Kit, "fingerprint" (Sirchie)
- 2 Illuminator, spot lamp (American Optical Co., Model 31 - 33 - 53), with transformer
- 1 Centrifuge, 15 ml, (International, Model CL)
- 1 Microscope, binocular, with 4 objective lenses on turret, with 10X WF eyepieces (American Optical, Series 10T), with in-base illuminator
- 1 Illuminator (American Optical, Model 31 - 33 - 01)
- 1 Microscope, stereobinocular, 0.7 - 3.0 X variable, with 10X WF eyepieces, on transilluminator base (B and L)
- 1 Lamp, ultraviolet, shortwave
- 1 Camera (B and L, Model L), with 2 lenses and microscope adapter, with work-bench
- 1 Microscope, comparison (B and L), with bullet comparison stages
- 1 Illuminator, ribbon filament (American Optical Model 42 - 44 - 42), for use with L camera
- 1 Metal detector
- 1 Balance (Metler, Model B-5)
- 1 Sterilizer, steam autoclave (Barnstead, Model H-2000)

Part 2. The following is a listing of major equipment and apparatus purchased for the Customs Laboratory in Aqaba. Detailed specifications were not included here in the interest of time.

- 2 Fume hood
- 3 Laboratory tables, equipped with accessories
- Miscellaneous wall cabinets, cupboards, cases and work tables
- 1 Refrigerator, 18.4 cu.ft., with 5.2 cu.ft. freezer
- 1 Water heater, 80 gallon
- 1 Emergency shower
- 3 Air conditioner plant, 5 ton, with water cooler tower
- 1 Spectrophotometer (Beckman, Model DU-2) with flame attachment
- 1 pH meter (Beckman, Model G)
- 1 Arsenic distillation apparatus (ASTM E50)
- 1 Balance (Metler Model B-5)
- 1 Balance (Volland Model 640-D)
- 1 Balance (Harvard Trip)
- 1 Balance (Torsion Rx-1)
- 1 Balance (heavy duty, Trip)
- 1 Balance, specific gravity
- 1 Centrifuge, 15 ml.
- Ion-exchange resins
- Chromatography apparatus, thin layer
- 1 Nepho-colorimeter
- 1 Electro-Analysis apparatus (Eberbach)
- 1 Muffle furnace (Thermolyne Model 1700)

- Hydrometers
- Incubator
- 1 Lamp, ultraviolet, shortwave
- 1 Microscope (AO Microstar, 10T series)
- 1 Microscope, stereobinocular (B&L)
- 1 Kjeldahl distillation apparatus
- 1 Penetrometer (Universal) (sic)
- 1 Viscosimeter (Saybolt)
- 1 Oven (Thelco Model 28)
- 1 Oven (Duo-Vac)
- 1 Refractometer (Abbe, Model 3L)
- 1 Polarimeter
- 1 Microtome
- 1 Calculator (Friden)
- Glassware, assorted

- Room No. 1 - Evidence examination
- " No. 2 - " "
- " No. 3 - Storage room
- " No. 4 - Director's Office
- " No. 5 - Sterilizer room



PSF Criminalistics Laboratory,
evidence analysis area, Located
on the third floor, south wing of
the PSF Headquarters building, Amman.

PSF LABORATORY ACTIVITY STATISTICS
PERIOD: MARCH, 1968 THRU 17 NOVEMBER 1968

	MARCH 1968	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER 17 NOV. 68	TOTAL
Hashish Identification	0	1	1	5	5	5	1	7	2	27
Toxicology	0	0	4	2	1	7	5	2	1	22
Firearms Identification	0	0	1	1	0	2	1	1	4	10
Seminal Stain Identification	0	1	0	3	1	3	0	0	0	8
Blood Stain Identification	1	0	1	1	2	0	1	0	0	6
Food Testing	0	0	1	1	0	1	1	2	0	6
Documents Examination	0	0	0	0	0	0	1	0	0	1
Development of Latent Finger Prints	0	0	0	0	0	0	0	0	1	1
Identification of Unknown Pills, Caps, Powder	0	0	1	0	0	0	0	0	0	1
Miscellaneous	0	0	0	0	1	0	0	0	0	1
TOTAL	1	2	9	13	10	18	10	12	8	83

CONVICTIONS (arrest statistics not available)

Criminal Statistics, Jordan

	CY 1965	CY 1966	CY 1967 *
Homicide - Intentional & attempted	178	193	113
Assault - Severe injury	421	464	157
Assault - Minor injury	7,807	7,591	4,517
Theft & Robbery	559	519	330
Livestock & petty theft	1,665	1,484	1,105
Forgery & falsification	14	45	43
Rape & indecent assault	220	244	152
Indecent acts	205	169	54
Adultery	29	30	27
Arson	74	76	47
Illegal carrying of arms	145	205	97
Using alcoholic and narcotics	566	688	410
Gambling	145	147	128
Total for all arrested offenses	15,055	15,487	9,592

* Loss of west bank in June 67
may account for decrease in CY-67.

The University of Jordan: A Source of Manpower
for Recruitment for Criminalistics Positions

The University of Jordan is located on a 375 acre campus 7 km. North of Amman and was established by Royal decree in 1962. Teaching began the following December in the Faculty of Arts. As of the 1967-68 academic year enrollment totalled 2,207 students, 25% of whom were women, with a full-time faculty of 127 members which includes two Fulbright scholars. A capital investment equivalent to \$1,970,000 US has been made in constructing and equipping the University and its current annual budget is the equivalent of \$3,360,000 US.

The University has been assisted by several benefactors including the Ford Foundation. Its main source of income is the 1%-of-value share of customs collections to which it is entitled by law. Although A.I.D. support of the University has been negligible, the USAID Human and Institutional Development Division has observed its development and is of the opinion that the faculty and curriculum, in general, are above average for a school of its type and age and that graduates should prove to be fairly capable beginners in their fields.

Titles found in the Program of Instruction and course requirements (particular attention was given to the Faculty of Science) are very similar to those of colleges in the United States and Britain. The academic qualifications of the faculty are good to excellent.

The curriculum is divided into 3 faculties with the 1967-68 enrollments shown below:

	<u>Enrollment</u>	<u>Proportion</u>
Faculty of Arts	1138	52%
Faculty of Commerce and Economics	746	34%
Faculty of Science	323	14%
	<u>2207</u>	

Of the total 2,207, there were 84 students in graduate school working toward their M.A. degrees.

The Faculty of Science, opened in October 1965, includes four Departments: Physics, Chemistry, Biology and Mathematics. To enter the University to study in any one of these four Departments a student must have a secondary school certificate equivalent to a French Baccalaureate.

The program of $142\frac{1}{2}$ semester hours for a bachelor's degree can be completed in four years.

In the spring of 1969 it is estimated that 85 students, the great majority of whom are Jordanian, will graduate as Bachelors of Science. A few of the graduates will enter service with the Army. Several will probably accept attractive offers of employment outside of Jordan, especially in the Gulf States (Abu-Dabi, Katar, Duba, etc). The remainder comprise one category of the manpower pool available in CY-69 for recruitment by PSF for their criminalistics operation.

Budget (proposed by PSF Criminalistics Laboratory
Director) for FY/CY-69 for PSF Criminalistics Laboratory

<u>Item</u>	<u>Estimated Cost (JD)</u>
Spectrograph	4,500
Gas chromatograph	2,000
Laboratory equipment *	2,530
Chemicals and reagents	1,000
Annual journals	100
Books and publications	300
Steel cabinets and shelves	150
Photographic films and materials	400
Photocopy paper	100
Antisera	250
Alcotest	100
Microtome	400
Miscellaneous	70
	<hr/>
Total	11,900
	=====

Note:

Equivalent to \$33,320 US. Subject to reduction in Parliament not expected to exceed 10%.

* No further breakdown available.

Persons conferred with during the study

Maj. Zein Abe-Din - Deputy Commander, Royal Police Academy, PSF

Maj. Gen. Ma'an Abu-Newar - Director General, PSF

Mr. Roy D. Comp - Public Safety Advisor-Logistics/Supply, USAID/Jordan

Mr. Richard Dangler - Civil Engineer, Engineering Division, USAID/Jordan

Mr. James B. Donohue - Public Safety Advisor-Telecommunications,
USAID/Jordan

Mr. John Funari - Director, USAID/Jordan

Mr. Arthur M. Handly - Deputy Director, USAID/Jordan

Mr. Robert F. Hildenbrandt - Public Safety Advisor-Records & Identification,
USAID/Jordan

Lt. Col. Muhammad Mansour - Commander of Royal Police Academy, PSF

Dr. Hashem M. Moghrabi - Director, Criminalistics Laboratory, Criminal
Investigation PSF Division

Mr. Charles J. Nesbitt - Chief, Public Safety Division, USAID/Jordan

Dr. Dallas Ostergaard - Executive Officer, USAID/Jordan

Dr. Subhi Qasim - Chairman of Biochemistry Department, Faculty of
Sciences, University of Jordan

Brig. Gen. Abdullah Rafi'e - Deputy Director General, PSF

Mr. Emory Roberts - Chief, Engineering Division, USAID/Jordan

Mr. Miles P. Seeley - Public Safety Advisor-Investigations, USAID/Jordan

Dr. Salah I. Tahsin - Dean, Faculty of Science, University of Jordan

Mr. David Wilson - Assistant Training Officer, Human and Institutional
Development Division, USAID/Jordan

Lt. Col. Hassen Zaza - Chief, Criminal Investigation Division, PSF

Mr. Jameel Zureikat - Sr. Engineer, Engineering Division, USAID/Jordan

Methods presently being used by the
PSF criminalistics laboratory

The following data was obtained verbally from Dr. Hashem M. Moghrabi in an interview in his office on 17 November 1968.

a. Identification of hashish: The only examination made is by paper chromatography. This test is entirely specific for the alkaloid in hashish. All hashish contains enough alkaloid to give a positive test. No controls other than a reagent blank are necessary. (Specifics: Extract sample with 1:1 diethylether and benzene. Filter extract thru tightly packed florosil column in stems of funnel and wash with benzene. Evaporate filtrate to near dryness. Place 2 drops of residue on an origin point on a 3.5x15 cm (approximate) strip of silicagel impregnated filter paper and dip in 1:1 benzene and carbon tetrachloride for separation. Run parallel reagent blank. Dry strips. Spray with alcoholic KOH. Hashish alkaloid will be identified as a violet spot at RF .3 to .4. Optimum time in chromatography tank: 2-3 hours.)

b. Toxicology: Samples for examination consist of blood, urine, stomach contents or viscera. Antimortem cases are usually from hospitals in/near Amman. Postmortem samples are taken by autopsy surgeons with little knowledge of pathology or forensic medicine. (Two general practitioners are now studying for 2 years in Cairo under United Nations World Health Organization fellowships in forensic medicine and are due to return to Amman for assignment by HKJ Minister of Public Health in January 1969 and January 1970.) The samples are examined using a modified Stas-Otto extraction of the prepared (maşcerated) material.

Fractions from the extraction are tested with screening tests (color tests and crystal tests) for barbiturates and alkaloids. Barbiturates are confirmed using the shift of UV absorption maxima as a function of pH as the single criteria. No attempt is made to identify the specific barbiturate. Alkaloids are identified on the basis of UV absorption spectra. No reference standards of known barbiturates or alkaloids are available in the laboratory. No reference file of UV absorption spectra are kept on file. (The specifics of the extraction procedure are given in a paper authored by Dr. Moghrabi entitled Comparative Study of Five Commonly Used Methods for Extraction and Estimation of Barbiturates in Human Liver (unpublished, undated).

c. Firearms identification: Questioned weapons, cartridge cases and bullets are usually submitted for examination, to be compared on the basis of gross and microscopic features. A bullet comparison microscope is used. Test rounds may be fired from a questioned firearm into water and the recovered bullet compared with questioned ones. It is sufficient to note the general shape of the firing pin impressions under 10X magnification to positively identify cartridges being compared. Comparison of breech-face impressions (microstriations) is unnecessary. Where available expended cartridge cases are better for identifying a weapon than bullets and if it appears that an identification has been made using a cartridge case there is no need to attempt further identification with any bullets available. (A portion of these statements were made by Dr. Moghrabi on a prior occasion, on 13 November 1968, when he was examining some cartridge cases in his laboratory.)

d. Seminal fluid stain identification: Samples submitted for examination usually consist of swabs or clothing. An aqueous extract of the sample is made onto a piece of filter paper and this is sprayed with the acid phosphatase reagent. This test is specific and, if positive, a positive test for seminal fluid will be reported by the laboratory. The Florence test and a microscopic search for heads and tails of spermatazoa may be made. Also, an iodine test for the starchy material present in dry seminal fluid stains may be conducted. As soon as the electrophoresis apparatus (recently purchased by the PSF laboratory) is in operation there will be no need to conduct any of the above tests. A precipitin test using electrophoresis will be used.

e. Blood stain identification: The first test conducted is to see if the stain is of human origin. The ortho-tolidine test is used for this purpose. An anti-human precipitin test may also be used. The next determination made is the grouping of the stain. (Specifics: A portion of the dry sample is mixed with antiserum in a spotplate depression and allowed to stand 10 minutes at 37-38°/C. The supernatant is removed and discarded. The residue is washed with normal saline. Known blood serum is added. The presence or absence of agglutination indicates the blood group.) As soon as the new electrophoresis apparatus is in operation the blood grouping step will be eliminated. Anti-human serum will be run against the questioned stain and the precipitin reaction will indicate the blood groups present.

f. Food Testing: Routine chemical tests are run on foods submitted for analysis. For example, cheese was tested to determine why it had a bad odor. Some milk was checked to be sure that it had not been diluted with water. Bacteriological tests on food samples submitted

to the PSF laboratory are conducted by the Ministry of Public Health in their laboratory.

g. Documents examination: The only case handled by the PSF laboratory involved a suspected alteration of a document by pen. A comparison of inks was made using paper chromatography.

h. Development of latent fingerprints: All cases involving the development of latent fingerprints are supposed to be handled by the PSF Identification Section. One case was submitted to the laboratory by mistake. The evidence consisted of a letter in an envelope. In an attempt to develop latent fingerprints on the letter it was dusted with black powder.

i. Identification of unknown pills, capsules and powders: Only one case of this kind has been handled by the PSF laboratory so far. Suspected poisoned grain (commercially prepared as a rat poison) was examined and found to contain strychnine. An alkaloid color test and the dichromate test for strychnine was used; no others were necessary to positively identify the poison.

j. Miscellaneous: A case involving locks on a safe was handled. Brass filings and tool marks were present in one of the two locks. It was concluded that a new duplicate key had been used to open the safe.