

POLICE ORDER No. 257

Aid of Science in Crime Detection

CHAPTER I

Introduction

According to a well-known principle commonly known as Locard's Exchange Principle, when any two objects come in contact with each other there is always a transference of material, however insignificant it may appear. A person who commits an offence either leaves something at or takes away something from the scene of crime or from the person of the victim. There is, therefore, always a strong possibility that some scientific evidence will be available to prove the presence of the suspect at the scene of the crime and to connect one with the other. With the availability of techniques to properly collect such physical clue material and evaluate their significance through systematic scientific study and examination, valuable information can be got to connect one or more missing links in the chain of evidence or to strengthen a weak link.

"Circumstances can not lie, witnesses can and do".

It is against the above context that forensic science comes to the fore-front. In the broad sense it implies the application of scientific principles and methods for the investigation of crime and administration of justice and law in the law courts. It covers all the basic sciences and utilise their methodology and analysis for the examination of clue material and thus help in the detection of crime. The physical objects associated with a crime can, therefore, be examined and characterised to provide valuable information. To cite a few a finger or footprint, the skid marks, left by a rashia? vehicle causing an accident, a speck of dirt or dust, chips of wood and paint, fibres, hair, traces of poison as well as other material evidence can, therefore, be profitably utilised for the successful detection of crime.

Crime in some form or other is as old as man himself and though crime and criminals are the harmful off shoots of the society, it has not been possible to eradicate them. Successful detection of crime it self acts as a deterrent for the further commission of crime. In the present civilised society where socioeco-nomic changes take place rapidly and science with technology have made considerable progress, newer type of crimes are being committed. To combat such evils, the desirability of using up-to-date scientific methods or has keenly been felt. Through a gradual process of evaluation modern methods of investigation based on scientific principles have evolved leading to full-fledged establishments with necessary specialisation. To attain this end and to make scientific examination and provide necessary assistance, forensic science laboratories and allied scientific units have been set up in the different states. In these institutions all the basic disciplines of fundamental science function under one roof so that exhibit and clue materials which are collected and preserved are examined to afford the information for the knowledge of the Trying Courts to either prove the guilt of a criminal or to exonerate a suspect actualy innocent apart from providing material clues for investigating into a case. The work of laboratory does not, therefore, constitute the work for the prosecution or for the defence but essentially goes in the form of evidence or witness for the information of the courts.

In this State, besides the State Forensic Science Laboratory located at Rasulgarh, Bhubaneswar three other scientific units of the Crime Branch viz., the Finger Print Bureau, Handwriting Bureau (Document examination) and Photo Bureau also function in the same building. The details of working of each of these units—the subject matter of the succeeding pages are expected to provide the necessary information and guidance to the Investigating Officer.

CHAPTER II

STATE FORENSIC SCIENCE LABORATORY AND THE DISTRICT LABORATORIES

(i) Organisation, scope and functions

The State Forensic Science Laboratory of this Department was first established in 1962 in C.I.D., C.B. when it started examining court exhibits relating to Ballistics and Physics. Subsequently, with the addition of more staff and equipments, other branches were opened and the laboratory shifted to a building at Rasulgarih, Bhubaneswar where it is functioning at present as a separate unit of the C.I.D. under a Director.

The laboratory has been organised in five divisions viz., Ballistics, Biology, Chemistry, Toxicology and Physics. A Serology Division will be opened shortly where all serological examinations can be done. The F.S.L. functions as a full-fledged unit and all expert examinations of court exhibits relating to criminal cases are undertaken and there is no necessity of referring the same to any other laboratory outside the State except for very special type of exhibits. The laboratory accepts for examination all exhibits of criminal cases forwarded by criminal courts, as well as medicolegal exhibits sent by medical officers. The laboratory also provides information to the investigating officers and advise them as to the procedure to be adopted for examination of exhibits that are not directly dealt in the laboratory.

It has been equipped with a variety of modern instruments for rapid and precise analysis of samples. The results of examination are communicated to courts in the form of reports which are accepted in evidence. The experts of the laboratory besides undertaking the expert examination also undertake spot visit work analogous to the district laboratory to render necessary assistance to the investigating officers.

In addition to the State F.S.L., four subsidiary laboratories are functioning at the headquarters of Balasore, Sambalpur and Ganjam districts and at Rourkela. The staff of these laboratories proceed to scene of crime on being requisitioned by investigating officers to render scientific aids to investigation and assist them in the proper collection, preservation, packing of clue materials for expert examination in the State Laboratory. It should be the endeavour of all investigating officers to utilise to the utmost the facilities offered by these laboratories. Opening of more district laboratories and provision of mobile forensic science laboratory vans have been contemplated and are expected to be commissioned in due course.

The Director of the laboratory has been declared as *ex officio* Chemical Examiner and the Assistant Directors as *ex officio* Assistant Chemical Examiners to Government for the purpose of section 293 Cr. P. C.

(ii) DETAILS AND NATURE OF EXAMINATION CARRIED OUT IN THE DIFFERENT SECTIONS OF STATE F.S.L.

A synopsis of the work carried out in various sections is furnished below:—

(a) Ballistics Division

The main functions of this division are as follows:—

(i) Problems pertaining to Arms Act:

Examinations are undertaken to decide if a suspected fire arm comes under the purview of Arms Act and to find out whether a gun/rifle or fire-arm requires licence or not depending on its type and workability. Handmade and country made guns are also examined.

(ii) Identification of fire-arms:

Bullet, cartridge-cases, pellets, wads, etc. are examined to establish their origin and to establish if they could have been fired from a particular type of fire-arms suspected to have been utilised at the scene of crime. Comparative studies under the comparison microscope after necessary test firings are made.

(iii) Identification of live ammunition:

Determination of calibre, probable make and type of fire arms.

(iv) Examination of powder residue to detect evidence of firing an rebounding of bullets. Examinations of clothing of victims and other targets for the presence of bullet marks are also undertaken.

(v) *Reconstruction of crime scene :*

When the information available from the scene of crime like the height at which bullet marks are noticed or similar other information besides the medical report on the nature of wounds etc. the sequence of the commitment of the crime can be reconstructed and whether there has been an accident, murder suicide or man slaughter can be determined by experiments as performed.

(vi) Determination of direction and magnitude of velocity of bullets, sequence, of shots.

(B) BIOLOGY DIVISION

This division deals with the following types of work :—

- (i) Examination of blood and biological fluids. Examination of blood bloodstains, seminal stains, smears and vaginal swabs, saliva, urine, stool, pus, coelestrum, lochia, sweat etc. are under taken for their identification.
- (ii) Identification of hairs to determine origin, age and sex of victims
- (iii) Microscopical examination of fibres i. e. ropes, stripes, textiles etc. for comparison, identification and matching.
- (iv) Biological test for identification of pulse powders, various seeds
- (v) Examination of various plants, plant products, grass, seeds, leaves, flower etc.
- (vi) Identification of pieces of human tissues like skin, flesh and other parts of the body adhering to crime exhibits.

N. B.—Determination of origin, age, sex and identity from skeletal remains, age from teeth and determination of time of death etc. is done in the forensic medicine and toxicology departments of the State Medical Colleges. In cases where only such examination is necessary, the material exhibits should be sent to the Professor and Head of Department, Forensic Medicine and Toxicology division of the particular Medical College with the forwarding letter and letter of authority after satisfying the necessary formalities.

(C) SEROLOGY DIVISION

This division is expected to function very shortly. The following items of work are to be carried out in this division :—

- (i) Determination of the origin (whether human or not) and grouping of blood stains
- (ii) Determination of origin and grouping of stains of semen, saliva, sweat etc.

(D) CHEMISTRY DIVISION

The following works are carried out in this division :—

- (i) Examination of opium for identification and determination of morphine content
- (ii) Examination of liquor, ganja, bhanga and drugs like L. S. D., Pethidine etc. for identification and in case of liquor, determination of alcohol content.
- (iii) Analysis of dust, dirt, corrosions etc. for composition and nature
- (iv) Examination of fats, oils, milk (natural) milk powder, sugar etc.
- (v) Examination and chemical analysis of cement, lime, bricks, clay metals, chemicals etc.

(E) TOXICOLOGY DIVISION

This division deals with the examination of the following types of exhibits

- (i) Examination of food, drink and containers from which poison is suspected to have been administered for determination of type of poison.
- (ii) Examination of urine, blood, vomitus, faeces, hair clippings, clippings of finger nails and toe-nails for detection and identification of poisons.
- (iii) Examination of viscera in fatal poisoning cases to ascertain the presence and nature of poison administered.
- (iv) Examination of garments bed-sheets, etc. soiled with vomitted matter and saliva
- (v) Estimation of alcohol in blood and urine
- (vi) Other types of poisoning including Kerosene, methyl alcohol etc.

(F) PHYSICS DIVISION

The following items of work are carried out in this division

- (i) Examination of paint, glass, soil, plastics for origin and comparison
- (ii) Examination of broken articles, broken tools, broken utensil cloth fragments, broken pieces of glass, glass bangles for contour matchig.
- (iii) Examination of toolmarks, scratch marks
- (iv) Examination of telegraphic wires for measurement of gauge, matching of cut ends and tool marks
- (v) Miscellaneous physical examinations, such as those of packing materials, bunny bags, fittings clippings, etc.
- (vi) Examination of broken window panes (glass) to determine the direction of force
- (vii) Instrumental analysis of various materia's received from other divisions of the laboratory
- (viii) Restoration of erased numbers
- (ix) Examination of wood for their type and conformity of textiles, paper, plant and other anima products to specified standards in collaboration with Biology Division.

The Photographic section of the laboratory functions under this division and is provided with modern equipments to take close up pictures and photomicrographs.

(III) DISTRICT FORENSIC SCIENCE LABORATORIES

The District Forensic Science Laboratories functioning at Balasore, Sambalpur, Chatrapur and Rourkela are meant to serve the Following districts in scientific investigation of crimes. The rest of the districts, i. e., Cuttack, Bhubaneswar, Puri and Dhenkanal are served by the State Forensic Science Laboratory Rasulgah, Bhubaneswar.

1. District F. S. L., Balasore.....Balasore, and Mayurbhanj
2. District F. S. L., Sambalpur.....Sambalpur and Balangir
3. District F. S. L., Chatrapur.....Ganjam Korapurt, Kalahandi and Phulbani
4. District F. S. L., Rourkela.....Rourkela, Sundargarh and Keonjhar

Scientific officers in charge of the District Forensic Science Laboratories or those deputed for the purpose are expected to help the investigating officers in looking for collecting and preserving the clue materials found traceable at or near the scene of crime and if necessary, conduct preliminary examination in order to help the investigating officers to proceed on the right line of investigation. This preliminary examination is mostly confined to physical study including examination with lenses, microscope, ultraviolet light and enlarged photographs. If recovered materials are large in size, chemical tests are also applied to form a preliminary idea about their nature. In case of small articles, chemical examination is not normally undertaken and the whole article is preserved for expert examination in the State F. S. L. Some of the specific functions of the District F. S. Ls. are furnished below. The list is, however not exhaustive.

1. Officers of District F. S. Ls. are expected to look for collect the following clue materials in preliminary examination if necessary, and help the I. Os. for their packing for transmission to the State F. S. L.

(a) Materials stained with blood, semen, urine, saliva, serum, pus, Juice, stool, vomitted material etc.

(d) Cloth, hair, fibre, debris, paint, dust, fragments of glass, soil, pieces of metal, wood plant, seed etc.

(c) Cartridge cases, wads, bullets, pellets, suspected firearms, articles having tool marks etc.

2. Advise the investigating officers to send documents for examination in the Handwriting Bureau, Crime Branch with all necessary enclosures according to rules.

3. Advise the investigating officers to send articles having defaced marks on them for examination in State Forensic Science Laboratory.

4. Take cast and tracings of foot prints if and when necessary

5. Photograph scenes of crime if and when necessary

6. Develop latent prints, photograph and lift them

7. Perform preliminary examination on suspected forged notes and help the investigating officers to send them for further expert examination.

Requisition to utilise the services of the district laboratories should be sent to the Superintendent of Police of the district where the laboratory is located. For Puri, Bhubaneswar, Cuttack and Dhenkanal requisition may be sent to the Director, State Forensic Science Laboratory or Director, Finger Print Bureau, Rasulgah, Bhubaneswar—10. Vehicle if provided to the laboratory for the quick transport of its staff to the scene of crime may be used for the purpose subject to the rules prescribed in this connection. These vehicles are not to be used for any other purpose.

For the packing forwarding of the exhibits for expert examination the detailed procedures as outlined should be followed. It should be the aim to send them as expeditiously as possible with the necessary certificate of authority and the forwarding note after satisfying the requisite formalities to avoid subsequent complication without waiting for the submission of the charge report.

CHAPTER III

INSTRUCTIONS FOR COLLECTION, PRESERVATION, PACKING AND TRANSPORTATION OF CLUE MATERIALS FOR EXAMINATION IN STATE FORENSIC SCIENCE LABORATORY

There are three main sources from which exhibits for examination can be obtained :

- (1) The scene of crime
- (2) The victim
- (3) The suspect and his environment. It is necessary to search the three sources thoroughly collect all materials in sufficient quantity and send them to the laboratory. The microscopic fragments debris and other inconspicuous materials can contribute to the final solution of the crime. The collection of such materials is a specialised task and investigating officers must have a very keen sense of observation

2. Precautions to be observed.

(i) Protect the scene of offence immediately after the receipt of information about the offence Do not allow any unauthorised person to enter the area until the investigating officer has collected all the relevant materials.

(ii) While picking and packing the material for despatch to the laboratory care should be taken to see that no article is inadvertently contaminated with extraneous matter that is likely to interfere in its examination.

(iii) Obtain photographs of the scene from a number of angles so as to later establish the exact position of things and their condition of lying there, viz. the body (if any), the weapons etc. and similar relevant details about which recollection may later fade and become confused.

(iv) After first conducting a preliminary examination before moving the articles and noting down any special points the investigating officer should handle the articles with particular care by holding it only by such parts as are unlikely to have been touched by the hands of a person who could have used it previously.

(v) Look for unusual foreign matter like pieces of hair, fibre, paper, clothes, glass, wood, metal etc. and collect sweepings on the floor without disturbing other things like blood, saliva, semen stains etc. (use forceps for picking small articles).

(vi) It is also advisable to make a rough sketch of position of objects and note the relationship of various pieces of evidence to the surrounding which often prove of value in the case.

(vii) Remember that clues that may appear unimportant in the beginning may be of vital importance at a latter stage and, therefore, all possible clues should be collected in the beginning.

(viii) In investigating cases of murder or suicide, a Medical Officer should accompany the Police whenever possible and inspect the body and the surroundings before they are disturbed.

3. *General direction*—Each item should be separately packed and labelled indicating the serial number of the item. Never pack more than one item together. The labels should be numbered consecutively and should bear the signature of the forwarding officer and number and date of his letter of advice to the Director, State Forensic Science Laboratory, Rasulgarh, Bhubaneswar. All the packets belonging to one case should then be enclosed in one box or other covering unless disparity in the size of the articles makes this inconvenient.

Articles belonging to different cases should never be forwarded under the same cover. Articles sent for examinations should never be used as wrappers. Labels should not be pasted over instruments suspected to contain any stains. All parcels should be carefully sealed by the despatching officers and packed in such a manner that they cannot be opened without breaking the seals. The seal should be the same throughout—either a private seal or an official seal which is kept in safe custody. Impression of keys, ring etc. should not be used. A letter of advice should be separately forwarded to the Director, State Forensic Science Laboratory. A copy of the forwarding letter should be invariably enclosed in the parcel so that the exhibits can be connected with the relevant case.

The case reference should be prominently mentioned on the counter cover of the parcel sealed with the same seal whose fascimile impression is given on the forwarding letter.

The forwarding letter should be prepared on the prescribed form (vide Appendix I) and should contain the following particulars :—

- (1) Report No.
- (2) Case reference
- (3) Brief history of the case
- (4) Description of articles in each packet
- (5) Nature of opinion required
- (6) Forwarding note of the officer through whom articles are forwarded
- (7) Name of Investigating Officer
- (8) Name of accused person (s)
- (9) Fascimile of seal used in packets

(10) Authorisation of the competent authority to undertake examination. It is necessary that the material exhibits should be sent to the laboratory for expert examination as early as possible without delay with a view to provide the laboratory the necessary time and to preserve the evidentiary value of the exhibits specially of biological origin. The material objects requiring expert examination should be sent immediately after seizure with the necessary certificate of authorisation without waiting for the submission of charge-sheet.

(b) DIRECTIONS FOR SPECIFIC TYPES OF EXHIBITS :

(i) *Weapons and Tools* :—

Iron metal parts stained with blood should be preserved from getting rusty as far as practicable and should be sent for examination to the laboratory as early as possible. Development of rust under the stains renders them unsuitable for laboratory test. Knives guns, tools, and other weapons should be secured to a board by means of strings. The board should then be placed in a box of suitable size and covered with a neat fitting lid. Large glass articles, stone slabs, metal pieces and other heavy objects can be safeguarded by means of small wooden crates.

(ii) *Hairs and fibres* :—

If these are found adhering to some objects with blood, cloth, the whole object with the hair or fibre remaining in situ should be sent to the laboratory. In order to preserve untouched any foreign matter adhering to them the hairs or fibres should be picked up with forceps. They should be placed in filter or blotting paper which should be carefully folded along the length of the exhibit and enclosed in a suitable container. A paper with a glazed surface or a cellophance paper can be used for this purpose.

Hair from the persons or animals should be obtained by combing. If this does not yield sufficient quantity, a considerable number should be clipped from several points, cutting them close to the skin. Public hair should be taken from rape suspects victims. This should be clipped close to the skin. This is useful for comparison with the hair found on the person or clothing, or handkerchief of the suspects.

Hairs should be collected from as near the wounds as possible for matching with hairs found on weapons etc.

In murder and assault cases search for hairs on cloths of both the victim and suspect. If their hairs, samples for comparison should be victim obtained from the head of both the and the suspects.

From animals all parts of coat are pulled so that the hair ready to fall is obtained.

The method of collection employed and sites of collection should be clearly mentioned in the forwarding letter.

(iii) *Dust or Soil*:-

This should be placed in a filter paper and then closed in a suitable container. If the dust is found on any article of furniture, it can be collected directly in a filter paper with the help of a vacuum clean. Soils may be collected with a scalpel, spatula or a spoon, if the dust is found on an object which can be readily transported such as shoe or clothing, the whole object should be sent to the laboratory, keeping the dust or soil in tact on the material. Metal filings, glass fragments, finger nail scrapings, paint chips, wood chips, plaster and similar samples should be placed in filter paper and enclose in a suitable container. For all the above purpose, cellophane paper or any other clean preferably with a glazed surface can be used instead of filter paper.

(iv) *Blood and Blood stains*:-

- (a) Blood and blood stains constitute a very important aspect of the work of a forensic scientist. The discovery of blood stains depends on the acuity of the eye. The articles should be systematically searched. Blood stains are found on clothing, weapon, vehicle, as well as on the body and clothing of both victim and the suspect. The following procedure should be observed in collecting blood or blood stained articles.

DONT USE ANY PRESERVATIVE

- (b) Fresh moist stains on clothing, sheets, blankets, etc.—Allow the stain to **DRY AT ROOM TEMPERATURE**. Insert the fabric between clean white paper to protect stain from the rest of the material and send it to the laboratory. If blood is found in large quantities it may be soaked in a filter paper and dried in shade at **ROOM TEMPERATURE**. A portion of the filter paper should be sent as control. Then allow the rest to **DRY AT ROOM TEMPERATURE**. Insert the dried fabric between clean white paper and sent to the laboratory.
- (c) Fresh moist stains on solid objects—such as weapons, wood, plaster, automobile, etc. Blood may be soaked on a filter paper and allowed to **DRY IN SHADE AT ROOM TEMPERATURE** and sent in an envelope.
- (d) Dried stains on clothing sheets, blankets, etc.—Send the entire fabric to the laboratory, protecting the stain with clean white paper.
- (e) Dried stains on solid objects—First remove any crusts. Place them in a test tube, stopper and sent to the laboratory. The entire object must then be sent to the laboratory. If this is not possible scrape off as much as possible avoiding scrapping the solid object under neath particularly if the object is wood, plants, leather or cement plaster and place the scrapings in a clean test tube, stopper and sent to the laboratory. If this is difficult, the stain may be transferred to a moist filter paper dried in shade at **ROOM TEMPERATURE** and sent to the laboratory in an envelops.

If the blood is found on earth, or earthy material scrapping should be made deep enough to collect the soaked serum.

If the blood stain is found on dried leaves, embed them in a mass of plasticine, stained side upper most, pack in a suitable container and send to the laboratory.

- (f) Blood and blood stains on the body of a person—Stains from suspected areas should be removed with a piece of filter paper soaked in 9 per cent sodium chloride solution. This should be allowed to lie on the portion till the paper gets stained which should then be removed and dried in shade at **ROOM TEMPERATURE**. The filter paper is then enclosed in an and enveloped sent to the laboratory.

If stains are suspected to be present in the nails, they should be clipped and the clippings packed in a glazed paper and sent to the laboratory. Materials sticking to the nail clippings should not be loss in packing and transit. In clipping nails, care should be taken to avoid cutting the underlying skin of flesh.

A large quantity of stain is required for determining blood group than for determining the origin of blood. A control specimen is essential for determining blood group from stains, in cases where the stains is likely to contain blood from different persons this fact of multiplicity of persons should be stated and each spot should be kept separate. These remarks also apply for determining semen group

- (g) If a pool of blood is present at a crime scene, a clean cotton cloth may be soaked in it dried thoroughly and forwarded. Control sample of cloth should be sent. Wet cotton swabs disintegrate the blood very fast.
- (h) Post-mortem blood should be stored ice cold and sent to the laboratory immediately to prevent disintegration. In case of unavoidable delay, a clean cotton cloth soaked with a few drop of blood is more suitable for examination.
- (i) In all cases of packing of blood stains, use of airtight bottles or plastic bags are to be avoided.

Control samples

If it is not possible to sent the entire object to the laboratory, a portion of the unstained area immediately surrounding the stain should always be forwarded for control tests. In case of stains on clothing an unstained portion of about 2 square inches free from the stain, from the immediate neighbourhood of the stain should be sent. If the stain is on soil plaster or furniture, etc. a portion (1 gram) of the adjacent unstained area should be scrapped to the same depth as the stained area and sent as control. In taking control samples near the stain, avoid the soakage of the stain. In the case of weapons, it is very desirable that the whole object is sent to the laboratory so that the control sample may be prepared from the washings of the surface of an unstained area.

(v) Semen :—(a) The stain is allowed to dry in room temperature and the entire object is sent to the laboratory. The stained areas should be marked if possible. The garment or fabric should be folded taking care that the stained areas are not folded. Pieces of clean white paper should be placed on the stained areas and stitched on the periphery.

(b) Vaginal and cervical swabs collected during medical examination should be sent immediately after drying.

(c) If smears are prepared from vaginal or cervical swabs, first dry and wrap separately in papers.

(d) In sexual offences, several public hairs should be cut near the root, dried and wrapped in paper

(vi) *Other body fluids* :—

(a) If saliva is suspected to be present on any article, the entire article should be sent. Saliva stained gags, drinking glass, bidi or cigarette stubs should be sent after drying and wrapped in paper. Control samples of saliva should be collected from victim and suspected persons and sent immediately in a small clean phial in an ice box. If persons are dead, swabs from the mouth of both the victim and suspect should be sent. Saliva can also be swabbed from teeth bite of victim and cheeks of victim.

(b) Urine, tears, sweat and nasal discharge may be sent for examination depending on the case—

(c) Vomit and faecal matter should be sent after drying and packed as in case of blood.

(vii) *Tissues* :—Dry at ROOM TEMPERATURE and send. Don't use any preservative.

(viii) *Tool marks* —Send to whole tool. If this is unpracticable, make several impressions on similar material as evidence using the entire marking area of the tool. The tool mark should be protected by covering with soft paper. It should then be placed in strong wrapping papers. The whole thing should be in a strong box and packed to prevent shifting.

Articles containing tool marks should be packed as above. If it is not possible to send the whole surface close up photographs of the mark should be taken with a scale. Then a plastic cast should be carefully obtained and forwarded to the laboratory along with the suspected tool.

(ix) *Exhibits for ballistic Examination*—

(A) Seizure—The fire arms seized should be sent with the following particulars if available.

(a) The type and make, (b) Serial number (c) Calibre. The label containing the descriptions should bear the signatures of witnesses. In the case of fired bullets or cases of revolver and pistol cartridges the signatures of search witnesses should be taken on the accompanying label only. As many cartridge cases or bullets, as possible, should be recovered and sent to the laboratory for future reference or for exhibition in the court by the expert while deposing.

(B) *Packing*—Immediately on seizure of a fire-arm, the muzzle end of the barrel should be capped and not plugged. In the case of revolvers, openings of both the front and rear sides of the chamber should be plugged with clean cloth. This should be done at the breech end of the fire-arm. The fire-arm should then be separately wrapped up with paper, tied with thread and kept in a wooden box with packing material such as cotton waste so that it does not move during transit. The Investigating Officer should in no case try the mechanism or the working of the fire-arms. It should be brought in original condition of the seizure. In the case of ammunition the open end of crime cartridge case should be immediately corked and the base covered with cotton and kept in envelopes.

(C) *Tissues surrounding gunshot injuries—Instructions for despatch of—*

Tissues in cases of death from shooting, to be examined for the presence of traces of lead should be sent in lead free containers. Country-made earthenware jars have been frequently found to contain lead in their inner surface and should not be used as containers for packing such tissues. A specimen of unaffected tissues from the same body should also be sent in such cases whenever possible for control purposes.

(D) In cases of gunshot injuries, the entire cloth of the victim without disturbing the dents, if any made on the cloth by the gunshots should be sent to the laboratory for ascertaining the presence of traces of lead and other ammunition residues.

(E) *Labelling*—Each article should be packed, labelled and sealed separately before sending it to the laboratory through a messenger.

(F) Whenever opinion on distance and direction of firing is required, copy of post-mortem or injury report should be furnished to the F. S. L.

(x) Exhibits encountered in automobile accidents (A) Scene of accident—

(a) *Skid marks*—This will give an indication of the point at which the brakes were applied, and the speed at which the vehicle was travelling. The length of each skid mark should be measured and recorded.

(b) *Tyre impression*—This will give information on the make and brand of the tyre, condition of the tyre, the size of the car or truck, the direction of approach and departure of the vehicle from the scene.

(c) *Dirt and Debris*—Dirt and debris might have dropped from the vehicles as a result of the jolt. This should be collected and sent to the laboratory for comparison with the dirt from the undersurface of the mud guard or outlines of the suspected vehicle.

(d) *Flakes of paint and enamels*—This may be found scattered at the scene of the accident. This should be collected and sent to the laboratory for comparison with similar samples obtained from the suspected vehicle.

(e) *Glass pieces*—From the damaged head lamp, side mirror window and wind screen found at the scene should be sent. Every piece should be collected, so that the article may be reconstructed. These pieces can also be compared with similar pieces obtained from a suspected vehicle.

(f) *Broken equipment*—Such as, pieces of metal from a broken bumper bar, door handle radiator emblem detached from the damaged vehicle should be collected and sent. This will help to connect a suspected vehicle with the accident.

(g) *Fabrics*—Small fragments of cloth or fabrics which have been torn away by the heavy wheels are likely to be found on the scene of the accident. These should be collected and sent for comparison with the similar materials that might be found on the tyres of the suspected car.

(h) *Blood, hair and tissues*—If found in a car suspected to have been involved in an accident should be sent to the laboratory for comparison with the blood and hair of the victims. This establishes link between the suspected vehicle and the accident.

(i) *Engine oil or any oil*—Found at the scene of the crimes should be sent in clean and dry tin or glass containers.

(B) *Injured person of deadbody*—(a) Any foreign matter on the wound, tyre marks, grill marks on the clothing of the victim should be preserved, (b) samples of blood and urine of the victim should be taken (c) samples of hair from the head of the victim should be collected (d) clothing should be searched for flakes of glass traces of paint, metals, blood or any other stains, dirt and debris. Each garment should be packed separately

(C) *Examination of suspected vehicle*—Finger prints should be searched from broken glass work, sample paint and enamel, broken parts, stains, blood etc., clothing pattern marks, dents and scratches should, if available be collected carefully for comparison with clue materials available at the spot.

(xi) *Theft of Telegraph and Telephone Wires*—

In cases of telegraph and telephone wires and cases involving the examination of tool marks on objects, the Investigating Officer should collect the loosely hanging wires and clearly mark the end supposed to have been cut by the culprit to differentiate it from the cut made by the Investigating Officer in removing a small length of wire. The ends of recovered wires should be carefully wrapped in cotton wool and tied with strong thread so that the delicate surface is not damaged during transit. The ends cut from the hanging wires should also be wrapped similarly. The wire ends enclosed in cotton wool wrappings should be packed in a moist free container.

The tools left at the scene of offence recovered from the suspect should be wrapped in cotton wool and care should be taken not to use those instruments in obtaining sample ends.

Whole coils of wire recovered should not be sent, such wire should be cut to small pieces as mentioned above to length of 12" and sent. In cases where the exhibits are recovered in small cut pieces, they should be sent.

(xii) *Poisoning*—Exhibits in cases of suspected poisoning

(A) In cases of death due to poisoning, it is the duty of the Medical Officer to collect and preserve the viscera of the deceased for transmission to the Chemical Examiner. But the mode of collection and preservation particularly is dependent on the history of the case. It is the main duty of the Police Officer to give the full history of the case available to the Medical Officer before he conducts the post-mortem. For instance, in cases of poisoning by drinking excess of alcohol, poisoned arrack, etc., the viscera should be preserved in a saturated solution of common salt. If the Medical Officer is not informed that it is a case of death by consuming alcohol, he may preserve the viscera in alcohol itself (alcohol being the common preservative) and render the specimens unfit for examination for alcohol. Similarly in a case of barbiturate poisoning (sleeping tablets) the urine and the brain are most important articles required for a satisfactory analysis. As in the case of barbiturate poisoning, urine should be preserved in poisoning by other modern sleeping drugs. Dhatura including other vegetable poisons and alcohol poisoning. Unless the Medical Officer is aware of the nature of poisoning he may not preserve and send the brain and urine. In cases of poisoning by carbon monoxide hydrogen sulphide, alcohol, it is the blood, urine and lungs these are the most important articles for analysis. If these articles are not sent by the Medical Officer nothing conclusive might be obtained by the analysis of other viscera. Hence, it is imperative on the part of every Investigating Officer to place before the Medical Officer the history of the case available before the post-mortem is done, if the investigation is to be effective vague terms like "suspicious death", "death by poisoning", should not be used under the column "History of case".

(B) *Preservation of evidence*—(1) Evidence to be collected at the scene through examination of the scene of death for suicide notes, source of poison, containers from which the victim may have taken the poison, etc. should be undertaken. Look for cups, glasses, bottles, jars, powders, food material wrappers, pieces of paper, hypodermic syringe with needle, etc. and submit them for chemical analysis. All food materials found in and around the premises should be confiscated for analysis in the laboratory.

(II) *Evidence to be collected in non-fatal poisoning (living persons)*—

1. Food, medicine, drink and the containers from which the poison was administered.
2. Urine—24 hours specimen collected in a clean bottle (Vegetable poisons, mercury, sleeping tablets, leads)
3. Blood—10 c. c. ask Doctor to collect (Vegetable poisons, alcohol, sleeping tablets, lead).
4. Vomitous and stomach washing (Indicates poison by mouth but not necessarily that it is absorbed and causing poisonous symptoms).
5. Faces (Arsenic, lead and so on) Indicates poison by mouth but not necessarily that it is absorbed and causing poisonous symptoms).
6. Hair-clippings (Arsenic-chronic).
7. Clippings of finger nails and toe nails (Arsenic-chronic).
8. Food (Bacterial food poisoning other poisons administered through food)

(III) Evidence to be collected in fatal poisoning (dead bodies)—The following viscera are collected at the time of post-mortem examination for chemical analysis by the Medical Officer —

1. The stomach and its contents
2. A loop of small intestine and its contents
3. Liver—at least one pound
4. Kidneys—at least one
5. All the urine present in the bladder

The above are collected in a routine post-mortem examination in cases of poisoning. In special cases of poisoning, the following are saved for analysis:—

1. Blood—50 c.c (Alcohol, mercury, carbon-monoxide, insecticides)
2. Lungs (Respired poisons)
3. Brain—at least one half (Alcohol, sleeping tablets, opium, chloroform)
4. Bone, finger nails, hair (Arsenic-chronic).

NOTE—In case of poisoning in which specimens are of medico-legal importance, the Investigating Officer and the Medical Officer must use care to establish a legal chain of custody in such a way that each person having responsibility of the material can state that it has not been contaminated or changed. They should follow the rule for collecting, packing and transporting of specimens for chemical analysis as laid down by rules (IV). Vomitted matter, if any, and faeces should be packed separately and sent to the laboratory after adding rectified spirit as preservative. If the vomitted or purged matter are mixed with earth in sufficient quantity to render them dry and inoffensive, they may be packed without rectified spirit in any convenient manner.

In all the above cases, Rectified Spirit, should not be added as preservative if the poisoning is suspected to be due, to poisons such as alcohol, kerosene, phosphorous, Paraldehyde acetic acid and carbolic acid. In such cases, a saturated solution of common salt should be added as preservative with a layer of salt at the bottom.

(V) The Investigating Officer may also collect the garments, bed sheet, etc. soiled with vomitted matter (especially in Endrin poisoning) and forward the same to the laboratory for examination along with viscera.

(xii) *Assault on persons including murder.*

- (a) After preparation of a detailed sketch of the scene and taking a sufficient number of photographs to cover all aspects, search for clue materials should be undertaken. In most cases, the starting point for search would be the body of the victim. A careful examination of the floor, walls, ceiling, furniture and all exposed surfaces should be made. This should be thorough, systematic and critical.
- (b) Victim—Examine the victim carefully. This should consist of (i) photographs of the body (ii) complete description of the body (iii) examination of clothing (iv) in sex cases search for evidence of semen, injuries, choking or other evidence of use of force, samples of victim's hair should be obtained from head and body including genital regions (v) examine area directly under the body for blood stains, vomitted matter, semen, bullets and marks of weapons.
- (c) *Scene of Crimes*—Search for (i) lethal weapons and if found examine, for traces of hairs tissue, fibres finger prints, dirt, rust and any substance sticking to it (ii) bullets, cartridges etc. (iii) In poisoning cases latent, prints, food, vomit, glasses, bottles, medicines, etc.. (iv) foot prints, heel prints, clothing patterns, tool marks (v) used matches, cigarette and bidi stubs, buttons, tools, dirt from footwear, dirt from clothes fibre from clothes (vi) position of blood stains, torn pieces of hair, displaced articles of furniture to indicate resistance injuries and other signs of struggle (vii) in cases of sexual offences all garments, bedding and other materials such as towels, rags, handkerchief for signs of seminal stains, blood stains and other materials.

(D) Search the following places (i) all openings to rooms and other parts of entry and exit for foot prints, finger prints, blood stains, fibre, dust, etc., (ii) unexposed places such as wall behind furniture, waste basket, vases, under bedding for blood stained clothings; (iii) if crime occurred in the open, search the immediate grounds as well as the area several hundred feet around. (iv) all hedges, walls, barbed wire, railing, fall pipes, window sash, along the line of approach and exist should be searched.

(E) *Suspect*—Search the suspect for marks on his clothing, also the skin underneath his finger nails, marks of struggle on body and clothes, matches, cigarettes, bidis and other things in his pockets e. g. knife or tool. Make actual measurements of all distances relevant to the case and take casts of tyre marks, tool marks, etc., if possible.

(xiv) *Breaking and entering offences*—The following exhibits should be looked for. It should be seen if the crime reported is true or simulated and what has been the technique employed:—

- (a) Finger prints on glass, china glass, pane of a window or door of an almiran, trunk, polished furniture, mirror, paper, utensils, etc.
 - (b) Foot or shoe impressions.
 - (c) Cloth such as kerchief or napkin, left by the culprit.
 - (d) Burnt cigarette or bidi ends.
 - (e) Tools such as crowbar or 'Sindh Kathi'.
 - (f) Soil found on the shoe, clothing implement of the suspect.
 - (g) Jack or iron rod used to bend iron bars.
 - (h) Any hole made with drilling machine. Saw dust or brick particles for comparison with samples taken from scene of crime.
 - (i) Glass particles from the clothing/packets of the suspect for comparison with samples collected from scene.
 - (j) Fibres from shoes, clothing of suspect for comparison with samples collected from spot.
 - (k) Dust or vegetation from the shoes of the suspect.
 - (l) Broken implements, parts of lathis, etc., from the spot for matching with tools recovered from the suspect.
- (xv) *Sexual offences*—(a) Wearing apparel should be seized as early as possible from both the victim and the suspect because important traces may be destroyed by the washing of the clothes.
- (b) In rape cases, clothing, blood, hairs, fibres and materials transferred from the scene of crime should be collected.
 - (c) In cases of sodomy, besides the above materials, search for faecal matters of the victim on clothing.
 - (d) In cases of bestiality, wearing apparel of the suspect and animal hair or the clothing on body of the suspect.
 - (e) The Medical Officer should be requested to collect cloth swabs and smears from private parts of victim and suspect, hairs and fibres, fragments of skin under the nails and in case of suspected use of drugs, samples of blood, urine, stomach wash viscera, etc.
 - (f) From the scene of crime, marks of struggle should be searched and portions of torn articles of clothing, fragments of textile fibres, torn off buttons, blood, semen, etc., sample of dirt, sand, earth, etc., should be collected.

(g) *Collection and preservation of materials from victim's body*—Most of the collection and preservation of material objects from the victim's body may come within the field of the Medical Officer. However, it is the primary responsibility of the investigating police officer to place the full history of the case before the Medical Officer to enable him to collect the required specimens and preserve them in an appropriate manner. Thus in cases with a history of injury or death caused by a sharp weapon, the matter should be intimated to the Medical Officer to enable him to arrive at the conclusion whether such injuries could have been caused by such weapon. Further, he will be able to mark the rents caused by such weapons on the wearing apparel corresponding to particular injuries for exhibition in the court at a later date. It may be necessary to take specimens of hair from the scalp and other parts of the body for comparison with the hairs found on the weapon or weapons used or on the scene of offence, etc., for offering an opinion. A specimen of blood may have to be taken from the victim for a blood grouping test, if it is necessary. Particular care should be taken for the collection of these materials from the victim if he is already dead since they cannot be obtained at a later date, when the body has been already cremated, as is the usual custom in this country. Hence, the investigating police officer should clearly issue a requisition to the Medical Officer, who conducts post-mortem to preserve these specimens before the body is disposed of.

(xvi) *Arson cases, cases of burning and cases involving explosions and explosives*—Cases involving explosives or explosions should always be attended with great care. The State F. S. L. has not yet been authorised to undertake the examination of exhibits involved in such cases and reference should be made to the Deputy Inspector of Explosive, East Circle, 8 Explanade East, Calcutta-1 to whom the exhibits are to be forwarded after completing necessary formalities. The Investigating Officers are expected to immediately take steps to preserve the scene of occurrence since from the 'remains' left valuable information can be obtained on the nature of the chemicals used and nature of explosions. Some common articles which one may come across are countrymade bombs or its components, fuses, caps, detonators, dynamite and its preparations in different shapes. The investigating officers should also be familiar on the colour and general nature of some of the chemicals like Potassium chlorate, Potassium nitrate, antimony sulphide, arsenic sulphide, picric acid, strong sulphuric acid, nitric acid, petroleum and its products, etc. which are used for preparation of explosive mixtures.

APPENDIX 1

Forwarding note

In all cases, where the expert examination of any material is required at the State Forensic Science Laboratory a copy of this form duly filled in should accompany the sealed box containing the exhibits.

Case No.....Police-station.....

District.....

Section of law.....

I. Nature of crime

(This should cover nature of charge, brief history and any relevant details).

II. List of exhibits sent for examination

Serial No.	Description of the exhibits	How, when and by whom found	Source of the exhibits **	Remarks

III. Nature of examination required

(Including any information which will assist the examination)

- ** (1) The exact place from where the exhibits were collected.
- (2) If these exhibits were in the possession of a person (victim/suspect/witness), the names and other details of the owners should be furnished.

Memo. No.....Dated the.....

Forwarded to the Director, State Forensic Science Laboratory, Rasulgarh, Bhubaneswar

Signature of the Forwarding Officer

Designation of the Forwarding Officer

(SPECIMEN SEAL IMPRESSION)

Certified that the Director, State Forensic Science Laboratory, Rasulgarh, Bhubaneswar has the authority to examine the exhibits sent to him in connection with the case of State versus under section..... and , if necessary, to take them to pieces or remove portions for the purpose of the said examination.

Date..... Signature and designation of forwarding authority

Place.....

NOTE—In the "Nature of Crime" and "Nature of Examination," care should be taken to ensure that all necessary information regarding individual samples submitted is included.

In the packing of material for expert examination, it is important that the specimen samples should be well protected against contamination from outside sources. The specimen when received at the laboratory must be a true unadulterated sample of the material found at the scene of the crime. (They must be in separate clean packets or in glass-stoppered bottles and sealed.)

The exhibits should be packed and transported according to the directions described under each type of exhibit. It should be meticulously observed.

Specimen seal impression should be on sealing wax. Certificate to be signed by a competent forwarding authority and forwarded to the Director, State Forensic Science Laboratory, with exhibits. A copy of the forwarding report complete in all respects should also be in the packet of the exhibits.

CHAPTER IV

State Finger Print Bureau

(i) Origin, scope and functions

In addition to the State Forensic Science Laboratory, there are 3 other scientific units namely the State Finger Print Bureau, the Handwriting Bureau and Photo Bureau of the Crime Branch offering similar type of assistance.

The State Finger Print Bureau started functioning after the separation of Orissa State from Bihar and is one of the earliest technical units of the Orissa Police. It had then about 3,000 record slips which have increased considerably in course of these years now having about 1,50,000. These record slips conveying finger prints of criminals with previous criminal activities are very helpful in helping the investigating officers to trace out the antecedents of suspects and to establish identity through a process of comparison and elimination. A single digit bureau started functioning as an additional unit to the above ten digit system, the special feature of the system being to feasibility of utilisation of the impressions of the single digit which might be available at the scene of crime. The criminals may not always leave the impressions of all their ten digits at the scene of crime. Under the modernisation scheme a number of modern equipments like Agil Mayukh Comparator, Pana Print Photo Copier etc. have been added to facilitate expert examination.

The experts of the bureau visit scenes of crime to intensify and develop latent finger and palm prints in the process of rendering scientific aids to investigation.

(ii) The details and types of work undertaken

1. Examination of search slip

The search slips of the unidentified persons received from the Police Officers are examined to find out their previous convictions and to establish their identity from the bureau record, if already classified and available in the bureau. The finger prints of unidentified dead bodies can also be collected to establish the identity.

2. Development of latent prints

The latent prints on paper, other questioned documents and on objects encountered in course of spot visits suspected to have been handled by the culprits are developed.

3. Preservation of foot prints

Chance foot prints left by the culprits at the scene of crime are traced on surface. In cases where the prints lie sunken, casts are taken for comparison with specimen prints of the suspects taken in similar nature of surface as far as practicable.

The bureau accepts for examination all the finger print documents received from various private sources in criminal cases and in civil cases on a prescribed fee of Rs. 20 per case with Photo cost of Rs. 5 for each print to be deposited in treasury in chalan under head 055—Police—Forfeiture fine, etc.

(iii) General instructions for collection, reservation and forwarding of exhibits

The Investigating Officers should be conscious of the potentiality of latent or visible finger print in connecting the crime with suspected criminals. They should therefore exercise utmost caution in properly handling the different objects.

At the present time the Scientific Officers posted at district forensic science laboratories are available to help the Investigating Officers in the collection, preservation and forwarding of the objects bearing the latent finger prints. In case they are not readily available, Investigating Officers who are proficient may also develop and forward the exhibits to the State Finger Print Bureau for examination and opinion. The following instructions which are incorporated in Appendix 22 & 23 of the Police Manual should be kept in view.

The most important point when inspecting the scene of occurrence to locate the latent finger prints, is to refrain from touching or allowing others to touch any articles on which the criminal is likely to have placed his hands. These should be carefully examined with the aid of magnifying glass and if any sign whatsoever of a finger mark is discovered the following procedure should be carefully followed. A small quantity of grey powder, if the surface is dark, or graphite if the surface is light should be gently and evenly sprinkled over the spot. The surplus powder should then be removed with a camel hair brush. The place should again be examined and if finger marks are discovered of a sufficient completeness and distinctness to render further action possible the article (if portable) should be removed and sent to the Director, Finger Print Bureau with proper packing with specimen 10 digit finger prints, palm prints of suspected persons if any, for examination by the Finger Print Bureau after necessary photographs. If the article is too large or can not be removed it should be carefully protected and guarded and an urgent requisition should be sent for an officer of the photographic Bureau. In all cases of murder or suspicious death if anything in shape of finger mark is found any article which might reasonably be suspected to have been touched by the victim, the finger print of the deceased shall be taken for the purpose of comparison.

2. In case of visible finger prints found on any objects it should be sent to Director, Finger Print Bureau, Rasulgarrh with proper packing without any intensification.

3. Generally finger marks should invariably be looked for on polished surfaces such as glass, metal, wood, cement, etc. which require intensification by grey powder and finger marks found on paper, china clay, milk-white electric bulbs, etc. should be intensified by graphite powder etc. Finger print found on multicoloured objects should be intensified by Brilliantine (Universal) powder. All the Finger prints should be specifically marked as 'A,' 'B', 'C' etc.

4. Instructions for taking Plaster casts and preparing glass and paper tracings of foot prints.

(a) In case of chance foot print found on any hard surface it should be traced by means of glass and paper so that the exact outlines of the chance foot print is traced. In case of blood stained foot prints or where the ridge details are visible should be photographed. While taking photograph a scale should be placed to indicate the actual size.

(b) In case of smudged foot print besides taking cast with the plaster of Paris or wax, tracing on glass and paper should invariably be taken. Specimen prints of suspects are to be taken on similar nature of soil as far as practicable.

(c) Invariably the signature of two disinterested witnesses, and the case particulars, etc. should be noted. All the prints should be specifically marked as 'A', 'B', 'C', etc.

All exhibits and correspondence in regard to the above items should be made to the Superintendent of Police, C.I.D., C.B. (Finger Print Bureau) or Director, Finger Print Bureau, Rasulgarrh, Bhubaneswar.

CHAPTER V

DOCUMENT EXAMINATION BUREAU (HANDWRITING BUREAU), C.I.D., C.B., ORISSA.

(i) Origin, scope and set up;

The Document Examination Bureau (commonly known as Handwriting Bureau) started functioning in 1949. Documents in the modern context play a prominent role in the various walks of life. Ingenious methods involving extraordinary skill are adopted by criminals in fabricating and altering documents. To counteract such attempts and to prove the authenticity of documents, scientific methods have to be used. In the bureau examination of documents relating to different types of serious crimes, like forgery, murder, robbery, kidnapping, embezzlement of public funds, conspiracy against the State, etc. is undertaken. Besides, top secret documents of the Central and State Government and documents relating to departmental and criminal proceedings against the Government officials, etc. are also examined rendering useful assistance in the investigation, detection and successful prosecution of cases. With the financial aid of the Central Government under the Modernisation Scheme, several sophisticated and costly equipments have been purchased for the Bureau to increase the scope of detection.

(ii) The work broadly falls into the following categories:

- (i) Comparison of questioned writings and signatures with known standard writings and signatures, to establish genuineness or forgery.
- (ii) (a) Comparison of disputed type writings with standards taken from known suspected writers to establish the identity of the typewriter in which the disputed typewriting was typed.
(b) Determine as to whether there has been any addition with another typewriter
- (iii) Decipherment of erased, altered, obliterated writings, invisible and secret writings
- (iv) Examination of additions, interpolations and over-writings on questioned documents
- (v) Re-construction of writings on torn, damaged and charred documents
- (vi) Examination of texture of paper and nature of ink by physical methods
- (vii) Comparison of torn edges of documents, to establish the identity of the document or stamp from which the document has been torn.
- (viii) Examination of seals, rubber stamp impressions and postal and date stamp impressions
- (ix) Preliminary examination of forged currency notes and postal stamps to guide Investigating Officers to proceed in investigation in proper direction.
- (x) Identification of anonymous or pseudonymous letters to fix the author, by comparison with the standard writings of the suspects.

(iii) Instructions for sending documents for examination

The requisition for undertaking the examination of documents should comprise of forwarding letter, the suspected documents and the standards for comparison constituting of the specimens and admitted writings etc. as mentioned below. All the documents should be properly handled with care as enumerated in item 3 and should be properly marked as indicated in item 4 and despatched as expeditiously as possible following the instruction in item 5. The suspected documents may be either in the manuscript form, typewritten or of the mixed type. These documents may also contain rubber stamp or seal impression. The standard for comparison depending on the nature of the documents, should be collected and sent for examination when forwarding the exhibits.

1. Forwarding Letter:

A type written statement should be furnished, briefly giving the facts of the case and clearly indicating which of the documents are questioned ones, which are the admitted ones and which are the specimens and the points on which expert's opinion is necessary. In the facts of the case particulars such as title, number, date names of complainant and accused, section under which the charge is laid circumstances of the writing, right or left hand used in writing, age and health condition of the writer and other matters in which the expert should be informed, should be included. There should be nothing in the forwarding letter for which the defence lawyer may take the plea of 'bias' to the expert. For instance, on questioned writing should be characterised as 'forged' or written by a particular writer

2. *Standards for comparison:*—(A) In case of manuscript writings

When it is requested to determine the authorship of a disputed writing or signature, the following standards for comparison would be required, and should be collected and sent for examination:—

(i) *Specimen Writings*

6 specimens corresponding to each disputed writing / signature and containing the same matter, should be collected and sent for examination, when the disputed writing/signature is on a printed form or ruled paper, the specimens should also be obtained written at corresponding positions of similar printed forms or ruled papers. As examination of documents is intricate and inconspicuous and delicate characteristics have to be examined, it is preferable that as far as practicable specimens should be written on papers of similar size and nature, with similar pointed nib (thin, medium, coarse or ball pointed), as the corresponding questioned writing. It is however not necessary that the same pen and paper should be used as was used for writing the questioned document. When the disputed writing/signature is in pencil or in carbon, the specimens for comparison with such disputed writings/signature, should also be in pencil or carbon, as the case may be. Besides these, the usual ink written specimens should also be obtained. When a disputed signature occurs on a revenue stamp, three of the specimen signatures should be written on revenue stamps. At the time of obtaining the specimens, the suspect should be put at ease and should not be made nervous excited, so that he may write in his natural way. He should write the specimens in the normal sitting position, and it is not necessary to collect his specimens in standing and lying positions as is sometimes done. Specimens should be taken as early as possible and at any rate before the suspect gets advice from outsiders to disguise his writings or to refuse to give specimens. The specimens should always be written to dictation and the disputed writings/signatures should not be shown to the suspect, while writing the specimens and specimen should be taken out of his view, after it is written. Specimens may be taken before some respectable and reliable witness, so that he can prove the same as per section 47 of the Evidence Act. It is not necessary that specimens should be taken only before Magistrate and no time should be wasted for this.

(ii) *Specimen Set-paragraphs*

Two copies of a set paragraph, written to dictation by each of the suspects, containing several words, capital letters figures and letter combinations, in common with the disputed writing, should also be obtained and sent for examination.

(iii) *Admitted writings written in the ordinary course of business:*

Admitted writings/signatures, written in the ordinary course of business, near about and preferably prior to the date of occurrence, provide valuable data for examination. Such admitted writings/signatures may be available in letters, petitions, acquittance rolls and private business and official correspondence and records. Some such admitted documents, preferably, including a few, written on similar documents as the disputed one, and containing some words, capital letters and figures, in common with the disputed writings, should be sent. Nothing should, however be characterised as 'admitted' writing unless it is really so, and can be proved as such under section 47 of the Evidence Act.

B. *In case of type writings:*

- (i) As in the case of Handwriting standards, standards from a suspected typewriter should include all the words and characters appearing in the questioned Typewriter material and corresponding spacings to the suspected document must be used in typing the specimens.
- (ii) If the questioned document is a carbon copy, carbon copies should be obtained as specimens.
- (ii) The typewriter ribbon may also be submitted for examination if it has not been changed since the questioned type writing was typed.

(iv) Each specimen should contain mention regarding the make, model, serial No. of the machine used and signature or initial of the investigating officer.

(v) In addition to specimen copies of the disputed matter on the suspected typewriter as described above, a separate sheet of bond paper with only a clean carbon sheet, should be placed in the machine and stencil impression of every character made and sent with two spaces between characters viz :—

UPPER CASE

* "%@—&() +

QWERTYUIOP1/4*

ASDFGHKJL:1/2

ZXCVBNM?.3/4

LOWER CASE

1,2,3,4,5,6,7,8,9,0,.,=,
q,w,e,r,t,y,u,i,o,p./,S,

a,s,d,f,g,h,j,k,l,;,Rs

z,x,c,v,b,n,m,—.

(vi) The suspected typewriter should not be allowed to be repaired or ribbons changed, till the disposal of the case. If possible, the suspected typewriter should be seized and sent to the Expert for examination.

(vii) In sending typewritten documents in dispute for expert examination, it should be remembered that an expert opinion on typewriting is not admissible in evidence, as it does not come under the provision of section 45 of Evidence Act.

C. In case of seals/rubber Stampimpression.

It is always preferable that the suspected seal or rubber stamp, if available, should be seized and sent, from which the Expert will take specimens for comparison. If however, the stamp/seal can not be spared, then 10 properly inked and clear specimen impressions should be obtained and sent. If the disputed stamp/seal impression has got any abnormality (i.e. over-inked, under-inked or partial) a few additional specimens of a similar nature should be sent. If the suspected stamp/seal is not available and the disputed seal/stamp impression is required to be compared with some known genuine and admitted seal/stamp impressions, then adequate number of such genuine and admitted seal/stamp impression, should be marked out and sent to be used as standards for comparison.

D. In cases requiring examination of texture of papers.

In cases where substitution of paper in a register or in a set of documents consisting of several pages, is suspected, it may be useful to know as to whether the paper is of the same texture as the other papers in the register or set of documents or not, as difference in texture, may indicate substitution. In such cases the I. O. may send the Register or set of documents concerned and ask for expert's opinion if any particular paper or papers in the register or set of documents, has the same texture as the other papers in it or not.

3. Care of Documents and Manner of their Despatch :

(a) The investigator's first duty is to preserve the condition of the questioned document in as nearly to original condition as proper police procedure will permit. Extreme care must be taken to handle the exhibits or writings.

(b) The writings or portions on the documents to be examined, should not be damaged by careless pinning, tagging, folding, stamping or pasting of paper over or below these. It is better to use clips, rather than punching or pinning the documents.

(c) Documents must not be touched with eraser or any sharp instruments, and should not be exposed to moisture or to strong sunlight or left out in the air uncovered.

(d) Direct tracing should not be made on documents, as indentations or embossing will confuse the Expert.

(e) Documents should never be carried in pocket without protection. Otherwise they may be affected by bodily heat, moisture or sweat or become worn, wrinkled or soiled.

(f) The documents should always be sent in sealed covers by Regd. Post or through special messenger. A list of documents sent, should be enclosed.

4. *Marking of Documents :*

Writings/signatures on the questioned and admitted documents and in the specimens, that are required to be examined by the expert, should be marked out by enclosing them with red or blue pencil lines, to distinguish them from the other writings, and each writing should be given a separate identification mark as A, B, C,.....etc. Specimens and admitted writings of one suspect may be marked as one series, as S 1 to S 10 etc.

5. *Prompt despatch of Documents :*

Documents are often sent for examination after several months (some times after years) of the institution of the case. At times also documents are sent after submission of charge sheet or even at the trial stage. As such late sending of documents and that too often without necessary enclosures for examination, leads to serious difficulties it is necessary that documents should be sent as early as possible after the institution of the cases.

Application for the opinion of the Examiner of Questioned Documents and all correspondence relating to it, should be sent through the district S.P. concerned to the Supdt. of Police, C. I. D. Crime Branch, Orissa (H. W. Bureau) or D. S. P. Handwriting Bureau, Rasulgarh, Bhubaneswar-10.

CHAPTER VI

4. Photo Bureau of C.I.D., C.B., Orissa

(i) Origin, scope and setup:

The Photographic Section of C.B. is being designated as Photo Bureau, C.I.D., C.B., Orissa since its in the year 1936. The Photo Bureau provides valuable assistance in the preservation and reproduction of its origine evidence in crime and is being equipped with modern equipments from time to time to cater the need of the entire Police Force of the State both in crime detection and in general aspects of Photography.

(ii) The main functions are as follows:

1. Photograph of the scene of crime
2. Photograph of the Foot Prints, Tyre marks, Chance finger prints at the spot and Finger prints received from the Courts are taken for purpose of comparison and opinion. This covers special Photo-techniques i.e., use of U.V. lights and filter techniques.
3. Photographs of the prisoners
4. Photographs of the unidentified dead-bodies
5. Photographs of the missing persons, idols and persons involved in S.I.T. Act, and other Acts
6. Photographs on Police functions and other important Police activities for publication in news papers, Police magazine and *Gazette*.
7. Photographs of the C.I.D. personnel and other branches of police for detective warrants
8. Adoption of special photo techniques by the use of Telephoto lenses, miniature pocket cameras and other accessories for the detection of crime and criminals in action.
9. Document Photography with U.V. light techniques, oblique lighting and transmitted lighting techniques micro and macro photography.
10. 16 m.m. filming and 8 m.m. super sound filming on the police activities and on the public disturbances as and when necessary for record and evidence.
11. Film projection of the 16 m.m. sound films for educating police personnel on the new methods of police techniques and for publicity.
12. Photo training for the police officers and men
13. Checking and repairing of cameras and other equipmen's supplied to the district to keep them in fit condition.

CHAPTER VII

Library and training activities :

The different sections maintain a fairly good collection of scientific books on the various aspects of forensic science and allied fields and supplement the stock through new purchases. At present 630 scientific books are available in the different sections and nine journals including 4 foreign publications are subscribed to the Forensic Science Laboratory.

The staff in the various technical units participate in the training programmes arranged at different times. They deliver lectures at the refresher's course conducted for Sub-Inspectors of Police at the P. T. C., Angul on scientific aids to investigation. In addition they also impart training to the competitors for the different duty meets. The Finger Print Bureau runs a three-month course on techniques of Finger Print for police officers. The photo Bureau also runs similar training programmes to train police personnel in photography. Newly appointed Scientific Officers of the Forensic Science Laboratory receive their expert training by working in the particular division of the laboratory.

A Seminar is conducted every month where the expert of all the technical units participate and interesting cases examined or handled are discussed. Valuable contribution in the form of papers are made to the All-India Forensic Science Conference and to similar other organisations.

The Forensic Science Laboratory and the scientific units aspire to develop to full-fledged institution using all modern techniques and data processing methods so as to be seats of advance training and research contributing simultaneously significantly their expertise in the cause of crime investigation and administration of justice.

Some interesting cases

1. In a case of suspected poisoning, the victim took tea in the usual course, but soon after suffered from vomiting. His two servants who took tea also suffered from vomiting and purging. Immediate medical treatment however enabled victims to survive. A complaint was lodged in the Police-Station and it was stated that at the time of preparing tea, a co-villager who was not in good terms with him was present at the spot and was suspected to have mixed some poison with the tea dust. Close laboratory examination of the exhibits collected and forwarded by the I. O. which included a piece of cloth through which the tea extracts have been filtered and samples of tea dust revealed the presence of minute quantities of poisoned substance that could be identified through spectrographic analysis.
2. In one truck accident case, the owner of the vehicle involved in the accident informed the P.-S. that there was a head-on collision of a jeep with his truck, as a result of which the jeep went out of the road and fell down at a nullah inflicting serious injuries on its occupants. The driver of the truck contended that the accident was due to sudden damage and snapping of the break pipe of his vehicle. The damaged brake pipe, the rubber slush protector from the right side back wheel of the truck were sent to this laboratory for examination. Physical examination of these components created some suspicion and on further expert examination in the laboratory it revealed that the brake pipe was not damaged in the natural way or by sudden breaking, but it was made by means of some instruments as there were some cut marks on the brake pipe.
3. In a fire-arm case a person lodged a complaint at the P.-S. that while he was taking bath in the morning, he saw his step-mother while coming out of her room was attempting to shoot herself with a gun. He then raised an alarm and ran to her, but before he could reach there, she had shot herself and fell down dead. At first an U. D. case was registered on his report and investigation was started. Examination of the gun, wearing apparels of the body containing the gun shot marks and perusal of the injury report and the distance of recovery, of bullets, etc. which was possible through the close co-operation of the Scientific Officer, Investigating Officer and the State Laboratory revealed the probability of homicide ruling out the possibility of suicide as reported by the complainant.
4. In a case of some boys entered the room occupied by its inmates and threw some powder at the face and eyes of the person and assaulted him as a result of which, he became unconscious and sustained injuries. Collection of the small quantity of powder that could be collected and expert examination revealed the presence of capsascent the active principle of chilli powder.
5. In a case of lottery ticket, which had been purchased through a ticket agent and which won the prize of Rs.20,000 and before the purchaser could know of the result, the agent managed to obtain the ticket from him. The agent then chemically effaced the name and address of the rightful owner from the counterfoil, and wrote his own name and address there and received the money. Later when it was detected the *bona fide* purchaser registered a case of cheating. The alleged ticket and counterfoil were sent to the Hand Writing Bureau for examination.
U. V. radiation examination and chemical fuming method were done on the ticket and counterfoil. Photographs at various stages using coloured filters were taken which revealed the name and address of the complainant and showed the marks of tempering.
6. In another case, a person was in employment in one organisation and was discharged from his service. He subsequently however, changed his name and got somehow employed in another establishment. In course of time, he caught the attention of an officer who had known him when he was serving in the former organisation and wanted to know if this person was the same who had been discharged. The finger prints available on the service records were referred to Finger Print Bureau. Expert examination on the prints proved the finger prints on both the service records identical and of one person indicating his possibility of impersonation.
7. In a suspected case of poisoning, 5 accused persons overpowered the victim and forcibly administered some liquid substance in his mouth from a bottle and also inflicted injuries on his person as a result of which he died. The accused persons burnt the dead body.

The bottle suspected to contain poisonous liquid was examined in this laboratory and "Endrin" a chlorinated insecticide and parathion an organophosphorus insecticide commonly known as 'folidol' were detected inside the bottle.

8. In an alleged rape case, where there was supposed controversy over the findings of the medico-legal clue materials greater reliance could be given on the examination report furnished by the laboratory confirming the presence and identification of spermatozoa that helped in eliminating the probabilities and in arriving at conclusions.

9. In two idol theft cases, accused persons had stolen idols from a temple and sold a Calcutta personating himself to be another man. The signature and the contents in the receipt under which the idols were sold, were examined in the Handwriting Bureau and were detected to be in the handwriting of the accused person. This has been helpful in the investigation of the cases.

10. In a murder case, the accused had written a note about the occurrence and the dates relating to the murder, at the corner of the inner page of the daily "Samaj". The writings were examined in the Handwriting Bureau and were identified to be the handwriting of the accused. This could help the investigation.

11. In a jeep theft case, the accused persons while taking the vehicle from Bhubaneswar to Calcutta, made an entry in the check-gate T.G.R. and signed a fictitious name in the signature column. The signature was examined in the Bureau and detected to be of the accused.

12. In an embezzlement case involving embezzlement of nearly one and half lakhs of rupees, the accused made erasures, inter-polations and over-writings on registers and other document and also threw the records in a well. These documents, after recovery, were sent for expert examination in the Handwriting Bureau where the different erased, obliterated and over-written writings, etc. were restored and deciphered. They were identified to be the handwriting of the accused person. This was very helpful for the investigation.

