



**Department of Distance Education**  
**Punjabi University, Patiala**  
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**CERTIFICATE COURSE IN  
QD & FINGERPRINT ANALYSIS**

**PAPER-I**

**QUESTIONED DOCUMENTS  
EXAMINATION**

**Lesson Nos. :**

- 1.1 : Questioned Documents and their Preliminary Examination
- 1.2 : Alteration in Documents
- 1.3 : Characteristics of Handwriting
- 1.4 : Identification of Handwriting
- 1.5 : Forgery & Disguise

**QUESTIONED DOCUMENTS AND THEIR PRELIMINARY EXAMINATION**

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### **1.1.0 INTRODUCTION**

Documents have assumed an important role in human life. We daily write a number of documents. It may be a personal letter, a receipt, a cheque, or an order affecting the lives of many individuals. The criminal has not been slow to realize the importance of documents. He has been exploiting the potentialities of their falsification. Every year the number of forged documents is showing a tremendous increase. Falsification of financial documents is a 'big business' in almost every country and it is on the increase everywhere. It is estimated that hundreds of crores of rupees are lost in financial frauds every year.

#### **1.1.1 SCOPE**

In every controversy where the identification of handwriting is necessary to prove whether the documents in dispute are genuine or spurious, or to establish the authorship of incriminating letters, or to prove the genuineness of the signatures to testamentary instruments, expert evidence is essential. Records and important documents may be fabricated by slight erasures, alterations and substitutions for the direct purpose of making some false claim and obtaining a benefit to which the claimant is not entitled.

Instances of wrong practices are numerous in business and social affairs. Writing has also frequently been an important factor in investigations of persons under suspicion where a charge is based on the writing of a certain letter or note and the establishment of its authorship would determine whether or not the question is one of murder or suicide.

Before the application of the comparison of handwriting methods to obtain expert evidence was permitted in civil and criminal courts, many fraudulent documents were passed and crimes committed and the perpetrators never identified. This is a progressive age and the study of handwriting so as to obtain better and complete evidence has become a necessity for the determination of the actual truth of a written document in controversy and such processes are now associated with and form a part of the machinery of the law.

Just an expression of opinion as to identity is not accepted in the case of a difficult handwriting question; instead an opinion must be based on accurate, correct reasoning and deduction. Facts can be brought to the attention of observers by accurate demonstration that is indisputable. Whether the matter in issue is handwriting or typewriting the same principles apply for comparison so that the truth can be made intelligible.

#### **1.1.2 THE PROBLEMS**

Questioned document problems are varied in nature. The important ones are:

- Identification of handwriting/ signatures.
- Evaluation of typescript/printed matters/computer printouts.

- Examination of materials which is responsible for the production of a document.
- Study of secret writing.
- Evaluation of alterations present in documents.

#### **1.1.2.1 Handwriting/ signatures**

Identification of handwriting/ signatures is the most important part of questioned documents examination. Common questions that can be asked when the document came for examination are:

- Whether the questioned handwriting/ signatures are genuine?
- Who is the author of the signatures/ handwriting?
- Whether the signatures are forged or not?
- Whether the writing is disguised?
- Whether any alterations were done to the document or not?

#### **1.1.2.2 Holograph**

Holograph document is defined as the document written and signed by one person. The questions asked for this are whether this is a holographic document or not i.e. it is written or signed by same person or not. It can also be suspected about its authorship or purported date.

#### **1.1.2.3 Anonymous letters**

Sometimes anonymous or blackmailing letters came for examination. These types of documents can be asked for identification of the authorship of the document.

#### **1.1.2.4 Alterations**

The suspected documents can also be examined for :

- Whether the alterations present in the document were the changes made at the time of preparation of the document or they were made later ?
- Whether the changes are by the different author?
- Can original matter be deciphered or not?

Sometimes the determination of sequence of strokes determines the additions that have been made allegedly after the execution of the document.

#### **1.1.2.5 Typescript**

Problem of typewritten questioned documents involves:

- Is the given document typed on a particular typewriter?
- What is the make and model of the typewriter?
- Whether the document is typed on one or more than one typewriters, can it be identified?
- Whether there are any alterations i.e. any additions, or substitutions or interlineations to the original text?
- Whether they were made on the same typewriter or on a different typewriter?

- Whether typewritten document is erased and if yes, can the original writing is restored?
- Whether age or relative age of the typed documents can be ascertained or not?
- Can the typist be identified?

#### **1.1.2.6 Writing materials**

In the preparation of a document, paper, writing instruments, seals, stamps, typewriter, printing etc. may be used. Sometimes the examination of these materials proves useful in solving the problems regarding its authorship, authenticity and origin.

##### **Paper**

Paper can be examined for its colour, unusual size, watermarks folds, kind, marks of artificial aging, soiled or crumbled, unnatural discoloration, indentations marks and thinning of the paper presence of any secret writing etc.

##### **Inks**

Inks can be evaluated for their kind, their age, whether faded or erased ink can be restored or not, whether different type of ink be used for making alteration in the document or not.

##### **Pen**

Following questions can be asked about the writing instrument:

- Which type of writing instrument is used for preparing a document?
- Whether same type of instrument is used for making the whole document?
- Whether the additions or substitutions are with the same or different pen?

#### **1.1.2.7 Mechanical match**

Sometimes the comparison of seals, stamps, punches, torn paper pieces, carbon copies, printing blocks, perforations, stubs, water marks, punched numbers, embossed marks and trade marks, which are the parts of documents, solve the problems regarding the suspicion of the document.

#### **1.1.2.8 Secret writings**

Criminals may communicate with one another in secret writings. It is desirable to find out the secret message and to know the code and method of communication

#### **1.1.3 DOCUMENT**

Any material that contains marks symbols or signs either visible, partially visible or invisible that may ultimately convey a meaning or message to someone. The majority of the documents are written on paper either by typewriter or printer or by hand with different types of writing instruments. Many other substances can also be used for the same purpose e.g. signs painted on walls, writings written on wood or windows or walls or stones, signs or letters engraved on stones etc. So these and many other combinations of materials and writing instruments form the vast variety of documents with which man has recorded his acts and thoughts.

#### **1.1.4 QUESTIONED DOCUMENTS**

Among the vast group of documents there is a small group which was suspected of being fraudulent or whose source is unknown and background is disputed. This group is known as disputed or questioned documents. So a questioned document is defined as any document about which some issue or controversy has been raised or that is under scrutiny.

A questioned document may also be prepared with any of the available materials. All questioned documents are neither fraudulent nor are instruments of crime. There may be number of reasons for suspecting a document including to invalidate it or to establish the basis for criminal action. The documents are examined to identify their author or to establish their source or age. Some of them are genuine and remainder involves fraud forgery blackmail and other offences and they may represent to individuals wealth reputation and respectability. Thus, the truths about these questioned documents assume importance of larger magnitude to all whom they concern.

#### **1.1.5 CLASSES OF QUESTIONED DOCUMENTS**

The questioned documents can be classified on the basis of:-

- 1) Documents with questioned signatures.
- 2) Documents containing alleged fraudulent alterations.
- 3) Holograph documents questioned or disputed.
- 4) Documents attacked on the questioned of their age or date.
- 5) Documents attacked on the question of materials used in their production.
- 6) Document investigated on the question of typewriting
- 7) Disguised.
- 8) Genuine documents erroneously or fraudulently attacked.

##### **1.1.5.1 Signatures**

Most of the questioned documents fall in this class. It includes commercial or legal paper such as cheque, note, receipt, draft, agreements, will, assignment or similar document, the signature of which is under suspicion. In a disputed document the questioned signature may be the result of the simulated forgery or traced forgery or are denied signature. The documents challenged with regard to authenticity of signature constitute the largest number in questioned signature.

##### **1.1.5.2 Altered Documents**

In the second class are included all documents in which it is alleged that some alteration was made either by erasures, obliterations, additions, overwriting and insertions. The documents are also challenged on the basis of the entries, identity of pen and ink, alteration in amount, sequences of writing or typewriting or with folds of paper.

##### **1.1.5.3 Holographic Documents**

Third class of documents is those in which entire writing of a document is questioned i.e. holographic documents. Holographic documents are those documents which are

written and signed by same writer. These documents, if fraudulent, are vulnerable in many possible particulars and should be subjected to thorough examination. Documents included in this class are forged tickets, stamps, valuable manuscripts, certificates etc.

#### **1.1.5.4 Age of Documents**

This class of questioned documents includes those in which age of a document or some part of it is investigated. It also includes the document in which the relative age of different parts of it may be questioned.

#### **1.1.5.5 Writing material**

This class includes those documents which are shown to be fraudulent through the materials used to prepare the document e.g. type printed forms, lithographed forms, envelopes, stamps or anything that has a date value.

#### **1.1.5.6 Typewritten documents**

Typewritten documents are questioned for ascertaining their date, source or to determine whether they contain fraudulent alterations or substituted pages.

#### **1.1.5.7 Disguised Writings**

Seventh class of documents is of great variety and includes all disputed documents, papers, writings, or instruments, which by their handwriting and contents tend to identify some person. All kinds of anonymous and disputed letters are included in this class.

**1.1.5.8** This class involves the documents in which genuine writings are attacked in the court. It also includes the anonymous letter or other documents that someone is erroneously accused of having written. It is important to prove that genuine writing is genuine and the false charges are false.

### **1.1.6 PRELIMINARY EXAMINATION OF QUESTIONED DOCUMENTS**

A document is usually questioned for its origin, contents or the circumstance regarding its production. An examination of a contested document is scientific problem and it is no longer confined to comparison of signature, thumb impression or writings but it also include examination of paper, ink, typed matter, printed matter, water mark and all other elements forming a document. As a basic rule, the document examiner should conduct a thorough preliminary examination of each and every element of a questioned document with ample patience. The examination of a document is not complete until its every element has been studied and examined thoroughly. Some basic points that should be considered for the preliminary examination of a document are:

1. Paper should be examined for its unusual size, any folds, kind, marks of artificial aging, soiled or crumbled, unnatural discoloration, indentations marks and thinning of the paper.

2. Whether the document is altered i.e. any erasure, obliteration, substitution or addition of any kind is present on the paper.
3. Kinds of inks or pens used for the preparation of document.
4. In case of typewritten documents:-number and model of typewriters used, unnatural spacing between the writing or typed lines and continuity of the written materials, margins and spacing of the typewritten materials.
5. Chronological sequence of signature and writing.
6. Cancellation and normal manner of fixation of revenue stamp.

**1.1.6.1 Equipments requires** for preliminary examination of documents are a magnifying glass, a metal roll, a comfortable chair , a table of convenient height placed in good light, ample patience and last but not least, a healthy questioning attitude (scepticism) which refuses to take things at their face value.

**1.1.6.2 Background details-** The full story surrounding the appearance of any document on the scene should be written down in the fullest detail.

**1.1.6.3 Description of documents-** a comprehensive note of each test applied on the document is made. It proves to be useful because while examining or handling the document, some deterioration due to light, normal wear and tear takes place. So the ink writing or typescripts may fade because of over exposure to powerful light sources, wear and tear or by chemical methods. If the notes made during the examination are properly kept, they will constitute a comprehensive description of the document as first received.

Preliminary examination of questioned document includes examination of following features:

#### **1.1.6.4 Features**

I.Appearance of the document

II.Content of the document.

**1.1.6.4.1 Appearance of the document-** In this attention is given to various physical aspects of document. Such as:

**a. Folds and Creases :** - When a folded document is received, it should be examined from back and front for any impression, it may bear before being unfolded. The impression may be caused by cancellation stamp of the post office. Sometimes two cancellation marks may present. If they are present on different sides, it will indicate that the content of the envelope had been removed and replaced in different way.

- It should be noted that which portion of the folded document is outside. The outside can be distinguished from inner side. In a genuine document, which is really old, outer surface will found to have been soiled, stained and discolored to a much greater extent than those on the inside which have received some measure



of protection. This distinction is rarely found with documents which have been seen artificially aged.

While opening the document, a sketch should be made showing how folds ran and care should be taken to keep the document in original folds. New folds should never be introduced. When the document has been unfolded, attention should be paid to the place where the writing ink crosses a fold. If an ink line is made across a fold, the ink often tends to spread into the impaired surface on each side of line where it crosses the fold and if the ink line had dried before the paper is folded, there is no subsequent spreading.

**b. Impression :** - The tensile strength of the paper is very low and its recovery from stretching is slow and incomplete. So it takes impression very well which can be detected by examining the light at a grazed angle.

**c. Cancellation stamps :** - The pressure employed in the application of post office cancellation marks, especially when a hand stamp is used, sometimes results in corresponding impression appearing on the contents of the envelopes and sometimes on the back of the envelope itself.

- If any importance attaches to the date, these unnoticed impressions enabled the true date of posting to be determined,
- On the other hand absence of any impression be constitute valuable evidence of attempted fraud.

**d. Typescript:** - To preserve the surface of the rubber roller, it is customary to use a backing sheet while typing. So it is possible that the impression of much of the typescript will appear on the backing sheet. That backing sheet may further be used for typing. In view of this, every suspect typewritten document should be examined for the presence of any impressions that may yield valuable evidence of their place of origin. The moving light is the most efficient and safest method for discovery and interpretation of impression.

**e. Examination by transmitted light:-** By holding the document before a strong light, the light passes through the paper gives some indication of its colour and may reveals the places where the translucency of paper has been affected through tampering such as scrapping, rubbing, and oiling. When a document comprises more than a single paper, all the paper should be examined in this way. A change in tint may indicate that one or more sheets have been changed.

In addition to this, wire marks and water marks, erasures, blots and smears dimension of papers, perforation holes and tears if present, etc. should also are examined carefully.

**1.6.4 Content of the document:** - When the physical examination of the document has been completed, attention can be paid to what has been printed, written or typed thereon. The examination of written material includes examination of:

- a. Secret writing:** - If there is suspicion for the presence of secret writing, firstly the attention should be paid to the spacing of the visible handwriting or typescript present commonly known to as 'over text'. It is common that over text is widely spaced to accommodate the secret writing. Sometimes the pen used for secret writing may cross some of the over text and thus can produce a defect in the line which may lead to discovery of secret writing. Many simple secret inks can be revealed on warming the document.
- b. Extraneous markings:** - An examination made for the presence of ink and other marks which are not part of writing may reveal important information. Documents can be linked by the partial transfer of writing from one document, which has been carelessly handled while the ink is wet, on to another which has come into contact with it.
- c. Ink lines:** - Important observation can be obtained by the preliminary examination of ink lines. The colour of the ink line should be studied in day light. The appearance of light or dark line indicates either the use of different inks or that the writing was done at different times. If feather edging of the ink line is present, area where it occurs should be test for the presence of an erasure.
- d. Signatures:** - Signature is most valuable evidence. The position of the signature on the documents should be first considered. Many fraudulent documents are prepared from a sheet of paper which already bears a genuine signature. In such cases the signature are placed unconventionally. If this is the case, there may be considerable blank space left between the writing or typescript and signature. Sometimes genuine signature may be acquired on a forged document by trickery. Sometimes signature can be made by traced forgery or copying process. To decipher this, document should be tested for any remain of pencil or carbon marks which may have been outline for signature. Then it should be examined for other defects of forgery.
- e. Stamps:** - Examination of perforated edges of stamps may reveal important evidence. When a signature crosses the stamp, the colour of the ink on the stamp should be compared with that which overlaps and appears on the paper. This is because a stamp with genuine signature may be removed from a document and refixed on a forged document.

Thus, the preliminary examination of a document may reveal important evidences.

**Summary:-**

Documents have assumed an important role in human life in the form of financial, legal and other documents. The criminals have also been exploiting the potentialities of their falsification. Any material that contains marks, symbols or signs either visible, partially visible or invisible that may ultimately convey a meaning or message to someone is known as document. Among the vast group of documents there is a small group which was suspected of being fraudulent or whose source is unknown and background is disputed. This group is known as disputed or questioned documents. The truths about these questioned documents assume importance of

larger magnitude to all whom they concern. In every controversy, where the identification of handwriting is necessary to prove whether the documents in dispute are genuine or spurious, or to establish the authorship of incriminating letters or testamentary instruments, expert evidence is essential. Questioned document problems that come across the document examiners' way are varied in nature such as Identification of handwriting/ signatures, evaluation of typescript/printed matters/computer printouts, examination of materials which are responsible for the production of a document, evaluation of alterations present in documents etc. Based on this the questioned documents can be classified into different groups. An examination of a contested document is scientific problem and it is no longer confined to comparison of signature, thumb impression or writings but it also include examination of paper, ink, typed matter, printed matter, water mark and all other elements forming a document. As a basic rule, the document examiner should conduct a thorough preliminary examination of each and every element of a questioned document with ample patience. Background details regarding the appearance of any document on the scene should be written down in the fullest detail. A comprehensive note of each test applied on the document should be made. Preliminary examination of questioned document includes examination of appearance and contents of the document. The preliminary examination of a document may reveal important evidences.

#### **1.1.8 Probable Question**

- Q. 1 What are different classes of disputed documents?
- Q. 2 How will you proceed for preliminary examination of disputed documents?
- Q. 3 Describe the importance of folds, Water marks, UV light, and transmitted light in the examination of suspected documents.

#### **1.1.9 Suggested Books**

1. Baker, J.N (1955): Law of Disputed and Forged Documents. The Michie Company, Charlottesville, Virginia.
2. Osborn, A.S. (1929): Questioned Document, 2<sup>nd</sup> ed. Boyd Publishing Company, Albany, NY.
3. Hilton, O (1982): Scientific Examination of Questioned Documents. Revised Ed. Elsevier Science Publishing Company, NY.
4. Harrison, W.R. (1966): Suspected documents: their Scientific Examination. Sweet and Maxwell Ltd., UK.
5. Saxena B.L. : Law and Technique Relating to Identification of Handwriting Disputed Documents, Finger Prints, Foot Prints and Detection of Forgeries. (Revised by Singla A.K. in Central Law Agency, Allahabad.

**ALTERATION OF DOCUMENT**

**1.2.0 IMPORTANCE**

**1.2.1 ERASURES**

- 1.2.1.1 Mechanical erasure
- 1.2.1.2 Chemical erasure
- 1.2.1.3 Detection and decipherment of erasure

**1.2.2 ADDITIONAL WRITING**

**1.2.3 INTERLINEATIONS**

**1.2.4 SUBSTITUTION OF ANOTHER PAGE**

**1.2.5 CANCELLATION AND OBLITERATION**

**1.2.6 FIGURES AND NUMERALS**

**1.2.7 CHANGING DATES**

**1.2.8 ALTERATIONS INDICATED BY FOLDS OF PAPER**

**1.2.9 ALTERATIONS INDICATED BY SEQUENCE OF WRITING**

**1.2.10 ALTERATIONS INDICATED BY KIND OF INK USED**

**1.2.11 ALTERATIONS INDICATED BY ASSOCIATED EVIDENCES**

**1.2.12 DETECTION OF ALTERATION BY VSC/PROJECTINA**

**1.2.13 SUMMARY**

**1.2.14 PROPOSED QUESTIONS**

**1.2.15 SUGGESTED BOOKS/REFERENCES**

**1.2.0 IMPORTANCE**

An alteration of a document means some change in the writing made by the party or by some person entitled there under, after the document has been executed. Such change is made without the consent of the other party interested and gives the document a different effect from that which it originally possessed. This alteration may be made by erasure, addition, interlineations, cancellation, or substitution of some material writing or figure which will change the identity, rights or obligations of the parties mentioned therein.

These alterations may involve cheques, drafts, deeds, wills, bonds, policies, certificates and any other kind of valuable documents, figures and dates, sums of money payable, the person to whom payable and the signatures of witnesses and endorsers. Fraudulent alterations are designed to conceal and be accepted as true and genuine, and it is often necessary to call in an expert who can detect such changes and explain how they were accomplished. The first question to be asked is

whether or not an alteration has been done in the document. The alteration may be made by erasure, interlineations, addition, or substitution.

An alteration made before its final execution would probably be made with the same ink, in the same writing of the maker and without the necessity of erasure. An alteration made after the document was executed and by a different writer would so change the character of the writing that it would raise a suspicion that the alteration was not authorized. Alterations by abrasion are apparent, but alterations made with chemical solutions leave slight or no trace of erasure. When suspicion suggests that the paper has been tampered with, recourse to expert examination is justified.

### **1.2.1 ERASURES**

It is common knowledge that writing, typewriting or printing may be removed by chemicals, abrasion or scratching with a sharp instrument like knife. Not all of these methods are successful in removing each class of marking medium, but all are encountered in series of problems.

Although first step is always to ascertain that an erasure has been made, followed by restoration or decipherment of the erased matter. By restoration is meant that the original writing is revealed on the document either temporary or permanently, while decipherment includes any method, photographic or otherwise, that permits determination of what has been erased. The chemical erasure of iron-base ink is at the same time the most likely to be successfully restored.

#### **1.2.1.1 Mechanical erasure**

A mechanical alteration is usually made with a knife, rubber erasure, or fine emory paper that will injure the paper, destroying the glazed finish in removing the writing. When the pen is applied to the tampered paper after the removal of the original writing, the ink will spread, causing the letters or words to feather or blot, thus distorting the writing. The friction also reduces the thickness of the paper, as can be seen by transmitted light.

Hard rubber abrasion will not destroy the paper as much as the use of the knife, but the results are similar except that when rubber is used small particles of the rubber will become embedded in the fibers of the paper. These can be detected when that part is subjected to iodine vapor or when it is examined under a microscope.

An alteration can be very clumsy and may be easily seen when made unskillfully but when made by the skilled manipulator nothing will be noticed on the surface of the paper to indicate what was removed before the change was written. Thus the quality of the paper is an important factor in every alteration, as high grade paper will be more resistive to abrasion than the cheap paper. Both friction and chemical erasures affect paper, and the injury depends on the grade of paper.

When writing has been erased so that nothing remains visible on the surface of the paper, some recognition or detection of the original writing may be obtained or

reconstructed. This may be done from the reverse side of the paper by means of the ridges and indentures in the paper. Slight ridges may be sufficient to reconstruct the word or figure by use of a mirror or by side lighting.

#### **1.2.1.2 Chemical erasure**

Chemical eradicators are made in solution which bleaches the color out of ink, making the writing appear invisible. These solutions do not, however, seriously affect the properties of the ink which still remain in the paper.

Common ink eradicators, which can be obtained in any corner drug store, usually consist of one or two small vials of solutions which are mostly citric acid, concentrated solution of borax, and chloride of lime with distilled water. Some aniline ink writing is easily removed with alcohol, inks made of nutgalls and copper can be removed with oxalic acid solution. Frequently these eradicators can be detected by the peculiar odor remaining in the paper or with litmus paper.

Chemical erasures may sometimes be detected by the appearance of a pale yellow stain, or a slight discoloration around the suspected alteration. The application will destroy the finish of the paper and obstruct the proper flow of the ink in writing. If an attempt has been made to write over the erased area with a fountain pen, the fluid ink spreads out microscopically wherever the paper sizing has been affected by the liquid. A similar result may be observed when the writing was done with a soft tip or fiber tip pen.

With the ball point pen inks, chemicals bleach the ink only with great difficulty, and except for the most persistent person trying to remove the ink, some stains will probably remain. Examination with oblique light, the microscope, photography and especially ultraviolet radiation or infrared luminescence should establish in most instances that there has been alteration.

Where the ink in the original writing has penetrated the fibers of the paper and alterations have been made by chemical solutions, the color of the ink can be restored sufficiently to be legible, but those inks that rest on the paper without penetration and which are washed off with alcohol can not be restored. Faded writing may be restored enough to determine the alteration where some iron remains in the paper. When subjected to scientific treatment or ultraviolet light the alteration can be developed and proved by enlarged photomicrographs.

#### **1.2.1.3 Detection and decipherment of erasure**

The first step of examination involves the detection of the erasure i.e. to ascertain whether the writing is erased or not. It is followed by restoration and decipherment. Restoration is the permanently or temporarily revealing of original writing on the document. Decipherment includes any method that permits the determination of what has been erased. Whether this is successfully achieved or not depends upon original writing medium and manner in which it has been erased.

Erasures can be detected and deciphered by different methods:

**Under transmitted light**

Where an erasure has been made, some part of the writing has been erased and part of the paper has been disturbed. The transmitted light usually shows a thinness of paper at that point. It can be shown by making some enlarged photographs in the transmitted light.

**By microscopic examination**

Erasures can be observed under microscope as the disturbance on the surface fibers of the paper can be very well observed.

**Under ultraviolet light**

Fraudulent alterations made with chemical eradicators are revealed by ultraviolet rays. This process has produced very favorable photographs of altered and faded writings which could not be secured in any other manner and has been recognized by the courts.

Where writing has been chemically removed from the document, the same may be restored by the application of ultraviolet rays. When the rays strike the paper, the bleached writing may appear legible and sufficient to make a satisfactory photograph showing not only the erased writing but the portion of the paper treated with the chemical solution.

**1.2.2 ADDITIONAL WRITING**

Fraudulent additions to documents are made with ink where there is sufficient space between the words or at the end of a sentence to permit the insertion of a single letter, a word or a punctuation mark. Such alteration may change the importance of the entire document or its monetary value. The forger usually exercises some wisdom in making the addition, which is an after writing, by selecting similar ink so that the addition will not be noticeable, but many inks look similar when their properties are different. The end of the sentence is a favorable place for an addition when the space is available without crowding, or the addition may be a clause, or the continuance of the original sentence thus giving the appearance of a finished paragraph.

Another difficulty the forger faces in writing additions is the perplexing task of assuming the same style of writing both in size and appearance; if he does not do so, the writing will show a decided difference in appearance in line quality, density and characters of a different ink from that used by the original writer. Thus increases the dissimilarity and the possibility of detecting the fraud.

**1.2.3 INTERLINEATIONS**

Interlineations are defined as the writing between the lines of a document for the purpose of adding a part to it or correcting what has been written. If such writing has been done after the execution of the document it may be a material alteration, and if

made without consent of the interested parties it may be a forgery. In every instance of interlineations the question arises as to when, by whom and with what intend the interlineations was made.

When such writings were questioned, then the suspicion of forgery may be justified. Where the writing has a recent appearance or is written with a different kind of ink from the general writing or is in a different handwriting.

The order of writing may establish the approximate date of interlineations by showing whether the interlineated writing preceded or was later written where a part of it comes in contact with the formal writing or signature affixed to the instrument.

Crowding in an important document is evidence of after writing. A different handwriting and a different kind of ink used in interlineations raise the presumption of fraud against the validity of the instrument.

#### **1.2.4 SUBSTITUTION OF ANOTHER PAGE**

Another kind of fraud is where an entire page has been removed from the document and another inserted containing matter different from that of the page removed. The substituted page may appear to be same kind of paper, the same color or brand and may have even the same kind of watermarks. On the other hand, the thickness of the paper and its grain may be different from those of the other pages of the will.

Where suspicion arises, the page should be tested scientifically to establish sufficient proof that the page was substituted. The character of the handwriting may be sufficient in itself to cause suspicion, or where the will was typewritten the fraud may be exposed by the character of the type. The typewriting may show a different date or reveal the fact that a different kind of machine was used to write the substituted page, or ultraviolet light may show that a different kind of paper was used.

#### **1.2.5 CANCELLATION AND OBLITERATION**

An **alteration by cancellation** is occasionally found in a document of importance such as a will, deed, or contract where the writer intends to eliminate a word, name or sentence **without the necessity of rewriting the entire matter**. Using the same instrument, whether a pen or pencil, the writer draws lines in the form of latticework, vertical or horizontal lines through the writing having the effect of a cancellation. It can be determined by:-

- Character of the lines in the cancellation, for if they are inconsistent with the general writing, then there is suspicion that some other person made the cross lines.
- The kind of ink used may be another factor which shows fraud.

The **obliteration** is the smeared-over writing or is the blackening out of portion of writing by some opaque material may be encountered in some documents. Successful decipherment of the obliterated writing depends upon the inks of the original writing and the covering material. Following are the two possible methods:



- Covering layer is penetrated photographically so that the original writing lying beneath can be deciphered.
- Obliterated writing is removed or weakened chemically or mechanically while the original writing remains untouched.

Photographic methods can succeed only if the original and obliterated inks are different in color or chemical composition. This can be achieved by using color filters. But these filters are useless in case the covering is black. Transmitted light, infrared sensitive films, UV radiations and oblique light supplement photography with a filter may enhance the chance of success.

### **1.26 FIGURES AND NUMERALS**

Of all the various forgeries, figures are the most frequent though not the easiest to manipulate. These forgeries consist of alterations in various forms either by erasure, reconstruction, or arrangement. These are intended to change the monetary value of the instrument or, when associated with the time factor, to change the date of the instrument. This may be done crudely or very skillfully. Some of the figures that may be changed simply by formation are “1” to “4” by addition of the angle stroke, “1” to “7” and “3” to “5”.

### **1.2.7 CHANGING DATES**

The date of a document, designating the time of execution or the time of the event, is very significant, particularly when the validity of such document depends upon the time of execution. The genuineness of the will, deed or certificate may be determined by the date on which it was written or the fraud may be discovered by the alteration. Records are frequently found that have been altered to suit the occasion. Sometimes the dates are erased and a new date written or the original date may be tampered with.

### **1.2.8 Alterations indicated by folds of paper**

The fold in the paper may be conclusive evidence that the writing was on the paper before it was folded or that the writing was made after the paper was folded. In the cases where fraudulent additions or interlineations were made, the examination of writing at the place of fold becomes important. However, the conclusiveness of the evidence depends on the quality of the paper, the number of times the sheet has been folded, and type of pen and the direction of ink strokes. Where the fold in the paper has been opened and closed many times, it increases the damage to the fibers. When something is written upon it later with the fountain pen, the nib may stick and ink may penetrate the fold, thus raising a blot on the paper.

This phenomenon occurs because when paper is folded, the surface fibers get disturbed and the area of the fold becomes comparatively more porous. So when the writing is written over it, the stroke becomes wider due to the obstruction caused by the ridge of the fold and absorption of comparatively more ink. However, the degree of

widening of strokes depends upon the quality of the paper, writing instrument, ink, nature of fold and writing speed.

Where the fold has become a break in the surface of the paper, the ink from the pen will immediately spread and penetrate to the reverse side of the paper. This is a common incidence and is often noticeable. Since a fold crosses the paper at several points, the ink lines are affected and the number of places the ink crosses the fold increases the weight of the evidence of after writing.

In every instance where the paper contains folds which are overwritten, a microscopic examination should be made to determine the order of writing and sufficient photographic exhibits should be made to present the evidence to the court and jury. Sometimes the ridge of the fold is quite high and the strokes are drawn with faster speed, the writing instrument may skip over the fold resulting in hiatus or a fine hair-line stroke.

The presence of such strong evidence may be sufficient to conclude that the writing was written after the paper was folded, however the absence of these evidences does not rule out the same. A stroke made before the paper was folded does not show any extra absorption, widening of strokes or hiatus, but sometimes, if the paper is folded a number of times, the continuous stroke of the ink gets broken showing a thin line of unstained paper at the intersecting point.

When the writing is made by ball-point pen over the fold, it may skip from the fold and results in a hiatus in the ink-line. Sometimes the extra ink deposits around the ball pen may also be present because the pen gets rubbed off by the ridge of the fold.

#### **1.2.9 Alterations indicated by sequence of writing**

The sequence of writing may be very important in proving an alteration. It can be determined with the help of stereo microscope which gives 3 dimensional view of the writing strokes.

#### **1.2.10 Alterations indicated by kind of ink used**

Fraudulent alteration made with ink may show a different color, the letters may be of a different style and formation or they may reveal that they were made with different pressure. When the alteration has been made unskillfully, the line quality and the rhythm may also be different.

#### **1.2.11 Alterations indicated by associated evidences**

Sometimes associated evidences present along with the altered may prove very useful. Although associated evidences may not involve scientific study but they can play a useful role in the decipherment of erased and altered document. Associated evidences can be any other document that relates closely to the altered document e.g. a carbon copy, accounting records in which one entry is altered but the associated entries may remain unchanged.

**1.2.12 Detection of alteration by VSC/Projectina**

This apparatus is specially designed for document examination called Video Spectral Comparator/Projectina. They have a UV/IR spectral comparator which makes use of electromagnetic wavelengths and various filters to differentiate inks and reveal hidden material on document. It has a full compliment of visible, UV and IR sources, camera filters, coaxial light, transmitted light, oblique light and other features that allow the document examiner to see beyond what the human eye can not see in order to learn what has happened to a document. It helps in deciphering the obliterations and alterations in documents. It can differentiate inks if the document is completed by using two different inks. It also helps in enhancing erasures, effaced, faded and stained writing; and enhancing deteriorated documents.

**1.2.13 SUMMARY**

The documents are altered either by erasure, addition, interlineations, cancellation, or substitution of some material writing or figure which will change the identity, rights or obligations of the parties mentioned therein. It is vital to those persons who were defrauded that all the evidence contained within the document itself be brought to light. Documents containing writing, typewriting or printing may be altered by removing them by chemicals, abrasion or scratching with a sharp instrument like knife. The first step of examination involves the detection of the erasure i.e. to ascertain whether the writing is erased or not. It is followed by restoration and decipherment. Whether this is successfully achieved or not depends upon original writing medium and manner in which it has been erased. Erasures can be detected and deciphered by different methods such as by examining them under transmitted light, UV light and microscopic examination. Sometimes fraudulent additions can be made to documents by the insertion of a single letter, a word or a punctuation mark where there is sufficient space between the words or at the end of a sentence. Another kind of fraud is where an entire page has been removed from the document and another inserted containing matter different from that of the page removed. Still another type of alteration may be encountered in some documents that include obliteration which is the smeared-over writing or the blackening out of portion of writing by some opaque material Successful decipherment of the obliterated writing depends upon the inks of the original writing and the covering material. Alterations can be indicated by folds of paper, kind of ink or paper used, sequence of writing and other associated evidences. It can also be detected by modern techniques such as VSC/Projectina.

**1.2.14 PROPOSED QUESTIONS**

Q.1 Describe the use of UV and IR examination in suspected document examination.

- Q.2 What are erasures? How different types of erasures can be detected and deciphered?
- Q.3 Explain the physical and chemical erasures. Discuss various methods used for the detection of erasures in document.
- Q.4 What are obliterated writings and how they can be deciphered?
- Q.5 Write short notes on:
- (a) Detection of erasures.
  - (b) Substitution of another page.
  - (c) Obliteration.
  - (d) Interlineations.
  - (e) Additional writing

### **1.2.15 SUGGESTED BOOKS**

1. Baker, J.N (1955): Law of Disputed and Forged Documents. The Michie Company, Charlottesville, Virginia.
2. Osborn, A.S. (1929): Questioned Document, 2<sup>nd</sup> ed. Boyd Publishing Company, Albany, NY.
3. Hilton, O (1982): Scientific Examination of Questioned Documents. Revised Ed. Elsevier Science Publishing Company, NY.
4. Harrison, W.R. (1966): Suspected documents: their Scientific Examination. Sweet and Maxwell Ltd., UK.
5. Saxena B.L. : Law and Technique Relating to Identification of Handwriting Disputed Documents, Finger Prints, Foot Prints and Detection of Forgeries. (Revised by Singla A.K. in Central Law Agency, Allahabad.

### **CHARACTERISTICS OF HANDWRITING**

#### **1.3.0 INTRODUCTION**

#### **1.3.1 MOVEMENT**

- 1.3.1.1 The finger movement
- 1.3.1.2 The hand movement
- 1.3.1.3 The forearm movements
- 1.3.1.4 The whole-arm movement

#### **1.3.2 PEN-POSITION**

#### **1.3.3 PEN-PRESSURE**

#### **1.3.4 SHADING**

#### **1.3.5 WRITING SLANT**

#### **1.3.6 ALIGNMENT**

#### **1.3.7 SIZE**

#### **1.3.8 RELATIVE SIZE AND PROPORTIONS**

#### **1.3.9 ARRANGEMENT**

- 1.3.9.1 Examination of arrangement

#### **1.3.10 SPACING**

#### **1.3.11 LINE QUALITY**

#### **1.3.12 TREMOR**

#### **1.3.13 RETOUCHING**

#### **1.3.14 PROPOSED QUESTIONS**

#### **1.3.15 SUGGESTED/REFERRED BOOKS**

#### **1.3.0 INTRODUCTION**

Writing is the result of nervo-muscular co-ordination. It is made up of innumerable sub-conscious, habitual patterns, which are as much a part of the individual as any of his personal habits or mannerisms. It is an established fact that writing is individual to each and every person. It is influenced by a mental picture of copy book form, modified by the individual tastes and the writers' ability to imitate that which is in his mind. Physical and mental conditions at the time of writing may also affect it. Every characteristic in handwriting has some value, though of varying degree, for its identification. The recognition, correct interpretation and complete comparison of elements or characteristics are the essential phases of a scientific handwriting

examination. So, handwriting can be identified, and the identification is based on all the elements that combined to create the individuality.

### **3.1 MOVEMENT**

Movement relates to the action of the fingers, hand or arm, in combination with the point of the writing pivot. It is divided into four chief categories:-

- Finger movements
- Hand or wrist movements
- Forearm movements
- Whole-arm movements

These movements are used in widely varying combinations by different writers, and all they become very important basis for the examination of handwriting.

#### **1.3.1.1 Finger movement**

The finger movement is that method of writing in which the letters are made almost entirely by the action of the thumb and first and second fingers.

Handwriting features shown in finger movement:-

- Writing shows lack of clear-cut, smooth strokes,
- Presence of numerous broad curves,
- Writing is marked by somewhat irregular connections between letters and parts of letters,
- Strokes are usually slow and labored and lack rhythm,
- Irregular or excessive pressure especially on down strokes,
- Letters showing broad heavy stroke at the beginning and end.

This movement is employed by children and illiterates and generally by those with whom writing is an unfamiliar process. It is the movement nearly always employed in forged writing.

#### **1.3.1.2 Hand movement**

Hand movement is that which is produced mostly by the action of the hand as a whole with the wrist as the centre of action. Writings written with the hand or wrist movement show greater freedom than that done with the finger's movement. Several letters or even complete words may be written in one single operation without lifting the pen.

Handwriting features shown in this movement are:-

- The connections at the tops and bottoms of letters are very narrow or angular.
- The writing is often very illegible although it may be very rapid.
- The alignment of writing of this kind is very uneven with many words having an upward tendency.

#### **1.3.1.3 Forearm movements**

This movement comes mainly from the shoulder with the arm supported by the desk and the elbow as the centre of lateral swing or motion. Most perfect or the skillful

writings are produced by the forearm movement alone or this action used in connection with that of hand and fingers. It gives great command of hand and the most complete lateral freedom. This type of movement is employed by those who have good muscular control and command over the writing instrument.

Forearm movement writing shows:-

- Smooth, clear-cut, symmetrical strokes,
- Writing shows rhythm,
- A higher order of writing skill
- Rapid writing speed with smooth connections,
- Fine and graduate pen-pressure,
- A uniform base line,

This movement produced highly skilled writing that is forged with the greatest difficulty.

#### **1.3.1.4 The whole-arm movement**

This movement is produced by the action of the entire arm without rest. This class of writing movement produces longer and embellished strokes. Whole-arm movement is employed in very large writing, blackboard writing etc.

### **3.2 PEN-POSITION**

Pen-position or pen-presentation is the position or angle of the pen with respect to:

- (1) The direction of the line of writing, and
- (2) The surface of the paper.

The pen is held in a variety of ways by different writers with regard to the line of writing. Similarly the pen is held by different writers at different angles with the surface of the paper. All these conditions of pen position affect the writing in distinctive ways besides from that of general form of letters.

This habit of holding the pen is fixed habit of the writer. The reason for this is that holding the pen in an accustomed position makes the act of writing comfortable, and any other position tends to produce a feeling of constraint and awkwardness.

Forged writings are often defective in this matter of pen-position, because the manner in which the pen was held by the forger is incompatible with the position used by the genuine writer in free and unconstrained writing.

### **3.3 PEN-PRESSURE**

Pen-pressure is one of the most important and personal writing habit. The acquisition of this habit is perhaps more of an unconscious or automatic one than the adoption of any other feature or trait by an individual writer, and therefore in many instances careful study of it will be of the greatest possible assistance in forming a conclusion.

Pen-pressure may be defined as the weight, or pressure, unconsciously applied to the pen during the act of writing. According to Osborn, "The weight of hand, the gradation of pressure, and placing of emphasis radically change the appearance of writing as a whole without changing the form. These delicate characteristics almost baffle simulation and when properly exemplified, are always among the strongest evidences of genuineness." He further emphasized that, "The main features of this pen-pressure characteristic are not consciously acquired and not intentionally put into a writing and therefore are all the more significant and personal and should always be most carefully considered in examining a disputed writing".

In considering the matter of pen-pressure and shading, the pen-position must be regarded; otherwise a broad stroke can be mistaken as the consequence of pressure, when actually it is caused by the position of the pen itself. Pen-pressure is also affected by the movement employed, because writing at a rapid pace ordinarily does not permit the application of pressure.

Another aspect of pen-pressure that needs to be considered is the evenness or otherwise of the pressure exerted on the nibs. Some persons write with pressure evenly distributed on both points, while others put greater pressure on the right than on the left point of the nib and vice versa.

### **3.4 SHADING**

Shading is defined as the variation in the width of strokes due to the variation in pressure exerted on flexible nibs. Habits with regard to shading are different in different writers. The writer who shades all, or even some of the strokes in a graceful manner is opposed to the writer who uses no shading at all. Shading has greater value for identification purposes i.e. assuming that all other habits are identical, the difference in occasional shading alone may serve to distinguish two different writings. The location and frequency of shading not only differs in many writings, but also in its nature and extent. Some writers shade every down stroke, others the whole or part of lateral strokes or initial or final strokes, while others again put shading only on occasional strokes. It should also be noted whether or not it is persistent in the same part of every stroke or it occurs intermittently or only in particular places. Shading may be lightly defined or heavy, or it is sudden or gradual.

### **3.5 WRITING SLANT**

Slant or slope of writing is the inclination of letters or their strokes with the actual or imaginary base line. It is capable of actual measurement with a suitable protractor. With most writers it will be found that the range of slant varies within well-defined limits giving a certain average.

The importance and role of this writing habit in comparison of writings vary from person to person; however, with many writers it is one of the most fixed writing habits that become highly important under certain conditions.



The signature of some individuals may show peculiar writing slant i.e. most of the letters are slanted in one direction and one or two letters are slanted in the opposite direction. If this writing characteristic is persistent, it has strong identifying value.

A correct interpretation of this habit may also prove very useful in cases of fraudulent additions and alterations because the perpetrator may not be able to align the writing slant of added writings or figures with the original writings.

Since the change of writing slant results in marked difference in the appearance of writing, therefore, this is the most favorable and common method of disguise. According to Osborn, "A slight but persistent difference in slant in two writings of considerable length may be evidence that the writings are by two different writers, while a pronounced difference might be the result of intended disguise." A deliberate change in the writing slant with an intention to repudiate identity cannot be maintained in the writings of considerable length and the writer generally reverts to his normal writing slant.

### **3.6 ALIGNMENT**

It is defined as the relation of the letters of word, signature or written line to an actual or imaginary base line. Differences in alignment, in the writings of different persons, are due to difference in movement and it also depends mainly upon the position of writing arm with respect to line of writing. The alignment may be even, arched, garlanded, irregular, ascending or descending.

Some individuals are in the habit of writing certain letters in their signatures at higher or lower position as compared to the other letters and in some writings it is found that the writer writes evenly in a surprising manner across the whole length of paper having no printed lines. In some writings and signatures, the nature of alignment is so characteristic that it becomes a strong corroborative factor along with other points of similarities.

### **3.7 SIZE**

Size of writing may vary from person to person. This habit may have but little importance when applied to one example or to a small quantity of writings, whereas, in some writings or signatures, the size may play a significant role in determining their genuineness or otherwise e.g. in case of traced forgeries; the agreement in sizes of letters in the traced signature and model signature or in two or more traced signatures interse, may provide a strong evidence of their unguineness.

The size of writing may vary due to the internal as well as external circumstances at the time of writing. The writer may reduce the size of writing according to the available space for writing. The writings of alcoholics tend to increase in size and similarly if a person is in haste, the size of letters may be increased. In most of the disguised writings, the writer has tendency to change the size of writing which is mostly increased or decreased.

The size may classify as long, medium, small or irregular.

### **3.8 RELATIVE SIZE AND PROPORTIONS**

Although the overall size of writing may increase or decrease due to the internal as well as external factors but the habit with regard to the relative size of one letter to the other letter(s) is almost a fixed habit and it remains fairly constant. According to Harrison, "To a great extent, the ratios of letters are maintained despite changes in size, speed, or intent of the writing (normal or disguised)". Nevertheless, he holds that a similarity in ratios cannot, alone, be considered as a reliable indicator of common authorship, but that a difference in ratios is a safe indicator of different authors.

Some writers are in the habit of writing some letters abnormally longer or shorter than the other letters and such habit remains persistent even under different sets of circumstances.

### **3.9 ARRANGEMENT**

The general placing of writing on a sheet of paper is termed as the arrangement of writing. The habit of arrangement of words, sentences and paragraphs in writing is consciously acquired at the initial stage but when it is fully developed, it becomes automatic and it is considered as one of the fixed and important writing habits.

Just as arrangement of strokes and curves give shape to a letter, so the arrangement of letters and words and the method of writing a sentence with regard to size and spacing produce an important factor for examiner to compare handwritings and determine their identity or non-identity.

#### **1.3.9.1 EXAMINATION OF ARRANGEMENT**

Arrangement is a group of habits that are influenced by the writer's artistic ability, sense of proportion, and the instruction received. It may be evident in:

- The placement and balance of text,
- The dimensions and uniformity of all four margins,
- The interlinear spacing,
- The parallelism (alignment) of lines,
- The character, position, and frequency of interlineations,
- The depth of indentions,
- The paragraphing,
- The use of numerals and symbols in monetary amounts,
- The location and nature of headings, salutations, introductions, and conclusions,
- The location of signatures relative to margins, rulings and body of writing,
- The style, size, and position of addressing on envelopes,
- Location of punctuation marks with respect to the base line or apices of letters.

### 3.10 SPACING

The spacing habit of a writer in his signatures and writings can be studied in three manners:

- Space between letters,
- Space between words and
- Space between lines.

Spacing of writing is mainly changed by a change in the slant and length of the retracing of the upward or connecting strokes. Although this writing habit becomes almost fixed habit in the normal writings of an individual, however, sometimes when the available space for writings is lesser or the writer has to cover comparatively more area, such writings show variations in the spacing between letters, words or line and those variations can be explained, then such variation may be immaterial.

In case of fraudulent alterations, additions or interlineations, the added matter may not be properly adjusted in the original writings and the inconsistencies in the spacing may at once reveal the fraud. In fraudulent documents bearing genuine signatures or thumb impressions, the spacing may play a significant role and this factor may be sufficient to prove that the document is not genuine.

### 3.11 LINE QUALITY

The study of the line-quality in any writing, gives undoubted evidence of genuineness or otherwise. Line quality is that state or condition of a stroke in writing that shows the presence or absence of tremor, movement of pen, where the pen paused, deviations from intended path, writing pressure employed, hesitations, laboured nature of the stroke, the halting of the pen in the act of making a stroke, or the writing speed and the fluency and rhythm with which it was written. A close and detailed examination of line quality alone may furnish a solid basis for the suspicion that the writing/signature is genuine or not.

**Line quality of normal and spurious writing:** - A developed writing produced by a skilled person having good muscular co-ordination will show clear-cut and smooth line quality, well defined curves, fast speed and rhythm, continuity in movement without any unnatural pen lifts, tremors or pen pauses etc. The edges of the strokes are clear-cut and firm. The width of the stroke is uniform, or consistently graded throughout or in parts, and there is little or no evidence of retouching or lifting of the pen at unusual places and if the strokes are retouched, they will be of bold nature.

Sometimes there may occurred some line quality defects in genuine writing or signature(s) due to defective writing instrument, inferior quality of paper, inconvenient posture of the writer, rough writing support or the weakness of the writer etc. but such defects can be differentiated from the suspicious line quality defects of forgery. The simulated stroke i.e. strokes of forged writing/signature will exhibit the reverse of these conditions i.e. the edges may not be cut and sharp but hazy, the divergences from the

main path is also there. The width of the strokes may not be uniform or consistent in gradation, and there is frequently evidence of retouching and lifting of the pen at unusual places and in concealed manner.

### **1.3.12 TREMOR**

Natural tremor is an involuntary movement over which the writer has no control. Physical disabilities of various kinds are responsible for natural tremor, which occurs chiefly in the writing of the aged or infirm, or in the writing of those who are illiterate and who seldom write. Tremor does not suddenly appear in the writing of elderly persons, but appears gradually because of decreasing physical strength or health. It shows sudden and erratic departures from, and returns to, the normal or intended path of the stroke.

The illiterate writer usually makes a divergence from the main stroke of greater length and of a less angular character. Such a writer makes large, awkward and clumsy characters that show ill-strength of the writer and lack of his writing ability are evident by the pressure exerted on the pen. The pen is sometimes made to sputter on the paper, and the whole is a clumsy, unkempt and awkward attempt at writing.

In fraudulent tremor, the craftsmanship of skilled writer is always present though certain parts of the strokes will be inconsistent with each other i.e. a long down stroke may be made with a degree of firmness altogether incompatible with that shown in shorter strokes. The tremor may appear only in a few characters, the remainder having no trace of it. The deviations from the main stroke are much less frequent than in natural tremor. Each of these short strokes may be made continuously, but irregularly, either by stopping the pen on the paper, or by lifting it off and carefully replacing it at the point where it was taken off. The pressure of the pen is not uniform or consistent, and there is often a complete absence of natural shading. Strokes may be overwritten or retouched once or more, and the width of the strokes may be much greater than in any genuine writing.

Unnatural tremor is due to undue attention given to the writing process by the forger, with the object of producing the writing/signature as close to the form of genuine signature as possible. The fear of the consequences of doing an unlawful act is also a factor in causing unnatural or fraudulent tremor.

### **1.3.13 RETOUCHING**

Some parts of strokes or parts of genuine signatures or writings are sometimes retouched to correct the defect or to make certain parts of letters legible. The writings of elderly persons may show frequent retouching due to their inability to move the pen properly. In some cases, the writings of skilled persons may also show retouching due to their peculiar habit. In all these cases, the retouching are always clearly apparent and made boldly without giving attention to the act of retouching.

When a forger tries to forge a signature by tracing or by simulating the design of letters, his main attempt is to make the outline of forged signature similar to the model signature selected by him. In this attempt, he may be able to copy the design of letters but the imitation of writing habits and individual writing characteristics is beyond his power. In order to perfect his work, the forger may retouch and patch up the strokes in a very careful manner with an intention to conceal the retouching and avoid detection. The presences of such careful and concealed retouching at unnatural places at once indicate that the writing lacks genuineness.

The main demarcating line between genuine and fraudulent retouching is that the genuine retouching is always made carelessly in a bold manner whereas the fraudulent retouching is always made in a careful, concealed and suspicious manner and at unnatural places.

**A person with high quality of writing skills (Good Rhythm, line quality & high speed) can copy the writing of a person with low writing skills But Vice – versa is not possible.**

#### **1.3.14 PROPOSED QUESTIONS**

1. Write short note on:
  - a) Pen pressure
  - b) Alignment
  - c) Skill
  - d) Movement
  - e) Line quality

#### **1.3.15 SUGGESTED/REFERRED BOOKS**

1. Baker, J.N (1955): Law of Disputed and Forged Documents. The Michie Company, Charlottesville, Virginia.
2. Brewster, F. (1932): Contested Documents and Forgeries. The Book Company limited, Calcutta.
3. Osborn, A.S. (1929): Questioned Document, 2<sup>nd</sup> ed. Boyd Publishing Company, Albany, NY.
4. Hilton, O (1982): Scientific Examination of Questioned Documents. Revised Ed. Elsevier Science Publishing Company, NY.
5. Harrison, W.R. (1966): Suspected documents: their Scientific Examination. Sweet and Maxwell Ltd., UK.
6. Saxena B.L. (1994): Law and Techniques Relating To Identification of Handwriting, Disputed Documents, Finger Prints, Foot Prints and Detection of Forgeries,(Revised by Singla A.K.) Central law Agency, Allahabad.

**IDENTIFICATION OF HANDWRITING**

**I. STANDARDS FOR COMPARISON**

**1.4.0 INTRODUCTION**

**1.4.1 COLLECTED STANDARDS**

- 1.4.1.1 Amount of material
- 1.4.1.2 Similarity of the subject matter
- 1.4.1.3 Relative date of preparation
- 1.4.1.4 Writing conditions
- 1.4.1.5 Writing instrument and paper
- 1.4.1.6 Sources of standards
- 1.4.1.6 Verification of standards

**1.4.2 REQUESTED STANDARDS**

- 1.4.2.1 Dictation of material
- 1.4.2.2 Selection of text
- 1.4.2.3 Amount of material
- 1.4.2.4 Interruption of dictation

**II PRINCIPLES OF HANDWRITING IDENTIFICATION**

**1.4.3 INTRODUCTION**

- 1.4.3.1 WRITING FORMS AND QUALITIES
- 1.4.3.2 ARRANGEMENT OF WRITING
- 1.4.3.3 CLASS AND INDIVIDUAL CHARACTERISTICS
- 1.4.3.4 WRITING VARIATION
- 1.4.3.5 NON-IDENTITY OF WRITING/ FUNDAMENTAL DIFFERENCES
- 1.4.3.6 DISGUISE

**1.4.4 PROPOSED QUESTIONS**

**1.4.5 SUGGESTED/REFERRED BOOKS**

**I. STANDARDS FOR COMPARISON**

**1.4.0 INTRODUCTION**

The accuracy of handwriting opinions depends on the accuracy of the known writing. These writing standards must show writer's writing habits under similar conditions to those in which the questioned writing was prepared. These specimens must contain appropriate materials to indicate the individual writing habits of the author

and usual variations in these habits. They are used by document examiners as the basis for identification or non identification of the questioned document. So, Handwriting standards may be defined as known handwriting specimens that tell how a person writes. They not only bear the individual's writing habits but also usual variations in them.

Handwriting standards are of two types

- I- Collected (admitted) standards
- II- Requested standards.

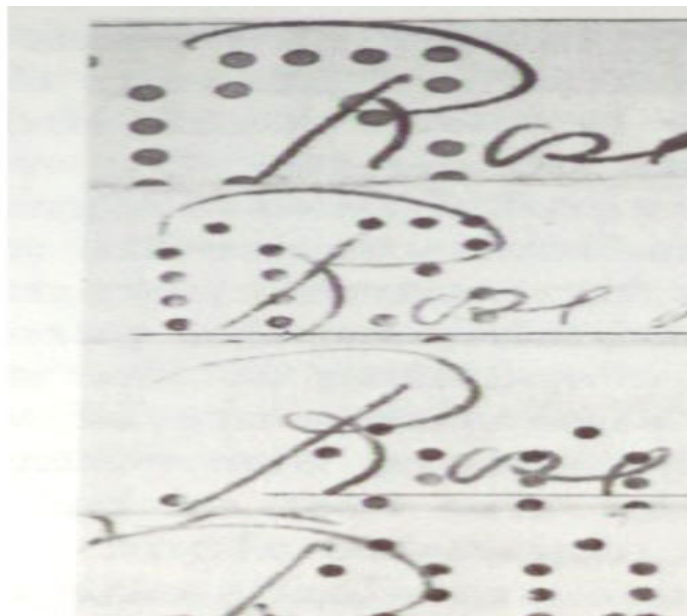
#### **1.4.1 COLLECTED STANDARDS**

It consists of writing executed from day to day in the course of business, social or personal affairs. The requirements to consider for the collected standards are:-

1. The amount of writing available,
2. The similarity of subject matter,
3. The relative dates of the disputed and standard writing,
4. The condition under which both questioned and known specimens were prepared,
5. The type of writing instrument and paper used

##### **1.4.1.1 Amount of Material**

The good writing standards should contain an adequate amount of writings, so that all the writing characteristics of an individual and the variation that usually occur from specimen to specimen are accurately determined. This natural variation must be revealed by the known writing. Variation in writing is a personal factor and it is not the same for every individual either in extent or nature.



**Fig-1.4.1 Signatures of the person showing large range of variation** (*as shown in Hilton, O (1982): Scientific Examination of Questioned Documents.*)

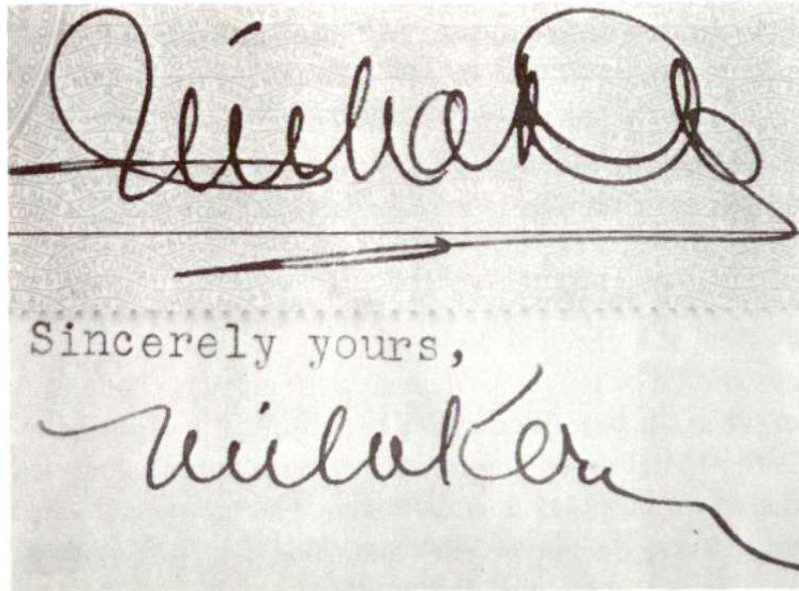
Besides, it can be influenced by the conditions under which the writing was done. Because of these reasons, the minimum amount of writing necessary to identify the author of a handwritten document or an anonymous letter varies. So there is no hard and fast rule for a minimum number of standard signatures or a minimum amount of handwriting required as standards for comparison. Hence with many problems, 10 or 20 signatures should constitute an adequate sample, but there are a certain number of cases that may require large number of signatures or handwriting in order to accurately reveal the writer's habits and range of variation.

Generally, four or five pages of carefully selected continuous, natural writing usually prove satisfactory as the minimum requirement for the comparison of writings. Regardless of these suggestions, though, a person submitting a problem an attempt should always be made to obtain as large a quantity of handwriting as possible rather than merely to fulfill minimum requirements.

**1.4.1.2 Similarity of the Subject Matter**

The best set of standards not only contains a quantity of writing but also includes a sufficient amount of the same general type of material as that in dispute. So if signature is questioned, standard signatures should be collected for comparison and handwritings should be compared with standard writings. In addition to this, some persons regularly employed two or more distinctive signature styles, one type may be used on important documents such as financial and legal documents and the other type is used for unimportant purposes. These different styles may be very divergent from each other. So, similar type of signatures can serve the better purpose for comparison. Therefore similarity of the subject matter should be maintained.

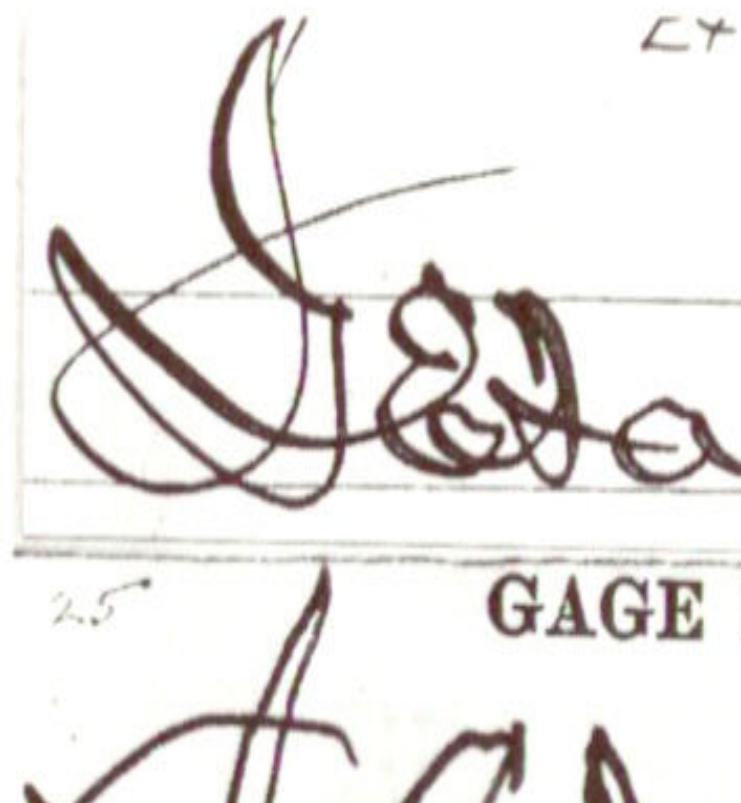




**Fig-1.4.2 Two different styles of Signatures of the same person** (as shown in Hilton, O (1982): *Scientific Examination of Questioned Documents*.)

#### **1.4.1.3 Relative date of preparation:**

Over the course of years a person's writing undergoes gradual change. This phenomenon may vary from individual to individual. It depends on factors such as frequency and the amount of writing written by the person, his age, writing skill and his mental and physical condition. In case of a normal adult, the writing habits change gradually. So the writing written 2 or 3 years before or after the questioned writing serve as the purpose of standards but if the time gap is of many years then an effort should always be made to collect some handwriting specimens near to the date of disputed writing. But during a severe illness or serious accident or operation or in case of aged, the writing may deteriorate sharply. In such cases the handwriting standards collected should be of near date.



**Fig-1.4.3 An abrupt and unusual change in the Signatures of the person** (as shown in Hilton, O (1982): *Scientific Examination of Questioned Documents.*)

#### **1.4.1.4 Writing conditions:**

The condition under which writing was prepared may affect its value for comparison purposes. Haste, lack of care, or unnatural writing position such as resting the paper on the knee, introduces variation that may make the specimens entirely unsuited for comparison with carefully written materials. In case of illness, awkward position of the writer i.e. writing while lying in bed may introduce variation in handwriting characteristics in addition to those produced by the writer's physical condition. Other noticeable variation can be caused by writing on a rough or irregular surface or in moving vehicle. Illegible receipt signatures and hastily written notes are common examples of specimens that reflect qualities typical of the conditions under which they were written. Because of these reasons no writing prepared under such unusual conditions should be compared with writings done under more normal circumstances, although they may serve as valuable supplement standards.

#### **1.4.1.6 Writing instrument and paper:**

The kind of writing instrument used for a particular sample may have some influence on its usefulness as a standard. Pen and ink writing contains certain identifying characteristics that are not fully revealed in pencil specimens, while a change in the style of nib pen may also introduce variations in handwriting. The composition, size, shape and ruling of paper may affect the writing i.e. the writing written with fountain pen on poor grade, unsized paper has blurred strokes and results are different from the writings written on high-grade, bond paper.

#### **1.4.1.7 Sources of standards:**

There are numerous sources for writing standards. Among the possible sources of signature standards are checks, traveler's checks, signature cards for saving, account and safe deposit forms, signed receipt, special delivery or registered letters, credit and loan applications and cards, agreements, bills of sale, contract, deeds, stock certificates and transfer certificate, power of attorney, passport diving license etc.

#### **1.4.1.8 Verification of standards:**

It is essential to verify the authenticity of the standards. The investigator should establish the facts by careful checking the standard writings/signatures. Standards should be verified through a detailed field investigation and by obtaining specimens written in the presence of reliable witnesses. Writing used for different purposes, prepared at various times and under diverse circumstances, permit technical cross-checking and verification. Standards are the cornerstone of the examination of writings and no identification can be more accurate than the standards that support it.

#### **1.4.2 REQUEST STANDARDS**

These are the standards that contain materials written at the request of an attorney or investigator for the sole purpose of comparison of the questioned documents. Sometimes circumstances do arise under which the collection of adequate set of collected standards may become difficult. These circumstances are most common to criminal investigations and otherwise also. So in that case requested or dictated standards will be collected from the person. In these standards, however, apparent differences from the writing habits can be brought about by disguise, nervousness during preparation with the knowledge that the results are to be used for comparison purposes. But if certain precautions will be observed during the procurement of these standards, they will represent the range of writing habits and become useful for comparison purposes.

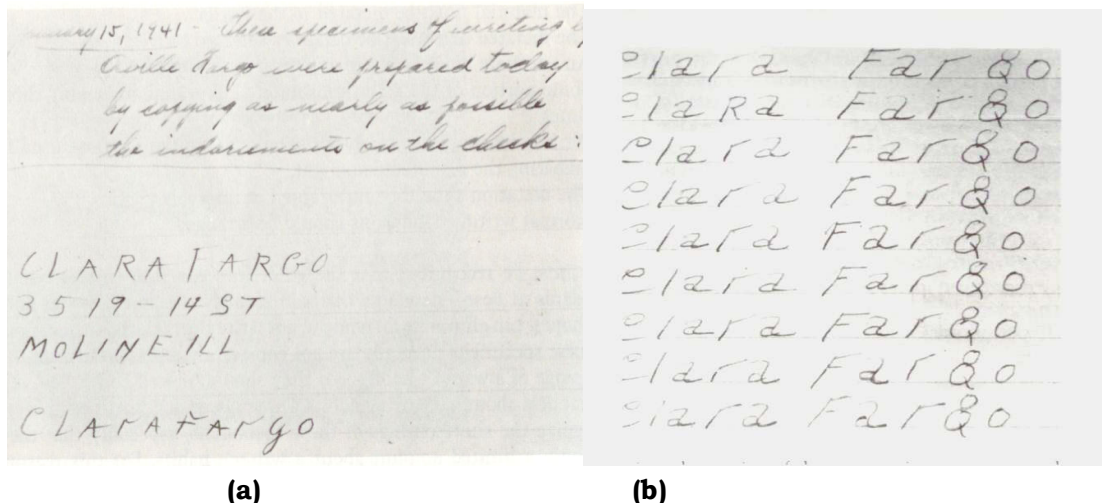
#### **Requirements:-**

- The material must be dictated to the writer.
- The dictated text must be carefully selected.
- An adequate amount of writing must be included.
- Some portion of the dictation should be repeated, preferably three times.

- The dictation should be interrupted at intervals.
- Writing instruments and paper should be similar to those used in preparing the disputed document.
- Normal writing condition should be arranged.

#### 1.4.2.1 Dictation of material

Questioned document should not be given to writer to prepare a copy because it will lose the various characteristics e.g. manner of arrangements, the correct spelling and punctuation as well as the other important features etc. However, the matter should be dictated to him. In dictating, the text must be read to the writer without suggestion as to the arrangement of material, spelling, punctuation, capitalization, or other points. The initial speed of dictation should not be fast but subsequent specimens must be taken at several different writing speeds. Only in this manner, his normal range of writing variation can be reproduced in the request specimens. Furthermore, the writer's attempt to modify or disguise his writing has been lessens with fast speed of dictation.



**Fig-1.4.4 the writing is disguised (b) by the suspect after he had been instructed to copy the portion (a) of the disputed document (as shown in Hilton, O (1982): Scientific Examination of Questioned Documents.)**

#### 1.4.2.2 Selection of Text

The selection of the text for request standards can be done in three types:-

1. The content of the disputed document, or
2. Similar material, which contains many of the same words, phrases, and letter combinations present in disputed documents, or
3. A standardized form that includes all the letters of the alphabet and a number of the more commonly used words.

#### 1.4.2.3 Amount of Material

The requirement for standards is that they should represent true picture of writing characteristics and usual variation in an individual's writing. For this collection of extensive specimens is necessary. In addition to this, two more important factors prevailed at the time of collection of requested standards are, nervousness and disguise. Therefore, one should make sure that the request specimens should portray the natural writing variation and are free from the effects of nervousness and disguise. For this, the minimum requirement is that the writer should furnish at least five or six pages of continuous handwriting and 20 or more signatures, each written on a separate sheet of paper. So if identification of the writer is to be accomplished, extensive standards should be prepared.

#### **1.4.2.4 Interruption of dictation**

Dictation should be interrupted for two or more times and at the same time all completed specimens should be removed from writer's view. So that, after interruptions, consistent disguise becomes more difficult i.e. interruptions aid in getting natural writings of the suspect.

In addition to this, normal and comfortable **writing conditions** should be maintained.

#### **1.4.2.5 COMBINATION OF COLLECTED AND REQUEST STANDARDS**

In order to obtain an adequate and accurate set of standards, both the classes of standards i.e. collected as well as requested, should be used. If there is a suspicion that the disguise has not been eliminated from the requested standards, then collected standard will be helpful in the investigation of handwriting. Similarly, if collected standards are inadequate or there are a limited number of them, then a complete set of requested standards will serve the purpose.

## **II. IDENTIFICATION OF HANDWRITING**

### **1.4.3 INTRODUCTION**

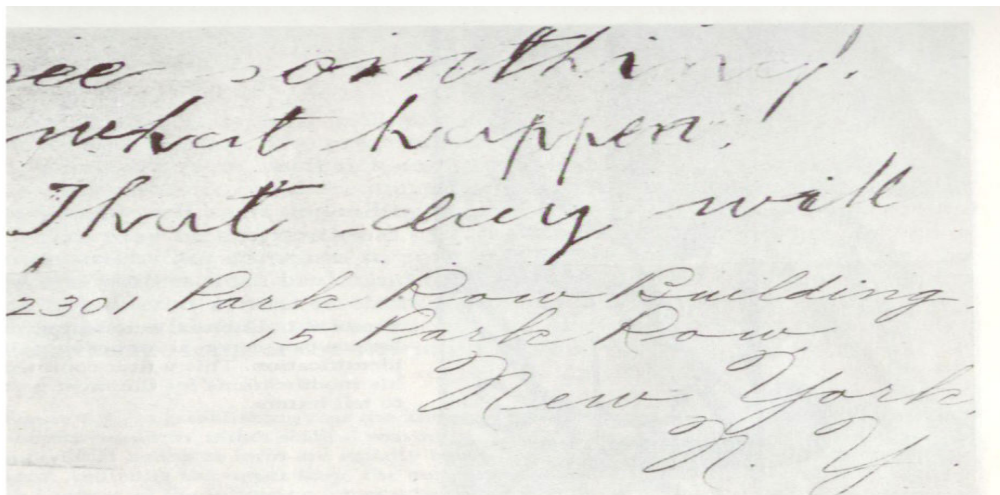
Writing, at first, is a conscious act. Though, through repeated use, the formation of each letter and word becomes almost automatic. It is influenced by a mental picture of copy book form, modified by the individual tastes and the writer's ability to imitate. Physical and mental conditions at the time of writing may affect it. It is an established fact that the handwriting is individual to each and every person. Therefore, it can be identified, and the identification is based on all the elements that combined to create the individuality. The identification is based on the following:

- Writing forms and qualities
- Arrangement of writing
- Class and individual characteristics
- Writing variation
- Non identity of writings/Fundamental differences
- Disguise

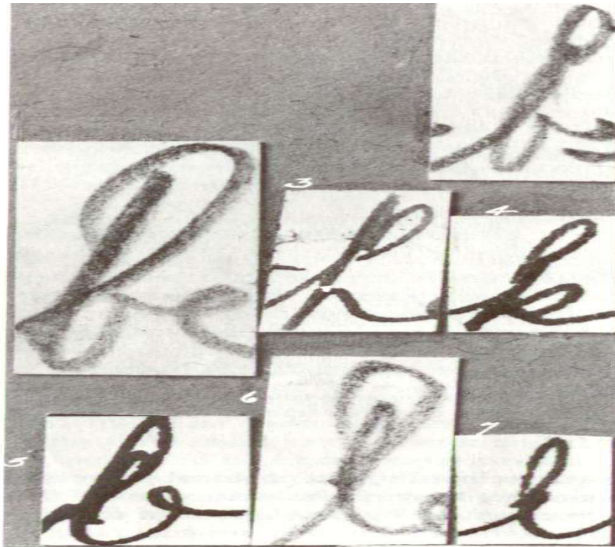
#### **1.4.3.1 Writing forms and qualities**

The basis for handwriting identification is the recognition of its writing characteristics. These writing characteristics include characteristics of execution and form. The writing form is described by the angularity of letters, their height and width, the proportional size of various letters and parts of letters, their shape that may be artistic or grotesque, the spacing between letters which may be crowded or separated depending upon the connecting strokes, style of particular letters, embellishments and slant. Writing is executed by movement of the fingers, the wrist and the arm, either individually or in varying combinations, depending on the skill and training of the writer. The skill of the writer, the speed of writing, the actual form, and the manner of execution are inter-related.

Every handwriting specimen reveals that writing/signature it contains is individual to its writer and is the results of the pen movements that have produced it. At one extreme is a smooth, continuous, rhythmic, rapidly executed writing having shaded strokes with points of emphasis that display freedom of motion i.e. writing



**Fig-1.4.5 Writings showing two extremes in writing skill, poor skill depicted by labored and clumsy strokes in upper writing while the lower writing shows the skillful penmanship** (as shown in Hilton, O (1982): *Scientific Examination of Questioned Documents.*)



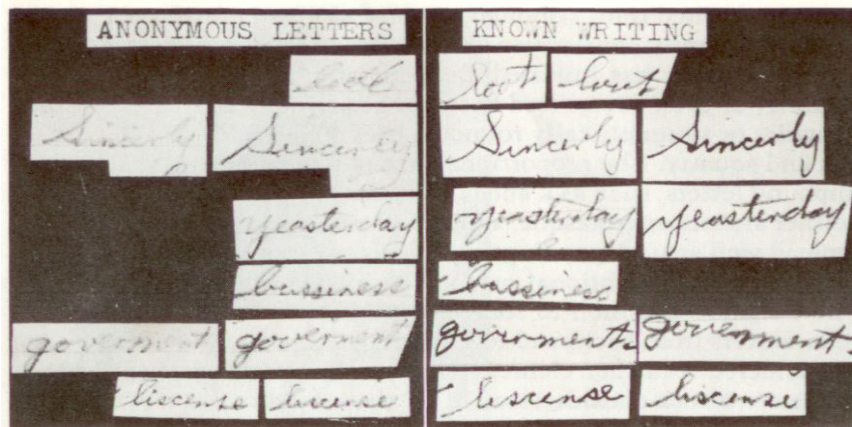
**Fig-1.4.6 The writer has the habit of retouching of tall letters which serve as point of identification** (as shown in Hilton, O (1982): *Scientific Examination of Questioned Documents.*)

characteristics of highly skilled penman (Fig 2.5- lower). Another extreme is hesitant, interrupted, laborious, slowly executed writing showing irregularities in pen pressure etc. (Fig 2.5- above). There are other qualities of writing movement also i.e. the strokes may be precise or careless, or they may be reworked or retouched in an effort to perfect and improve the legibility (Fig 2.6). The writing qualities of many writers lie between these extremes.

So the identification of writing does not depend upon the general pictorial appearance of the letters or words, but upon the correct interpretation of the qualities related to form and execution.

#### **1.4.3.2 Arrangement of writing**

The arrangement of the writing on the paper may be as individual as the writing itself. Margins, spacing, crowding, insertion and alignment are personal habits. These factors are present both in the use of printed forms or handwritten documents. Spelling, punctuation, phraseology and grammar may further individualize the writer (Fig-2.7).



**Fig-1.4.7 The unusual spellings which are repeated both in known and questioned writings serve as point of identification** (as shown in Hilton, O (1982): *Scientific Examination of Questioned Documents.*)

Every one of these factors can be personal and, if so, forms an important part of the identification of the writer.

#### **1.4.3.3 Class and Individual Characteristics**

Class Characteristics, are those characteristics which are common to number of writers and may result from influences such as the writing system studied, family association, occupation and education. Class characteristics, have little weight in identifying a writer, as these can be present in others' writings as well. Individual characteristics are more or less peculiar to a specific writer. Individual characteristics, constitutes the backbone of an identification. But if two specimens of writing were not prepared by the same writer, this can be established through significant differences in either individual or class characteristics. Class characteristics Can help in exclusion.

#### **1.4.3.4 Writing variation**

The identification of suspected or unknown writing depends upon the similarity present in these and standard or known writings. In reaching this conclusion, one must consider the presence of writing variation. No two samples of writing prepared, even at the same time, by anyone are identical in every detail. Variation is an essential and important part of natural writing. It is due principally to **the lack of machinelike precision in the human body**, and is also affected by internal and external factors, such as writing position, writing instrument, and care of execution. Writing variation is also influenced by physical and mental condition, such as fatigue, intoxication, drug use, illness, and nervousness. The amount and nature of variation differs among writers and its type forms an important element in the



identification. So, Variation does not prevent identification of the writing, in fact, variation around the basic qualities of the handwriting forms an additional factor that serves to individualize and identify writing. Thus, handwriting can be most accurately identified when the standard and questioned specimens were written under comparable conditions. The source of writing can be established by determining its fundamental qualities and elements with an accurate range of variation through which the writing fluctuates. Therefore, it is the basic necessity to show that not only the unknown and known writing has the same qualities and habits of the writing, but also that the deviations from the basic patterns are also same.

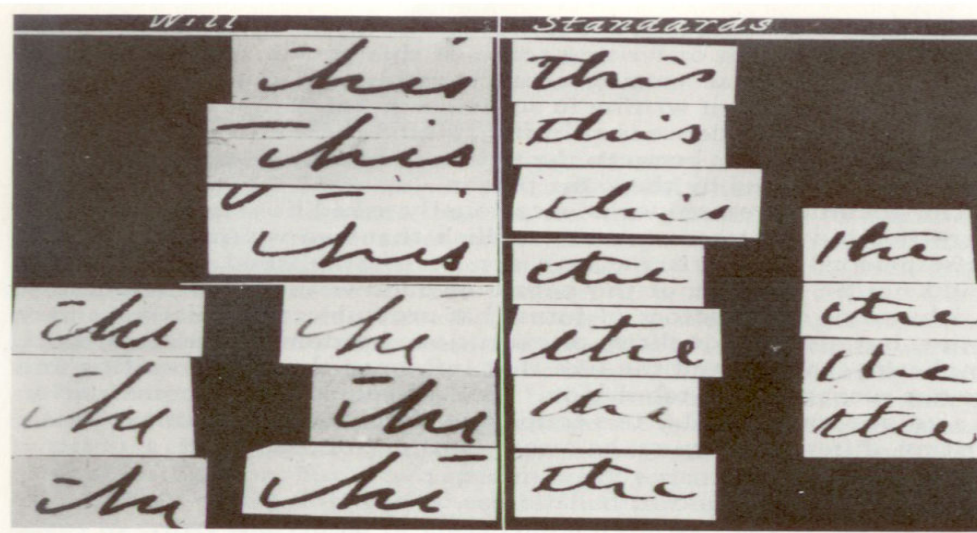


**Fig-1.4.8 The signatures showing wide variation in slant, size, letter forms, connections etc. This type of writings need large amount of standards.** (as shown in Hilton, O (1982): *Scientific Examination of Questioned Documents*.)

#### 1.4.3.5 NON-IDENTITY OF WRITING/ FUNDAMENTAL DIFFERENCES

Fundamental differences or divergences are those differences **which are beyond the range of natural variations of contemporary standard signatures/** handwritings and which can not be accounted for being due to the external and internal factors such as age, illness, mental state, posture, writing instrument, writing support etc. Writings of two different persons may be dissimilar or they may be alike but can not be identical. Although many writers have certain habits in common, each has developed personal peculiarities that mark his writing. These individualistic details, distinguish the writings of two persons who write very much alike from each other and these repeated small differences, differentiate the writings of two individuals despite a number of general similarities. Even there are a great

number of similarities in two writings, that may at times outnumber the differences, yet the fundamental but repeated differences are controlling and deciding factors. Everyone seems to appreciate that two writings are not by the same individual when there are a vast number of differences, but a few fundamental dissimilarities may not seem to lead to so positive a conclusion. Nevertheless, they do. If two writings are by a single person, then no fundamental differences should exist. Conversely, if there is any basic dissimilarity that cannot be accounted for by a logical, commonsense explanation, then the two writings must have been prepared by different writers.



**Fig-1.4.9 Two writings showing fundamental differences** (as shown in Hilton, O (1982): *Scientific Examination of Questioned Documents.*)

**DISGUISE:** It is an act of writing where a person tries to change his/her own handwriting.

There is a misconception that a person can write in different manner. But this is **not true**. It is impossible for an individual to materially change his writing habits. The main reason is that the writing is the product of unconscious habits. The persons generally do not know much about their writing characteristics. So they try to alter only the pictorial appearance of letters, considering that such changes will securely shield them. But the person is not able to hide those hidden characteristics about which he is not familiar, and these small but significant personal features may permit an identification of the writer. In addition to this, disguised writing has highly characteristic feature to distinguish it from normal writing i.e. irregularities and inconsistencies in writing features. That is why it is not difficult for the skilled experts to reveal the identity of writing if sufficient materials for comparison are procured.

**1.4.4 PROPOSED QUESTIONS**

1. What should be the criterion for suitable and sufficient standards for comparison with the questioned signatures/writings? Which are the best standards for comparison?
2. How would you instruct the investigating officer in regard to the procurement of standard signatures/writings?

**1.4.5 SUGGESTED/REFERRED BOOKS**

1. Brewster, F. (1932): Contested Documents and Forgeries. The Book Company limited, Calcutta.
2. Osborn, A.S. (1929): Questioned Document, 2<sup>nd</sup> ed. Boyd Publishing Company, Albany, NY.
3. Hilton, O (1982): Scientific Examination of Questioned Documents. Revised Ed. Elsevier Science Publishing Company, NY.
4. Harrison, W.R. (1966): Suspected documents: their Scientific Examination. Sweet and Maxwell Ltd., UK.
5. Saxena B.L. (1994): Law and Techniques Relating To Identification of Handwriting, Disputed Documents, Finger Prints, Foot Prints and Detection of Forgeries,(Revised by Singla A.K.) Central law Agency, Allahabad.

**FORGERY AND DISGUISE**

**1.5.0 INTRODUCTION**

**1.5.1 FORGERY**

**1.5.2 TYPES OF FORGERY**

**1.5.2.1 FREEHAND OR SIMULATED FORGERY**

5.2.1.1 Features present in forged writing/ signatures

**1.5.2.2 TRACED FORGERY**

1.5.2.2.1 The transmitted light process

1.5.2.2.2 The carbon outlines method

1.5.2.2.3 The indentation line method

1.5.2.2.4 Additional defects

1.5.2.2.5 Detection of traced forgery

**1.5.2.3 FORGERY BY IMPERSONATION**

**1.5.2.4 FORGERY BY MEMORY**

**1.5.2.5 FORGERY THROUGH TRANSPLANTATON**

**1.5.3 IDENTIFICATION OF FORGER**

**1.5.4 DISGUISED WRITING**

1.5.4.1 The recognition of disguise

**1.5.5 PROPOSED QUESTIONS**

**1.5.6 SUGGESTED/REFERRED BOOKS**

**1.5.0 INTRODUCTION**

Handwriting examination includes the identification of handwriting as well as signatures. A signature is a combination of limited number of letters and is a highly individualized form of writing. It contains personal concept of design which produces a particular pattern. The general principle for the identification of handwriting and signature remains same, i.e. it does not depend on the pictorial appearance but on the factors related to execution and general form of signatures/writing that help in accurate identification. The execution of strokes and pen movement can be determined by the features present in the signature which includes: continuous or interrupted writing movement or actual pen lifts, rhythmic or jerky pattern of writing, shading and pen emphasis on particular strokes, writing pressure, position of the pen, speed of execution, shape of stroke i.e. rounded, elliptical, sharply curving, or angular connecting strokes, retouching, writing movements i.e. finger, hand arm or combination of all these etc..

The features which defines the general form of signature includes: design of letters, slant of letters, and relative size of letters, spacing, ornamentations and flourishes, simplification of form, arrangement of different parts of the signatures with respect to the body writing etc.

Natural variation also plays an important role in identification of writing. The extent of presence of natural variations depends upon the individual writer and condition under which the specimens were written. The amount of signature required depends on the nature and extent of natural variations present in one's writing.

If questioned signatures resemble the standards signatures in all characteristics, then they must have been written by the same writer. If significant difference arises between the questioned signature and the specimen then they must be written by the two different writers.

### **1.5.1 FORGERY**

Forgery is defined as the non-genuine signatures or documents made with intent to defraud the individual. In the Indian Penal Code sec.463, forgery is defined as- "Whoever makes any false document or part of document, with intent to cause damage or injury to the public or any person or to support any claim or title or to cause any person to part with property to enter into any express or implied contract or with intent to commit fraud or that fraud may be committed, commits forgery".

A forger is defined as the person who forges the signature of other person or document with intent to harm that person. According to IPC, Sec. 465 Punishment for forger is- "Who dishonestly or fraudulently makes any mark, sign or executes a document or part of a document, or makes any mark denoting the execution of a document with the intention of causing it to be believed that such document or part of a document was made, signed, sealed or executed or by the authority of a person by whom or by whose authority he knows that it was not made, signed or executed;" and "Who, without lawful authority, dishonestly or fraudulently, by cancellation or otherwise, alter a document in any material part thereof, after it has been made or executed either by himself or by any person, whether such person be living or dead at the time of such alteration."

Forgery involves double process i.e. the forger must discard his own writing habits and second he should adopt the writing characteristics of other person. So forgery involves the conscious mental task as well as the physical struggle of using a strange writing process. This mental and physical conflict results in the defects in the execution of strokes.

### **.2 TYPES OF FORGERY**

- Free hand or simulated
- Traced forgery
- Forgery by impersonation

- Forgery by memory

### **1.5.2.1 FREEHAND OR SIMULATED FORGERY**

In this type of forgery, the forger select model signature or writing and tries to copy the design of letters and other features depending upon his abilities. Freehand imitations are generally the most skillful forgeries, although there are all grades of imitations. A freehand imitation is perfect; if all the habits and qualities of the authentic signatures are imitated and simultaneously all conflicting elements of forger's own writing have been discarded. So this process involves writing the signature in the same natural way as the authentic signature. Failure often results because the forger has only a superficial idea of a few characteristics of both his writing and the writing to be simulated or because his skill as a penman fails to measure up to that of the person whose writing is being imitated or the exacting task of execution is not successful.

#### **1.5.2.1.1 FEATURES PRESENT IN FORGED WRITING/ SIGNATURES**

The forgery can generally be detected because of the inherent defects present in them i.e.:-

- In the usual forgery, the signature tends to be a deliberate drawing in which emphasis is placed on the imitation of letter forms and designs rather than on the movements and writing qualities with the forgery; therefore, significant differences in the mode of execution as compared with the standard signature proves its fraudulent characters.
- Regardless of the care taken in imitating the letter forms, variation in these characteristics occur.
- The normal signature of the writer consists of habitual speed of writing, firmness of strokes, patterns of shading and emphasis, degree of skill, fundamental muscular movement and co-ordination, rhythm, continuity, pen-position, and freedom; a forgery differs from the genuine signature in any of these qualities.
- Line quality defects due to forgery i.e. hesitation, unnatural pen lifts, patching, tremors, uncertainty of movements as portrayed by abrupt changes in the direction of the line, and a stilted, drawn quality devoid of free, normal writing movements combine to reveal the true nature of the forgery.



**Fig-1.5.1 Two signatures in the centre are genuine, upper and lower-most signatures are forged** (as shown in Hilton, O (1982): *Scientific Examination of Questioned Documents.*)

#### 1.5.2.2 Traced forgery

Any fraudulent signature executed by actually following the outline of a genuine signature with a writing instrument. A tracing can be produced by following ways:-

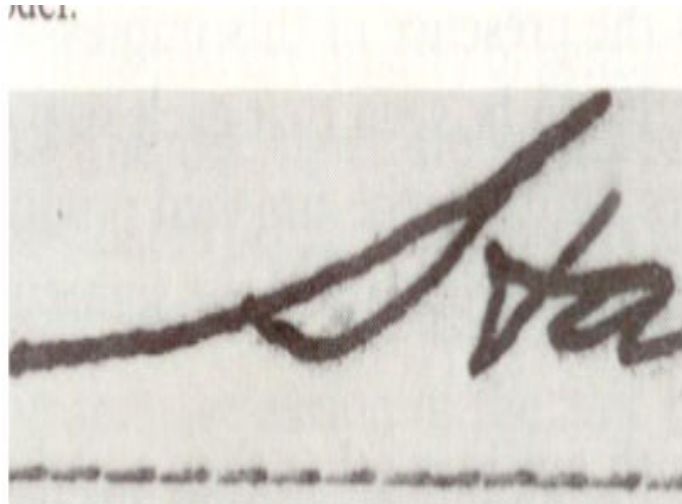
- 1.5.2.2.1 The transmitted light process:** In this process tracing is prepared by placing the document ( to be forged) over the genuine signature, and while directing the light through the two papers from below or behind, and then tracing the outline that shows through the uppermost sheet.
- 1.5.2.2.2 The carbon outlines method:** In this method, outline of genuine signatures are drawn with the help of carbon paper. Then these carbon outlines are concealed by moving writing instruments over them.
- 1.5.2.2.3 The indentation line method:** The method is same as carbon outline method except that in this forgeries are prepared with a guideline consisting of a simple writing impression that the forger produces by tracing the genuine signature with sufficient writing pressure to produce the indentation. These indentations are then filled by moving writing instrument over them.
- 1.5.2.2.4** A traced signatures thus prepared **has additional defects**. Some of the less conspicuous details of the model signature or in some cases even a greater number of details are omitted because of the oversight. A traced forgery prepared from a carbon outline is crude imitation as it not only has the defects of tracing present but also the defects due to the double tracing process. This act gives two chances for error and inaccuracies in following

the outline. So the actual forgery is produced not by a writing process but by drawing.

#### **1.5.2.2.5 Detection of Traced Forgery**

- The defects found in tracing are same as found in case of freehand or simulated forgery.
- But the typical traced forgery is drawn with a slow, measured stroke, which is usually filled with a point of hesitation, uncertain movements, and sudden abrupt turns or jogs.
- This class of forgery typically contains a uniformly heavy stroke that lack natural shading and pen emphasis common to natural writing.
- Traced signature show patching and retouching made in an effort to correct faulty letter forms. Retouching may even be made with the pen moving in the direction opposite to natural writing.
- In addition to pen lifts, there may also be indication of the pen stopping in the course of making a stroke though it remains in contact with the paper. The forger employs either method while he determined the proper course of the pen through out the balance of a letter and into the next one.
- Traced signature may show the presence of the carbon outline along the signature. This outline can be studied where the ink fails to cover it. Infrared-photography will penetrate the covering ink and reveal the carbon outline. The forger may attempt to eradicate the carbon outline by erasing with a soft rubber. But the carbon deposits are persistent, and identifiable traces have been known to remain even after careful erasing. Secondly, there may present a slight indentation from the pressure of tracing. The erasing may remove some ink as well or may dull it.
- So it can be seen that each step in the preparation of a forgery introduces faults in the finished products that serves as the means to show the fraudulent nature of the signature and to establish how it was prepared.





**Fig-1.5.2 Two forged signatures were traced from same source** (as shown in Hilton, O (1982): *Scientific Examination of Questioned Documents*.)

#### **1.5.2.3 FORGERY BY IMPERSONATION**

When there are no genuine signatures available to the forger, he may still try to commit the fraud. This is termed as forgery by impersonation or spurious signatures. In this, the forger merely writes/signs the name of another person in his own or slightly modified handwriting and does not try to copy or simulate the signatures/writing of genuine person. He then passes the document for his personal gain. The proof of non-genuineness of signatures is rather simple, when the authentic signatures of genuine person are available. This type of forgery is usually applied by check thieves, who steal, endorses and passes the government or corporation checks with fictitious signature.

#### **1.5.2.4 FORGERY BY MEMORY**

In this type of forgery, the forger tries to prepare the signatures/writing by mentally recalling the forms and letters of the signatures/writing of genuine person without the presence of original signatures at the time of forgery. This forgery is the combination of features of forger's handwriting bearing resemblance with the signature/writings of genuine writer. This forgery is not difficult to identify, if the genuine signatures/writings of original person are available.

#### **5.2.4 FORGERY THROUGH TRANSPLANTATION**

It is done with the help of computer and computer software where forger copies an image of signature and transplant it to other document and print it to produce it as original document.

#### **1.5.3 IDENTIFICATION OF FORGER**

The most difficult problem in document examination is to establish the identity of forger from the study of the forged writing/signature. The forger of traced

forgeries are somewhat difficult to find out by the examination of signatures itself or by its comparison with signatures or writing of suspect. This is because of the fact that the traced forgeries are prepared by drawing the outline of genuine signatures and it may not happen that in the process of drawing forger would put his own writing habits to link it with the forger.

Similarly, a simulated forgery is made by imitating the model signatures of the genuine writer and at the same time controls his writing habits from interfering in the process. So in the process, he may leave few of his writing habits which are rarely helpful in identifying the forger. As it must be understood that positive proof of the identification of writing can never be based upon merely one or two similarities between his and disputed writing.

The forgery by impersonation can be linked to the forger as he may write the signatures/writings of genuine person in his own handwriting. But the difficulty arises in collecting the adequate known writing on which opinion is to be based. Inadequate known signatures will not solve the purpose.

#### **1.5.4 DISGUISED WRITING**

A disguised writing is defined as the writing in which the writer deliberately attempt to alter the appearance of all or some of his writing habits by assuming another style. The effort of writer is directed to hide his personal characteristics.

In anonymous letters, the writer generally disguised his writing to hide his personal identity. The motive behind writing anonymous letters is sometimes to secure money by threats or blackmailing or to secure wrongful gain in jealousy, rivalry, political and social prejudice and family feuds.

It is generally found that in some cases defendants deny the authenticity of their genuine signature on the affidavits and receipts signed by them. When they are asked to give specimens of their handwriting for the purposes of comparison with the signatures in dispute, in majority of cases such persons disguise or attempt to disguise the forms of writing. The specimens writing thus obtained make the task of the investigator difficult to certain extent and sometimes enough material is required to arrive at a correct conclusion.

There is a misconception among the common man that they can write in different manner and this changed writing will not tally with their original writing. But this is not true. It is not only difficult, but impossible for an individual to materially change his writing habits. The main reason is that the writing is the product of unconscious habits and a man cannot retain consciousness in writing for long. Secondly, persons generally do not know much about their writing characteristics and they try to alter only the pictorial appearance of letters, considering that such changes will securely shield them. Certainly the writer fails to hide those hidden characteristics about which he is not familiar. It is not difficult for the skilled experts to reveal the identity of writing if sufficient materials for comparison are procured. The comparison of

these silent features makes an examiner to trace out the real person; and makes the disguise a vain attempt. According to Osborn, there are four changes to the writing that are popular in anonymous letters, as methods of disguise: (1) a change in slant, (2) a change in size and/or proportions, (3) a change in style, usually from cursive to block lettering, and (4) the invention of unusual letter forms. Following is the list of common features of disguised writings:-

1. Writing is larger or smaller in size.
2. Change in the direction of writing slant or slope to reverse direction.
3. Introduction of grotesque letter forms.
4. Addition of embellishments.
5. Display of inferior skill
6. Introduction of artificial tremor.
7. Introduction of capital letters instead of small letters
8. Change in spellings
9. Change in the hand i.e. writing with opposite hand.
10. Change in alignment.
11. Readapt ion of previous writing forms of letters i.e. copy- book pattern
12. Attempt to copy the handwriting of another person.
13. Assumed illiteracy.
14. Introduction of different letter designs.

#### **1.5.4.1 The recognition of disguise**

The recognition of those features in a handwriting which can correctly be attributed to disguise is dependent upon the application of certain fundamental principles. These are:

1. Most disguise is relatively simple in nature
2. Disguised handwriting exhibits less fluency and poorer rhythm than the normal hand.
3. Any change in slope introduced as disguise is rarely constant.
4. Disguised handwriting often contains altered letter designs.
5. The internal consistency of handwriting is disturbed by the introduction of disguise Originality in disguise is rare.

#### **1.5.5 PROPOSED QUESTIONS**

1. What are characteristics of trace forgery?
2. 'Perfect forgery is not possible' Comment.
3. Which handwriting features are more disguised? Discuss the general principles governing recognition of disguise.

#### **1.5.6 SUGGESTED/REFERRED BOOKS**

1. Baker, J.N (1955): Law of Disputed and Forged Documents. The Michie Company, Charlottesville, Virginia.

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4. Hilton, O (1982): Scientific Examination of Questioned Documents. Revised Ed. Elsevier Science Publishing Company, NY.
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6. Saxena B.L. (1994): Law and Techniques Relating To Identification of Handwriting, Disputed Documents, Finger Prints, Foot Prints and Detection of Forgeries,(Revised by Singla A.K.) Central law Agency, Allahabad.