Question Document

- Any object with handwriting or print whose source or authenticity is in doubt may be referred to as a questioned document.
- The unconscious handwriting of two different individuals can never be identical.
Introduction

- Examine and compare questioned documents with known material
- Field investigations include:
  - Handwriting
  - Computer printouts
  - Commercial printing
  - Paper and ink
  - Threatening, ransom, or suicide notes
- Analysis helps identify a document’s author
History of Forensic Handwriting Analysis

- **1930s**—handwriting analysis played a role in the famous Lindbergh case.
- **1999**—the US Court of Appeals determined that handwriting analysis qualifies as a form of expert testimony.
- To be admissible in court, scientifically accepted guidelines must be followed.
- Scotland Yard, the FBI, and the Secret Service use handwriting analysis.
Certain agencies, such as the U.S. Secret Service and the German Federal Police, maintain larger databases.

For example, the Forensic Information System for Handwriting (FISH) maintained by the U.S. Secret Service Forensic Laboratory contains handwriting samples from tens of thousands of writers.
Introduction to Handwriting

Everyone’s handwriting shows natural variations. Here are 6 of the 12 major, specific traits.

<table>
<thead>
<tr>
<th>Specific trait</th>
<th>Line quality</th>
<th>Spacing</th>
<th>Size consistency</th>
<th>Continuous letters</th>
<th>Connecting letters</th>
<th>Lettering complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The letters flow or are erratic and shaky.</td>
<td>The letters are equally spaced or crowded.</td>
<td>The ratio of height to width is consistent or inconsistent.</td>
<td>The writing is continuous or the writer lifts the pen.</td>
<td>Capitals and lowercase letters are connected and continuous or are not connected and continuous.</td>
<td>The letter begins and ends on the page or part of the letter is missing.</td>
</tr>
</tbody>
</table>
Introduction to Handwriting

The traits are functions of formatting or of letter or line form. Here are the other 6 of the 12 major, specific traits.

<table>
<thead>
<tr>
<th>Specific trait</th>
<th>Cursive and printed letters</th>
<th>Pen pressure</th>
<th>Slant</th>
<th>Line habits</th>
<th>Fancy curls or loops</th>
<th>Placement of crosses on t’s and dots on i’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Letters are cursive, printed, or both.</td>
<td>Pressure is equal or not when applied to upward and downward strokes.</td>
<td>If there is a slant, it is left, right, or variable.</td>
<td>Text is on, below, or above the line.</td>
<td>There are or are not fancy curls.</td>
<td>These are correct or misplaced.</td>
</tr>
</tbody>
</table>
3 Basic Steps for Handwriting Examination

- Two writings came from one person if:
  - their similarities are unique and
  - no unexplainable difference(s) are found
1. Examine the questionable document for detectable traits and record them
2. Characteristics of question item are compared with the known standard. Obtain a known sample of the suspect’s writing (an exemplar)
3. Compare and draw conclusions about the authorship of the questionable document by experts.
Graphology

- the study of handwriting and handwriting analysis
- Not necessary used for Forensic purposes.
- used technique for assessment of people in organizations.
- Handwriting analysis is an effective and reliable indicator of personality and behavior, and so is a useful tool for many organizational processes, for example: recruitment, interviewing and selection, team-building, counselling, and career-planning
Methods of examining/comparison.

- Naked eye
- Microscope
- Hand-held lens
- The number one way that people suspect fakes and scrutinize money is because it doesn’t feel right.
Technology Used in Handwriting Analysis

- **Biometric Signature Pads**
  - “Learns” to recognize how a person signs
  - Evaluates speed, pressure, and rhythm of the signature
  - Recognizes forgeries by the detection of even slight differences

- **Computerized Analysis**
  - Compares handwriting samples objectively
  - Compared with samples stored in databases
Handwriting

- Evidence in the Courtroom
  - Expert explains how comparisons were made
  - Cross-examination by defense attorney may follow

- Shortcomings in Analysis
  - Are the base documents real or fake?
  - Did mood, age, fatigue impact the handwriting?
  - Did experts miss details any details?
Forgery

- The process used by criminals to make, alter, or falsify a person’s signature or another aspect of a document with the intent to deceive another.

- Forged documents include:
  - checks
  - employment records
  - legal agreements
  - licenses
  - wills

- **Fraudulence**—forgery for material gain
Forgery

- Check forgery can include:
  - ordering another’s checks from a deposit slip
  - altering a check
  - intercepting another’s check, altering, and cashing it
  - creating a check from scratch
Preventing Check Forgery

- Chemically sensitive paper
- Large font size requires more ink and makes alterations more difficult
- High resolution borders that are difficult to copy
- Multiple color patterns
- Embed fibers that glow under different light
- Use chemical wash detection systems that change color when a check is altered
Literary Forgery – forgery of a piece of writing, such as an historical letter or manuscript.

- Best forgeries aim to duplicate the materials found in the original by using:
  
  • old paper
  • chemically treated materials to fake an older look
  • inks mixed from substances that would have been used at the time
  • watermarks that add the appearance of age
  • tools and styles that would have been popular at the time
Counterfeiting

- A criminal activity existing since antiquity
- Production of an imitation of an item for the purpose of deception.
- Items commonly forged today include:
  - Currency
  - Traveler’s checks
  - Food stamps
  - Certain bonds
  - Postage stamps
Counterfeit Currency

- Security features are added to paper currency that scanning cannot reproduce.
- Regular printer paper contains starch.
- Paper currency contains rag fiber instead of starch.
- The government continues to change the design of paper money to make currency more difficult to copy and to prevent counterfeits.
Detecting Counterfeit Currency

- Counterfeit-detecting pens – inexpensive special pens and markers containing the element iodine.
- When they come in contact with a counterfeit bill, the paper marked with the pen will change to a bluish-black color.
- The color change is caused by a chemical reaction involving starch, and compound found in regular printer paper.
- Real currency does not contain starch.
- Pen manufacturers claim pen is 98% effective.
Counterfeit vs. Authentic
Verifying Authentic Currency

New security features:

1. Portrait stands out and appears raised off the paper
2. Contains clear red and blue fibers woven throughout the bill
3. Has clear, distinct border edges
4. Treasury seal is shown with clear, sharp saw-tooth points
5. Watermark appears on the right side of the bill in the light
Verifying Authentic Currency

New security features:

6. The security thread is evident—a thin embedded vertical strip with the denomination of the bill printed in it

7. There is minute printing on the security threads, as well as around the portrait

8. When the bill is tilted, the number in the lower right-hand corner makes a color shift from copper to green
Examples of Security Features

- Hidden numbers and letters
- Written above Hamilton’s name
Summary

- Handwriting analysis compares questioned documents with exemplars to establish authorship.
- Aspects of a person’s handwriting style can be analyzed to ascertain authenticity.
- Many new features of paper currency help prevent counterfeiting.
- Technological advances have enhanced chances of detecting forged documents.