## LESSON 12
## SIGNATURE EVALUATION

In many questioned writing cases it is the signature on the document that is at issue with regard to authenticity.

The signature is generally a person's most common writing act and, as such, is largely habitual. As there are essentially no rules with respect to devising and producing signatures, they are open for being highly individualized according to each person's mental design.

Often deliberately formulated, the person's signature serves as a "trademark." Signatures can be written as tangled, illegible shapes or a series of clearly decipherable letters that distinctly spell out the person's name. In many cases they have no resemblance to the writer's name at all, but are merely identifying marks. One's signature may include extraneous marks, appendages or dots.

In any case, their construction and execution are relatively stable and their features more or less subconsciously produced. Due to their repetition, writing strokes and formations that comprise a person's signature are generally consistent, even over long time spans. It is the combination of personal attributes, writing form and quality—all habitual—which help to identify one's signature as authentic.

Of course no one ever signs identically the same from one time to another. There are some variations from signature to signature due to temporary effects of either an intrinsic or extrinsic nature, but their overall construction remains intact. This makes signatures highly identifiable, assuming proper standards are available for comparison.

It is not uncommon for an individual to utilize two or more signature designs depending on the type of document being signed. There may be one type for business letters, another for personal correspondence and yet another for more formal occasions such as signing important documents like legal papers. In some cases the writer might sign a first and last name while other instances call for the inclusion of the middle name as well. Sometimes only initials suffice. Nowadays, printed signatures are becoming more common.

With those who are illiterate, a cross mark serves as an identifying mark when affixed to a document, in which case the word *His* or *Her* is normally written above the *X* and the word *Mark* below. Such marks are challenging forensically, usually due to insufficient comparison material. Nevertheless, there will be consistency in writing speed, pressure, alignment and balance of the mark as well as length and positioning of the two cross bars.

Although questioned signatures probably make up the bulk of most handwriting examiners' workload, falsified signatures pass as genuine every day. The layperson, if taking time to consider whether a signature being presented might be inauthentic, is apt to note only its pictorial appearance and not the significant details that determine genuineness. Store clerks performing credit card transactions take a cursory look at signatures on customers' identification, if at all. Even bank tellers who see a multitude of signatures in their daily work are generally unaware that authenticity goes deeper than initial impressions.

Forgers, also generally unaware of the nuances of writing, often focus on the obvious features of the signature being simulated such as the capital letters, slant and loops, qualities that make an immediate impression and usually allow the phony signature to pass as genuine.

In general, signatures are made up of a somewhat limited amount of letters or shapes. For writers who sign their names frequently, signatures are particularly automatic and generally fluent. For those who sign less often, it is possible that signing may be more of a conscious effort, possibly with evidence of a lower skill level and less freedom of movement. The degree of normal fluency exhibited by a person's signature will be evidenced by the comparison material collected.

A study of a collection of a writer's known signatures reveals that person's personal design and whether they are executed with smoothness and continuity of movement or, on the other end of the spectrum, with halting strokes, tremor and/or pen lifts. As suggested elsewhere, good line quality and unbroken movements are signs of genuineness, providing the person's normal signatures are also reflective of the same qualities.

Therefore, in determining the validity of signatures, some of the first features to consider are movement, line quality and fluency. Are the strokes of the signature

continuous, or do pen lifts occur at various intervals? If there are lifts, do they appear to be in natural places such as between letters? If any unnatural pen lifts are apparent, then it must be determined whether they are the result of simulation related to the forger's uncertainty or due to circumstances surrounding the writing.

When retouching is evident, you must look closely at the patched areas to see if they are the product of the forger's attempt to make the signature "perfect," always a vital mistake. When and if an error is made in a genuine signature and the person chooses to correct it, the correction is apt to be done obviously, unlike the forger who carefully rectifies any slip-ups to avoid arousing suspicion. Microscopic examination of such patching can be especially revealing.

When signing a document the person is normally concerned about the contents and meaning of the paper being signed, rather than on the mechanics of the signing process. Consequently, the signature is likely to appear natural and non-deliberate. If not, suspicion should be aroused.

Genuine signatures are usually written with a certain rhythm and a rate of speed typical of the writer. Beginning and terminal strokes are written smoothly and generally with tapered starts and finishes. Connections between letters are apt to flow smoothly and there is a "naturalness" evident in the firmness of stroke, the pattern of shading or emphasis, and the habitual movements of the writing. In most cases each name or segment of the signature will flow naturally into the next.

Nongenuine signatures are often defective in that the rhythm and natural flow are disrupted, signs of the forger's inability to correctly execute movements that are foreign to his or her usual style. Such signatures are sometimes hesitant and may take on a jerky or tremulous appearance. In especially poor simulations, they may seem labored or drawn. They sometimes look disjointed, with angled instead of rounded curves and connections. There will possibly be blunt beginning and ending strokes reflective of pauses in the writing act.

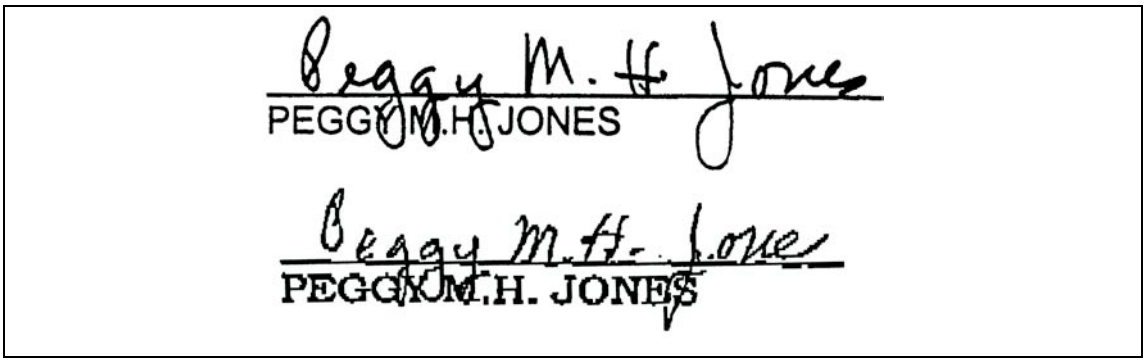



Fig. 12.1—Genuine signature (top) versus nongenuine signature (bottom)

Suspect signatures are normally deemed authentic when they are similar to the known signatures in pictorial style, form or design, movement, connections, proportions and alignment. They must also be of the proper rhythm and line quality, barring the possible influence of adverse writing conditions and/or health or medication issues.

This of course eludes to the possibility of anomalies in genuine writing. As Charles Scott has stated, "Genuineness and perfection are not synonymous; certain defects are often found in signatures that are unmistakably genuine."[1]

In considering the veracity of questioned signatures, it is imperative to obtain and carefully examine adequate and comparable genuine signatures in order to determine the writer's natural variation. There must be a sufficient number of exemplary signatures that are relatively contemporaneous with the material in question and produced under various conditions and for different purposes.

The degree of natural variation will vary with individual writers as well as the prevailing circumstances at the time each signature was written. Some have considerably variable signatures while others write with exceptional consistency. In general, rapidly produced, spontaneous writing indicates the likelihood of a wide range of variation, making it doubly important to procure numerous known signatures for the comparison process. Those who write slowly and deliberately are apt to have more controlled and therefore more consistent signatures, making for less natural variation and not as much need for extensive exemplars.

[1]Charles C. Scott, *Photographic Evidence*, Kansas City, MO: Vernon Law Book Company, 1942.

When reviewing a series of genuine signatures you will direct your attention toward discovering which of the signature elements are the most individual or unique and therefore of greater evidential value. Attention should be given to any elements of the signature that vary remarkably as well as those that do not change appreciably from one signing to another.

Your skill level and degree of experience will determine how critically signatures are compared and their similarities and differences comprehended. As Hagen stated, "The measure of accuracy which may be reached as to the genuine or forged character of a signature…will depend upon the ability of the examiner to ascertain and determine the physical habit of the writer by the details appearing in the writing produced by it."[2]

In identifying an individual as the writer of a signature in question, there must be sufficient significant similarities between the questioned and known material and the absence of any unexplainable differences. No one or two features can be relied upon to make an identification, as it is the combination of all of a signature's elements that mark it as authentic.

If, after establishing the writer's range of variation, you determine that the signature in question contains features that are not within that range, then you must ask if it is even possible for the writer to create those non-matching features. If so, then you must consider the possibility that the comparison material may not have been sufficiently extensive to reveal those particular elements.

It is also important to consider the possibility of accidentals. In such instances there will likely be some minimal difference of one or two aspects while the rest of the signature in question matches the known.

If there are structural differences between the questioned and known signatures that cannot otherwise be explained, then the signatures are of uncommon authorship. Fundamental or significant differences are often inconspicuous movements or formations that do not fit into the scope of the writer's natural variation. They are primarily unconscious elements such as pressure patterns, method of joining strokes, non-apparent tics or hooks, specialized movements, spacing patterns, proportional elements or

[2]William E. Hagan, *A Treatise On Disputed Handwriting*, New York: Banks and Brothers, 1894, p.36.

alignment. In short, they are those aspects of the writing that are particularly individual which the forger either overlooks or cannot accurately reproduce.

Even a single fundamental difference between signatures denotes inauthenticity. However, you need to consider whether sufficient exemplars have been studied before reaching that conclusion. In most cases of forgery multiple differences are apparent, obviously increasing the evidence for an opinion of nongenuineness.

## Forged Signatures

There are three basic types of signature forgery—simple forgery, freehand simulation and tracing.

### Simple forgeries

Simple forgery involves writing another person's name without any attempt at imitating the signature. This type of forgery may be used when an individual's identification is stolen and the perpetrator of the forgery relies on the store clerk or bank teller's negligence in checking the I.D. These forgeries can usually be spotted easily as the writing will appear natural and the questioned and known signatures will show very different writing habits. In most cases, with exemplary signatures produced by the forger he or she can be identified as the writer because there is no attempt at using an unaccustomed writing style or hiding one's usual writing features.

### Freehand simulations

Freehand simulation of signatures is probably the most frequently used method of forging signatures. With this approach the forger makes an attempt to copy a genuine signature, usually by keeping the signature in front of him while trying to reproduce it. This entails shifting one's eye back and forth between the original and the forgery which tends to result in hesitation, inaccurate lines and/or distortions. Essentially, these signatures are more drawings than writings. Some forgers take time to practice simulating a signature until it begins to feel more familiar and natural. Rehearsed simulations are apt to be somewhat more smoothly executed, but in most cases will still show evidence of uncertainty or movements that are not consistent with the genuine signature.

When attempting a freehand recreation of a signature the forger is faced with two major simultaneous tasks—adopting writing movements that are unfamiliar and suppressing his own writing habits. In taking on alien writing movements, he must accurately reproduce the correct rhythm and flow of the genuine writing, the right pressure and shading patterns, slant, direction of movement, size and proportions, initial and terminal strokes and connectors, not to mention properly shaped individual letters.

This arduous task was accurately depicted in the movie *Dead Ringer* in which Bette Davis plays twins. One of the twins murders the other and takes over her identity in order to "inherit" her lavish lifestyle and estate. This naturally required that she learn the murdered sister's signature in order to execute legal and financial documents. However, even with practice the impostor was finally unable to accomplish the task. As a last resort, she burned her writing hand with a hot fireplace poker which then afforded her the excuse of signing with her non-dominant hand.

Success in capturing subtleties of a signature depends on the forger's skill level and the nature of the signature being recreated. Contrary to the layperson's general belief, a carefully written, clearly legible signature with no curlicues or fancy movements is the most difficult to simulate. On the other hand, a tortuous, twisted signature comprised of illegible formations can be more readily depicted, at least well enough that the forgery may pass as genuine.

Basically, when a forger simulates a writing he must choose between writing fast (which produces generally better line quality but a less accurate reproduction) and slower writing (which results in a more accurate copy of letter forms but a loss of line quality).

Classic indicators of simulated signatures include:

- Slowly executed letters and shapes
- Poor line quality
- Uncertain, interrupted lines
- Wavering strokes (gross or muscular tremor)
- Blunt starts and stops
- Unnatural pen lifts
- Pen rests
- Touched up letters

- Marked variation of slant
- Disproportionate letter sizes and loops

It must first be ascertained whether any of the above-noted features are evident in the genuine signatures as well.

It is often not possible to identify the creator of a forged signature due to the fact that that person's own writing habits have necessarily been squelched. Exceptions are simple forgeries as noted above or signatures where the victim and forger both have the same last name. In the latter instance the forger sometimes inadvertently slips back into his habitual name writing patterns so that the surname of the forgery is remarkably similar to his own. Armed with request exemplars where the suspect is required to reproduce the signature in question, the examiner may be successful in identifying the forger.

### Tracings

A rather common way to forge signatures is by tracing. You should be alert to this possibility when reviewing questioned material, particularly when two or more signatures presented for the examination are remarkably similar. In some instances the genuine signature that was traced may even be presented as an exemplar to prove the authenticity of the signature in question. In other cases more than one questioned signature will match each other in almost every respect, an indication that they were all produced from the same model.

Cases involving traced writing can be elusive when the model signature from which the tracing was created is unavailable. In this case it is likely that the disputed signature will be determined to be nongenuine, but it may be difficult to prove the signature was traced unless the original is carefully examined and there are signs of indentations or residue resulting from the carbon copy tracing procedure described below.

Basically, tracings are drawn reproductions taken directly from the original. They often have a deliberate appearance because the writing hand is not moving freely across the paper. In nearly every case the signature will evidence gross tremor which relates to inferior line quality. Generally, pressure is heavy and/or non-variable and shading of strokes is absent.

There are four essential methods that can be utilized to trace signatures:

1. Use of transmitted light with the genuine signature below and the new, false document placed on top of it so that the signature lines can be copied. This is the easiest method of tracing. Use of transmitted light (either up against a window or on a light table) allows the forger to see the outline of the signature below so that it can be readily traced over. This makes for the most skillful tracing, but because it requires considerable concentration the newly created signature will lack fluidity and good line quality. Essentially, it will appear drawn and heavy.
2. Tracing heavily over a genuine signature in order to leave an impression of the signature on the document below. Once the impression of the signature is accomplished, the forger then writes over the impression, carefully following the lines. This method is rather difficult and the signature will likely appear even more uncertain than with the transmitted light method. Microscopic examination of the original questioned signature and/or use of oblique lighting will likely reveal the indentations.
3. Use of carbon paper under a genuine document to create an image of the signature on the new document. As with method number two, once the carbon image is on the new document it is merely written over after which there may be an attempt to erase the still visible carbon. Under the microscope any traces of carbon will likely be seen and there is apt to be a halo effect on the outline of some of the strokes of the signature where the forger was not exact in following the lines. If an attempt was made at erasing the carbon traces, some of the signature's ink may have been smeared or eradicated, or the paper's fibers may have been disrupted.
4. Use of pin pricks to outline the signature. In this rather uncommon method the forger pens in the signature by following the tiny holes created by the pin point. It is unlikely that an accurate reproduction will be accomplished and the pin holes will be obvious in the new document.

Two signatures that are closely similar in nearly every detail are indicative of tracing. (This clue will of course exist only when the model signature is available.)

Tracings can be further identified by the following:

- Matching the questioned signature with the genuine. (Superimposing the signatures over a light table or creating a transparency of one and then positioning it over the other will help to accomplish this.)
- No variation between the questioned and known
- Constant, heavy pressure
- Blunt initial and terminal strokes
- Slight deviation in line direction perhaps accompanied by pen lifts
- Abrupt starts and stops of the pen
- Ink blotches indicating pen rests
- Corrections or retouching of strokes, sometimes subtle, sometimes written in the wrong direction

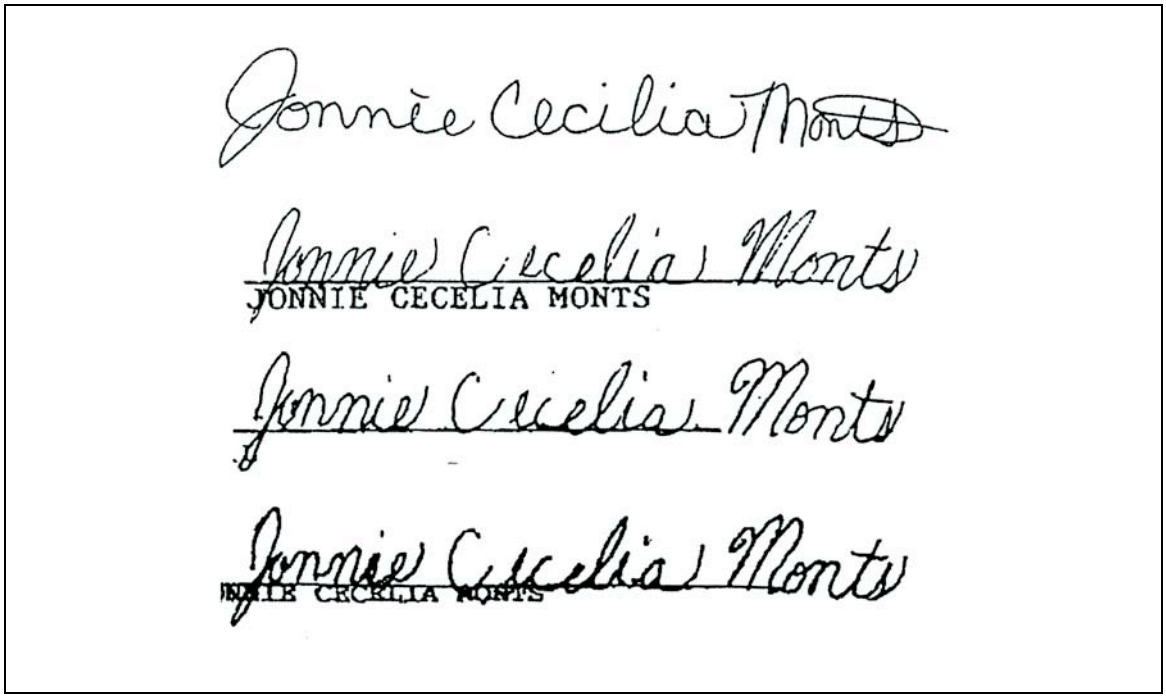



Fig. 12.2—Evidence of tracing. Signature 1=genuine. Signature 2=poor simulation of the genuine signature. Signature 3=tracing of signature 2. Signature 4=tracing of signature 3. Note progressive degeneration of line quality.

In examining a signature that is the product of tracing, there is no use attempting to determine who may have created the forgery. Drawing the signature's shape prevents any of the forger's own writing characteristics from surfacing.

## Lesson 12

### Worksheet

1. T-F:
   A person's signature is likely to be relatively consistent, even over long periods of time.

2. T-F:
   Some people use two or more signature designs depending on the type of document being signed.

3. Forgers usually focus on the _____ features of a signature (those that make an immediate impression) while ignoring the more subtle writing characteristics.

4. Name three features that should be considered first when examining questioned signatures.

5. Give three characteristics that are typical of genuine signatures.

6. Give three characteristics that are typical of non-genuine signatures.

7. Define freehand simulation.

8. Give five classic indicators of simulated signatures.

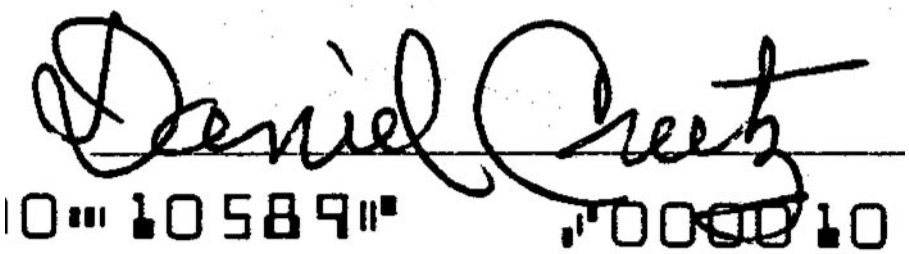
9. Presented below (at approximately 200%) is a questioned signature (Q1), followed by five known signatures (K1-5) for comparison. In your opinion, did Mr. Creitz write the questioned signature? Please be specific in your reasoning why he did or did not write signature Q1.

**Questioned**

Q1

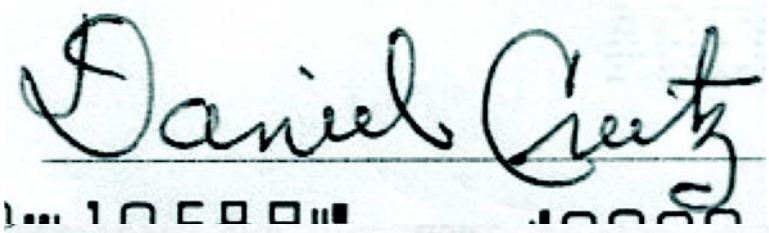

**Known**

K1

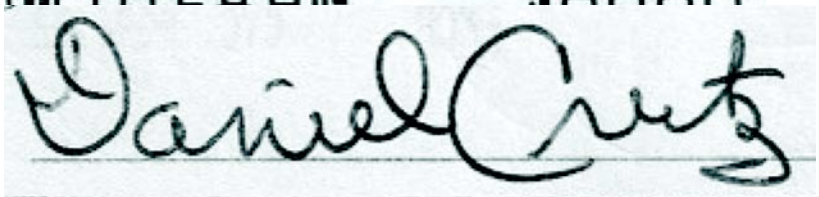


K2


K3



K4



K5