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## Signatures—Review and a New View

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**ABSTRACT:** This paper discusses briefly the automatic signature, as written by many writers, and its elements: movement, form, and variation. It considers the “true signature,” the model stored in the writer’s brain that produces the automatic signature.

It discusses an aspect of signature writing that is not fully treated in other sources. This is the original or earlier signature style, which has been modified into the present model. For all current purposes, it is no longer used but may well be recalled, in whole or part, by some writers when signing nonroutine, special signatures, such as wills or important contracts. With a few writers, it is retained as a second signature and used from time to time. Can such a former signature be part of a more recently executed signature after it appears to have been completely abandoned? How can we determine whether an abnormal signature actually contains parts of the previous signature style, and can we be sure that this is what has occurred? There are somewhat rare cases in which these considerations come into play.

**KEYWORDS:** questioned documents, signatures, handwriting movement, handwriting habits

A signature, what is it? When we turn to the dictionary we find this definition: “Signature—The name of a person written with his own hand to signify that the writing which precedes accords with his wishes or intentions” [1]. Document examiners, and others who are confronted with a great number of signatures, may quibble with the phrase “the name of a person” since some signatures fail to tell what the writer’s name might be. However, regardless of its form or legibility its intention is recognized. Furthermore, we who examine signatures may find that a person’s signature is more than a single inanimate form. We are concerned in every signature problem with whether the specimen before us is consistent with the variable group of signatures that the person is capable of producing or normally uses to represent himself or herself.

We could well say that a person’s signatures are the manifestation of a living form that is repeated time and again in slightly different guise as the writer produces them for various needs. We find that no two signatures of any person are exactly identical. They each are the momentary attempt to reproduce the “true signature” that is stored in the writer’s mind but probably never is exactly reproduced on paper. Still, these written examples approach the “ideal” as accurately as the individual can reproduce his mind image at a particular moment with the writing conditions at hand. We are dealing in this discussion with the automatic signature—the signature which a writer, who uses his signature frequently, produces without concentrating on how the letters are formed or the name is spelled. Each signature of such a writer can be considered a “still picture” of the person’s “true signature.” From a group of these signatures, we can derive the

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habits and writing qualities of the "true model," or at least a close approximation of it. These known specimens, standards or exemplars, are the basis for study of any other writing of the name when it must be determined whether or not this writing is an authentic signature of a particular person.

From the discussion so far, we find that a person's signature has at least two attributes, form and variation. A very important element of every signature is missing from this determination. How are these signatures produced? They are the product of a moving pen, and it is this movement, and all of the factors that are a part of the movement, that are an important element of the identification process. Actually, movement may be the most important part.

A particular signature and all its brothers and sisters are produced in the same manner, possibly modified by external factors. Movement is recorded by a pen held in the writer's hand and propelled by muscles of the fingers, hand, wrist, and, for some writers, the arm. These muscles are controlled by nerve impulses. Every signature contains elements that represent or form the evidence of movement. The quality or writing movement reflects the speed of writing, the freedom or lack of it, hesitations and interruptions, the continuity and uniformity of execution, the intensity of pen pressure, the shading, and the varying pattern of pressure, rhythm, and writing skill [2,3]. These qualities have great significance when there is suspicion of possible forgery and the form of the questioned signature is substantially like that of the known signatures. These qualities, however, are as essential to any identification as they are in the production of a particular specimen.

We have assumed that each signature of a person is derived from a mental model. We have empirical proof of this since, over the years, document examiners have been using this assumption to establish a signature's genuineness by comparing it with a collection of known signatures. At least, without producing the theoretical known form, we have established genuineness by showing that the questioned one contains the various attributes occurring in a sample group of signatures. That is to say, the signature contains the proper elements of form and movement and fits within the boundaries of variation defined for each element by the known signatures.

The factors that have been developed to define the true signature do not necessarily constitute the complete definition. A developed signature is derived from forms learned as a person's writing is acquired. While we accept the developed signature as it has been stabilized for use in early adult life, it is not always closely related to a person's signature some years later. Evolution from this once-fixed signature style to another may occur. Certain writers, who are called upon to sign their names frequently each working day, may, because of a number of factors, develop a signature significantly different from their original style. There will be cases from time to time in which knowledge of the evolution of a writer's signature will be of value. To evaluate such a signature accurately, it may be necessary to locate comparable specimens from earlier years.

We are now considering a fourth factor, the evolution of the present signature from its earlier pattern. This concept of signature evolution has not received much attention in the literature. It is not necessary to establish why this has occurred, only that it has occurred. From what form a signature has evolved may be the document examiner's most important consideration. With the vast majority of writers, if there has been a change, the earlier signature seem to be completely abandoned. Can it still be retained in a semi-dormant state somewhere in the writer's memory? We may not be in a position to answer this question in all cases, but if the earlier signature has been unused for years, the chances of its execution in a free, fluent way seem slight. This assertion may not be entirely true, however, if the writer has even occasionally used it to sign a special class of documents, such as legal papers or loan agreements for substantial funds (Fig. 1)—in other words, a class of documents that is not a part of his normal activities.

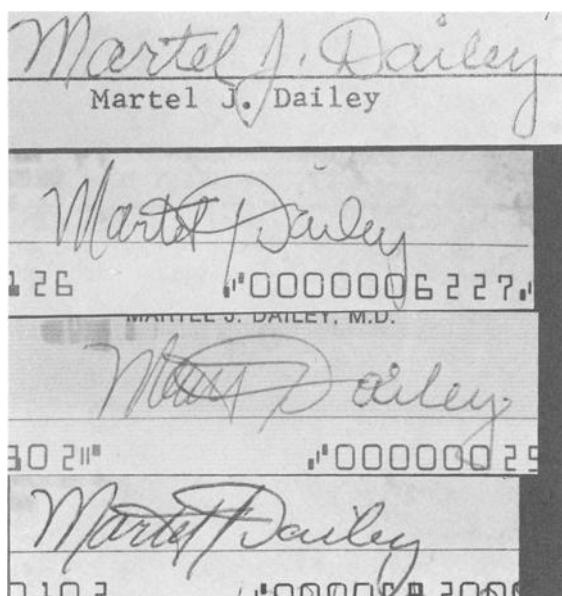


FIG. 1—The upper signature appeared on a 1974 will by Dr. Dailey. The three lower signatures are from contemporary checks and are typical of his day-to-day, working signatures. The differences between these working signatures and the will signature are apparent and raise the question of whether the will signature is authentic.

There is thus a need for concern with the writer who retains and uses this earlier signature, probably not exactly, but in a form that is much closer to the earlier form (Fig. 2) than to any in a volume of present day-to-day signatures. As has been already suggested, this earlier style may be his formal signature reserved for documents, which he encounters only infrequently (Fig. 3). Obviously, we are dealing with the unusual writer. In these cases, comparable standards over a period of years may reveal a consistent pattern of use.

Such a second signature style is rare and is encountered only occasionally. Nor do we find many writers whose signatures undergo changes after the writer has established a fixed signature style. At best, the modifications are usually slight, and writers whose signatures have changed significantly may not return to any part of the original.

If an examiner encounters a questioned signature that has most of the qualities of authenticity but some unexplained divergency, could it be explained by samples of the former signature style? We cannot say that all of the elements of the former "true signature" are no longer within the reach of the writer. On the other hand, we cannot attribute any divergency to the possibility that it was part of an earlier signature style without having specimens to demonstrate the claim. Without them, the assumption is pure speculation. With actual examples, the divergency become creditable evidence of genuineness rather than a suggestion of forgery.

How often are significant modifications found in a person's true signature? Among writers whose signatures have evolved from a former style, do any of these writers use, when signing their names, even some elements of the older signature? It is difficult to answer either question, since the vast majority of signature problems are completely resolved using current specimens. We have no reason in such cases to investigate earlier

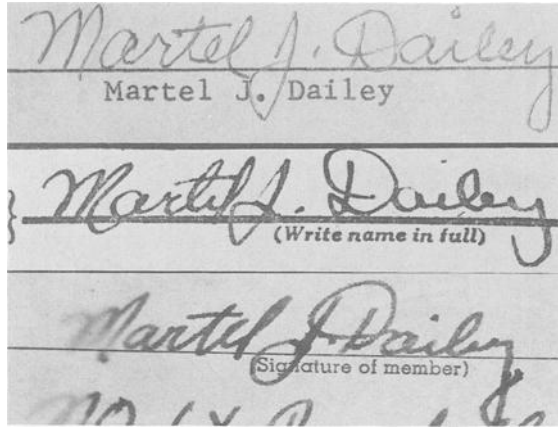


FIG. 2—The 1974 will signature (top) is shown with two of Dailey's 1947–1948 signatures. A strong similarity exists between these three specimens.

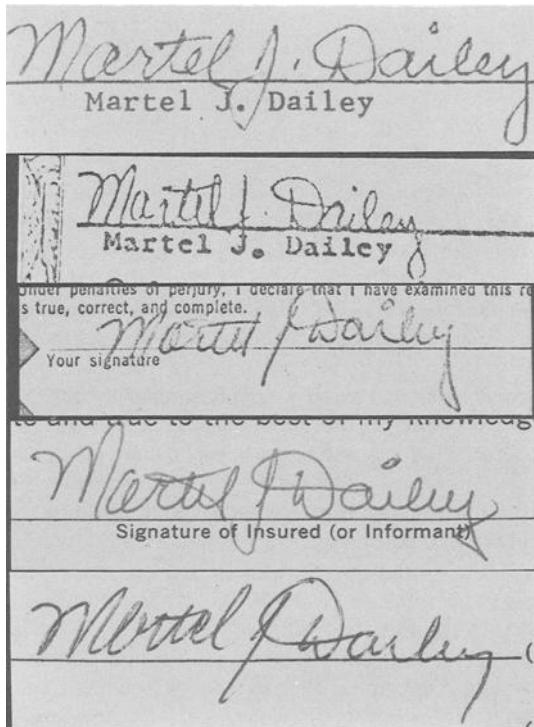


FIG. 3—The 1974 will signature with four nonroutine signatures: in order, they are from a 1964 land sale, a 1970 federal tax return, a 1973 insurance application, and a 1970 loan document. Details of these signatures and others of the same class are repeated in the will signature. Comparisons of these signatures with the routine day-to-day signatures of Fig. 1 reveal significant differences between the two signature styles. Dr. Dailey was a writer who retained an earlier signature style as a second signature, reserving it for what he apparently considered more important documents.

habits of the writer. Nevertheless, we can safely say that problems involving significant changes in the true signature are encountered only infrequently, but they do occur.

Consequently, we must be alert to this problem. If we have information that the current signature may be of recent adoption, we must assume that the earlier habits are still within the reach of such a writer. Some earlier signatures should be sought to determine whether any unusual elements found in a questioned signature can or cannot be explained by the existence of the earlier signature style.

In the more common signature problems, there are three factors to be considered: form, movement, and variation. When a writer has a fully developed, automatic signature style, it is executed from memory without particular concentration on the details of the writing. In some instances, when called upon to sign a particular class of documents, there is a small group of writers who may call up from memory an earlier style or some elements from it and incorporate these in this special signature. We must recognize that this latter group of writers has some signature habits beyond those found in their day-to-day signatures. We must presume that any of these habits is within such a writer's reach and may occur in a particular questioned signature. However, we can only make this assumption if we have evidence in the known writing. Although we may suspect it, we cannot assume without proof that these unusual elements are derived from a former style of the writer's "true signature."

### References

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