

Editor's Note

The following is Part 1 of a Special Topics in Disputed Document Testimony put on The 1931 Conference of Friendly Document Examiners (precursor to ASQDE). This collection was presented by Peter Tytell at the ASQDE meeting in 2006. Peter's preface and John Harris' foreword are included.

This publication has not been peer-reviewed. The speakers were part of a generation that really learned to write, and the writing instruments discussed are steel nib pens. Nevertheless, the principles espoused in it still apply today. As John Harris states in his foreword, "But don't discount the material because of its age. Questioned Documents are not limited to contemporary documents."

The remaining parts of this collection will be published in subsequent issues of JASQDE. As you read on, think carefully on how you would answer these questions. Write down your answers.

Linton A. Mohammed, Ph.D. Editor-JASQDE

Special Topics in Disputed Document Testimony

Proceedings of the 16th Conference of Document Examiners
Chicago, Illinois
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75th Anniversary Edition

BY
The Conference Members

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With a Foreword by
John J. Harris

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Foreword

The 1931 Conference Of Friendly Document Examiners

1931 was the first meeting my father attended and he said it was the most valuable. Albert S. Osborn, his son Albert D. Osborn, and Elbridge W. Stein, all of New York, sent out a list of 50 topics to be answered by themselves and invitees and for discussion at the meeting. Each participant was required to have his answers mailed to all participants by May so that they could prepare for the July Chicago meeting.

Attendees were called "members" but there was no formal organization. There were probably about ten persons invited and the meeting lasted from Monday to Friday. This meant they [that] each person had to type his presentation twice to make enough carbon copies for circulation. I expect that Mr. Osborn was sent a ribbon copy and the newest "members" received the poorest carbon copies.

To belong to this select group Mr. Osborn either invited you or he acted on the recommendation of one of the participants. A slacker was never invited to a subsequent meeting.

Osborn and others were world-class penman and former penmanship teachers.

1931 was the age of the fountain pen, dip pen, iron-based inks, and manual typewriters. Handwriting systems were important considerations and could indicate the age of the writer. But don't discount this material because of its age. Questioned documents are not limited to contemporary documents.

The first question listed in this booklet is "What is handwriting?" If asked that question while on the witness stand would you have a succinct answer in mind?

I used this material for twenty years in my USC and Cal State LA classes. It is a valuable training aid and is a refresher for experienced document examiners. Mr. Osborn in his March 2, 1931 letter (copy enclosed) said to put this material in notebook so that it can be edited, expanded and reviewed. Good advice today.

John J. Harris
Camarillo, California
December 24, 2001

Editorial Preface to the 75th Anniversary Edition

The text of this edition is from a photocopy given by John J. Harris to Howard C. Rile, Jr. To make this distilled essence of the views of the ASQDE's founding generation accessible in fully searchable form, the typescript was not reproduced as images, but was computerized as text. Acquisition of the text from photocopies of carbon copies of 144 pages of single spaced typescript involved scanning with optical character recognition software, reading with voice recognition software, and a great deal of keyboard tapping, each form of computerization adding transcription errors to the (surprisingly few) typos in the 1931 manuscript.

The ensuing proofreading attempted to correct all of these (although, as with any such effort, very probably not entirely successfully). Where possible typos or archaisms or potentially ambiguous language were found in the original typescript, alternate readings and interpolations for clarification or correction are noted in [square brackets]. While the illustrations of handwriting from the typescript are reproduced here, there are indications of additional illustrations that were not in the manuscript, and these are noted where they appear in the text.

In the process spelling and usage were modernized and harmonized, and typographic conventions of the computer word processor superseded those of the manual typewriter (e.g., using italics instead of underlining and also to indicate specific letters that were previously set off by quotation marks). This process also involved minor editorial modifications, mainly scattering commas and a few semicolons through the text, in an attempt to clarify for modern readers a variety of styles, ranging from the abbreviated style of the telegram to the paragraph long sentences of authors who learned composition in the Edwardian or even Victorian age. Any difficulties the reader may have are entirely due to the shortcomings of the editor, but the considerable knowledge to be gained from the text is entirely due to the wisdom of the twelve document examiners who attended the 1931 conference.

Peter V. Tytell
New York, City
June 30, 2006

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Section I Handwriting

1. What is handwriting?

EDWIN H. FEARON

Handwriting is a process whereby a person through the medium of freehand characters seeks to convey ideas to others.

JOHN L. HARRIS

Handwriting is the expression of thought by the use of symbols. It is the product of the act of writing which is the result of a combination of habits. As an art it varies with the degree of skill acquired by the individual from that of a well coordinated movement and habit to an almost total lack of knowledge as to form, or skill of performance. (Gordon's Case; for legal definition as to identification.)

ALBERT D. OSBORN

Handwriting is the visible track left by the writing instrument which is made by a combination of the hand and the brain working together. The form of the letter is in the brain and the impulse is sent from the brain to the hand and from there transferred to the paper. The visible track of the writing instrument on the paper, the result of this combination of forms in the brain, message from brain to hand, and movement of writing instrument, is called handwriting.

ALBERT S. OSBORN

This handwriting under investigation, like all handwriting, is the visible result of a combination of acquired physical and mental habits. What is seen here as handwriting is the track or record of movements, and "learning to write" is the development of the manual skill necessary to make these movements first singly and then in succession. In developed or mature handwriting these movements are made with almost no conscious direction and the writing act becomes nearly automatic.

RAPHAEL FERNANDEZ RUENES

Handwriting is a habit that develops in the individual by the repetition of movements. That repetition produces images in the brain of each writer, whose forms cannot be easily abandoned.

When one attempts to disguise one's own handwriting, one unconsciously includes some of the acquired habits.

When others' handwriting is imitated, personal strokes are unconsciously made which, besides diminishing the likeness, make the forger identifiable.

ELBRIDGE W. STEIN

This writing under investigation, like all handwriting, is the visible result of a combination of acquired physical and mental habits. What is seen here as handwriting is the track or record of movements, and "learning to write" is the development of the manual skill necessary to make these movements first singly and then in succession. In developed or mature handwriting these movements are made with almost no conscious direction and, especially in writing one's own signature, the writing act becomes nearly automatic.

JOHN F. TYRRELL

Handwriting is the art of tracing upon a recording surface characters which represent the sounds of human speech. The value of such record as a means of communicating information is evidenced in the fact that universally it may be deciphered and understood. The manner in which any writer sets down or expresses these written characters becomes highly individualized; so much so that a person may be identified through the peculiarities of his writing. As commonly expressed: "No two persons write exactly alike."

HERBERT J. WALTER

Handwriting is a personal trademark.

The term handwriting can also be applied to typewriting.

Handwriting is the style of writing peculiar to a person—chirography or handwriting.

A series of arbitrary forms or characters called letters, adapted to the movements of hand and arm in their production and combination by means of pen and pencil, and used as a record of thought or language by hand. A combination of mental and manual training and the habit of recording thought in writing.

2. Define: (1) quality, (2) element, (3) feature, and (4) characteristic as applied to handwriting.

(1) QUALITY

JOHN L. HARRIS

Quality of handwriting consists of a combination of all those elements and characteristics that tend to place an individual's writing in a particular rank or classification according to its skill and combined general features. Two persons taught the same system of writing may combine movement, pressure, form, shading, etc, with the result that they would produce the same quality of writing. It would be unusual for a mechanic to possess the same quality of writing as a bank teller. Quality of handwriting ordinarily refers to general combinations and the effect produced.

SCOTT E. LESLIE

Quality as applied to handwriting refers to anything about it which may serve in any way to distinguish or identify it. It is more general or pervasive as a descriptive term than characteristic, feature, element, or attribute.

ALBERT D. OSBORN

Quality as applied to handwriting would indicate a general characteristic of the writing, such as smoothness of the letters, a ninety degree slant, wide even spacing between letters or words. Continuous speed or easy freedom in the writing would be a quality. A pleasing arrangement of the writing, as a whole, spacing, margins, and indentations, would be an artistic quality of the writing.

ALBERT S. OSBORN

By the term quality as applied to handwriting, in this testimony, reference is made to what is pervasive and general and applies to the handwriting as a whole, as, for example, artistic quality or clumsy or illiterate quality. Angular, round, compact, open, delicate, coarse, modern, ancient, childlike are all terms that may refer to qualities in handwriting.

ELBRIDGE W. STEIN

By the term quality as applied to handwriting, in this testimony, reference is made to what is pervasive and general and applies to the handwriting as a whole, as, for example, artistic quality or clumsy or illiterate quality. Angular, round, compact, open, delicate, coarse, modern, ancient, childlike are all terms that may refer to qualities in handwriting.

JOHN F. TYRRELL

Quality is that which serves to classify a writing as graceful, skillful, bold, legible, freakish, illiterate, feminine, etc. and accordingly to this extent places the writer. Quality in a writing of unknown authorship often is of considerable importance in an investigation.

(2) ELEMENT*JOHN L. HARRIS*

Element refers to the separate habits of handwriting as possessed by any individual. Two persons may have the same quality of handwriting but certain elements would distinguish one from the other. The elements of handwriting are the major characteristics that combine to develop a certain quality of handwriting. Among these are skill, line quality, movement, size, slant, shading, and system.

SCOTT E. LESLIE

Element is a term used in the description of a handwriting where it is desired to refer to its separate physical parts. It is more specific and less general than either "quality" or "characteristic".

ALBERT D. OSBORN

An element of handwriting would be the basic principles, such as proportion of the upper case to lower case letters, degree of roundness or angularity of the turns between letters, or consistent shading or lack of shading. The clear evidence that there were in the writing the remains of a foreign system would be an element in the handwriting. An unconscious and consistent habit in the writing would be an element of that writing.

ALBERT S. OSBORN

An element in handwriting is one of its simplest constituents, such as a basic part of a letter like the capital stem or right and left curves.

ELBRIDGE W. STEIN

An element in handwriting is one of its simplest constituents, such as a basic part of a letter like the capital stem or right and left curves.

JOHN F. TYRRELL

Element—in the sense the term refers to the physical parts of a thing, would include slant, slope, shading, spacing, size, speed, alignment, etc. An element is basic, fundamental; is that which constitutes, or contributes to the structure or construction of a letter or to a combination of letters or words.

(3) FEATURE*JOHN L. HARRIS*

Features of handwriting refers to the idiosyncrasies that attach to it peculiar and personal distinguishing identities. In signatures they are often purposely developed to defeat simulation. They are somewhat related to embellishment. An important variation from a system of writing that would serve to identify would ordinarily be a feature.

SCOTT E. LESLIE

Feature as applied to handwriting refers to an outstanding distinguishing quality or characteristic. A handwriting feature is more significant as indicating individual identity than is a handwriting quality.

ALBERT D. OSBORN

A feature in handwriting would be an outstanding quality. Writing which was especially smooth and rapid would have that feature. Anything in the writing which is especially prominent, such as sudden bulbous shadings, would be a feature of that writing. While [a] feature is a marked peculiarity, the term as applied to handwriting does not have the force of an individual characteristic for, being prominent, it would be more likely copied than many inconspicuous individual characteristics.

ALBERT S. OSBORN

A feature of a handwriting is that about it, or any part of it, which is outstanding and conspicuous and especially that which is unusual. A feature may usually be described as a characteristic, but a characteristic may be delicate and inconspicuous, when it could not properly be defined as feature.

ELBRIDGE W. STEIN

A feature of a handwriting is that about it, or any part of it, which is outstanding and conspicuous and especially that which is unusual. A feature may usually be described as a characteristic, but a characteristic may be delicate and inconspicuous, when it could not properly be defined as feature.

JOHN F. TYRRELL

A feature in handwriting is that which is prominently identified with the design, or execution, of which it might be said: "A feature of this signature is its conspicuous emphasis on the capital main-strokes," or "A feature of this writing is its well sustained baseline." A writing may well have several features. A tracing process, inconsistencies, etc. may [be a] feature [of] a questioned signature.

(4) CHARACTERISTIC

JOHN L. HARRIS

Characteristics may be defined as the established minor details that serve to characterize and identify handwriting. They are usually more readily recognized under magnification as peculiarities of form, connections, varying pressure, tremor, etc. The word characteristic is commonly used to imply [apply] to all the similarities or dissimilarities of handwriting. Characteristic and quality are synonymous, and it is a matter of application which one should be used as a general, descriptive term. Quality refers to grade or class distinction.

Characteristic refers to a distinguishing trait or symbol.

SCOTT E. LESLIE

Characteristic, when used as general descriptive term in the identification of handwriting, is anything about the handwriting that in any way distinguishes, individualizes, or characterizes it. The word is somewhat less general in its application than "quality," but also less specific than "element."

ALBERT D. OSBORN

A characteristic as applied to handwriting should be defined further as individual characteristic or general characteristic. A writing which followed faithfully the Vertical System would have that characteristic, but the individual modifications of the system would be the individual characteristics of the writer. Characteristic is defined as a distinguishing trait, quality, or property and, when further limited to individual characteristic, is that individual quality in handwriting which makes it possible to identify a piece of handwriting as having been written by a particular individual.

ALBERT S. OSBORN

A handwriting characteristic as referred to in this testimony is anything in it or about it that tends to distinguish it from other handwriting. Individual handwriting characteristics are any modifications, abbreviations, or additions to copybook or usual letter forms or any peculiar inventions, changes, or modifications in a handwriting that in combination furnish the basis for identification.

ELBRIDGE W. STEIN

A handwriting characteristic, as referred to in this testimony, is anything in it or about it that tends to distinguish it from other handwriting. Individual handwriting characteristics are any modifications, abbreviations, or additions to copybook or usual letter forms or any peculiar inventions, changes, or modifications in a handwriting that in combination furnish the basis for identification.

JOHN F. TYRRELL

Characteristic is that which identifies, or serves to identify. Characteristics in a writing recur with nearly definite regularity, and sometimes as constants. They may be so conspicuous that omission in an isolated instance would support an opinion of genuineness. Or a characteristic may be so inconspicuous as to escape the attention of a forger. A characteristic is the result of an individual conception of form and execution and that has through repetition become an integral part of the writing in which it occurs.

3. Describe movement or manner of writing as a handwriting characteristic.

HARRY E. CASSIDY

The movement used or the manner in which a writing is done is usually a quality or feature of it instead of a characteristic. Movement more often proves nonidentity than identity between two writers. At the same time, where there is an alleged forgery, and the signature shows by its form, style, and execution that the writer of it is skilled, rapid, and graceful writer, and the questioned signature shows a slow, drawn, and hesitating movement, then movement becomes a characteristic of the spurious character of the writing in question. The manner of writing and the movement of writing is a most difficult thing to imitate unless the manner and movement is slow and clumsy. Free natural writing is practically semiconsciously performed as is any habit of long standing. It is much easier to imitate an unfamiliar form of writing than to simulate an unfamiliar movement or unknown manner of writing. The slow scrawly finger movement of the illiterate shows conclusively that the writer could not be the author of a certain anonymous letter written with a forearm movement that has produced a rapid, rhythmic, and artistic writing. In such an instance the movement would be unquestionably a non-identifying characteristic.

ALBERT D. OSBORN

Movement in writing is the speed and the freedom with which the writing is placed upon the paper. It may be slow or fast, regulated or uneven. Movement is that characteristic which, when rapid, free, and smooth, is the greatest hindrance to the successful preparation of fraudulent signatures and writing. Forms in writing can be produced fairly successfully by the tracing process or by making a careful imitation, but the movement in writing to be successful must be produced just as in the genuine writing. It can be easily understood that writing done with a skillful movement cannot be successfully produced by one who has not the ability to write as well as the genuine writing is written. Writing done with an even movement, therefore, cannot be successfully imitated by the great majority of persons, and the successful imitation of writing which has an even, free, and rapid movement, and is freely and rapidly written, is particularly difficult. One could say conservatively, I believe, that nine out of ten forged signatures can be distinguished as such from the failure to correctly reproduce the characteristic movement shown in the genuine writing. In most forgeries practically the entire effort of the forger is in reproducing as nearly perfect as possible the forms of the letters with no attention given to the writing movement. This attempt at imitation naturally calls for a careful movement of the pen, and this care is the stumbling block in the way of successful imitation of freely written signatures or writing.

ELBRIDGE W. STEIN

What is described in connection with this disputed writing as movement or manner of writing refers to the physical means by which the writing is produced and is closely related to the qualities of continuity, speed, and skill. Connected handwriting is the result of two main actions, those required to form the principal parts of the letters and the movement necessary to carry the hand, or the hand and arm, from one letter to another. Movement as a basic part of the writing process differs with different individuals, and two writings may show a wider variation in manner of writing than in the forms of the letters. Movement effect is shown in handwriting by certain qualities and conditions in the pen strokes. A rapid, rhythmic movement of the pen produces smooth, vigorous, uniform strokes with

symmetrical curves and regular emphasis, while a slow, hesitating, uncertain movement gives irregular, tremulous strokes with varying emphasis and frequent slight changes of direction.

Imitated or traced writing is nearly always fundamentally defective in movement or manner of writing, and this kind of imitation often shows by the lines themselves that it is a drawing and not a writing. The writing of an infirm or unskilled writer may, however, be imitated with too much freedom and vigor to be genuine.

Movement or manner of writing is one of the fundamental writing habits, and it affects the most significant and individual of writing characteristics such as continuity, speed, smoothness, number of movement impulses, and force.

ALBERT S. OSBORN

What is described in connection with this disputed writing as movement or manner of writing refers to the physical means by which the writing is produced and is closely related to the qualities of and the variations in continuity, speed, and skill. Connected handwriting is the result of two main actions, those required to form the principal parts of the letters and the movement necessary to carry the hand, or the hand and arm, from one letter to another. Movement as a basic part of the writing process differs with different individuals, and two writings may show a wider variation in manner of writing than in forms of the letters. Movement effect is shown in handwriting by certain qualities and conditions in the pen strokes. A rapid, rhythmic movement of the pen produces smooth, vigorous, uniform strokes with symmetrical curves and regular emphasis, while a slow, hesitating, uncertain movement produces irregular, tremulous strokes with varying emphasis and frequent slight changes of direction.

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Movement or manner of writing is one of the fundamental writing habits and it affects the most significant and individual of writing characteristics such as continuity, speed, smoothness, number of movement impulses, and force.

4. Discuss pen-lifts and disconnections as handwriting characteristics.

J. CLARK SELLERS

In this case I gave careful consideration to pen-lifts and disconnections, because peculiar and distinctive habits are frequently developed in the matter of raising the pen before or after certain letters.

Pen-lifts and disconnections are significant in indicating the system of writing learned, as some writers were taught to raise the writing instrument before such letters as *a*, *d*, *g*, *q*, *c*, and *t*. Similarities in these particulars would not be significant as showing identity of two writings, except in combination with other characteristics; but dissimilarities in these practically unconscious characteristics are strong evidence of lack of identity.

Pen-lifts are often more closely related to design than to movement. However, even when the pen is lifted, with most fluent writers it is still kept in motion. This is rarely true of the forgery, and is a point to which careful consideration should be given.

Pen-lifts are suspicious when they occur in places not habitual in the standard writing and particularly when there are apparent attempts to conceal.

JOHN F. TYRRELL

Pen-lifts and disconnections may be systemic, as in the early American and in the case of lower case ovals and the letter *s*. These may be anticipated. And in the earlier Spencerian to a lesser extent. Also some foreign systems call for pen-lifts before or in certain letters and should not be confused with in-

dividualism. All such may be termed systemic. There appears to have been a progressive inclination to eliminate pen-lifts in subsequent systems as tending to interfere with rapidity.

Modern systems practically eliminate pen-lifts. However, the habit of pen-lifts is, in most instances, personal preference or unconscious habit and is in certain cases a somewhat pronounced characteristic. Pen-lifts may be highly significant of identity in cursive writing and in signature writing as well. On the other hand, pen-lifts in unnecessary places or as pauses in questioned signatures in contradiction to the standard habit are highly significant of spuriousness, if not conclusive evidence.

ALBERT S. OSBORN

Pen-lifts and disconnection are closely related to movement and form a part of the automatic writing habits of the writer. They are characteristics, the significance of which depends upon their individuality, their location, and their regular occurrence.

Pen-lifts and disconnections often precede certain letter forms but may mark the distance a writer can write across the page without an adjustment of his hand or arm. Individual habits of raising the pen at unusual places are also acquired by certain writers and may be very significant individualities. Some writing systems have taught pen raising before *a*, *d*, *g*, *q*, and *c*, and sometimes before *t*, and it is not uncommon to find these letters written with a pen-lift before them. The Old Round Hand was written with many pen-lifts, and certain foreign hands show many pen-lifts.

Pen-lifts and disconnections as writing habits may be violated in fraudulent writing by a failure to observe them or by raising the pen too frequently. This latter condition is often found in imitated writing. A pen-lift or disconnection on a stroke that should be continuous or on an unimportant stroke, especially if the pen is set down again with unusual care and accuracy, may be very significant as indicating forgery, while a break in the continuity of a stroke obviously due to imperfect writing materials may point toward genuineness.

ELBRIDGE W. STEIN

Pen-lifts and disconnections usually mark the distance a writer can write across the page without an adjustment of his hand or arm. Individual habits of raising the pen at peculiar places are also acquired by certain writers. Some writing systems taught pen raisings before *a*, *d*, *g*, *q*, and *c*, and sometimes before *t*, and it is not uncommon to find these letters written with a pen-lift before them.

Pen-lifts and disconnections are closely related to movement and form a part of the automatic writing habits of the writer; and in this respect they are characteristics, the significance of which depends upon their individuality, their location, and their regular occurrence.

It will be seen that pen-lifts and disconnections as writing habits may be violated in fraudulent writing by a failure to observe them or by raising the pen too frequently. This latter condition is often found in imitated writing. A pen-lift or disconnection on a stroke that should be continuous or on an unimportant stroke, especially if the pen is set down again with unusual care and accuracy, may be very significant as indicating fraud, while a break in the continuity of a stroke obviously due to imperfect writing materials may point just as strongly or genuineness

HARRY E. CASSIDY

Pen-lifts are not always just writing habits. Some writing systems require writers to lift their pens in making some of the characters. The writing habits and writing requirements in the form of pen-lifts and disconnections often betray the imitator who employs the tracing method of producing facsimiles. He, in attempting to follow a dim line, often overlooks the fact that there are disconnections in the model he is using. Pen-lifts in some peoples' writing are highly characteristic of their writing. There are many foreign writings which necessitate pen-lifts, and the presence of them considered in connection with certain foreign characteristics would indicate more strongly the nationality of the writer. It was taught the Old Round Hand writers to raise the pen always before the *a*, *d*, and

g. An imitator of Old Round Hand who failed to take this characteristic into consideration would most surely expose the spuriousness of his handiwork.

5. What value should be placed upon pen pressure or unconscious emphasis and shading as handwriting characteristics?

HERBERT J. WALTER

This characteristic of handwriting has sometimes a very definite identifying value. Some systems of writing (Round Hand and Vertical) thought that every downstroke should be shaded or specially emphasized, and this habit is retained and developed by some writers until it becomes a permanent identifying characteristic of their handwriting.

Writers of the Spencerian and allied systems were taught to shade certain letters in certain places, and many writers retain this characteristic, which distinguishes their writing from one who learned the light line Spencerian writing or the Round Hand script.

Writers of modern business writing are taught to move the pen over the paper with a uniform pressure that produces no distinction between the strokes and for this reason shading has a value in the identification of handwriting as distinguished from the term "pen pressure", which is the natural, unconscious weight of the hand on the pen creating written lines of uniform weight or thickness, although in writing of this character, perhaps due to the make of pen or increased speed, there is frequently some distinction between the up and downstrokes, the upward and the connecting strokes between letters showing less width than the downward strokes.

These characteristics of pen pressure in shading are governed and controlled by the temperament of the writer as affecting nervous and muscular control of the pen, and the kind of pen used. Some pens did not allow any spreading of the points and a writer who habitually shades is likely to have difficulty in producing his habitual writing when using such a pen.

ALBERT S. OSBORN

Most modern writing is produced with flexible pens which make a broader stroke under pressure, and developed or mature writing shows certain unconscious emphasis which often becomes a highly significant handwriting characteristic.

Correctly placed and consistent pen pressure or this unconscious emphasis, especially when delicate and inconspicuous, often is very significant evidence of genuineness, and actual traced or simulated signatures are nearly always defective in this particular area; the character and location of pen pressure are effected by varying pen position, and the location of the emphasis may be very significant as indicating a writer who wrote habitually with a pen in a different position.

ELBRIDGE W. STEIN

The value that should be placed upon pen pressure or unconscious emphasis and shading as a handwriting characteristic depends upon its quality and the writing skill necessary to produce it. Sufficient pressure to spread in the nibs of a flexible pen apart while it is in motion makes a wider stroke, which is called pen emphasis or shading. It varies in quality from the awkward, continuous, heavy handed strokes of an unskilled, illiterate writer to the delicate artistic shading of a professional writer. A delicate, skillful, and artistic pen emphasis is the result of a rhythmic, skillful, controlled writing movement, and this kind of pen emphasis stands at the top of significant characteristics indicating genuineness as it can be imitated only with the greatest difficulty and then usually with but scant success.

The location of pen emphasis indicates the position of the pen in relation to the line of writing, and an incorrect location of emphasis may be significant evidence as indicating different habits of pen position and therefore a different writer.

JAY FORDYCE WOOD

In any writing examined the matter of emphasis or pen pressure, usually unconsciously acquired and which in any developed handwriting is certainly an unconscious and mechanical habit, is of highest importance.

And with the examination of writing a certain kinds, the question of shading may be, in my opinion, generally determinative. Smooth shading can be produced only with a fluent and continuous stroke which is, of course, entirely inconsistent with simulated writing; and if shading in the simulation of

developed, characteristic writing is smooth and continuous, it must be made so at the expense and neglect of form, manner, and other respects, plainly demonstrable on a careful examination.

Of all writing characteristics, in my judgment, the most difficult of simulation are those having to do with pen pressure, emphasis, and shading.

ALBERT D. OSBORN

Pen pressure, unconscious emphasis, and shading are distinct handwriting characteristics, especially so if they are actually unconscious. For one who does not habitually shade to imitate successfully the writing of one who does habitually shade is practically impossible. Pen pressure should be distinguished from shading as this refers more to the pressure used in the entire writing and not to shading on parts of letters. Here again, the pen pressure, if unlike the writer's own, will not be easy to imitate. Imitations of long, even shading where the line gradually widens and then diminishes, are exceedingly difficult. Such an imitation must be made by one equally or more skillful than the writer of the writing imitated. To write with sufficient speed to make a successful imitation of such shadings the writer would practically have to learn the writing he is imitating. Therefore, even shadings in a handwriting, consistent with the genuine writing, is strong indication of genuineness.

Unconscious emphasis may be on lateral strokes in one writing, and if such writing is imitated by one who habitually emphasizes downstrokes, the imitation is very likely to be a failure.

J. CLARK SELLERS

In making a careful examination of the writing in this case I gave special consideration to pen pressure or unconscious emphasis and shading, because of the paramount importance of these qualities in judging the genuineness of any writing. Delicately shaded strokes showing freely written, automatic writing are extremely difficult, if not impossible, to imitate. In fact, with many writers shading and pen pressure are more definitely fixed habits than form, and in such writings are really more identifying than the form. Shading due to a habitual variation in pen pressure, written rapidly and without conscious effort, is strong evidence signifying genuineness; whereas pressure devoid of delicate variations and inconsistent with the pressure existing in the standard writing points strongly to lack of genuineness.

6. Discuss size of writing as an identifying characteristic.

ALBERT S. OSBORN

Size in writing may have little significance as indicating genuineness or lack of genuineness, but proportions in size may be highly significant. If, however, a disputed signature differs in size from a large number of standard signatures written on the same kind of paper and apparently under the same surroundings or conditions, variation in size may have significance as indicating a lack of genuineness; but if two or more disputed signatures, especially if they purport to be written on different dates, differ from all the standards, then this difference may be very significant in pointing to a different writer. In traced forgeries identity in size and proportions of every part becomes significant as indicating the tracing operation.

The comparative size of the upper and lower letters may have significance as indicating a different writer, this characteristic in writing being governed by the extension or contraction of the first and second fingers and thumb as the pen is held. Those who write with the fingers nearly straight are more inclined to make long loops and strokes below the line, while those who write with the hand much contracted are inclined to make letters longer in proportion above the line.

Size may be quite significant as indicating a different writer, and a writer of a different system, where the proportion between the capital letters or the small letters is different than in a genuine writing. Certain writers habitually make certain letters either too large or too small, and in some instances the proportions of the small letters in a signature, for example, is a habit in writing which is violated in an imitation.

HERBERT J. WALTER

The size of writing is a factor in the identification of a writing or a signature in more than one particular. Anonymous writing is often disguised by changing the size of the writing, making it larger or smaller, but it frequently happens that the size of writing most natural to the writer will inadvertently appear in the writing. It may be only a line or two or a few words, but when this natural impulse occurs the probability is the writing will resemble the natural hand of the writer.

Different systems of handwriting have distinct and definite proportions for the size of the letters. Writers of systems using very long extensions to the upper and lower loops retain this feature in a pronounced manner. Writers of the Old Round Hand can frequently be identified by the proportionate height of the letters in relation to the length of the words, the standard height in this system being 1 to 2, the small or minimum letters being half the height of the tall extended letters and capitals. This causes the words to be shorter in length in proportion to height, compared with modern writing.

Writers of the vertical system can be definitely identified by the proportionate height of the characters taught in this system of writing, namely 1 to 2, between the minimum small letters, the capital and extended tall letters, so that in an inquiry involving identification, size is an important identifying factor.

ELBRIDGE W. STEIN

The size of writing is, within certain limits, the result of habit, but may be affected by conditions such as limited space in which to write or an unusual position of the writer. This effect is generally toward smaller and more compact rather than larger and more extended writing. In a freehand imitation there is a tendency to make the turns broader, letters wider, and consequently the entire writing longer than the genuine. Slight divergence in size means little one way or the other, but a series of disputed signatures alleged to have been written on different occasions and all of them substantially larger than the largest signatures may point strongly toward a lack of genuineness.

Size as an identifying characteristic has greater value when the relative size or extension of various letters as compared with each other is considered. Some writers habitually make certain letters too large or too small. Proportions of capital to small letters and proportions of extended letters above the line as compared with those below the line are due mainly to the way the writer holds the pen and, therefore, have individual significance. Writing of unusual size, either small or large, when habitual may be the result of the occupation of the writer.

JAY FORDYCE WOOD

While most developed writing undoubtedly does have what may be said to be under ordinary circumstances an habitual and normal size, this is so easily and mechanically changed by consideration of space available in which to write, conditions under which writing must be done, time available in which to write, as affecting the degree of care used, etc., that considered alone it is, in my judgment, of minor importance when compared with other and more stable factors usually present in the determination of genuineness or spuriousness. Even when size divergencies seem to be extreme, their weight in determining genuineness or otherwise is small, in my opinion, if other matters such as individuality, proportions, line quality, etc. comply in form and manner to the standard writing.

This is particularly true where, notwithstanding extreme divergencies in size, the questioned writing remains constant in its proportions. For while size by itself may be of minor importance, when divergencies in size are accompanied by divergencies in proportions, they at once become, in my judgment, major factors for consideration in any handwriting investigation.

JOHN F. TYRRELL

Size is frequently a strong characteristic or feature and its variation in a writing may be highly significant. Size in an illiterate handwriting, for instance, may show a writer's propensity to vary the relation proportion of letters or words to each other. This is frequently found in the lower case *c*. A diminutive *e*, shortened or unduly lengthened extensions, broad loops, and generally disproportionate characters. Adherence to recognized form and relation usually is found in trained writings and is some-

times an evidence of the system followed. It is also to be regarded as a writer's ability and expression and valuable as an identity.

ALBERT D. OSBORN

The size of the writing is a characteristic which may be of value depending on the individual writer. There is no doubt that many writers vary their writing considerably as to its size, and without other evidences of forgery difference in size is a dangerous difference on which to rely.

It is a fact that the imitation is often larger than a genuine signature or writing, and if this difference is considerable and there are many genuine signatures throughout the period, this difference cannot help but have some significance. The type of paper upon which a signature appears may have considerable bearing on its size, and it should be taken into consideration.

Occasionally an imitation is of the signature reduced in size, as the imitation of the signature on a photostatic copy of the medical examination attached to a life insurance policy. In such a case the size is of real importance.

7. Define individuality in handwriting.

EDWIN H. FEARON

Individuality is the result of a combination of writing habits indicated by manner of writing, letter designs, pen pressure, etc., which diverge from copybook forms and which, when they are considered as a whole, distinguish the writing from that of any other.

JOHN L. HARRIS

A combination of writing habits sufficient to establish identity constitutes individuality in handwriting. There are various degrees of individuality of writing in the same person. As the basis of individuality is habit, once a particular movement, form, speed, slant, proportion, etc., is acquired (whatever the system learned) it is in practice altered to meet the general requirements, whatever they may be. Conditions alter circumstances, and at any particular time it is possible to scientifically determine the individuality from exemplars and according to set standards of analysis.

ALBERT D. OSBORN

Individuality in handwriting is that combination of general and peculiar characteristics in the writing which can reasonably be said would not by coincidence appear in the writing of another.

ALBERT S. OSBORN

Individuality in handwriting is a combination of qualities, features, and characteristics by which the handwriting is distinguished from other handwritings.

ELBRIDGE W. STEIN

The personal and significant modifications of handwriting become more pronounced and habitual as the writer begins to use his writing in ordinary daily affairs. A letter form is abbreviated or an additional part is put on, with other slight changes and inventions, until an astonishing number of individualities are evolved. A handwriting that is used much undergoes slight changes all of the time, and over a period of years many times a writing can be identified by these changes as belonging to a certain period.

Imitation, both conscious and unconscious, affects handwriting. What is referred to as "a family resemblance" as though handwriting was affected by heredity is nothing more than the effect of imitating the writing of father, friend, or correspondent.

The writing instrument may leave its mark on handwriting. A writer who must constantly write with a pencil or stiff pen in order to make several carbon copies naturally develops excessive pressure

in all his writing. It is also true that an occupation with peculiar writing requirements may develop writing habits in keeping with these requirements, and leave an indelible mark on the writing of one so employed.

Writing, although a series of complicated muscular operations, like other often repeated acts or movements, becomes habitual until finally the conscious mental direction is almost entirely superseded by a reflex action so that anything that effects or disturbs the muscular act for a sufficient length of time tends to develop individuality in the writing.

HERBERT J. WALTER

Individuality in handwriting is the sum of the character, features, quality, elements in a writing peculiar to an individual writer, distinguishing it from all other writings by peculiar personal characteristics. Is something that cannot be destroyed, no two persons possess it in exactly the same combination. Every handwriting has a distinct individuality, like every human face.

JAY FORDYCE WOOD

Individuality in handwriting is that about it which marks it definitely as the work of a certain person. It begins to manifest itself immediately a person commences to learn to write; and as their writing develops, and the more a writer uses his requirements, the more pronounced and fixed becomes his writing individuality. One's writing individuality is a composite of everything which enters into it, arrangement of matter, carelessness or care, emphasis, physical condition of the writer, education, etc., all of which effect the formation of letters and result in personal divergencies from normal, conventional handwriting; the concrete results being a combination of hundreds of personal peculiarities which together constitute the writer's individuality and identifies his undisguised handwriting positively and differentiates it from the handwriting individuality of every other person.

ELBRIDGE W. STEIN (*first quotation possibly belongs to some other answer*)

Individuality in handwriting is a combination of all its distinguishing qualities and characteristics, especially those which are the result of varying degrees of mental and muscular coordination and the acquired manual skill of the writer in using a pen. Peculiarity in letter designs, shading, connections between letters, size, slant, proportions, embellishments, direction of strokes, the degree of skill, and artistic quality in the execution of the writing all become a part of individuality in a mature handwriting and distinguish it from other handwritings.

8. Describe the principal steps in the development of individuality in handwriting.

EDWIN H. FEARON

Individuality is a combination of internal and external causes. The cause for departure from copybook forms or system differs with different people, and I do not consider that there are distinct steps in development. Individuality usually develops along lines of least resistance. The artistic inclination is the cause of a type of individuality. The lack of proper training frequently causes freakish habits which may result in a distinct type of individuality.

There are three periods of development of individuality, in my opinion, and they are as follows:

The grade school period in which there is very little individuality shown unless the child possesses an unusual tendency which transgresses the training or copybook instruction.

The high school and college period in which individuality is in the formative stage. During this period the individual is manifesting an inclination to break down the copybook habits and is seeking to devise forms which are easier for the particular writer to execute.

Finally, the period found in adult life in which habits of writing become more fixed or permanent.

JOHN L. HARRIS

Individuality in handwriting is affected primarily by the source of learning and the amount of practice and instruction. What is at first a labored and unaccustomed task develops into an unconscious habit due to constant repetition.

The first step is to learn the formation and connection of letters and often in a lifetime there is but little digression in the formation of letters as originally learned according to the system taught. The human machine, however, is not a duplicating apparatus, and the complications that are so complex to the act of writing will not possibly produce the same identical results in two persons or in the same individual. Students of writing each endeavoring to achieve the same results and working together for such a purpose will develop a similarity of writing in certain respects, but individuality will increase just as soon as the harmonious relations of training have ceased. It is a fact that individuality of writing is less apparent at the end of intensive instruction of copybook standards. Unless there is intensive instruction and practice, individuality is a cumulative acquisition from the time of beginning to write and develops or changes according to the individual case.

SCOTT E. LESLIE

The basis for the development of individuality in handwriting is the physical and mental inheritance of the individual. The well known fact that no two individuals are equipped with identical physical and mental systems makes it practically impossible for any two persons ever to do anything exactly alike.

Individual differences are graphically illustrated in handwriting. Even where two persons learn the same system of writing, they never write exactly the same. The peculiar and highly personal muscular and mental systems, together with the variation in the past experience of each, shows itself in a large number of individual handwriting characteristics. There may be in the very beginning of learning to write no individuality in handwriting, but this condition would persist for an exceedingly short time. As soon as the individual began making practical use of his penmanship, it would tend to become automatic. To the extent that he used it in a practical way, it would take on highly personal qualities in movement, speed, pressure, pen-lifts, letter forms, and possibly size, slant, and alignment. The amount of writing that one did, his occupation, education, and environment would have some influence in determining his handwriting individuality. The variety of the individual handwriting characteristics is practically limitless, and most of them grow into the handwriting of one without his consciousness of their development.

Through use, environment, and increasing age there will be gradual change, but a developed individual style persists through years with no greater change than takes place in the physical and mental makeup of the individual himself.

ALBERT D. OSBORN

The principal steps in the development of individuality in handwriting are, it seems to me, as follows:

First, as a student the inability to correctly represent copies of the system which is taught. The inability to make certain letters will of course force the writer to make these letters as best he can, and the resulting forms may be distinctly individual to that writer. The second development is when the writer leaves school; with no further instruction or correction the writing will change to some extent.

Such changes may be further modifications of forms difficult for the writer or modifications due to writing rapidly with no thought whatever to the act itself. The third step in the development of handwriting is the continuous change in most persons' writing, especially in the writing of those who are doing considerable writing. Such changes may be unconscious even to the writer himself. A particular letter is seen and admired and is used perhaps occasionally, or consistently, from then on. A new flourish may be incorporated into the signature, or one dropped.

Many persons will say regarding the identification of handwriting, "Most writings, perhaps, can be identified, but I write different almost every time I write". This is a popular, misconceived idea, arrived at principally, I believe, because the handwriting of every individual does vary somewhat. However, it varies within certain limits, and when a quantity of writing of one of these writers who writes different every time is gathered together, the family resemblance is usually striking.

ALBERT S. OSBORN

The individuality of a handwriting, like that of person, is a combination of qualities, characteristics, and features by means of which that person, or that handwriting, is distinguished from other persons, or other handwritings.

The development of handwriting individuality begins with the operation of learning to write. But few pupils learn to make accurately all of the forms of

any particular system of handwriting, and this initial combination of divergencies is the primary individuality in a handwriting. Some of these first individualities persist throughout all later changes. They are of great variety and may apply to almost any character. Certain letters may be improperly designed or slanted or combined incorrectly, others may be made too large or too small, or even may be made in the wrong direction. Many of these imperfections are well known to the teacher of handwriting.

The later development of individuality in handwriting is influenced by the writing requirements of the individual and the circumstances surrounding the writing operation. If a vocation requires no writing, and writing in the form of correspondence or for other reasons is infrequent, youthful characteristics, and the similarity of the writing to the system learned, may continue for a long time and often through a lifetime, and one of the general individualities of this writing is its adherence to a system with the various modifications made by the pupil when writing was acquired.

The person who writes much gradually changes the individuality of his handwriting throughout life, and such a handwriting by form changes alone can be put into five or ten year periods, and this sometimes will apply even to the few letters of a signature. This quality of individuality is the result of the developed skill of the writer and the development or lack of development of the artistic sense and especially the sense of proportion which may affect many acts of the writer.

This developed individuality may show a much greater freedom and speed than was shown in school writing and a greater diversity in size of small letters and capital letters, and the various letters themselves may not be uniform in size.

One of the common qualities in developed handwriting is a different proportion between capitals and small letters and between the longer small letters and the minimum letters than is shown in the system learned. The system known as "Vertical Writing" made the capitals and extended letters only twice as high as the minimum letters, and the Spencerian System and certain other systems made the proportions one to three. As a rule, developed handwriting tends to make the proportions between the letters greater rather than less, whatever system was learned.

Another development in handwriting of the frequent writer is both the addition of certain flourishes or added strokes and at the same time the elimination of certain introductory or finishing strokes in the handwriting. This quality of abbreviation and of ornamentation in combination is one of handwriting's most distinctive individualities.

Another individuality in handwriting arises from the use of varying writing instruments. The habitual use of a certain size and quality of pen may affect handwriting permanently. One who uses large stiff pens, common to railroad offices, develops a writing quality very different from one who habitually uses fine, flexible pens. The kind of pen habitually employed often is the result of accidental conditions or surroundings and may greatly change a handwriting.

Another developed quality in handwriting, especially of the frequent writer, is the tendency to shade certain strokes and a tendency to make more frequent and heavier shadings than are shown in the system of writing acquired. This is particularly true of signatures, which often develop qualities in shading or proportions of width of strokes at great variance as compared with the system learned. These same writers will also often greatly vary the comparative size

of capitals and also of small letters in the signature, which of course constitute distinct individualities.

The conditions surrounding writing may also affect the result and develop certain characteristics. One who is called upon to write frequently on an improper support like a book held in the hand, or who learns to write in the lap, develops certain writing qualities which tend to restrict free movement and the extension of strokes and develops a condensed style of writing. Writers of this character write

with nearly equal facility under greatly varying conditions, while the writer who writes freely and who has learned to use the arm in combination with the hand and fingers cannot produce his usual style of writing under unfavorable conditions where the opportunity for free movement is restricted.

Handwriting individuality often is developed by conscious or unconscious imitation of the writing of a correspondence or an associate. This may affect writing in many directions and may develop inferiority and illegibility as well as qualities tending toward perfection. Much of the quality in handwriting attributed to inheritance is undoubtedly due to this unconscious or conscious imitation.

Finally certain individualities in handwriting grow out of or are affected by the personal characteristics of the writer. A general habit of neatness, or its opposite, is generally to some extent reflected in a handwriting. Force and physical vigor are often shown, and peculiar or freak individuals often incorporate in a handwriting grotesque or original forms, or affect an unusual arrangement of peculiar proportions that is highly individual.

ELBRIDGE W. STEIN

The development of individuality begins during the learning period. No two writers begin with exactly the amounts and combination of mental and muscular ability. In a class of twenty five pupils, all taught the same system by the same teacher for the same period of time, it is a rare thing to find two whose writing is so much alike as to show no distinguishing peculiarities even when they come out of school. Natural aptitude, the coordination of mental and muscular energy, and the artistic sense of the writer cause different degrees of excellence in skill, legibility, and uniformity of size, slant, and proportions of letters even in the writing of students.

HERBERT J. WALTER

Individuality in handwriting is analogous to individuality in walking, talking, or any other human habit, its development commences with the first efforts to write. Individual writing habits will necessarily to some extent be affected by the style or system practiced, and early impressions are usually lasting. Children in a class under the same teacher strive after the same model handwriting, and their writing will have the same general cast or appearance. Several members of one family all have the same teachers, yet they write individual hands, each will unconsciously develop peculiarities in writing, resulting from temperament and other physiological causes. Some possess the necessary mechanical skill and control of the hand to more or less follow the copybook forms, others will diverge from the models and develop their own ways of shaping the letters or varying the size and other elements of writing.

Individuality is something in every person, young or old, not duplicated in anyone else, and this is reflected in handwriting and speech. One receives a letter, the envelope address in handwriting proclaims the writer as if his picture were there. We make no mistake in this, the handwriting is the developed individuality of our correspondent, it cannot be hidden or destroyed. Millions learned the same system of writing, and no two writings are identical. Writing is always in some degree a reflex of the physical and nervous temperament of the writer, and no two temperaments are the same. A person of a slow, phlegmatic disposition will develop an unhurried penmanship, and one of a quick, nervous temperament will probably reflect this in his handwriting.

Some writers do not learn any particular system of style but adopt or develop a style all their own, that like Topsy, "Just grew". These handwritings will be highly individualized and not governed by system qualities. Individuality is the only explanation why a frail woman will sometimes write a large, bold, heavy masculine- looking handwriting and a powerful man write a small insignificant hand.

Some people after leaving school seldom use handwriting to any extent, and frequently this is limited to signing the name, and these naturally retain the system characteristics of their early writing models; they cannot change for want of practice in writing, and there is no progression other than the effect of age on their handwriting; there will be no change over a long period of years.

Although each person develops natural individualities, we are consciously or unconsciously impressed by our surroundings and personal contacts and imitate to some degree actions and impressions that appeal to us, and especially is this true in handwriting. Illustration—a friend aged 67 told me he

now practices and writes the style of writing of the accountant he associated with in business fifty years ago, because he admired the writing.

Individuality in writing is developed like the character of the writer and may be constantly undergoing change and development especially with some prolific writers, but the personal element will be traced back to early days and is retained persistently, more so than with some habits.

JAY FORDYCE WOOD

Individuality in handwriting commences the moment a person starts to write.

In many ways one learning to write, because of a different mentality, a different physical makeup, or an inability accurately to follow the directions given, departs from the normal conventional outlines sought to be taught from the very beginning; and as a knowledge of handwriting is obtained or put into actual use, other divergencies from conventional copybook forms are adopted, some from imitation and preference, and others unconsciously and because of the physical inability, possibly, of the writer to reproduce the conventional forms as easily or as quickly as some slight modification of them; and all these modifications or divergencies from normal are individual with the writer and in connection with the normal or conventional writing characteristics remaining, and all governed by the mental and physical habit of the writer concerned in producing them, in combination result in the writer's handwriting individuality. And as the number of divergencies from normal conventional writing increase, the greater becomes a writing's individuality. Indeed, the individuality of any writer whose writing has acquired distinct personality is composed of so very many habits and characteristics peculiar to the writer as in combination to make it, as the term implies, absolutely individual and indistinguishable from the individuality of every other writer.

10. Describe and illustrate twenty of the most significant individualities in handwriting.

ALBERT S. OSBORN

1. Skill.
2. Correctly placed and smooth shading, and consistent delicate hand pressure.
3. Correct forms executed with great speed.
4. Repeated and consistent abbreviations and additions.
5. Carelessness and inattention to detail.
6. Obvious, careless lack of skill.
7. Uncorrected ink failures and incompleteness of words.
8. Letter made in wrong direction.
9. Old Round Hand small *s* and loops of *y* and *g*.
10. Wrong slant repeated of one letter.
11. Improperly placed punctuation.
12. Low small *p* in writing of those who learned Vertical System.
13. Peculiar and peculiarly placed punctuation marks.
14. Roundness or degree of angularity of connections between letters.
15. Flourishes or letter endings back toward left.
16. Distance that angles are retraced.
17. Square ended shadings
18. Straight upstrokes on loop letters.
19. Defective endings to words.
20. Length, direction, and curvature of initial and ending strokes.

JOHN F. TYRRELL

The value of individuality is in its significances as a means of identification and may be observed in shading, spacing, slant, slope, nationality, system, size, height, width, space, form, mending, abbreviations, language, punctuation, arrangement, penholding, connections, paragraphing, consistency.

HERBERT J. WALTER

Some of the most significant individualities in handwriting are those resulting from the study and practice of some particular system or style of writing, in which the form of letters more or less conform to the system outlines, and others are modified and individualized to such an extent as to be unrecognizable as belonging to any system of writing. These are individualities of the letter formation. There are other points just as important and significant, and examiners no doubt react in various ways as to the importance of these.

Execution, indicating degree of skill, speed, slant, spacing, continuous or disconnected writing, pen application and pressure, shading, punctuation, *i* dots and *t* crossings, all of these are illustrated in *Questioned Documents* in a manner that can be understood and referred to.

10. What are ten principal differences in handwriting as written by different writers?

JOHN L. HARRIS

1. System.
2. Quality (skill, symmetry, legibility).
3. Movement.
4. Line Quality (shading, pressure, speed).
5. Form.
6. Size and proportions.
7. Slant.
8. Connections and pen-lifts.
9. Idiosyncrasies or features.
10. Starting strokes and terminals.

SCOTT E. LESLIE

1. Size.
2. Slant.
3. Proportion in the size of letters.
4. Pen pressure.
5. Alignment.
6. Beginning strokes.
7. Finishing strokes.
8. Connections.
9. Angles.
10. Letter forms.

ALBERT D. OSBORN

1. A definite difference in system.
2. Slant.
3. Width of connections between letters.
4. Shading.
5. Skill of the writing.
6. Roundness of turns between letters.
7. Roundness or angularity at the tops of loop letters *m*, *n*, etc.
8. Proportion of the height of the capital and small letters and the uppercase and lowercase letters.
9. Evidences of a different nationality in handwriting.
10. Different modification of the letters by two writers who learned to write the same system.

ALBERT S. OSBORN

1. System on which handwriting was based.
2. Degree of skill exhibited.
3. Neatness and artistic ability.
4. Roundness or angularity.
5. Slant.
6. Lateral spacing.
7. Proportions.
8. Shading and pen pressure.
9. Size.
10. Alignment.

ELBRIDGE W. STEIN

11. Variation in the degree of writing skill of different writers.
12. Connections between parts of letters and between letters, and the distance angles are retraced from the baseline.
13. Proportions of
 - a. Capitals and small letters.
 - b. Minimum and extended small letters.
 - c. Extended letters above and below the line.
4. Individual modifications of letter designs.
5. Spacing, arrangement, punctuation, alignment.

JOHN F. TYRRELL

1. System.
2. Nationality.
3. Penholding.
4. Size.
5. Training.
6. Pen emphasis.
7. Freedom.
8. Speed.
9. Movement.
10. Dexterity.