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Editorial

The life we have all had to deal with since last February is so unbelievable that it sounds more like fiction instead of fact. The impact has affected everyone and it has been a huge factor in our lives that we will never completely recover from. I had 1/3 the amount of work in 2020 than in many previous years. The only reason I have survived is due to the Payroll Protection Program. Here the government is paying us not to work. This is having an impact on all of us. Many businesses have had to shut down completely due to lack of work. The economy needs to help us get back to work.

The major result from the current situation is the fact that so many people are working from home. I believe that there will be a lot more work done in home offices. Luckily, most document examiners already work from home. My office has been in my home for the past 38 years. However, after the shutdown there have been more remote communications with clients.

Our current situation covers much more work being conducted from home offices which modern communication has made possible. Now we hold meetings with clients via Zoom, Skype and similar programs. It is my opinion that not only will we continue to meet via distance computer programs, many industries will remain working from home. Most notable will be testifying from our offices instead of physically being present in court.

I do advise you to look at any originals in your cases as sometimes it is necessary to view the original to come to the correct opinion. For example, we had a case and the opposing side had the original questioned document. The document was a preprinted form of a Promissory Note. However, the form had been signed and dated before the date that the form was manufactured and the bottom of the pages had been cut off to hide the date that was on the form. We would not have been able to prove the fraudulent nature of this document without seeing the original. We had reviewed copies of documents and then asked to see the original. We were able to prove that the document had been altered to give one sibling additional money from his mother's estate.

I have traveled as far as Trinidad to review original documents. In another case, the court allowed our client to bring the original document being challenged to our office from the Philippines. Some family members were challenging the authenticity of a will. That document was proven to be genuine and I testified in the Philippines. In some cases, we were able to view a first-generation copy or a photograph in cases where original documents were no longer available.

We have some very interesting articles in this issue of our journal. Since so little research has been done in our field, I am happy to include several excellent articles by our members.

Kathie Koppenhaver

Pen and Ink Signatures Compared to Electronic Signatures
Using Pen, Tablet Stylus, and Finger Signatures

By Nathalie A. Bureau, B.A, B ED, QDE

Abstract

This research was conducted for the purpose of providing a basis of information for examinations of non-pen signatures given the increased popularity of electronic signatures in the business world. Thirty-five people were sampled and asked to provide pen and non-pen signatures, including those executed with a writing stylus and those executed using only a finger tip. During sample taking, previous signatures were covered up so copying was not a factor. Also, there was a pen rest in between signings where the writing instrument was 'put down' for a period of 20 seconds to prevent fatigue and repetition in movements. The results indicate that over all, large letter formations (capital letters) remained similar and many subconscious characteristics present in the pen signature were also seen in the non-pen signatures. The value of this information is in reference to evaluating the genuineness of non-pen signatures should they come under dispute. Knowing there are similarities between pen and non-pen representations of the same persons signature provides a basis of understanding in determining authenticity using pen samples as a reliable, comparable source.

Introduction

The acceptance of electronic and digital signatures as a legal form of authorization has been in force since about the year 1999/2000 in the US, 2004 in Canada, and 1999 in Australia. By the mid-2000's these signatures have become legitimate in most major jurisdictions around the world. Up to this point, very little data has been gathered with respect to how the pen/ink signatures differ from their electronic counterparts, which were created using some writing implement other than a pen (including a fingertip). This current research is quantitative and it asks the question: what similarities persist through signatures that are executed in pen and in non-pen methods? What differences will be prominent?

The convenience of electronic and digital signatures has precipitated its increased usage because it has decreased the waiting period for contracts to be agreed upon by all parties involved. The issue of fraud is apparent given the decreased accuracy of signatures created using non-pen implements. Most of us have signed a signature pad for a delivery using a non-pen implement and most of us can attest to how awkward and visually dissimilar the resulting signature can look. Without studies on the similarities and differences between pen and non-pen signatures, it is difficult to determine which differences are indicative of simulation and which are due to decreased writing accuracy.

Relevant research on digital or electronic signatures focuses on the security of the vehicle retrieving and storing the signature, but not on the appearance of the signature itself. Discussions on the differences and similarities in properties and logistics of the act of signing in both pen and non-pen signatures were found, but they did not speak to the specific characteristics that make a signature unique and genuine, as would be examined in questioned pen signatures. Given the growth and popularity of electronic business and online contract execution, which has been increasing by about 50% per year since 2012, and given the expected growth yet to come, the usage of online signatures will only continue to dramatically increase and their security and authenticity is of the utmost importance.

The question of the genuineness of electronic signatures is relevant in determining the validity of these signatures and their increasingly important role in online business transactions and contract agreements. To be able to identify fraud and to prevent wrongful acts jeopardizing contract veracity, more information is needed. The question of authenticity will likely be found in two places: the actual signature characteristics, and in the online security of the documents themselves. Chain of custody of digital signatures is more secure than electronic signatures so the question of genuineness for digital signatures will likely fall under a kind of computer analysis examination. The question of likeness between pen and non-pen signatures falls under the umbrella of forensic document examination and we need to understand the differences and similarities that are encapsulated by these two genuine formats.

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It is expected that the larger letter formations will remain similar in their execution, with the pen or writing implement taking the same general path in both pen and non-pen signatures. The reasoning for this is that the larger letter forms require less finite motor skill. Conversely, some smaller letters are expected to either be eliminated or simplified in their execution. More complex movements and turns of the pen will likely be simplified, however flourishes, since they tend to be large sweeping movements and not generally part of the defining shape of a letter, should persist in the non-pen signatures.

Limitations

There are some limitations to the scope of this study. Firstly, the sample size is quite small, but it provides a starting point of information, albeit modest at best. Other limitations exist in the skill and proficiency with the use of a stylus and finger for signing. Some subjects are expected to have better dexterity and familiarity with stylus and finger signing than others. Another possible limitation to this study is the potential subject's physical and mental fatigue while providing signature samples. The potential for subconscious 'copying' of the previous signature when signing multiple times is also a possible limitation in that it may create more uniform signatures than would be expected in the regular course of business. These limitations were accommodated and reduced by some of the methods implemented in data gathering.

Materials and Methodology

The only Materials used in this study were: an iPad, pen-type tablet stylus, pens, paper and the finger of the volunteer. The iPad responded in a timely manner with respect to the coordination of the stylus and finger movement on the glass and the resulting visual representation. There was no notable delay in transcribing the movement from the hand of the volunteer to the electronic translation of the writing. One consideration each person had to adapt to was a slight slowing of their normal writing speed if they were previously known to be a fast writer, and to 'learn' the ideal pressure to apply to the stylus and finger while executing their signature. The practice trial gave each person the ability to determine how they needed to adapt speed and pressure so that when they wrote for the purpose of saving the sample, they were able to complete the signature without difficulty.

Data was gathered quantitatively. Signature pages were created to organize the collection of signatures from the 35 volunteer subjects. The pen signature page contained an introduction/explanation for the research, 5 signatures lines, and a date line. The process of obtaining the signatures was conducted the same for all 35 subjects and contained the following steps:

1. An explanation of the protection of their signature as a whole, that it would not be reproduced in its entirety at any point was stated, and the steps involved in the signing were verbalized.
2. They were asked to sign one signature and then put the pen down while the researcher counted to 20 and covered up the signature they just completed. By covering up the previous signatures the subconscious copying was eliminated. The 20 second count decreased possible build up of physical fatigue.
3. The 5 pen signatures were gathered in succession.
4. A second signature page for stylus and finger signatures was presented and practice signatures were done until the subject verbally stated they were ready to try the 'real' signature sample. Two stylus signatures were taken, with the first one being covered up before the second one was obtained. A 20 second break was given between both signatures.
5. The same practice opportunity was given for the finger signature. Once the subject verbally confirmed they felt ready to proceed with the 'real' sample, they were asked to sign twice with their finger with the previous signature covered up. A 20 second break was given between both signatures. A total of 35 unique signatures were gathered and laid out in a binder side-by-side with the pen signatures on the right side of the book and the non-pen signatures on the

left side of the book. This layout provided easy visual access for examination of the characteristics studied and compared.

Literature Review

An online search of literature was done and some previous research was found related to electronic and digital signatures. Definitions of different types of signatures were found in an article called "**What's the difference between wet, digital, and electronic signatures**" at the following link: *www.laserfiche.com/ecmblog/whats-the-difference/*. A **wet** signature is one done plainly in ink. The largest portion of research around electronic and digital signatures found was related to the security protocols in place to protect digital signatures. **Digital** signatures are cryptographic signatures and they are the most secure form of virtual signature. They include a certificate of authenticity (like a window's certificate) to ensure the validity of the signatory, and it allows the users to identify if the document has been altered in any way. Signed with a private decryption key and verified by a public encryption key guaranteeing that the message was not interrupted and that the users are who they say they are, digital signatures bear heightened security when compared to **electronic** signatures. Electronic signatures include the following formats:

-a name typed at the end of a document
-a name typed on an e-form or document
-an image of an actual wet signature
-a PIN at an ATM machine
-clicking 'agree' or 'disagree' on electronic contracts
-handwritten then digitally captured on a tablet (dynamic signature)

This article also states that ESIGN – the Electronic Signatures in Global and National Commerce Act, has been in effect since 2000 and that the rights to use or accept wet signatures or digital ones is preserved and completely up to the organization. Every company and person have to create their own policy around signatures, whether they use the digital signatures laid out by the ESIGN Act or whether they prefer to operate solely under a wet signature process.

In another article entitled "**A comparison of digital and handwritten signatures**" – 1997 by David Fillingham, the discussion surrounds the different pros and cons of the two types of signatures and the differing qualities of both, but does not delve into individual signature characteristics such as those found in signature examinations for the purpose of determining genuineness.

A qualitative study by Roy and Karforma in 2012, "**A survey on digital signatures and it's applications**" speaks to the industry standards of digital signature schemes as they pertain to security in end-to-end and send/receive transmissions and those correlating applications and protocols. Discussion about computer programs which implement the security measures is presented and it analyzes the efficacy of these programs and security measures in their task to maintain secure digital signatures. Focus on current research is in the area of digital signatures and the cryptography/encryption of the signature, keeping in mind that digital signatures are not pictorial representations of actual signatures.

Beverly Black wrote an article for "**In the Black**" called "**What you need to know about Digital Signatures**" in 2016 www.intheblack.com/articles/2016/06/01/what-you-need-to-know-about-digital-signatures/ and in it she speaks about the growth and demand for electronic signatures. Since 2012 the use of electronic signatures has grown by 50% each year. For an electronic signature to be considered valid it has to accurately reflect someone's identity, it must be reliable, and must be provided with the person's consent, according to Brisbane based solicitor Peter Bolam. The DocuSign Vice President says that of the 100 million transactions underpinned by their software, only 3 or 4 cases have surfaced and DocuSign won them all when the digital signatures were questioned. This article, like others, focuses on the security of the

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technology that creates and carries digital signatures but there is no information gathered discussing electronic impressions of actual signatures and how they compare to pen signatures.

Other articles found were similarly focused, either on the security of digital signatures or speaking to the uses and pros and cons of pen vs. non-pen signatures. It would be useful to know which signature characteristics remain and which ones degrade or disappear with the use of non-pen writing implements.

Quantitative Data Gathered

Several characteristics were compared between pen and non-pen signatures. The characteristics used for comparison were: large capital letters, unique characteristics (not flourishes but other less common pen formations found), terminal strokes, initial strokes, flourishes, small letters and possible omission of them, i-dots, t-crossings, slant, letter propositions, compression of writing, connecting strokes, baseline, terminal dots, signature in relation to the signature line, and ticks. Specifically, what was focused on for each of these was the following, when the non-pen signatures were compared to pen signatures:

1. **Large letters**-whether the pen followed the same pathway.
2. **Unique characteristics**-whether any observed unique characteristics remained.
3. **Terminal strokes**-were they consistent.
4. **Initial strokes**-were they consistent.
5. **Flourishes**-fancy, non-letter formations strokes that add flare to the signature.
6. **Omission of small letters**-if they exist in pen signatures, did they remain or disappear.
7. **i-dots**-did they remain or disappear.
8. **t-crossings**-did they remain or disappear.
9. **Slant**-was slant the same/similar.
10. **Proportion of letters**-relative to each other, did that ratio remain constant/similar.
11. **Compression of writing**-did the writing maintain the same compression.
12. **Connecting strokes**-were they the same/similar.
13. **Baseline**-did the baseline follow the same shape/form.
14. **Terminal dot**-if it existed in pen sample, did it remain in non-pen samples.
15. **Relation to signature line**-did the signature observe its relation to the signature line.
16. **Tick**-if ticks existed in pen samples; did they remain.

Results

Some of the 16 characteristics were not observed in all signatures sampled. When a characteristic was absent, a designation of N/A (not applicable) was given and the resulting fraction/ratio reflects that absence in the total. A total of 35 unique signatures were obtained from people within an age range of 20-65. A "Y" was used if the characteristic was observed in the non-pen samples and an "N" was used if it was absent.

Some factors that became apparent as possible limitations or needs for accommodation during the gathering process of the data were people who were left-handed, and women with long, manicured finger nails. With left-handed writers a small adaptation had to be made in that a cloth was placed on the tablet screen for their left hand to rest on as their hand dragged across the glass while they wrote, preventing interference with the electronic transcribing of the movement to a visual representation of a signature. The only contact point admissible for obtaining non-pen signatures was that of the writing implement whether the stylus or finger, so as a left-handed person wrote, their hand would drag across the screen area where they had previously written a moment before. The cloth eliminated extraneous contact points from the hand. Approximately half of the writers rested their hand on the screen while using their finger (as opposed to suspending the hand in the air) while most rested their hand on the screen when using the stylus. To accommodate the resting hand, a piece of paper was placed under the signature line to eliminate any

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unwanted contact points. The paper was not enough of a buffer for left-handed writers given their hand position tended to be passing over the same place where they would write. In right- handed writers, their hand rested comfortably under the signature line on the paper.

There were two people with longer nails who needed a couple of extra trials to accommodate their nail length while writing with their finger. Their nails had a notable impact on their finger signature in that the resulting electronic signature was larger than most other finger samples and significantly larger than their own pen signature and even stylus signature. Dexterity was affected by the presence of longer nails making the volunteer obliged to tilt her finger from the more standard approximated angle of 70-90 degrees to the surface of the iPad, to an approximately less than 45-degree angle.

Some characteristics correlated positively, meaning they adhered to the pen samples in 100% of the comparison samples. Formation of large letters, any unique pre-existing characteristics, terminal strokes, initial strokes, flourishes, t-crossings, and connecting strokes remained unchanged from pen to stylus signatures. These characteristics contain both conscious and subconscious elements. Formation of the large capital letters is conscious and remained consistent as expected, as well as any signatures with flourishes. Sometimes unique characteristics were conscious when contained in capital letters. An example is the number 12 volunteer. Her capital letter of her fist name intentionally formed part of the next letter in a unique way. The subconscious characteristics that persisted across the stylus samples were the initial and terminal strokes, connecting strokes and t-crossings. These remained constant in the samples where they were present in the pen sample. The finger signatures were 100% similar compared to pen signatures in the following characteristics: large letter formations, initial strokes, terminal strokes, and t-crossings.

Characteristics which persisted in 80%-99% are as follows: stylus signatures held similarity in i-dots, slant, compression of writing, proportion of letters to each other, baseline, and terminal dots (when present in pen signatures); Finger signatures held similarity in unique characteristics, terminal strokes, i-dots, slant, connecting strokes and relationship to signature line.

In 20% of stylus signatures, there were some small letter omissions. With the finger signatures there was a loss of compression of writing in relation to writing size where only 14% of the signatures maintained a similar compression and the rest had letters more spread out in comparison to the pen signatures.

Interestingly, in characteristic number 15 - adherence to signature line, when compared to pen signatures the finger signatures maintained a closer and more similar relationship to the signature line at 80%, whereas in the stylus signatures only 37% were similarly placed on the signature line.

Discussion
Most significant are the characteristics with 100% similarity between pen and non-pen signatures. The formation of large letters, any unique pre-existing characteristics, terminal strokes, initial strokes, flourishes, t-crossings, and connecting strokes were consistent in stylus signatures. The fact that many of these characteristics are subconscious during execution provides strong guidelines for consideration in an examination of genuineness in stylus type signatures. Even the consciously formed large letters bearing strong resemblance to pen signatures show that the muscles in the hand carry their habituated performance in signing quality even with an awkward writing implement. The significance of flourishes remaining in a non-pen signature indicate that personal flare remained despite a more awkward writing execution.

Sometimes unique characteristics were conscious when contained in capital letters as in the number 12 volunteer. The subconscious characteristics that persisted across the samples were the initial and terminal

strokes, connecting strokes, and t-crossings. We can conclude from this fact that despite a less precise method of signing, the subconscious movements and muscle memory will create continuity between pen signatures and their non-pen counter-parts. The finger signatures were 100% similar compared to pen signatures in the following characteristics: large letter formations, initial strokes, terminal strokes, and t-crossings. The finger signatures were the least detailed showing a general loss in compression and a more focused or strained effort to create. The fact that an increased adherence to the signature line was observed shows a higher concentrated effort involved in signing. Even though the finger signatures showed more degradation and variation from their pen counterpart, there was still similarity which indicates the hand and fingers move the same way while accommodating a more difficult writing process.

Trait Number 6 results, omission of some smaller letters, was not completely as expected as stated in the initial estimation of results. This study expected to see a significant drop in some of the smaller letters in exchange for the increased difficulty in signing with non-pen implements, but this was not the case. Only 9% of stylus signatures showed a drop in the formation of some of the smaller letters and only 30% drop in finger signatures. This result re-iterates the powerful influence of muscle memory on signatures in general and the persistent continuity under increased signing difficulty. It should be noted that although smaller letters were generally not left out, some simplification of them was observed in many samples. These results were within expectations and do not vary enough as to place them outside the natural variation given the challenging writing circumstances of a non-pen signature.

The consistent subconscious strokes and the large letter formations show that we can expect some strong similarity between pen and non-pen signatures. In the question of genuineness with respect to non-pen signatures, gathering a healthy sampling of pen signatures will provide a strong base for comparison for the purpose of establishing writing habits and characteristics which can be used in the field of document examination. The application for this knowledge will become increasingly important given the growing popularity of electronic signatures made on tables, smart phones, delivery package signature systems, etc. in relation to contract signing and authorizing signatures of any kind when executed with non-pen writing implements.

Acknowledgements

Who *Really* Invented the Alphabet
By Ann Kessler, CG, CDE

"Human society, the world, the whole of mankind is in the alphabet… The alphabet is a source."
~Victor Hugo

Paleo: ancient/prehistoric/primitive
Proto: earliest/first in time/being form of a language that is the ancestor of a language or group
Gloss: (for this purpose) Brief note or translation of a difficult expression, usually inserted in a margin or between lines of a text.
Sinaitic: Area of the Sinai Desert & Peninsula
B.C.E.: Before the Common Era
C.E.: Common Era (terms used in Jewish Literature)

About Archaeology . . .
"Every tablet, every little scarab, is a portion of life solidified . . . When we look closely into the work, we seem almost to watch the hand that did it; this stone is a day, a week of the life of some living man. I know his mind, his feeling, by what he has thought and done on this stone. I live with him in looking into his work, and admiring and valuing it."
**Sir William Matthew Flinders Petrie,**
Pioneer & Renowned British Archaeologist

In the Beginning . . . The very first words on the very first page of Edward Horowitz's book *How the Hebrew Language Grew*, are: "How did language originate? It is very important that you know. However, we do not know!"

Well, we may not know how *actual* language started – who decided to call a 'this' a 'that' – but, especially in light of all the archaeological discoveries even up into the twentieth century, and now even beyond, we can tell with certainty, when "alphabets" were invented to express words like 'this and that' – and even more importantly – a *phonetic* alphabet that became the basis of languages throughout the Western Civilization. Is an alphabet an invention? – Most scholars today agree that the alphabet is an invention, the original work of a person or a group of persons.

In the Bible, Genesis 10 lists all the descendants of Noah's sons. This monograph primarily concerns the children of Shem – the Semites (the name "Semitic" was coined as a linguistic term in 1781 C.E. These descendants of Shem included the Elamites, Assyrians, Lydians, Arameans, and numerous Arab tribes. From additional Hebrew sources, the Semites also included the Hebrews, Akkadians, Amorites, Babylonians, Canaanites, and the Phoenicians. Today, the only Semites are the Arabs and the Jewish people.

The first forms of writing that were used were the cuneiform (wedge-shaped symbols made with a stylus that pressed into clay), and the Egyptian hieroglyphics (mainly pictorial symbols). Although new discoveries purport one to be older than the other, they all were developed around 3000 B.C.E. and had well over 700 symbols. **But these were not *phonetic* alphabets.**

House   Gods
▶ Pictograms for:
Hand   Head   Foot

Examples of Cuneiform and Hebrew
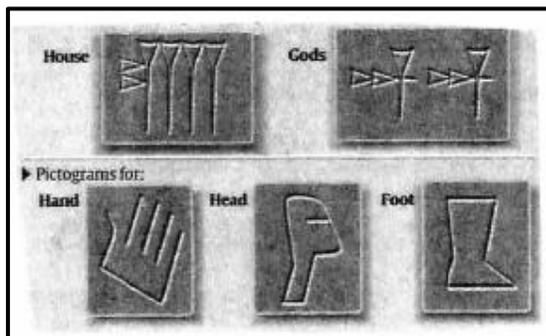
The illustration on the left is the (Semitic) Akkadian language of Mesopotamia. So far, scholars have identified about 600 common characters and 2000 unusual ones. Most documents found are legal, but numerous ones are literary with poetry, religious sayings, and myths.

Cuneiform writing was replaced by the Phoenician [Hebrew] alphabet and by the end of the 2nd century CE, it has become extinct. But before

that, a phenomenal discovery was made in Ugarit in 1928 CE that dates back to the 14th Century BCE.

Egyptian Hieroglyphics also developed around 3000 BCE. This writing system was divided into 3 separate groups: Hieroglyphics (pictographic and used for monument inscriptions), Hieratic ("priestly" script for manuscripts and paintings), and demotic (a highly cursive script and used every day from 600 BCE to the 5th century CE. Later gave way to Greek and Coptic writing).
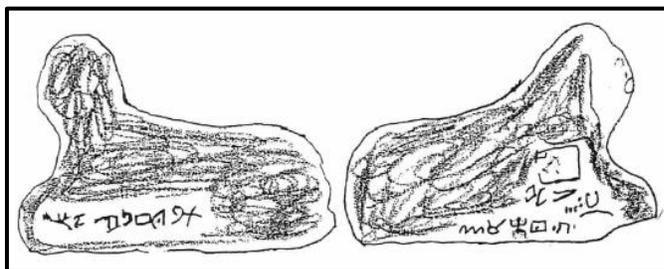
Hebrew came from the Egyptian Hieroglyphics – with one big difference! These two areas, then Canaan and Egypt, were the crossroads of trading routes and had much in common. All the pictograph writing had meanings and actually represented the objects they drew: An Aleph was an ox, a Bet was a house, a Mem was water (mayim – and really became a universal sign for water), and a Resh was a head (rep. a person). To write in Egyptian required many forms. However, what the Hebrews did was to take the first pictograph/letter and its sound. A bet became just a "B" sound, a mem became an "M' sound (aleph was silent), and a Resh became just an "R" sound and hence the first phonetic alphabet! All those many symbols were reduced to just 22 symbols, or letters, which could be later used in all the languages of Western Civilization. Still today, those same letters exist (some letters had double sounds, and some letters has a special form used at the end of a word (like "t" in Palmer Penmanship), but it was still the same letter.
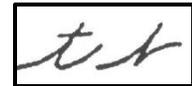
Palmer T's

The first use of the word Hebrew came from the Bible referring to Abraham, the first Jewish patriarch. Most modern scholars are divided as to the *exact* meaning of Hebrew, but the consensus is that it means "one from the other side", which would be in accordance with the statement in (Joshua 24:3) "And I took your father Abraham from the other side of the River" (Euphrates). Indeed, Abraham was from Ur of the Chaldees-the Fertile Crescent between the Euphrates and Tigris Rivers, and what was then Aram. Abraham left his father's house, and went with his wife Sarah and nephew Lot to Canaan. But what language did Abraham speak? He and his family were Aramaean (linguists identify Aramaean as a western branch of the Semitic language). So, they must have carried that language into Canaan and later it led Dr. Frank Cross to determine that "The language of Canaan, is not too far removed from Biblical Hebrew." Even though the next two patriarchs returned to Aram to take wives, while living in Canaan, they became Hebrew Semites. These Semitic Hebrew Canaanites are not to be confused with the original Semitic Canaanites. These Canaanites were pagans, as were all the surrounding neighbors. Abraham brought an entirely new culture to the area that has been perpetuated through the years, Monotheism.

In 1905, Sir Flinders Petrie, English archaeologist specializing in Egyptology, found a little sandstone sphinx in the Temple of Hathor, on the plain of Serabit el-Khadim, in the Sinai Peninsula, on the site of some ancient turquoise mines. This epic discovery dates from circa 1500 BCE, and on this little sphinx are inscriptions which at first appeared to be Egyptian hieroglyphics. But after intense investigation, these findings became known as the *Proto-Sinaitic Writing* (sometimes called Proto-Semitic), and was found to be the first *phonetic* alphabet.

Sphinx

Who *Really* Invented the Alphabet
By Ann Kessler, CG, CDE

In this temple, whose principal deity was the goddess Hathor, Petrie discovered that most of the inscriptions were written in Egyptian, but a few items, eleven in all, appeared to be Egyptian, but he could not read them. About 12 years later, the Egyptologist Sir Alan Gardiner, with his familiarity with Semitic words from his biblical scholarship, he was able to name each sign with the Semitic word equivalent to the sign's Egyptian meaning.

In 1500 BCE the patriarch Jacob and the "70 souls" but in actuality with all the women, children, servants – hundreds – left Canaan because of famine and went down into Egypt circa 1600 BCE and became enslaved there for four hundred years, which obviously included the turquoise mine in the Sinai. The Hebrews were always a literate people. They took the phonetic alphabet and the ability to write into Egypt with them and never lost this ability.

Another paramount discovery found in 1929 and through the 1930s after the Proto-Sinaitic writings were the ***Proto-Canaanite Inscriptions***. These documents solidify a definite date of the invention of the alphabet and the location where they were developed. Fourteen known early Canaanite inscriptions were found in the area of Canaan. The earliest of three groups with three samples belong to the Middle Bronze Age III and can be dated to the17th and 18th centuries BCE. The first sample found was the *Gezer Potsherd* in 1929. Then, the second sample found was the Shechem Stone Plaque in 1934. Finally, the third sample found was the Lachish Dagger in 1934. The Lachish Dagger was so blackened with age that it was not until two years later, after it was cleaned, that the inscription was brought to light. The second of the three groups can be dated to the 14th and 15th centuries BCE and the third of the three groups can be dated to the 13th century BCE.

Two other epic discoveries occurred in the advent of writing. The first was found in 1887 on the east bank of the Nile, about 190 miles from Cairo: It was the **Tell El-Amarna letters**. They span from 1385-1355 BCE, about 4 years before the time of Tutankhamun. They are one of the most important sources for evidence of pre-biblical Hebrew and how to construct Canaanite grammar of this period.

The "Tell" letters were written in Akkadian cuneiform, the diplomatic lingua franca of their time, by the feudal princes of Canaan's city states to their pharaonic overlords in the 14th century BCE. Such missives as these complained about the *Habiru* menace (the Egyptian term for Hebrews). Since many in the Egyptian area were not familiar with Semitic Akkadian cuneiform, it was the Hebrew/Canaanite glosses that deciphered most of their meanings. One such interesting transliteration: ki-i-na-am-lu tu-um-ha-zu la-a ta-ka-bi-lu u ta-an-si qa-ti amelim sa yi-ma-ha-as-si – (If ants are smitten, they do not accept the smiting quietly, but they bite the hand of the man who smites them.")

A later accidental archaeological find in 1928 in the village of Ras Shamrah, which is now Syria, led to other discoveries in Ugarit. Clay tablets were found there from the 14th century BCE. Their value lies in the fact that they were written with a phonetic alphabet of 32 letters and were found to belong to the Canaanite Semitic language group. This phonetic alphabet consisted of three vowel sounds and was used to record all international correspondence throughout Samaria, Egypt, Akkadia, Assyria, Babylon, and Persia. Because the cuneiform symbols were too awkward to make, they became extinct in the 2nd Century CE. The phonetic alphabet letters are in a fixed order that resemble the modern order we have inherited nearly 3500 years later. This writing system was replaced by the Hebrew Canaanite.

The Phoenicians carried the alphabet by sea. The Phoenician's recorded history began around 1600 BCE and they lived on the Northwest coast of Canaan (now Lebanon). They were never politically unified but more-or-less controlled by city-states such as the famous city-state of Tyre and Byblos. When they ceased to be dominated by the Egyptians circa 1200 BCE, they

Who *Really* Invented the Alphabet
By Ann Kessler, CG, CDE

became essentially a seafaring nation. They were mariners, brilliant navigators who at the beginning of the 7th century, probably circumnavigated Africa more than 2000 years before the Portuguese. They were the ancient world's greatest traders. But little is known about the Phoenicians, compared with the ancient Egyptians and Hebrews, because they left few records and almost no literature. They had an alphabet of 22 letters that went with them wherever they ventured, a much-needed necessity for traders and business people, a quick easy way to record transactions.

The Phoenicians first took the phonetic alphabet into Greece around 800 BCE. The Greeks, who already had a prolific language, had no way to record their speech and to write it. They very quickly adapted to this Semitic alphabet, and with some changes to fit the sounds of their own language. One major change was the addition of vowels. They kept the same names for the alphabet letters as the Semitic ones: Aleph, Bet, Gimmel, become Alpha, Beta, Gamma. They gave an "e" and "o" sound to the silent Hebrew letters of Aleph and Ayin and about 100 years later, this alphabet spread to the Eruscans and then to the Romans.

Scholars believe that the Phoenicians promulgated the Hebrew alphabet but did not create it. According to Collier's Encyclopedia, "As a product of a race of traders and seafarers, Phoenician art shows little originality. They seem to have excelled neither in architecture nor in sculpture. They preferred the making of smaller objects that could be easily exported and sold rather than leaving things of artistic value to posterity." (V.16:P.2)

In Leonard Shlain's book, *The Alphabet Versus the Goddess*, he says, "One might expect that the inventors of the alphabet would have excelled culturally. One would certainly expect a literary legacy of some sort, but none survives. Also, from Dr. Shlain's book *America, Journal of Archaeology*, 1885: "The Phoenicians, so far as we know, did not bring a single fruitful idea into the world."

No literary works of the Phoenicians have ever been found except paleo written inscriptions in stone. The most popular one was the Ahiram Sarcophagus with its epitaph and graffito found in 1923, and has now been dated to about 1000 BCE. It was the oldest Phoenician inscription in existence until the1905 discovery of the Proto-Sinaitic dating to 1500, and in 1929 the Proto-Canaanite found in 1929 dating to 1800 BCE. In the same time frame of 1000 BCE is the Hebrew Gezer Calendar: that sited the times for: "Month of sowing: Month of pruning: Month of summer fruit." As a separate people, little is recorded of the Phoenicians from 500 BCE and by 64 BCE, the Phoenician coast was absorbed into the Roman Empire.

Early Lachish Letters: 21 Ostraca were found written in **Hebrew cursive** that date definitely to 587 BCE. This is an extremely important date because it describes circumstances of that time period. The first Holy Temple was destroyed by the Babylonians in 586 BCE and the Judeans were exiled into Babylon for 70 years where also Hebrew cursive was found. This is not surprise because *literally, volumes* of Hebrew literature poured forth from Babylon at that time.

At first, all languages had different writing directions – even in Boustrophedin (bous (ox)+strephein (to turn). As the ox plowed the fields, so went the writing lines. Hebrew retained the linear letter forms writing from right to left. It has been said, "that realizing most in the world were right-handed, it was easier to hold the chisel in the left hand, and direct the chisel with the `mallet` held in the right hand and moved to the right."

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Around 1200 BCE, an advent of such Magnitude, that it would forever change the way most people would think – **Moses – and the Giving of the Ten Commandments!** And the Hebrews also took seriously part of the 2nd Commandment: "Thou shalt not make any graven image . . ." That was when the Hebrew alphabet lost all the pictorial symbols of their alphabet, but still remnants remain of the old meanings in the new letters – from the first changes to the modern form. For just a <u>few</u> examples from old to modern print and cursive: the Aleph (ox) - from the actual ox's head: (the horns and the yoke can still be seen) the Ayin (eye) – from the actual "eye": (the "eye" can still be seen) the Resh (head) – from the actual head: (the curve of the back of the head can still be seen).

I was amazed in my research that in the earlier history books, the writers seemed to adamantly refuse to accept the fact that the alphabet came from Semites, and went to great length to prove otherwise. And in most history books, and on the web, Phoenicians are still given the credit for inventing the alphabet. But some newer sources, such as "The American Heritage Dictionary" in the "Table of Alphabets," the original source is "Hebrew".

P.S. On the cover, on the stone, reading R to L, the "Proto-Sinaitic" letters spell Shalom
P.P.S. Bibliography sent on request. The above book is out of print and is not for sale!

The Hebrew Alphabet that is still taught in Hebrew Schools, and spoken in Israel today. Hebrew still has no vowels, so I believe in the 1500's CE, diacritic marks were developed to put *mostly* under the consonants to expedite learning to read.

Bibliography

Albright, William F. *The Archaeology of Palestine* – Penguin Books Limited, England, 1949 Peter Smith Publishers, Inc., MA, 1971.

Birnbaum, Philip *Fluent Hebrew* – Hebrew Publishing Co.,/Montauk Book Manufacturing Col, 1966.

Burrows, Millar *Dead Sea Scrolls* – Viking Press, N.Y., 1955 . . . 1961.

Diringer, David *A history of the Alphabet* – Hutchinson & Co., Great Britain, 1948 Gresham Books, 1968 . . . 1983 (2 Volumes).

Gauer, Albertine *A History of Writing* – The British Library 1984, US Cross River Press, N.Y., 1992.

Horowitz, Edward *How the Hebrew Language Grew* – Ktav Publishing House, Inc. USA, 1960.

Koppenhaver, Katherine *A Selection of International Penmanship Systems* - Forensic Publishers of Joppa, USA.

Landay, Jerry M. *Silent Cities, Sacred Stones* – The McCall Publishing Col, N.Y., 1971.

Orlinsky, Harry M. *Understanding the Bible Through History and Archaeology* – Ktav Publishing House, Inc., N.Y., 1972.

--- *Ancient Israel* – Cornell University Press, London/Vail-Ballow Press, Inc., USA, 1954 . . . 1971.

Ouaknin, Marc-Alaine *Mysteries of the Alphabet* – Abbeville Press, N.Y., 1999.

Robinson, Andrew *The Story of Writing* – Thames & Hudson, Inc., N.Y., 1995.

Shlain, Leonard *The Alphabet Versus the Goddess* – Penguin Putnam, Inc., N.Y., 1998.

Wade, Nicholas (Edited by) *The Science Times book of Archaeology* – N.Y. Times/The Lyons Press, N.Y., 1999.

Yadin, Yigael *Masada* – Random House, N.Y., 1966.

Atlas of the Bible Lands – C.S. Hammond & Co., N.Y.
Book of Joshua and Judges - (Edited by the Rev. Dr. A. Cohen) Soncino Press, London.
Colliers Encyclopedia – P.F. Collier & Son Corp./Crawell-Collier Publishing Co., 1956.
Encyclopedia Judaica – Keter Publishing House, Jerusalem, Israel, 1974.
The Pentateuch & Haftorahs (J.H. Hertz Commentaries) – Soncino Press, London, 1952.
The American Heritage Dictionary (Second College Edition) – Houghton Mifflin Co., Boston.

Ann Kessler, CDE, CG

Ann is a Court Qualified Certified Document Examiner with memberships in NADE (National Association of Document Examiners); SAFE (Scientific Association of Forensic Examiners): IADE (International Association of Document Examiners) and holding board positions in the latter two and a Charter Member of IADE. She is also a certified graphologist with AAHA (American Association of Handwriting Analysts) in which she has held many board positions including president for four years and editor of its newsletter for ten years. Ann opened her own Document Examination business in June, 1999 called Accurate Analyses, and has testified in County, State and Federal Courts. She is currently retired.

Ann has Teaching Certification in Hebrew Studies from Hebrew Union College with credits from the Theological Seminary in New York and teaching in Hebrew Schools has covered a span of 30 years. Also, in that time frame, she has had her own dance studio where she taught ballroom dance and international folk dance.

Parchment
By Dr. Raymond K. Berweger, CQDE and Ms. Roxanne Brand, CQDE

Parchment, "pergmenum" in Latin (up to the 3rd century AD the name used was "membrana" thus - membrane); or another name to refer to this material is "vellum". Originally, vellum was parchment made from the hide of a calf, "vitulus" in Latin. It was extraordinarily difficult to ascertain where the hides that were used were from calves or other animals. As a result, the words vellum and parchment have become interchangeable and depend on local preferences. In other languages the difference between parchment and vellum might be a little bit different. In Spanish, "vitela" is equivalent to the English word "vellum", and is reserved for high quality parchment; very white, thin and soft, no matter what species it comes from. Although, it almost always comes from calf skin.

To begin, not all skins were equally adequate to be made into parchment. A parchment maker who wished to achieve a high-quality product started choosing skins without wounds or scars and, if possible, of a light and uniform color. For example, if the animal's blood wasn't properly drained at the time of slaughter, blood in the capillaries would leave very characteristic marks in the parchment.

In the early steps of parchment and leather making, the hide and fur are what the manufacturer receives. The hide is first soaked in barrels of water and lime. This will loosen the fur and it can then be scraped away after a few days. Next the hairless hides are placed in a "fleshing machine" where flesh and membranous skin are removed. The machine consists of many cutting blades and a revolving cylinder that will shear off unwanted fleshy matter and determine the leather thickness.

The hide is still too thick for use and a "splitting" machine will cut the hide or skin in a horizontal dimension into two layers. The upper layer, the external portion of the animal is called "top grain" and the bottom, or internal layer is called "split".

The hides are now placed inside a wooden rotating drum specially designed for tanning. FACT: every animals' brain has enough chemical to tan its own hide. Primitive cultures tanned hides using the animals brain tissue.

Tanning agents convert the raw fibers of the hide into a durable product preserving it, improving its abrasion resistance and heat and flex resistance. The hide is able to endure repeated cycles of wetting and drying.

Next two large rolls squeeze out the excess moisture as the hides are fed through a machine. This process is called "ringing". The leathers are called "wet load" and may now be selected or graded as desired according to the destination of use.

Once the hides have been selected, they need to be reduced and made uniform in thickness. This is done by a shaving method, accomplished by a machine with a rapidly revolving bladed cylinder. The leathers are then returned to vats and dyed through. This is literally a further tanning treatment to modify leathers properties. The leathers are now uniformly dyed and the natural beauty of leather is made even more striking by the wide variety of shades which this process is capable of producing.

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The last of the wet operations is the waxing to give the leather softness, elasticity and flexing resistance.

For parchment, after shaving, the hide is "set out" where the hide is worked over the grain surface to remove excess water and eliminate wrinkles. To further dry the leather, (toggling where leathers are fixed on frames with toggles or clamps) the stretched leather is then left to dry. A buffing or sanding will leave a smooth surface which is then trimmed and now it is called parchment.

Parchment is sold according to the size and quality of the product. To correctly size an irregularly shaped hide, a special machine with many revolving gears, will accurately measure the square footage of any hide. Due to the amount of work, processing steps and variations in quality, parchment was very expensive. Manuscripts that were no longer needed were not destroyed. The manuscripts became what is known as "palimpsest or codices rescripti"; which are manuscripts that have been reused by removing the writing. This was done by lightly sanding the surface until the lettering was removed. Modern photography and special lighting have made it possible to "see" the writing that was supposedly removed and thereby discover lost plays, biblical texts and information from the distant past.

Machinery has reduced the manual burden of producing parchment. What was once the commodity of the very few, the liturgical community and the wealthy; is now readily available to the general public.

In November, 2019 Ms. Roxanne Brand, CQDE and Dr. Raymond K. Berweger, CQDE had the opportunity to visit Pergamena Leather and Parchment Factory in Montgomery, N.Y.; owned by Mr. Jesse Meyer. To say that making leather is in Jesse Meyer's blood would be an understatement. His family has been working in tanneries since the 1500s. The small family-owned business tracks the origin of the hides. They use vegetable tanning exclusively because it is more environmentally conscious than chrome tanning.

Pergamena Leather and Parchment now makes leather for artists, fashion designers and furniture. It also makes parchment for book binding. Mr. Meyer was gracious to allow us to tour the factory and, his assistant Dave Zirilli, described the entire process and how all the equipment is utilized.

The hit show *Dirty Jobs*, starring Mike Rowe, filmed several episodes at Pergamena Leather and Parchment explaining leather and parchment fabrication. They can be accessed on You Tube at the following URLs:
https://www.youtube.com/watch?v=Ivmq4D4wp4s
https://www.youtube.com/watch?v=u3vHZqsY9Qg
 https://www.youtube.com/watch?v=7vKWsB_mmR0
https://www.youtube.com/watch?v=O2BWc1N9Cqo

As we were leaving Pergamena Leather and Parchment, Dave showed us a copy of the Declaration of Independence on parchment. Copies are for sale for $600. We graciously declined,

but the offer is certainly tempting for document examiners. The ability to view cursive script from the 18th century was a thrill.

Ray Berweger: After retirement I realized that I had no hobbies, didn't play golf and didn't collect stamps. My daughter told me that a young man she had met - well his father was a document examiner. When I called, he said come on over and I'll show you what that is. This was Bob Baier who gave freely of his time and knowledge. I was hooked; expanded my knowledge base with Kathie Koppenhaver's online course and that was my start.

Roxanne Brand: Roxanne has been a document examiner since 2014. She has been past chairman of the Membership Committee of IADE. She is a Certified Questioned Document Examiner.

Signature Comparison
Document Examiners vs. Lay People
By Dr. Raymond K. Berweger. CQDE

ABSTRACT:

This paper reports on the performance of document examiners against randomly selected lay public. The document examiners opinions of genuine, simulated and disguised signatures to compare to the opinions of a lay group (as a control group) for a total of twenty questioned signatures. The population of International Association of Document Examiners (IADE) members participated in a mandatory, yearly presented proficiency examination and results were evaluated against the opinions of the lay population.

The debate of the validity of opinion of trained document examiners compared to the average lay person is the basis of qualifying in court as an expert. Challenges by opposing attorneys using either Daubert or Frye to dismiss the document expert need to be refuted with studies that accredit the expert and gives the court counter opinion to accept testimony from someone who knows more than "the man on the street". In the study "Forensic Handwriting Examiners' Expertise for Signature Comparison" comparing a document examiners ability in handwriting identification compared to the untrained public. To this authors knowledge this is the only study that not only compares genuine to simulated signatures but, also adding a third component of determining if the signature is disguised. "Empirical studies on text-based handwriting identification have shown evidence of expertise in trained document examiners." (1) The level of expertise cited in the referenced study is replicated here where, a group of document examiners (as part of their yearly required proficiency test - IADE) was compared to sixty-three non-trained lay people as a control group. This study again showed significantly fewer errors than the control group. This being a more comprehensive and thorough study, the evidence still supports the expertise and skill in the document examiners opinions compared to the control group.

In this report this author examined the findings of a handwriting test involving genuine, simulated and disguised signatures that were the basis of a required proficiency test and a group of lay non-examiners. The sole reason of the study was to provide evidence, and to substantiate the existence or non-existence of expertise and skill in the trained document examiners. These results bolster claims of the veracity of document examiners opinion in testimony and report.

METHODOLOGY

In this study, using the proficiency test from IADE (with written permission from Sylvia Kessler), practicing document examiners were asked to examine twenty (20) signatures of subject Rod Hofschulter determined to be genuine and to illustrate natural variation of an individual. With these signatures there were another set of twenty (20) signatures that the examiner was to examine and determine if the signatures were genuine, simulated or disguised. There was no option of an inconclusive opinion. Each answer was recorded as correct or incorrect. All answer sheets were then graded with scores from 0% to 100%. There was no analysis comparing the three answer choices.

For the non-trained lay public, they were given an "Instruction" page fully explaining what was requested in the test and what was the definition of each of the terms (genuine, disguised or simulated.)   (Information sheet 1). This group also received both the genuine and questioned

signatures. The lay group (control group) answer sheet was also given a numerical grade indicating their correct response with no attempt to analyze the three possible answers.

SUBJECTS

The document examiners were all members of IADE (International Association of Document Examiners) and the test was part of their required yearly proficiency examination. The non- trained lay people were acquaintances of the author and some students at Goshen High School (Goshen, New York) who were over eighteen years old at time of examination. None of the control group had any experience in document examination or any prior professional association with handwriting examination. Control subjects ranged in age from eighteen (18) to seventy-eight (78) years old.

MATERIALS

The test consisted of twenty (20) signatures on individual sheets of paper that were notated as "Known" examples of the writer: Rod Hofschulter. Included with these known or genuine examples of the subject's signature were twenty (20) "Questioned" signatures, on individual sheets of paper. The questioned signatures would be either genuine, disguised, or simulated signatures of subject Rod Hofschulter.

An answer sheet was provided for both groups. The document examination group were given a random number as identification and the lay group just listed their first name (and last name's first initial if needed for identification).

PROCEDURES

The entire test was sent as an email to all IADE document examiners with a random numbered answer sheet for identification. Upon completion, the answer sheet was sent to Ms. Sylvia Kessler who corrected and collected the answer responses. Ms. Kessler was the developer and distributed the handwriting proficiency test. Her permission to use her test was obtained by this author before any steps to conduct this study.

The non-examiner lay public was contacted by this author and the answer sheets were received and collated by him. Prior to giving the test, each control participant was given an instruction sheet explaining the test, what was requested and definitions of opinion choices (genuine, simulated, disguised). Information Sheet 1.

DATA

Each document examiners, and lay person's score was recorded on a scale from 0 (all incorrect answers) to 100 (all correct answers). All three parameters i.e., genuine, disguised, and simulated were given equal weight. An answer was either correct or not. There was no choice, or option, of "inconclusive" as an answer.

RESULTS

The lay person average (mean) was 54.45% with the lowest score of 30% and the highest score of 75%. The mean was 55% and the mode was 50%.

Amongst the document examiners the average (mean) score was 79.42% with a low score of 15% and many high scores of 100%. The median was 82.5% and the mode was 100%. See Table 1 for raw results.

TABLE 1

%	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0														
5	P													
10														
15														
20														
25														
30	L													
35			L											
40							L							
45	P			L										
50	P													L
55			P						L					
60	P										L			
65		P						L						
70	P	L												
75	P			L										
80						P								
85			P											
90					P									
95			P											
100							P							

PERCENT CORRECT (%)
NUMBER OF PEOPLE (#)

L= LAY TEST SUBJECTS
P=PROFESSIONAL DOCUMENT EXAMINERS

DISCUSSION

This study is different from previous studies in that there were three criteria being analyzed and that "inconclusive" was not an option for answer. The three criteria being evaluated were genuine, disguised and simulated.

No effort was made to distinguish between the examiners experience other than comparing to a lay person (i.e., with no training or experience) to a document examiner (i.e., with training and experience).

The results agree with previous studies on signature authentication and supports the claim of the fact that trained and experienced document examiners are superior in their opinion than a lay person. Variation of scores by both groups is skewed dramatically in favor of the examiners but that is not to say that every document examiner scored significantly better than every lay person. But overall, the difference does support that a document examiner's opinion has a greater weight than a lay person.

CONCLUSION
This study compared the ability of document examiners to distinguish genuine, simulated and disguised signatures to the lay public. The results support the premise that document examiners are superior to the lay public in determining the authenticity of a signature. This study should bolster the credibility of a document examiner as an expert witness.

REFERENCES

Sita J,Found B, Rogers DK. Forensic handwriting examiners' expertise for signature comparison. J Forensic Sci, Sept. 2002, Vol. 47, No. 5

Kam M, Wetstein J, Conn R. Proficiency of professional document examiners in writer identification. J Forensic Sci 1994;39:5-14

Found B, Rogers D. Contemporary issues in forensic handwriting examination. A discussion of key issues in the wake of the Starzecpyzel decision. J Forensic Doc Exam 1995;8:1-31

Risinger DM, Saks MJ. Science and nonscience in the courts: Daubert meets handwriting identification expertise. Iowa L Rev 1996;82:21-74

Kam M, Fielding G, Conn R. Writer identification by professional document examiners. J Forensic Sci 1997;42:778-86

Expect the Unexpected
By Kathie Koppenhaver, CQDE

Cross-examining attorneys make outlandish statements such as, "Your honor, the witness is reading her testimony." Upon closer inspection, the attorney realized that was not true. A witness is allowed to review notes during testimony but not read testimony. The only time one is allowed to read is when he or she is describing a list of documents that has been reviewed in the case or when one is asked to read a specific statement in a report or on another document.

When ask by opposing counsel to examine their documents in court or deposition, I have refused on the basis that the conditions were not suitable for conducting an examination at that time.

A witness never cracks jokes on the witness stand but sometimes answers are given that cause the court to chuckle. Upon being asked by a cross-examining attorney how many cases I had won, my response was that document examiners don't win cases, lawyers do. Another occurred when a cross-examining attorney said, "You don't have as much experience as my expert, do you?" My reply, "I'm not old enough."

Never wait until you arrive in court to look at the original document, if at all possible. Looking at the original could change your opinion and your testimony. If given originals or other documents while on the witness stand, ask for time to review them before you continue your testimony. It is difficult to analyze signatures sitting on the witness stand.

And then there are the stupid things that might occur. I once poured an entire pitcher of ice water on my skirt trying to pour the water into a cup during my testimony. I calmly informed the court that I had ice and water all over my lap and the clerk handed me paper towels. Luckily, I missed the documents. My skirt was dry by the time I finished testifying.

Make sure that you are headed to the right courthouse. It is upsetting when you cannot find the court citation because you are at the wrong courthouse in the wrong jurisdiction and yes, that did happen to me.

Make sure that your shoes match when you go out of town to testify. I testified wearing tennis shoes because I had two left foot shoes and no time to buy any because I discovered it shortly before my court appearance.

Once I had a bad reaction to eye drops and when I awoke in the morning, I could not open my eyes. They were literally glued shut with pus. Bill had to get me a warm washcloth to soften the pus so that I could open my eyes. I made an emergency appointment with my eye doctor who gave me a prescription but I had to wait so long in the doctor's office that I had no time to fill the prescription and had to go immediately to court to testify. I wore dark glasses throughout my testimony and my eyes ran continuously while testifying.

Sometimes opposing examiners have problems. One elderly examiner wasn't in the courtroom and his attorney called and spoke to his wife who said he should have been there two hours ago. A search of the courthouse found the examiner sitting in another courtroom not realizing that he was in the wrong place.

My shortest testimony consisted of three words in response to a judge who informed the jury of my opinion and then verified it by asking me if he was correct to which I replied, "Yes, your

Honor." The longest I have been on the witness stand was a full day of testimony.

All cases are not this exciting. Many are routine and many times when you go to court you do not testify. I've had as many as three cases scheduled for the same day and didn't testify in any of them.

Testifying Against my Clients

As experts, you will have to testify in court to support your findings. Most of the time, your testimony will be routine. You find in favor of your client and you will be subpoenaed to court. Several cases have required that I testify against my client for various reasons. In one case, the Federal Public Defender had me testify against his client who was charged with using stolen credit cards for purchases. She was originally going to plead guilty but she would not acknowledge the amount of merchandise that she bought so she changed her plea to no guilty. The Public Defender had me testify to the number of purchases that she made.

In another case, I had asked the attorney for my client for additional signatures for comparison purposes but I was never given any additional samples until opposing attorney in court offered me copies of the driver's licenses. The judge allowed me to leave the witness stand so that I could review the signatures privately. I was given a room in which to conduct my examination and after I completed my examination, I took the witness stand and changed my testimony. I originally thought that the signatures in question were disguised by the father but after reviewing both drivers' licenses, I realized that the son had signed his father's name as guarantor. While we have been taught to defend our opinions, there are times when it becomes necessary to change our opinions. This entire matter could have been settled earlier if I had been given the additional samples that I had requested.

In another case my client identified me as his witness even though I had found against him. He was denying his signature on a document in which he gave his sister his half of his father's estate. He was going through a divorce and didn't want to share with his ex-wife. However, the sister refused to give him his half of the estate after the divorce. I was subpoenaed by the opposing party and had to testify against my client and against his lawyer who had told opposing party that my opinion was inconclusive and that there was no written report. My client's attorney had asked for a written report when I found against his client. I was actually working with the opposing attorney on another case at that time.

Finally, a case involved a signature on a letter. I had testified that the signature was not genuine. The judge stated that one of the litigants was not telling the truth since the testimony was so different but he did not know which one was not telling the truth. My client made the mistake of lying to the judge concerning a page of notes that had been written by opposing litigant. My client said that he had written the notes and I and opposing document examiner had to testify to the fact that the notes were not written by my client. As a result of that, my client lost the case and declared bankruptcy and I was never paid for the additional time I spent in court. I always require an advance on court to keep that from happening again.