

Case Study: IR Light to Examine the Writing Trail

by August Meyer, QDE

In the field of handwriting and document examination it is often necessary to work from photocopies or non-original documents. When confronted with a non-original document additional challenges are presented which may lead to inaccurate opinions or conclusions. Some abnormalities in the handwriting could be due to a different author, pen issues, writing surface, or a suboptimal photocopying process.

When working from non-original documents the examiner must be cautious when observing these small details in order to avoid coming to an incorrect conclusion. A case I worked on last year illustrated this point. In this case, the letter connection between the 'E' and 'l' became a particular point of focus.

In figure 1 we see three cutouts showing the 'El' connector from known signatures. These signatures were included in the initial paperwork provided to me for review. We immediately notice these are multi-generational photocopies or scans and are degraded significantly as a result. While there is still enough detail left to conduct an examination, any conclusions must be reached with a level of skepticism, and opinions should be qualified as having been made based upon non-original documentation.

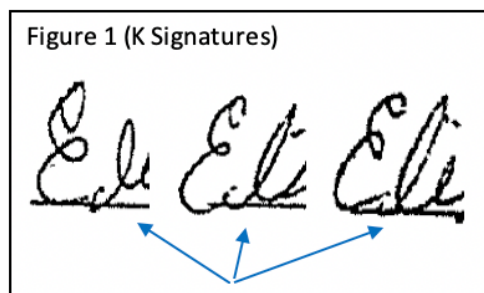


Figure 2 has an additional four known signatures with better quality. These known signatures were later provided to me for my examination but were also non-original. The writer has a tendency to make a slight hook or apex with the connection rather than a smooth transition from one letter to the next. In some known signatures, there was a clear pen lift.

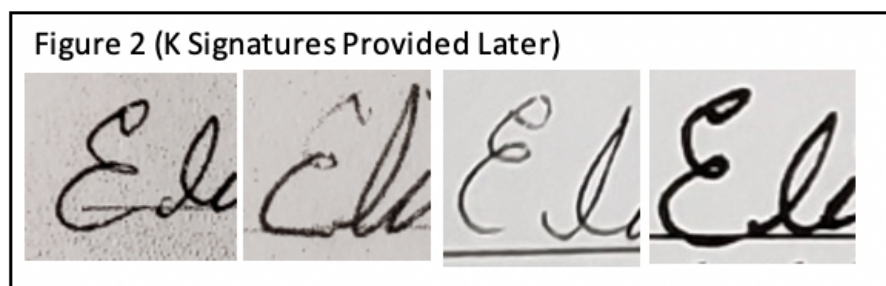


Figure 3 (Q Signature)



The writer has a tendency to make a slight hook or apex with the connection rather than a smooth transition from one letter to the next. In some known signatures, there was a clear pen lift.

Figure 3 shows the 'El' from the questioned signature from the original paperwork I was given. The questioned signature has a slight bump in the line between the 'El'. This bump became a point of contention during the case and was believed to be evidence of a pen lift. This bump in the writing line could result

from several different causes including a pen lift, gooping of ink on the writing trail, or photocopy error.

The original document was provided upon my request for the examination. One of my objectives was to investigate the letter connection to determine if it was consistent with the known signatures and was indeed a pen lift. Given the fourth sample in Figure 2, there was evidence to suggest the writer may have made a pen lift resulting in a slight bump on the writing line.

Figure 4 shows the original document under microscope with visible LED lighting. Having the original document to examine we can clearly see the extra ink bump which was initially interpreted to be indicative a pen lift. With this lighting and magnification, it appears to be one continuous writing trail and the bump the result of ink gooping.

Figure 4



Figure 5



Figure 5 shows the original document placed under infrared (IR) lighting. With the pen ink transparent we can see the pen impression in the paper clearly showing one smooth line. Using IR oblique lighting, there are no doubts the connection between the 'El' is one continuous stroke. This was inconsistent with the known signatures and disproved the theory of a pen lift.

While this single trait was by itself not enough to come to any conclusions regarding authorship, this was one brick amongst many when building an opinion. The use of IR

lighting was additionally helpful in examining the entire signature for pressure patterns and comparing those to the known signatures. This case clearly demonstrated the value of having the original document available for examination and the utility of IR lighting.