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OBVERSE-REVERSE INTERSECTION OF LINES

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The dating of entries in two-sided medical records and diaries through microscopic examination of obverse-reverse intersecting lines.

This is an extension of a technique first reported to my knowledge by Paul Osborn. The procedure can only be used where a questioned entry appears on a document that contains entries on both sides, and is of particular value in the examination of medical records or diaries. Commonly, an entry that contains exculpatory information will appear on one side of this page. If a line from this entry intersects with writing on the back, many times it can be determined which was written first.

The procedure is in theory quite simple. As all document examiners know when one writes on a piece of paper an impression is created on the writing surface and a corresponding raised portion (convexity) occurs on the reverse side. The depth of the impression and the height of the resulting convexity on the reverse side are of course controlled by the pressure, instrument, paper and writing surface. When a convexity of sufficient height occurs it will appear as a ridge when viewed through a stereoscopic microscope using oblique light. The original inked line where it intersects this ridge will cause a break in this ridge, if the inked line was created second. If the inked line was created first and the convexity second, the inked line will appear to ride up over the convexity with sharply defined sides signifying that the inked line was on the paper when the writing on the reverse side was done causing the convexity and pushing the inked line up and away from the paper.

Pressure variation of the writer exhibits such a strong influence that in one intersection the evidence may be insufficient to arrive at a conclusion because the intersection may occur at a light upstroke while at another intersection the pressure may be heavier and present clear evidence of the writing sequence.

Typical uses of the procedure would be the examination of the diary pages that are two sided and medical records that contain entries from different times and/or dates on both sides. For example, entries commonly appear in doctors' progress notes that reference a patient's refusal of a diagnostic procedure. The entry is for purposes of this paper dated 06/12/89 and intersects with another entry on the reverse side dated 02/06/91. This examination procedure can clearly demonstrate whether the patient refused portion of the 06/12/89 entry was written before or after the 02/06/91 entry was on the paper.

An examination of the inks with an image converter most of the time discloses the patient refusal language to be a different ink than used for the corpus of that day's entry, albeit perfectly color matched. The doctor will then state that he must have picked a different pen from his pocket when he made that entry, but he made it that day, 06/12/89. The question then becomes when was this entry written. The evidence contained in obverse-reverse intersecting lines can answer that question

with specificity and at times date entries within hours if the intersecting lines are the same day but different times.

References: The Sequence of Ballpoint Ink Strokes and Intersection Embossings, Paul Osborn, American Society of Questioned Document Examiners, 1966 Conference: New York City, New York.