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HOW DO FORENSIC CHEMISTS DETECT 'RECORD TAMPERING'

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Lawyers should be interested in the forensic examination of disputed records for three reasons:

1. Case Value.
2. Perjury avoidance.
3. Due diligence in court.

Many attorneys are aware that forensic document examiners can determine the authenticity of a signature and perform various examinations on typewriters and printed documents. However, many attorneys do not know that additions, alterations or rewriting can also be detected – by a forensic chemist. A forensic chemist is able to do more than a forensic document examiner. A forensic chemist can:

- * detect an alteration made with a different pen;
- * determine the age of a document;
- * determine the age of a particular ink;
- * determine when an ink was first commercially available; and
- * determine, at times, if additions, alterations or rewriting of records have occurred, and then if so, when it happened, who did it, where it was done, when it was done, what was replaced and who knew' about it.

Ink dating

The dating of inks is done in three primary forms.

First is the chemical date tag. Approximately one-third of all inks manufactured in North America contain a cumerin compound that is unique for its year of manufacture. This was done from the late 1960s until 1994. Also, the first date of production can be established by determining the type and manufacture of the ink. This is primary for older questioned documents, such as the 'Hitler Diaries'. The second form of ink dating is the evaporation of volatile solvents and decay of bands on a chromatogram, this is the technique used to date inks to within six months until they are approximately three to four years old.

The third analysis is comparing a known dated standard of ink kept in the chemist's library. If a consistency between a known dated standard and the questioned ink can be established in either the rare of extraction or in the ratio between the due components, the date of authorship can be accurately determined.

Qualifications for 'record tampering'

An addition to a record must have at least one of the following criteria to be deemed significant in a case regarding the record tampering issue:

- * the intentional concealment of a change that is not clearly noted but takes instrumentation to detect;
- * an addition or change to a critical entry;
- * an entry that was not made contemporaneously with the other entries with no notation of late charting;
- * a pattern of alterations to the critical entries;
- * testimony is different than the forensic evidence present;
- * the whiting-out, scribbling-out or obliteration of an entry or part of an entry; or
- * the addition or removal of pages to or from a record.

Additions that are made with a color matched ink can usually be detected by the use of an infrared image converter or possibly an argon or krypton laser. The difference in the ink in this range of lights is caused by the different excitation levels in the inks. If the inks are different, one ink will luminesce while the other will be infrared opaque or filter. This can be captured photographically and makes an excellent court exhibit.

This is especially important when the questioned entry is the lynch-pin entry in a case.

Has a record been tampered with?

Some signs to look for that may indicate "record tampering" are:

- * crowded entries;
- * entries compressed around other entries;
- * entries made in the margins or along the bottom of a page;
- * slant, pressure and uniformity of handwriting;
- * relative length of questioned entries to other entries in the chart;
- * unnatural spacing between entries;
- * entries that shift the blame onto a patient or client, such as "Pt. refused" or "non-compliant";
- * differences between what the client says and what the records indicate; and
- * strange notations such as "complained of NO chest pains".

Case examples

Several cases have been forensically proven, including:

- * Medical records kept on a form that was not in existence until three years after the first date on the records.
- * Expansion to the records that occurred two years after the patient was dead.
- * Inks used to write a file were not in existence when the writing allegedly took place.
- * Contracts that were typed on paper and with a type wheel were not in existence on the date of the alleged production.
- * A laser printed document that was allegedly made in 1982. This is 18 months before the laser printer was commercially available.

Authenticating records

Forensic technology can also authenticate records. For example, a doctor kept his records over a period of five years with pens containing chemical date codes that matched the years in which the records were kept. This evidence could not be fabricated. The result was that the records were authenticated and a dismissal was entered.

Another example is where a plaintiff argued the critical entry was added to the records. The ink used in the questioned entry was identical and written at approximately the same time. Again, the subject of alteration was abandoned by the plaintiff.

Michigan Lawyers Weekly
Volume 9, Number 30
June 5, 1995