

TECHNICAL NOTE

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Decipherment of Opaqued Writing with Acetate-Assisted Photocopying

REFERENCE: Curfman, H. W., Jr., and Oleksow, D. L., "Decipherment of Opaqued Writing with Acetate-Assisted Photocopying," *Journal of Forensic Sciences*, JFSCA, Vol. 37 No. 6, November 1992, pp. 1684–1692.

ABSTRACT: A simple, non-destructive, demonstrative and speedy technique for decipherment of opaqued writings has not been available until this procedure. With the use of an indirect electrostatic copier, acetate sheeting and a transparency (plain paper copier), decipherment is possible within minutes. A permanent display is the finished product.

KEYWORDS: questioned documents, correction fluid, obliterations, decipherment, alteration, indirect electrostatic copier, acetate sheeting, transparency projection

The Laboratory examination and decipherment of writings obliterated by opaque materials is not overwhelmingly difficult; however, the methods used to date have been very time consuming and expensive.

Waggoner [1] lists three recognized methods of examination of opaque obliterations: 1) visualization and photography with transmitted light; 2) removal with a solvent such as acetone; 3) rendering the paper translucent with a solvent such as freon.

A fourth method not mentioned by Waggoner uses infrared reflectance/absorbance through the opposite side of the page [2,3], visualized either photographically or electronically.

Materials

- Two (2) acetate sheets—clear or yellow-tinted
- One (1) black backing sheet
- Plain paper copier transparency
- Indirect electrostatic copier—white paper preferred
- Document with opaque alteration

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Method

1. Place the two sheets of acetate on the indirect electrostatic copier glass platen.
2. Place the opposite side of the document down on top of the acetate sheeting. The opaque alterations will face the operator. (See Fig. 1).
3. Close the white copier cover atop the assemblage on the glass. (See Fig. 2A)
4. Adjust the toner level to full dark.






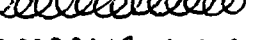



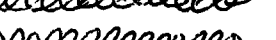









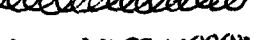




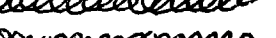

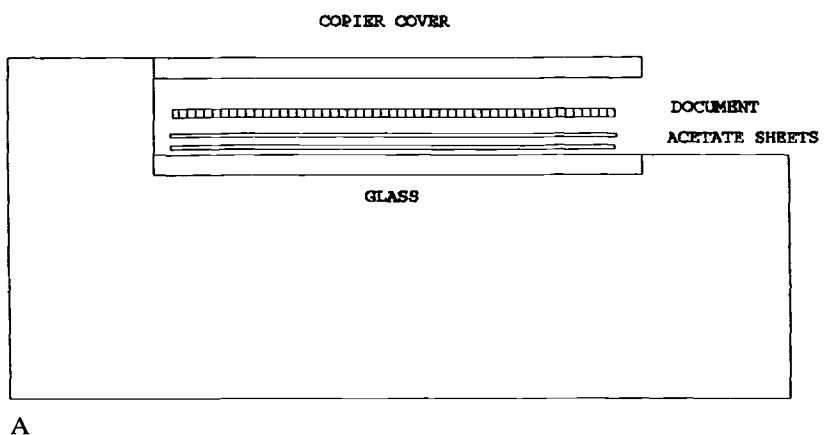
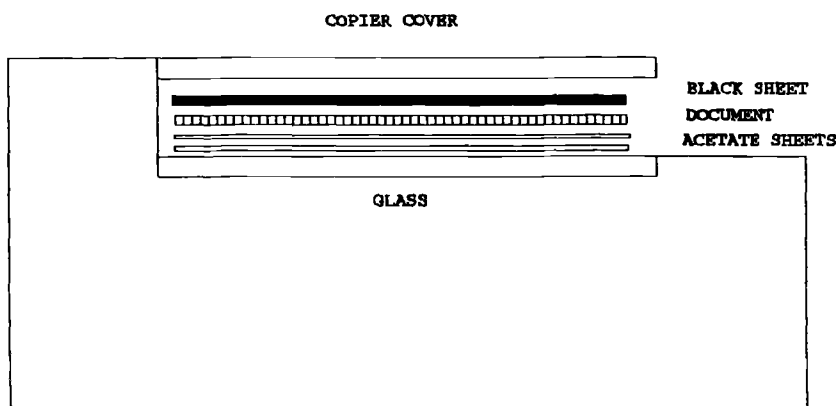
Typewritten - Carbon Transfer • 
 Office Copier - Ball Point • 
 Papermate - Black - Ball Pt. • 
 Bic - Blue - Ball Point • 
 Bic - Green - Ball Point • 
 Bic - Red - Ball Point • 
 Bic - Blk - Ball Point • 
 Le Pen - Blk - Nylon Tip • 
 Papermate - Blue - Ball pt. • 
 Pentel - Superball - Micro. Blk. • 
 Uni-ball - Roller - Red - • 
 Papermate - Fiber - Green • 
 Bic - Red - Metal Point • 
 Uni-ball - Micro - Blue • 
 Pencil No. 2 - XXXXX • 
 Bic - Micro Metal - Blk. • 
 Papermate - Fiber - Blue • 
 Berol - Boldliner - Green • 
 Cross - Ball Point - Blk. • 
 Cross - Ball Point - Blue • 
 Uni-ball - Micro - Green • 
 Papermate - Fiber Tip - Blk. • 
 Papermate - Fiber Tip - Red • 
 Sanford Sharpie - Green • 
 Pilot - Ultra fine Point Blue • 
 Sanford Sharpie - Blk. • 

FIG. 1—The original altered document.



A



B

FIG. 2—Diagrams of method set ups.

5. Make a test-run copy on paper. A reverse imaging of all the original text material should appear. Adjust toner level if too dark. (See Fig. 3)
6. Insert a transparency sheet into the paper tray and make a transparency copy.
7. Remove the assemblage of materials from the copier.
8. Reverse the transparency on the photocopier glass, place the toner level at normal and run a hard copy for record. (See Fig. 4)
9. If the opaqued writing and area of obliteration must be emphasized, place a black sheet atop the assemblage before Step 4. (See Fig. 2B and Fig. 5)

Advantages of the Technique

1. The method can be conducted with inexpensive materials.
2. The transparency can be used on a transparency projector for court demonstration.
3. No photographic recording is necessary.
4. A full page of writing (8½' × 11") can be processed and recorded.

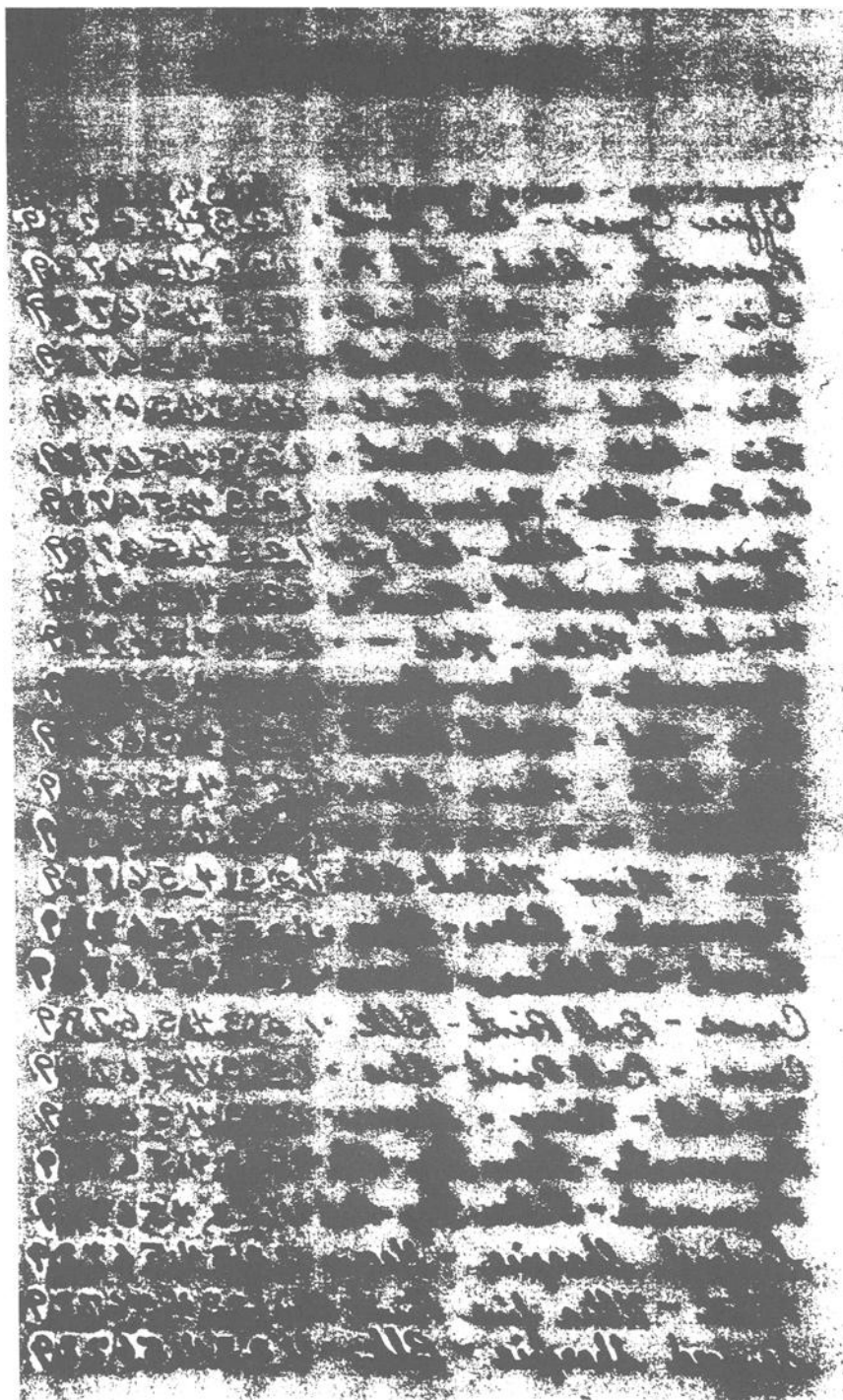


FIG. 3—Test run on paper.

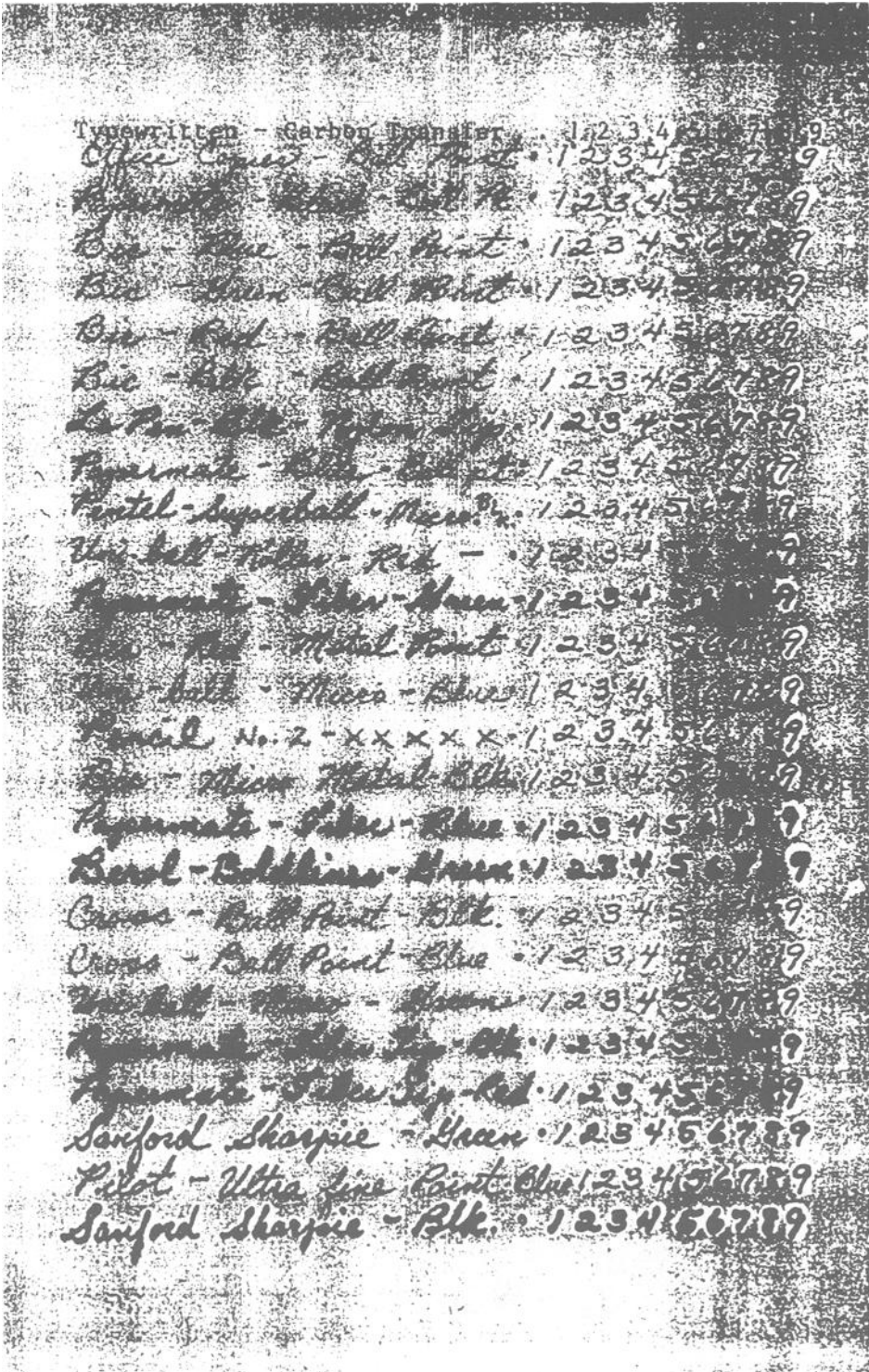


FIG. 4—Reversal of transparency.

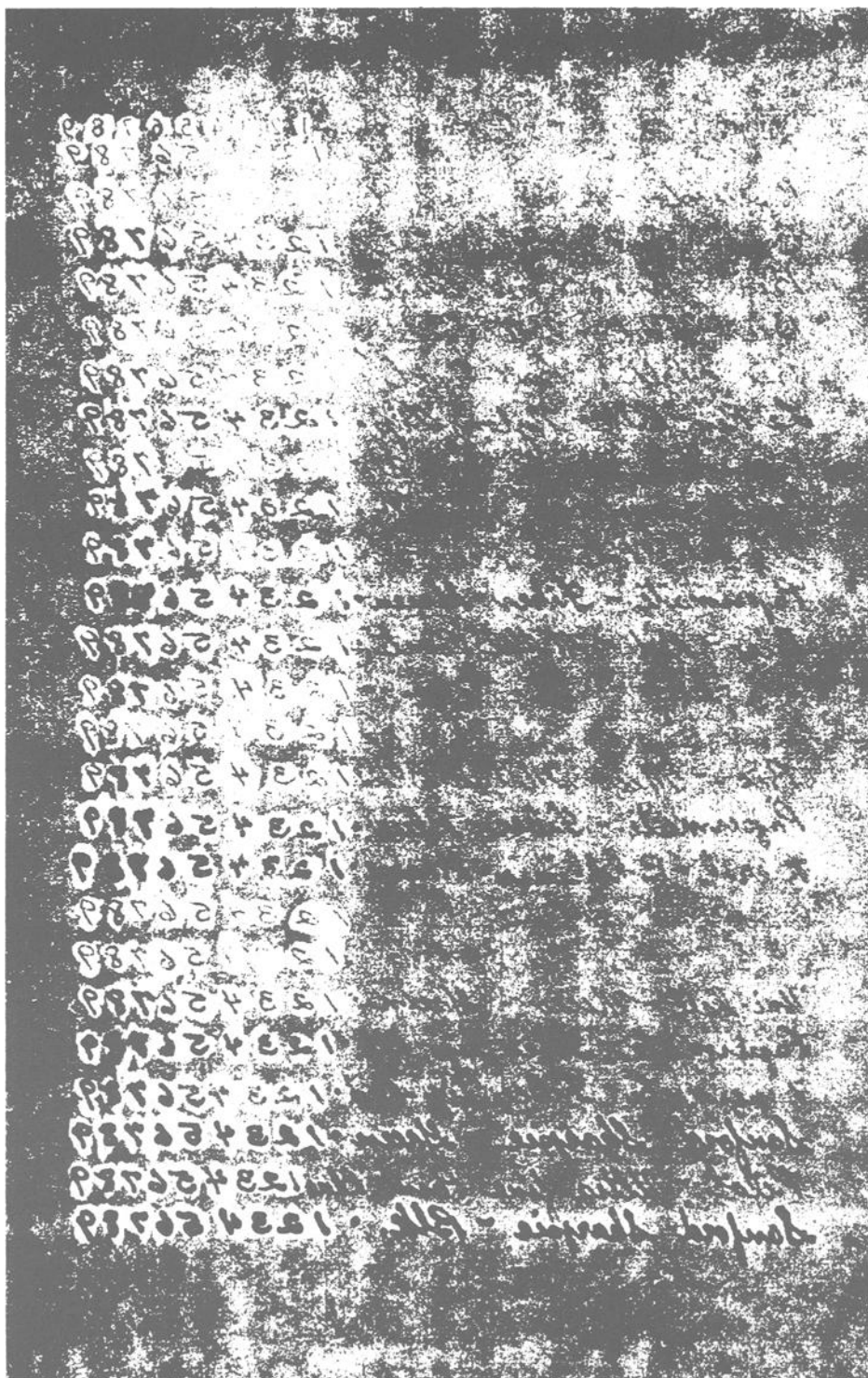
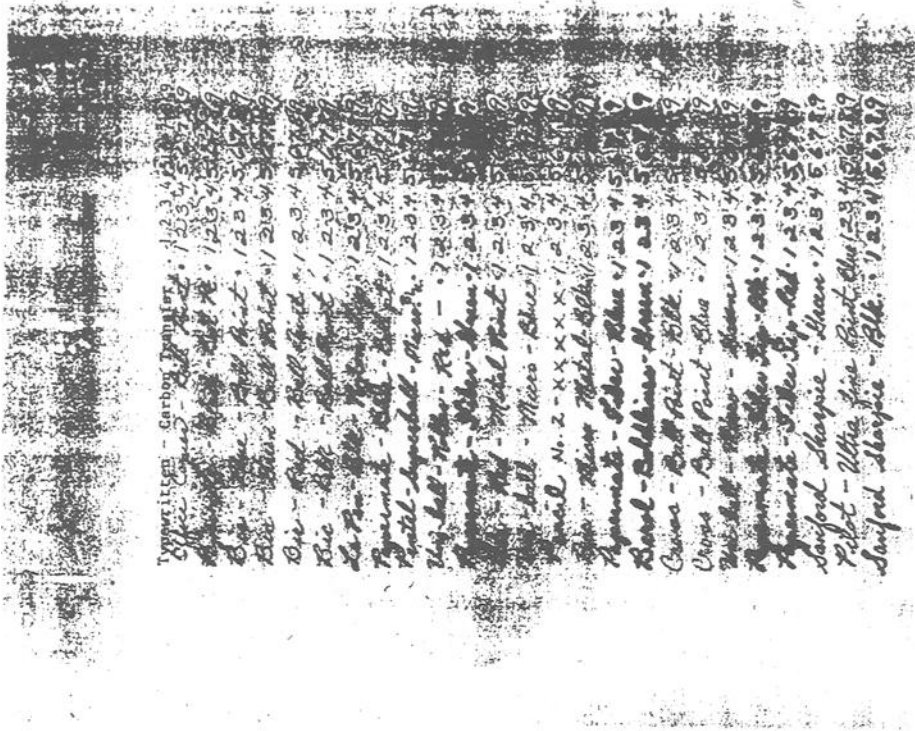


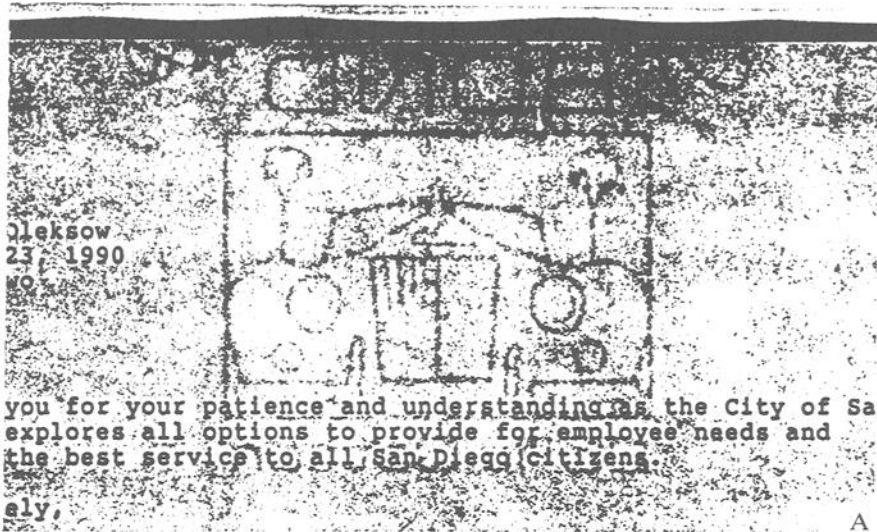
FIG. 5—Copy with black backing.



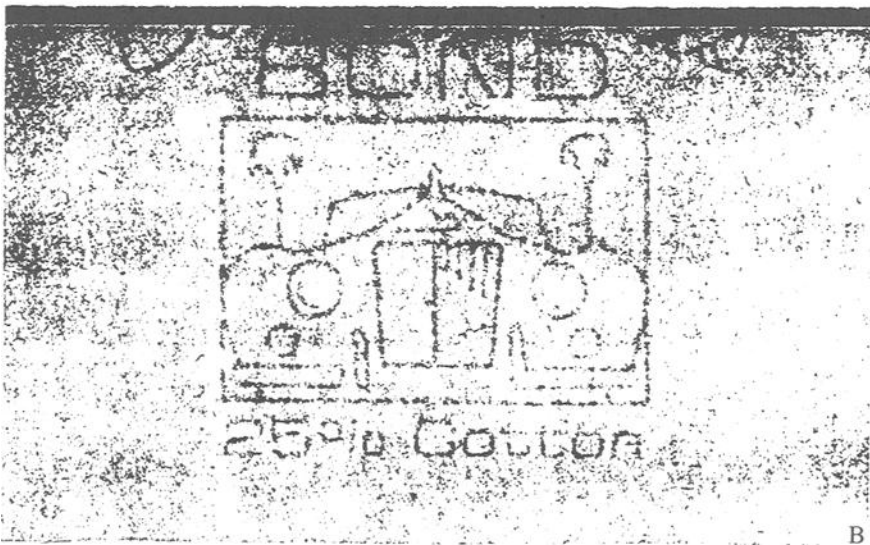
PHOTOCOPYING DECIPHERMENT

Typewriter - Carbon Transfer. *OOOooooooo*
 Office Copier - Ball Point. *OOOooooooo*
 Fountain - Blue - Ball Pt. *OOOooooooo*
 Bic - Blue - Ball Point. *OOOooooooo*
 Bic - Green - Ball Point. *OOOooooooo*
 Bic - Red - Ball Point. *OOOooooooo*
 Bic - Blue - Ball Point. *OOOooooooo*
 Le Pen - Blk - Nylon Tip. *OOOooooooo*
 Papermate - Blue - Ball pt. *OOOooooooo*
 Pentel - Superball - Micro. *OOOooooooo*
 Uni-ball - Roller - Red - . *OOOooooooo*
 Papermate - Fiber - Green. *OOOooooooo*
 Bic - Red - Metal Point. *OOOooooooo*
 Uni-ball - Micro - Blue. *OOOooooooo*
 Pencil No. 2 - XXXXX. *OOOooooooo*
 Bic - Micro Metal - Blk. *OOOooooooo*
 Papermate - Fiber - Blue. *OOOooooooo*
 Borel - Goldliner - Green. *OOOooooooo*
 Cross - Ball Point - Blk. *OOOooooooo*
 Cross - Ball Point - Blue. *OOOooooooo*
 Uni-ball - Micro - Green. *OOOooooooo*
 Papermate - Fiber Tip - Blk. *OOOooooooo*
 Papermate - Fiber Tip - Red. *OOOooooooo*
 Sanford Sharpie - Green. *OOOooooooo*
 Pilot - Ultra fine Point Blue. *OOOooooooo*
 Sanford Sharpie - Blk. *OOOooooooo*

FIG. 6—Side-by-side display.



FACE



REVERSE

FIG. 7—Watermark recording.

5. The process is swift and gives a working decipherment within minutes.
6. The transparency can be used in conjunction with the altered document for demonstration without explanation. (See Fig. 6)
7. The transparency does not record the writings above the opaque material.
8. The process works on all ink, pencil, typewriting, and copy-generated writings tested.
9. The process can be used to enhance faint and erased writings.

Limitations Noted

1. Multiple layered and overwritten writings are not as readily deciphered.
2. Thick or colored substrate materials can diminish results.

Expanded Usage

The described technique can also be utilized to record watermarks on certain papers. If typewriting on the document presents a problem in seeing details of the watermark, a black backing sheet will eliminate the obscuring material. (See Fig. 7A and 7B).

References

- [1] Waggoner, L. R., "Examination of Correction Fluid Obliterations," *Journal of Forensic Sciences*, Vol. 32, No. 2, March 1987, pp. 539-542.
- [2] Godown, Linton, "Faint Document Evidence Enhancement," presented at the meeting of the American Society of Questioned Document Examiners, Nashville, Tennessee, 1984.
- [3] Tytell, P. V., "It's All Done With Mirrors . . .," presented at the meeting of the American Society of Questioned Documents Examiners, Nashville, Tennessee, 1984.

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