TECHNICAL NOTE

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Counterfeits: Three Groups, One Source

REFERENCE: Morton, S. E., **"Counterfeits: Three Groups, One Source,"** *Journal of Forensic Sciences*, JFSCA, Vol. 29, No. 1, Jan. 1984, pp. 310-316.

ABSTRACT: A series of U.S. Postal Money Orders were determined to be counterfeits. They were separated into three distinct groups based on recurring printing defects. However, printing defects common to all of the counterfeits established that they shared a common source at some point in their production. The genuine money order used as a model was located and confirmed as the individual money order photographed to make the offset negatives used to print the counterfeits.

KEYWORDS: questioned documents, money orders, forgery

Counterfeit cases are not the daily bread of the document examiner. Those that do arise challenge the examiner's skills in several ways. Powers of observation are needed to distinguish genuine documents from bogus ones. Knowledge of printing and related photographic processes, the materials they require, and characteristics of the products they make allows the examiner to provide useful information to the investigator. Finally, the document examiner's thorough understanding of class versus individual characteristics comes into play in connecting counterfeit documents with each other and to their source.

Although the documents studied in this case are U.S. Postal Money Orders, the techniques and reasoning processes used can be applied to many types of counterfeit documents.

Materials

One-hundred-and-four U.S. Postal Money Orders suspected to be counterfeit are under consideration.

Genuine money orders for comparison are available from laboratory standard files. A genuine money order consists of a five-part, breakaway packet which contains a customer receipt, audit copy, and money order interleaved with two pieces of carbon paper. The serial number appears in the upper left corner as a carbon impression imprinted at the factory and at the lower center in magnetic ink optical character reader (OCR) characters. The money order itself is printed by an impact process that produces the characteristic ink squeeze of letterpress printing. When issued, the money order packet is placed in a credit card-type imprinter that

Presented at the 34th Annual Meeting of the American Academy of Forensic Sciences, Orlando, FL, 8-11 Feb. 1982. Received for publication 12 March 1983; revised manuscript received 22 April 1983; accepted for publication 29 April 1983.

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produces a carbon impression on the money order of a validation seal, date, post office number, and amount.

Problems and Observations

The first problem is to establish that the questioned documents are indeed counterfeits. As is usually the case, this proof is relatively easy. Although the documents present a very good appearance at first glance (Fig. 1), suspicions are aroused by the fact that all 104 money or-

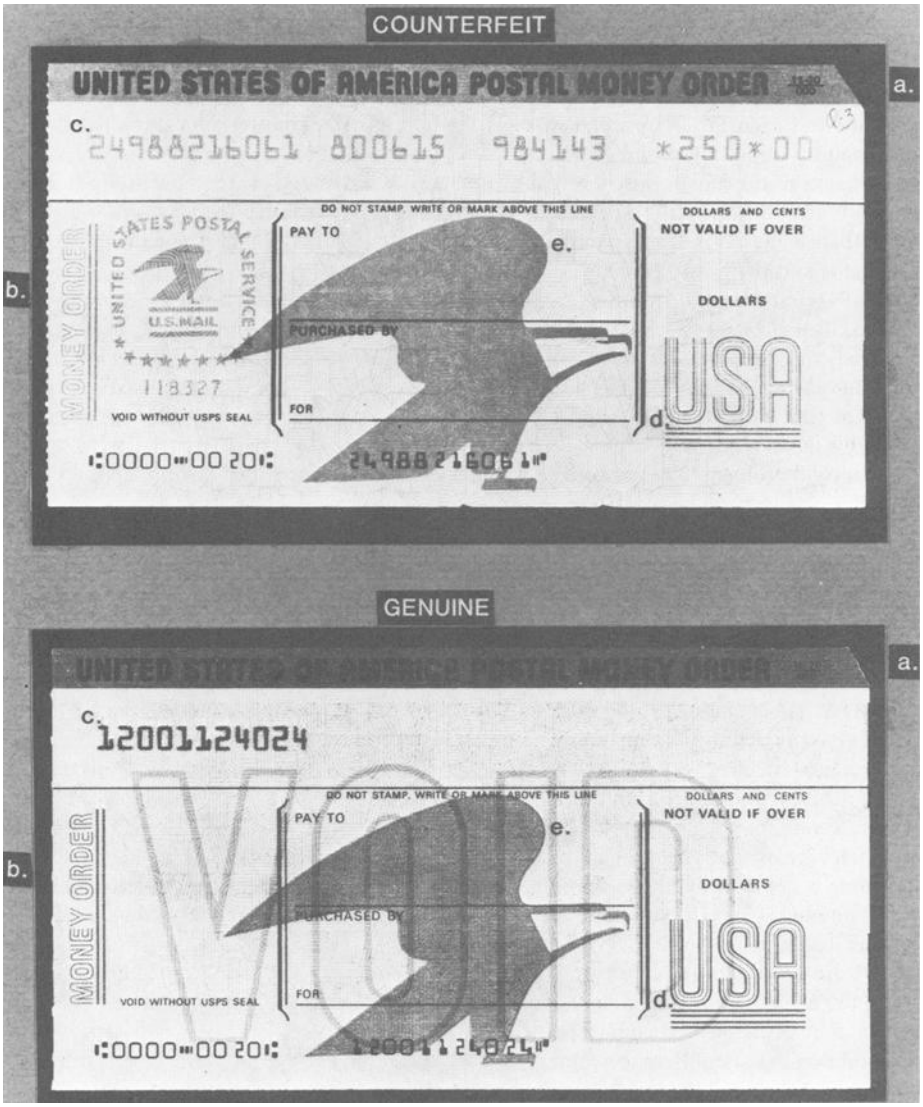

FIG. 1—*Genuine and counterfeit U.S. Postal Money Orders showing:* (a) *orders are not trimmed completely,* (b) *perforations are the wrong size,* (c) *carbon impression is the product of a dot screen printing process,* (d) *fine printed lines show a broken appearance, and* (e) *absence of ink squeeze is apparent along the margin of the eagle's wing.*

ders bear the same OCR character serial number. The paper is lighter weight and contains optical brighteners prohibited by Post Office specifications in genuine paper.

Most of the questioned money orders are not trimmed completely. Those that are show improper corner cuts (Fig. 1*a*).

Perforations are the wrong size (Fig. 1*b*).

Material that should appear as a carbon impression is the product of a dot screen printing process (Fig. 1*c*).

Fine printed lines show a broken appearance (Fig. 1*d*).

Most damning of all perhaps is the fact that the questioned documents were printed by a planographic rather than impact method. Absence of ink squeeze is apparent along the margin of the eagle's wing (Fig. 1*e*).

The background reading "YOUR POSTAL SERVICE" is made of bits and pieces spliced together. Assuming that a properly issued genuine money order was used as a model, areas without overprinting suitable for obtaining background would be limited to two areas on the back: the endorsement block and a space at the bottom. The counterfeiter did a nice job of cutting and pasting, but a blue filter reveals his work (Fig. 2).

The backs of the money orders reveal two major discrepancies: (1) the background, again spliced, is upside down with respect to the printed text and (2) the printed text itself was reset, rather than being reproduced photographically. It is much larger than the text on genuine documents and the word "face" is not italicized.

The 104 questioned money orders are thus established as counterfeit. Their good quality suggests a skilled perpetrator with access to sophisticated photographic and printing equipment.

Indeed, these criteria describe the subject under investigation, who was a recent parolee from Chino State Prison where he had been a star student in the well-equipped vocational print shop. The time element suggested that if he had, in fact, printed the counterfeits, it was done during his incarceration.

The second problem to be considered is to associate these counterfeit documents with each other.

A number of printing defects do indicate a common source. The second "S" in "STATES" has a squared off top and the lower inside curvature is partly filled in. There is a defect in the eagle's beak, as well as a number of irregularities in the black line printing, which will be discussed in greater detail shortly.

There are, however, a number of differences among the counterfeits. They fall into three distinct categories, each containing approximately the same number of documents. The first group has a defect in the "O" of "ORDER" and a small irregularity in the eagle's tail. Most of the counterfeits lack the issuing numbers across the top. Those in this group that do have those numbers bear the date "801005" (5 Oct. 1980), the post office number "974143," and there is a gross defect of the asterisk preceding the amount.

The second group is distinguished by a defect in the first "A" of "AMERICA," one in the upper left area of the eagle's wing, and one at the back of the eagle's foot. The black line cutting guide is not continuous on the upper right-hand side. Documents in this group having issuing numbers bear the date "800925" (25 Sept. 1980) and the post office number "976543" with the defect in the "6."

The third group has a squared off "U" in "USPS" under the validating seal and a gross defect in the eagle's ankle. Documents bearing issuing numbers are dated "800615" (15 June 1980) and bear the post office number "984143."

In addition to these differences, the money order faces in each group have slightly different backgrounds. Some of the same word fragments are seen, but they are assembled in different sequences.

The common defects are sufficient to establish that all 104 money orders share a common source at some point in their production. However, explanations for the existence of the three groups must be considered as well. There are two possible reasons. The first is that the money orders were printed at three different times. The plates would have borne the common defects,

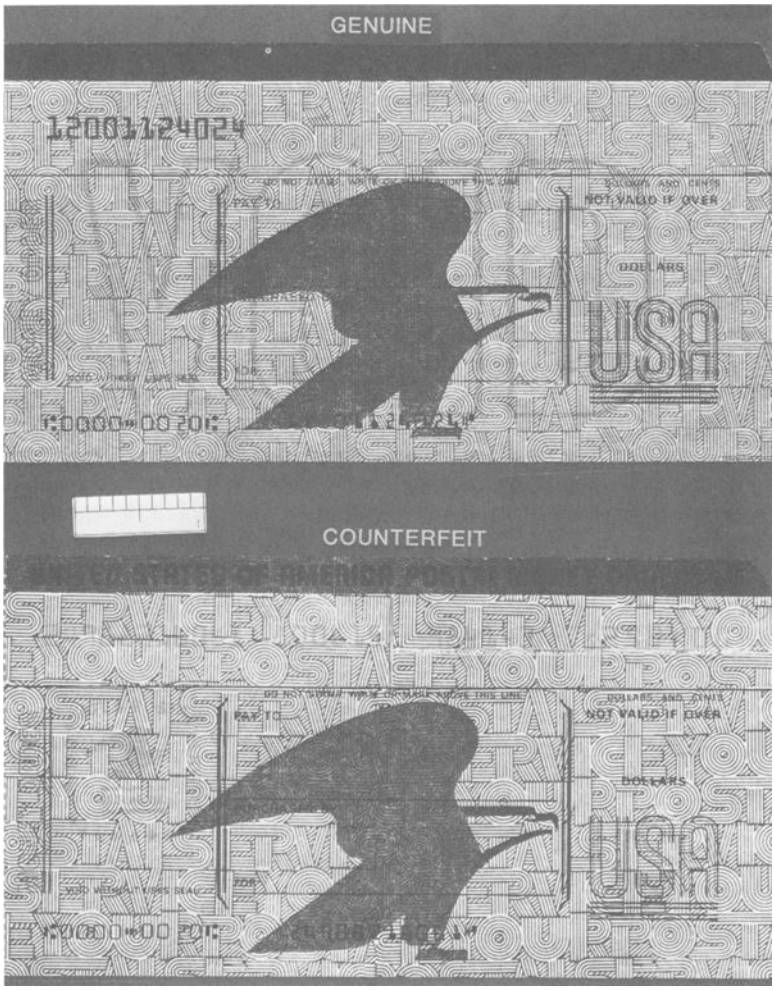

FIG. 2—*A blue filter reveals the background reading* "YOUR POSTAL SERVICE" *is made of bits and pieces spliced together.*

with somewhat random defects appearing on each of the three occasions the plates were placed on the presses and used for printing. This explanation, however, does not account for the three individually prepared backgrounds. The counterfeiter would have had no reason to do all of that extra cutting and pasting when one plate could have produced the backgrounds on all three sets of money orders.

A more likely explanation is that each plate contained three images. The presensitized printing plates are quite large enough to accommodate three money order images. The common defects could be present on the original item being photographed or they could occur in the initial photographic process. Thereafter, these defects will be present in any image produced from those photographic products. Random defects could easily occur in later photographic processes; such defects would be peculiar to progeny of these later photographic processes. A background would be needed for each image. This method must have had some appeal to an individual who was conducting a necessarily furtive operation. While it does increase preparation time, the length of the press run is much reduced. Preparation can be car-

ried out in dark corners, even outside the print shop, but running the press must be done in the open. The longer the press runs, the greater the risk of detection.

In either case, the defects common to all of the money orders establish a common source. The next problem is to associate the counterfeit money orders with their source. This can be accomplished in one of two ways:

(1) by associating them with materials found in the print shop or
(2) associating them with the genuine model money order from which the offset negatives were made.

A search of the print shop revealed inks and paper similar to the counterfeits. The cameras and printing equipment are of the type used to print the counterfeits. However, the printing plates could not be found. Thus, no unique association between counterfeits and print shop could be established. The genuine U.S. Postal Money Order bearing the serial number found on the counterfeits was obtained from Post Office files. It had been purchased by the star printing student's aunt, was payable to him, and had been sent to the prison by her approximately one year before her nephew's release on parole.

In considering this document as the candidate model for the counterfeits, its unique features must be isolated from features that would appear on other genuine money orders. These individual features are the serial number and the aunt's handwriting filling the Pay To and Purchased By blocks. Since these features are in black, they can be reflected only in the black printing on counterfeits. Thus, for purposes of this examination, the background and other printing will not be considered.

The OCR serial number at the bottom center is printed by a sequencing device whose numbers advance somewhat like an odometer. Horizontal alignment is well fixed, but vertical alignment may vary. Indeed, the suspected model money order shows such malalignment of the last four digits. This same malalignment is evident in all 104 counterfeit money orders (Fig. 3).

The handwriting on the model crosses or touches the black line printing in four places. As the handwriting is black, it cannot be removed by filters and would appear on the photographic negative. To remove this writing, it would be necessary to apply opaquing material to the negative. This opaquing presents no difficulty, except where the writing touches or crosses the desired black line printing. Irregularities will occur at such intersections.

Examination of the counterfeits reveals that their black line printing does show irregularities in places exactly corresponding to intersections of handwriting and line printing on the model (Fig. 3).

Measurements to the ends of the lines and among the irregularities are exactly the same as corresponding measurements on the model money order. These are individual features that could only be caused by writing which crosses the lines in these places and no others.

The counterfeits also show some irregularities in the black printing not associated with handwriting on the model money order. These irregularities are associated with the location of the eagle on the model. On the counterfeits, the eagle is displaced to the right with respect to the black brackets. The darker black lines on the counterfeits are located on the left of the eagle by the same distance. The left bracket crosses the eagle's wing at a wider point on the model, and so makes an irregularity wider than the eagle's wing at the point of crossing on the counterfeit (Fig. 3). These are not individual features and so do not lend weight to the association of the counterfeits with the model. However, this does explain their presence so that they do not detract from such an association.

Conclusions

The 104 questioned money orders are counterfeits. Despite the fact that they comprise three distinct groups based on printing defects, they do share a common source. Considering the

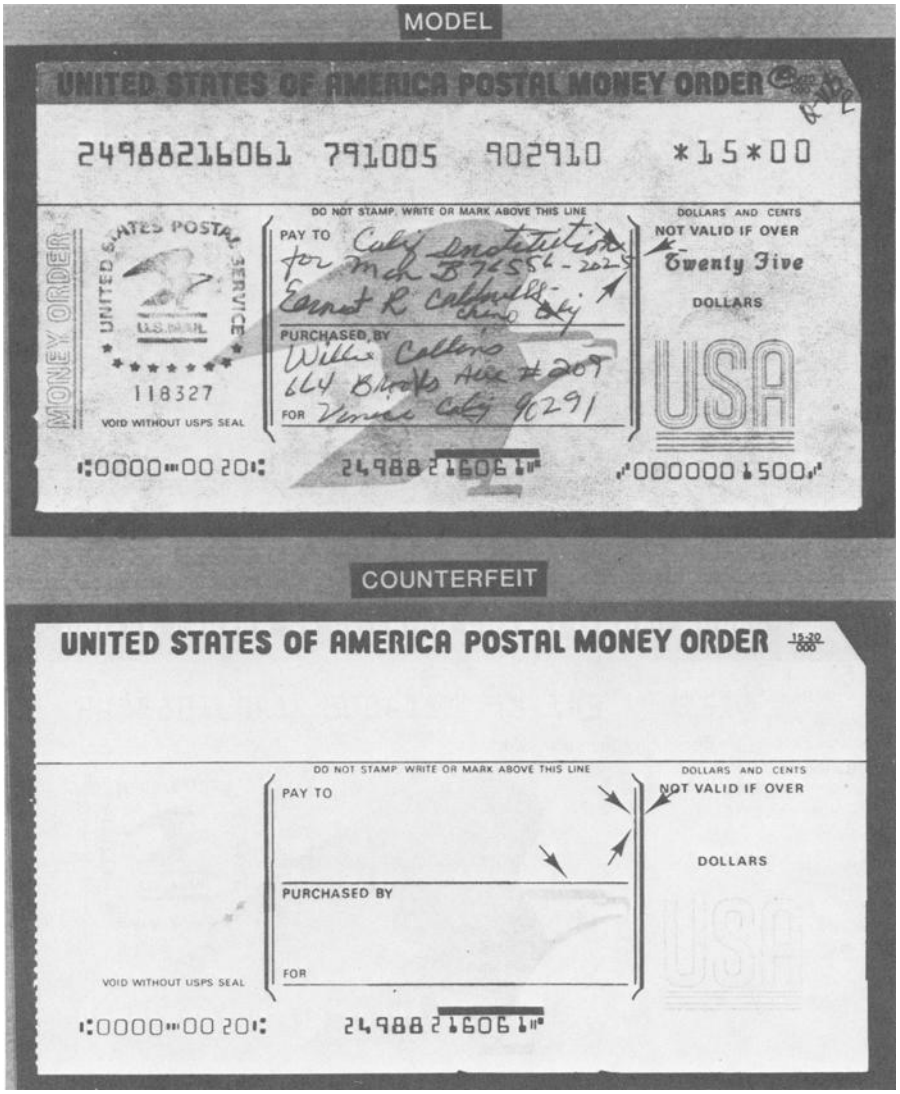

FIG. 3—*The suspected money order shows malalignment of the last four digits of the OCR serial number at the bottom center and the black line printing shows irregularities in places exactly corresponding to intersections of handwriting and line printing on the model.*

serial numbers with malalignments and the irregularities corresponding to handwriting/black line intersections, the counterfeit money orders can be associated with the genuine U.S. Postal Money Order from which a photo-offset negative was made to print them.

Summary

Careful observation and evaluation can elicit extremely useful information from counterfeit documents. Facts about the methods and materials used to produce them can be discovered. They can be proved to have a common source and associated with that source. The examiner

must be careful not to confuse individual and class characteristics and must not be misled by apparent differences.

Acknowledgment

The author wishes to acknowledge the assistance of Mr. Martial Lester, Vice President-Technical Director of the Jeffries Banknote Co., and to express gratitude for his helpful suggestions and insights.

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