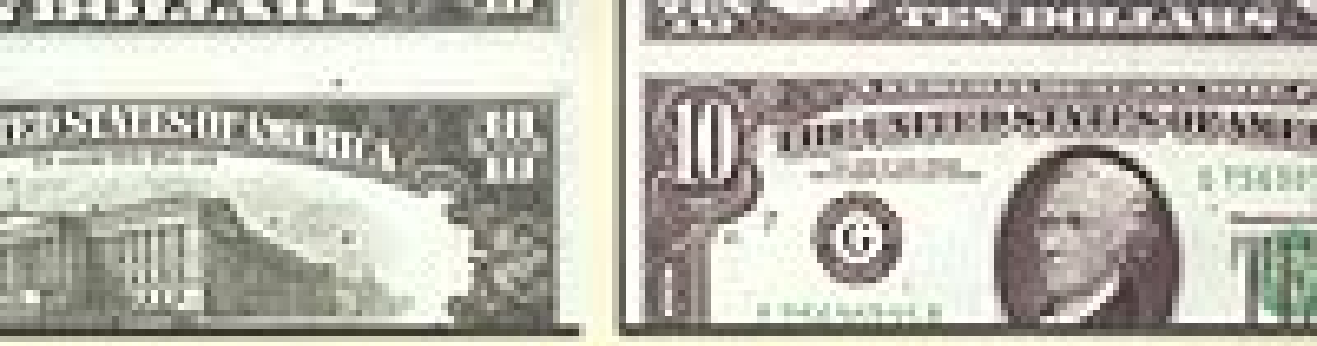
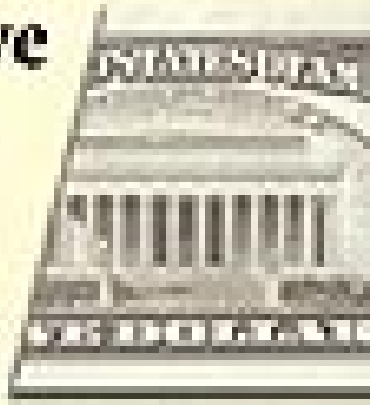


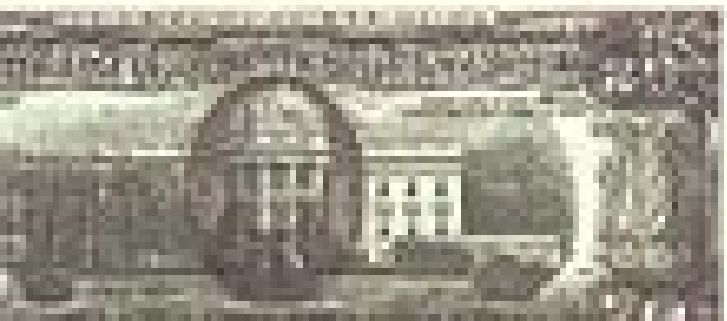
2nd Edition

United States Paper Money Errors

A Comprehensive Catalog & Price Guide

Dr. Frederick J. Bart





2nd Edition

United States Paper Money Errors

A Comprehensive Catalog & Price Guide

Dr. Frederick J. Bart

Published by

700 East State Street • Iola, WI 54990-0001
715-445-2214 • 888-457-2873
www.krause.com

Please call or write for our free catalog of publications.
Our toll-free number to place an order or obtain a free catalog is 800-258-0929 or please use our regular business telephone 715-445-2214.

Library of Congress Catalog Number: 2002113155
ISBN: 0-87349-598-5

Printed in the United States of America

Mistakes are a fact of life.
It is the response to the
error that counts.

— *Nikki Giovanni*

Table of Contents

Two roads diverged in a wood, and I
took the one less traveled by, and that
has made all the difference.

— *Robert Frost*

Preface

The popularity of United States paper money errors has undergone an unforeseeable explosion since the publication of the first edition in 1994. Error notes—moderately pursued for decades—have become one of the foremost targets for collectors. Numerous people have credited the first edition as being a catalyst in the popularity surge. Concomitant with the tremendous increase in demand has been a significant escalation of prices, especially for exotic mistakes.

Error notes continue to carve a larger niche within paper money collecting. Once relegated to a second class status, important collections now receive appropriate pedigree recognition when auctioned; as sales of the Ray Burns holdings (Currency Auctions of America) and Frederick J. Bart assemblage (Lyn F. Knight Auctions) attest. Rather than depress prices or interest, sales of quality material serve to stimulate enthusiasm and intensify competition among collectors.

This volume reflects ongoing research which began in the early-1980s. The preface to the first edition stated "...[previously] no detailed or unified text existed...this specialized field of paper money not only deserved but required a reference work..." As the past nine years have proven, that premise remains true.

F.J.B.
Roseville, Michigan
January, 2003

There are two ways of spreading light:
to be the candle, or the mirror that
reflects it.

— *Edith Wharton*

Acknowledgments

A pioneering work of any magnitude requires the assistance of numerous persons to achieve fruition. The first and second editions of this book offer no exceptions.

The author graciously acknowledges the significant contributions by Harry E. Jones of Cleveland, Ohio. His input, throughout the years, influenced a final product more thorough and accurate. He shared his knowledge, ignited my enthusiasm, and loaned his inventory. Harry E. Jones is truly the "Dean of Paper Money Errors." I am fortunate to be his student.

The photographs and data, especially concerning mismatched serial numbers and inverted overprints, appear tremendously more complete because of the generous assistance of Robert Azpiazu of St. Augustine, Florida. He has extensively studied and collected errors involving the third printing process.

Dennis Ciechna provided the historical newswire photographs containing United States paper money, which appear throughout the book.

Fred Schwan guided the concept of a monograph on United States paper money into the first edition of this book. His support made a dream become reality.

Countless numismatists made particular contributions to the first and second editions of this book. We extend our gratitude to:

Michael J. Abramson
Gregg Anderson
Willy Baeder
Aubrey Bebee (deceased)
Dave Berg
Joseph E. Boling
Carl Bombara
Q. David Bowers
Glen C. Burger
Ray Burns
Gene Christian
A. P. Cyrgalis
Thomas Denly
Michael Devlin
Dr. Gregory V. Dubay
Tom Durkin
Keith Edison
Lawrence Falater
Lawrence C. Feuer
Kevin Foley
Dennis Forgue
Harry Forman
William Gibbs
Donald Gilletti
Len Glazer
James Gunnis (deceased)
Gene Hessler
Donald Hitchcox (deceased)
Lowell C. Horwedel
Peter Huntoon
Terry Jinright
A.M. "Art" Kagin
Dr. Donald Kagin
Dr. Don C. Kelly
Lyn F. Knight
David Koble

Robert Kolasa
Robert Kravitz
Ed Kuzmar
Christopher LaBarre
George LaBarre
J. L. Laws
A. C. "Art" Leister
Dr. Daniel J. McCarthy
Charles McGinnis
Rocky Manning
Vin Marotta
Jim Martin
Richard Merlau
Allen Mincho
P. S. Mullen
Dr. Richard J. Noble
Dean Oakes
Chuck O'Donnell (deceased)
Michele Orzano
V. H. "Ossie" Oswald, Sr.
Tom Parr
Michael Payton
Alex G. Perakis
Stephen Perakis
Michael Polizzi
Lou Rasera
William Reulbach (deceased)
Kent Robertson
John N. Rowe, III
Fred Rubenstein
Jeff Rubenstein
Sergio Sanchez, Jr.
Joe Sande
Hugh Shull
James Simek
Richard Spieske
Steven M. Sullivan
Michael Tauber
Katy Thamert
Graeme Ton, Jr.
Daniel Tsao
Raymond Wasosky
Mark Weglarski
Fred Weinberg
John Whitney
Robert Wood

Personnel from the Bureau of Engraving and Printing provided invaluable assistance. Cecelia Hartfield, curator of its historical research center, Antoinette Perry, and Herbert C. Wheelock, Jr. offered information, illustrations, and insight into the production of paper money.

The author acknowledges with gratitude the permission extended by the Coin and Currency Institute, Inc. to use the Friedberg numbering system. The abbreviation "Fr-" indicates Friedberg numbers from *Paper Money of the United States*. Further, I appreciate the permission granted by Krause Publications to incorporate the Krause-Lemke numbering system. "KL-" denotes Krause-Lemke numbers from the 20th edition of the *Standard Catalog of United States Paper Money*.

A hundred times every day I remind
myself that my inner and outer life
depends on the labors of other men,
living and dead, and that I must exert
myself in order to give in the same
measure as I have received and am
still receiving.

— *Albert Einstein*

Dedication

To God, from whom all blessings flow. Throughout my lifetime, I have been showered with undeserved blessings beyond comprehension. Of these, my family has proven to be the greatest. Heaven sent me angels disguised as family members.

Specifically, I dedicate this book to:

my children, Frederick Peter Bartolomei,
Bianca Blair Bartolomei, and
Candace Lynn Bartolomei,
who remain the greatest blessings of my life;
they have individually and collectively provided
a genuine understanding of unconditional love;

my wife, Doris Ann Bartolomei,
who forever enhanced my life and changed my destiny;

my parents, Dr. Margaret Bartolomei and Peter Bartolomei,
who covered me with grace and provided inspiration
from infancy through adulthood;

my brother, Edward John Bartolomei,
who guided me through stormy seas when I was
unable to navigate myself;

my stepson, Daniel Lee Smith,
who showed me families can transcend bloodlines;

my grandparents, Fred "Dodo" and Mary "Nina" Colombo, and
Alphonsina "Nona" Bartolomei,
who exerted greater influence than any of them
realize; and

The previous collectors and dealers of United States paper money errors,
who possessed the foresight and consideration to
preserve their specimens for our enjoyment.

No inquisitive mind will be
content to be ignorant.

— *Thomas Jefferson*

Foreword

Thirty-odd years ago when I began buying and selling paper money errors, the fabled Albert Grinnell sales were a distant event. In fact, the dispersal of the fantastic James Wade material was only moderately fresh in the sharpest of minds. Although there was an active market for United States currency, there was very little interest in paper money errors. Bernard Feinberg, the nation's youngest bank president, decided to pursue these oddities with a vengeance. He eventually amassed one of the largest holdings, filling several bank vault boxes. Not that other collectors didn't exist, but in most cases, errors were a merely sideline to their main collection. In time, that slowly changed.

Currency collecting has grown immensely over the past fifteen years. Collecting error notes has kept right in step. Fred's first book certainly contributed a lot to the growth. It wasn't too long ago that error notes were a "fill in" in auction catalogs, put there as an afterthought or to sell otherwise difficult to dispose of merchandise. Now, many times errors appear on the cover of a catalog and an auction may have 100-200 lots of high-quality error notes. Knowledgeable collectors have continued to widen the demand for paper money errors. This 2nd edition will certainly continue the trend by educating the collector with sound information and great illustrations. This edition helps explain the printing process and shows where errors can occur. This is a must-have, must-read book for every collector of currency errors. During the past thirty-some years, I've often thought about writing a book on paper money errors. For one reason or another, usually a lack of time, I never got the task completed. Now, there is no reason for me to write a book. Because, if I were to write one, it would certainly resemble the book in your hands. Fred has done a wonderful job and, in a sense, written the book I envisioned long ago.

HARRY E. JONES

Prologue

Go placidly amid the noise and haste, and remember what peace there may be in silence. As far as possible, without surrender be on good terms with all persons. Speak your truth quietly and clearly: listen to others, even the dull and ignorant; they too have their story.

Avoid loud and aggressive persons; they are vexations to the spirit. If you compare yourself with others, you may become vain and bitter; for always there will be greater and lesser persons than yourself. Enjoy your achievements as well as your plans.

Keep interested in your own career, however humble; it is a real possession in the changing fortunes of time. Exercise caution in your business affairs; for the world is full of trickery. But not let this blind you to what virtue there is; many persons strive for high ideals; and everywhere life is full of heroism.

Be yourself. Especially do not feign affection. Neither be cynical about love; for in the face of all aridity and disenchantment it is perennial as the grass.

Take kindly to the counsel of the years, gracefully surrendering the things of youth. Nurture strength of spirit to shield you in sudden misfortune. But do not distress yourself with imaginings. Many fears are born of fatigue and loneliness. Beyond a wholesome discipline, be gentle with yourself.

You are a child of the universe, no less than the trees and the stars; you have a right to be here. And whether or not it is clear to you, no doubt the universe is unfolding as it should.

Therefore be at peace with God, whatever you conceive Him to be, and whatever your labors and aspirations, in the noisy confusion of life keep peace with your soul.

With all its sham, drudgery, and broken dreams, it is still a beautiful world. Be careful. Strive to be happy.

— Desiderata

PART ONE

INTRODUCTION

MODERN PAPER MONEY PRODUCTION

CONDITION AND GRADING

VALUES

RELATIVE RARITY INDEX

RESOURCES AND REFERENCES

Yesterday is a cancelled check,
tomorrow is a promissory note,
but today is cash.

—*Mary Ellen Withrow*

Introduction

Paper money began during the Yung Hui period of the T'ang Dynasty in China around 650-655. However, the first collectible note originated with the Ming Dynasty in 1368-1399. The Chinese issued the 100 cash denomination shortly after conquering the Mongols and forcing their retreat. The issue proved so excessive that most was recalled and destroyed. Available specimens surfaced between the boards in an attic over a generation ago.

Errors in printing probably predate the earliest known book, the *Diamond Sutra*, accomplished in China about 868. The Chinese and Japanese utilized carved wooden blocks, to produce Buddhist charms, in the fifth century. In the 1100s, western Europeans initiated wood block printing to create playing cards and Christian illustrations. Leaflets and booklets printed from woodcuts contained predominantly pictures with limited words. These were painstakingly hand-copied.

The printing press evolved from the common wine press in the Rhine Valley region of Germany. Johannes Gutenberg, in 1440, introduced movable type, which facilitated mass production. The original Gutenberg press contained hand-set characters, cut in relief, within a wooden frame. The surface of the characters received ink, and the plate pressed against blank paper to impart an impression.

Printing technology evolved through the Renaissance era and Industrial Age increasing the efficiency of mass production. In London, England, *The Times*, a newspaper, initiated the use of a steam-powered press. Both the linotype and monotype machines, introduced in 1884 and 1897 respectively, facilitated typesetting. More recently, sophisticated software and advanced computers again revolutionized the speed and accuracy of mass production of the printed word and image.

The manufacture of United States paper money involves the application of an inked imaged onto currency stock. The paper undergoes multiple separate printing and cutting operations before its release as individual notes. Since the introduction of non-metallic currency, collectors have built holdings for artistic, historic, sentimental, and investment purposes. Such collections exemplify the finest in workmanship. A parallel—and perhaps more eclectic—group of collectors have amassed examples of paper money exhibiting accidental mistakes. Such collections demonstrate the unusual and offer insight into the printing and production sequence. Errors, misprints, oddities, freaks, or curiosities—regardless of the label—demonstrate a deviation from the intended finished product. Whether of human or mechanical causes, errors on paper money possess an appearance and appeal dissimilar to correctly printed notes.

From the inconspicuous and insignificant to the monstrous and magnificent, paper money errors span a cosmic spectrum. Ink smears and double denominations anchor opposite poles in the range. This text illuminates each distinct type of error on United States paper money via information, illustrations, and "behind-the-scenes" insights and incidents.

Courage is not the absence of fear,
but the mastery of it.

—Mark Twain

Modern Paper Money Production

A true appreciation of United States paper money errors requires at least a cursory understanding of modern currency production. Paper money is prepared at the Bureau of Engraving and Printing (BEP) in Washington, D.C. and its satellite Western Currency Facility near Fort Worth, Texas, which opened in 1991. A thumbnail examination of the sequence reveals that contemporary Federal Reserve notes (FRN) are printed via the dry intaglio method and completed on the currency overprinting and processing equipment (COPE or COPE-PAK).

The intaglio printing plates possess the skillfully engraved design incuse or etched below the surface of the steel plate. The intricate and masterful process deters counterfeiting, because the procedure creates an embossed or raised impression which proves difficult to duplicate. Under terrific pressure, the sheet of currency stock is forced and squeezed into the recessed portions of the plate to capture the inked design. Prior to the development of modern inks and with less sophisticated equipment, the sheets were dampened prior to printing. The softened paper became more pliable and thereby maneuvered into the incuse regions with greater ease. Today, with the advent of improved ink and equipment capable of sustaining greater tons of pressure, the wetting has been eliminated. Sheets are dry when contacting the printing plate. The dry intaglio method reduces paper shrinkage and design distortion.

The BEP presently utilizes fully automatic, high-speed, sheet-fed currency presses that produce nearly 10,000 sheets per hour. Two presses operate in tandem, one press is responsible for generating back designs; the other simultaneously creates face printings.

The Bureau blends dry colors, oils, and extenders in exact proportions to arrive at an ink, which is virtually impossible to duplicate outside of government facilities. To minimize variation and ensure that all paper money matches in color and texture, each batch of ink undergoes extensive laboratory testing prior to use.

Red and blue threads or fibers are embedded into the 75 percent cotton and 25 percent linen paper specially manufactured by Crane and Company of Dalton, Massachusetts. Under contract, the firm has supplied the Bureau with distinctive paper since 1879.

Since the series of 1990, a polymer security thread runs vertically within the substance of the currency stock. The thread is an integral part of the paper. Visible from both the front and back of the note, when held to a light source, the thread contains the denomination in numerical format alternating with the abbreviation USA. The polymer security thread feature appears on denominations between $5 and $100. Additional anti-counterfeiting measures, initiated with the series of 1990, include micro-printing surrounding the portrait oval and magnetic ink in a checkerboard pattern across the face as part of the second print.

Effective with the redesigned Federal Reserve notes (FRN)—which began with the series of 1996 $100 denomination—a watermark appears near the right end of the front. This feature appears on denominations between $5 and $100.

The watermark reproduces the portrait image. The watermark appears invisible, until the note is held to a light source. An additional anti-counterfeiting measure incorporates the use of color-shift ink in the lower-right corner of the front. The ink rests atop an elevated, crosshatched image of the numerals corresponding to the denomination. The ink appears to change color from black to green when the note rotates 90 degrees.

Contemporary United States paper money progresses through three distinctly different printing phases, plus separate cutting operations. Errors may arise at, or between, any point in the production.

First (back) printing: Each sheet of currency stock accepts an impression from a 32-subject printing plate bearing the back design. The plate contains 32 separate back designs, with each imparting the same back plate check number. The sheet passes between the engraved plate and an impression cylinder under tremendous pressure. The sheet remains untouched overnight, permitting the green ink to fully dry, prior to advancing to the second (face) printing.

Second (face) printing: This consists of the black portion of the face common to every FRN. These standard portions include the portrait, intricate outer border design of geometric patterns, series designation, and the engraved titles and signatures of the Treasurer of the United States and the Secretary of the Treasury. Effective with the redesigned paper money, a universal Federal Reserve seal is applied with the second printing. This generic seal appears on denominations from $5 through $100. The universal seal no longer cites the city and state of the issuing Federal Reserve bank.

As they leave the second printing press, sheets are sliced into 16-subject half-sheets and are passed through two inspection stations. Prior to reaching the second station, mechanical arms flip over the sheets. Those passing inspection are trimmed to a standard size, piled into stacks of 10,000 half-sheets on pallets, and advanced to the COPE presses for the application of serial numbers and seal(s).

Third (over) printing: This final stage includes the non-intaglio printing on the front. This bi-color overprint imparts the green Treasury seal and the two sets of serial numbers. In some instances, the Treasury seal may be applied independently of the serial numbers. On the $1 and $2 denominations, the black portion consists of the Federal Reserve bank seal and corresponding district number. On the $5 through $50 denominations, an alphanumeric combination—situated beneath the upper-left serial number—indicates the issuing Federal Reserve bank. The currency overprinting and processing equipment contains built-in electronic and photoelectric sensors that interrupt the operation when it detects a mistake. This automated stage eliminates the need for additional BEP personnel.

After completing the COPE process, the half-sheets are stacked into piles of one hundred consecutively numbered bills. Each stack of one hundred is banded into a "pack." Forty such packs are compressed, strapped together, and sealed into a "brick" within plastic shrink-wrap. The bricks become packaged for shipment to, and distribution from, one of the 12 Federal Reserve banks or one of the 24 Federal Reserve bank branches.

Web notes: Although the sheet fed system again accounts for all paper money produced by the United States of America, in the recent past the BEP also uti-

lized web fed presses. The Alexander Hamilton web fed system was purchased from the Stevens International, Inc. at a cost of $12.5 million. The system yielded over 17,000 sheets per hour, *versus* the 8,000 sheets generated by the traditional method. The web-fed system drew a continuous roll of currency stock through a press that printed both the face and back of the note in a single pass. The printing plate was a chrome-plated, copper cylinder with 96 intaglio images. Overprinting was accomplished on the standard COPE equipment. The web presses printed a distinct subset of $1 FRN for the series of 1988-A, 1993, and 1995.

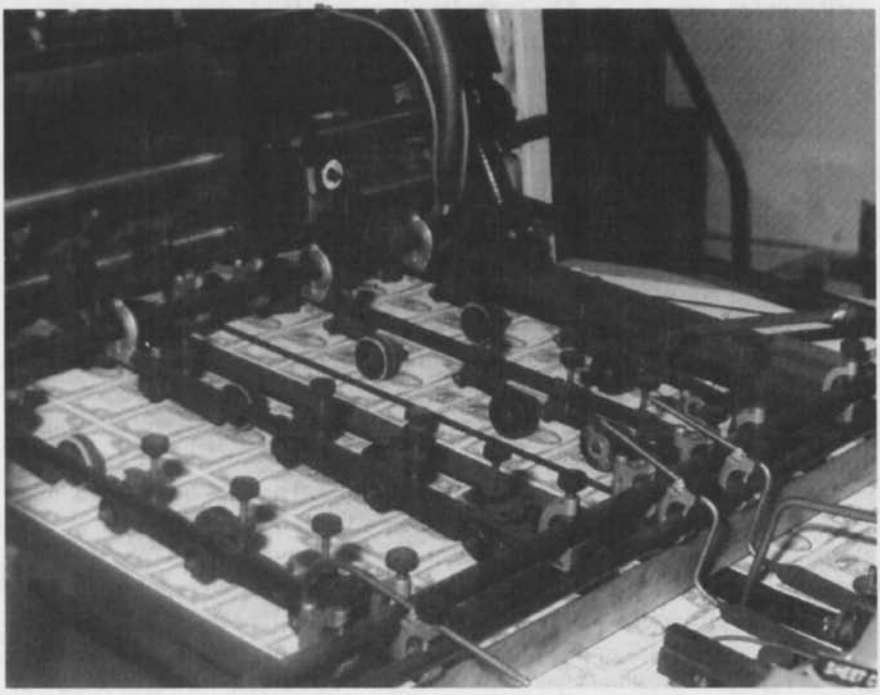
Notes printed on the web-fed press started in May, 1992 with the B-L block of the series of 1988-A. Delivery of the first web notes, to the Federal Reserve Bank of New York, occurred on June 15, 1992. Shortly thereafter, citizens began voicing complaints concerning the poorer quality products entering circulation. During a life span encompassing three series, host notes produced on web presses gave rise to 22 blocks including the series of 1988-A F-*. Although not intended to serve as star or replacement notes, 640,000 pieces were overprinted as such. Current estimates suggest that approximately 160,000 notes were released into circulation. The web fed press—criticized for inferior quality, crippled by mechanical problems, and fraught with an excessive spoilage rate (28 percent *versus* 6 percent on the sheet fed presses) was discontinued. In October, 1997 the BEP sold the press, after extracting the printing plates, for scrap metal value.

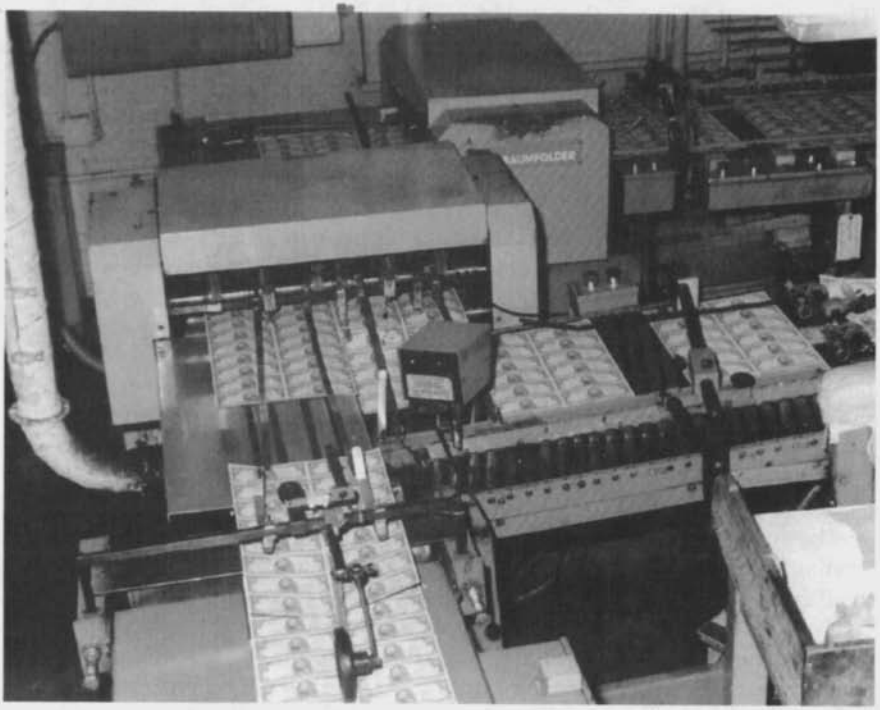
Minor variances differentiate web-fed notes from those produced on sheet-fed presses. The plate location check number was removed from the upper left of the front, as was the plate location check letter before the plate number at the lower right of the face. On the back, the check plate number was relocated from the lower right to alongside of the motto.

Future changes: As this book nears completion in 2002, several officials from the BEP confirm that designs on United States paper money will reflect a dynamic process. They indicate that additional design changes and anti-counterfeiting devices will continue, with major revisions likely in the foreseeable future.

Specifically, government officials indicate that four high profile artists received consulting fees and transportation expenditures to render input and opinions concerning future redesign efforts. The artists include: Leroy Neiman, Peter Milton, Lance Carlson, and Yvonne Pickering Carter. The primary focus of the consultants appears to provide insight into the designs generated by BEP personnel.

Although undecided, future designs on United States paper money might incorporate patriotic themes on FRN. Future design changes could encompass as many as ten individual processes to further enhance the anti-counterfeiting features. Such measures might include the use of a hot stamp press to apply foil overlays, coating machinery to apply invisible ultraviolet ink, and a screen press to impart a raised design atop the surface of the currency stock. Undoubtedly, numerous changes and refinements will occur prior to the forthcoming overhaul in designs. Concurrent with the changes will be the potential opportunity for heretofore-unknown varieties of errors.





The greatest thing in this world is not
so much where we are, but in what
direction we are moving.

—O. W. Holmes

Condition And Grading

The state of preservation will, to a certain extent, impact the desirability and consequently the value an error note commands. Values of the more readily available mistakes remain strongly influenced by the note's condition or grade. A "common" error—if any error on United States paper money rightly can be referred to as common—such as a minor ink smear or single gutter fold carries minimal premium above face value in a circulated grade. On the other hand, a substantially rarer variety such as a multiple printing or major printed fold will retain much of its premium, even if the note is no longer new. A double denomination in any grade would be much more welcome in nearly every collection than a stack of crisp uncirculated notes with minor errors.

The grading of paper money is a subjective art, not an exact science. As such, grading can evoke dispute and controversy but, seems important to some extent to all collectors. Although an exhaustive discussion of grading paper money precisely falls beyond the scope of this book, a brief review of the criteria for the most popular grades appears appropriate and necessary. The descriptions here are adapted from *The Comprehensive Catalog of U.S. Paper Money* by Gene Hessler and used with permission of the author and BNR Press of Port Clinton, Ohio.

Special considerations apply to the evaluating and grading of error notes. In particular, folds, tears, and other mishaps which create the error must be ignored in assigning a grade.

Crisp Uncirculated (CU). Notes qualify for the CU designation only when they remain in the same condition as issued. The paper must be firm and crisp. Any indication of mishandling, counting marks, corner tip folds or corners no longer sharp and square must be mentioned in the description.

About Uncirculated (AU). Notes that appear to be in crisp uncirculated condition but, after close examination reveal minute signs of handling. These findings might include a center fold.

Extra Fine (EF). Notes in this condition will still be crisp. There will be evidence of handling, such as minor creases and folds. Corners begin to lose their squared edges. Traditionally, three folds define this grade.

Very Fine (VF). Notes with moderate circulation that retain some crispness but, exhibit several folds and creases. Signs of handling should be anticipated. No tears on the edges are permitted. The corners begin to assume a rounded appearance.

Fine (F). Notes which begin to feel soft or limp typify the grade. The paper demonstrates countless folds, creases, smudges, minor edge tears, and colors that are starting to fade.

Very Good (VG). Notes which are heavily circulated often grade very good. These pieces may contain tears, thick or extensive smudges, faded colors, and heavy creases or folds. These creases or folds might cause a separation of the paper in the center of the note. Notwithstanding the folds, the note must be intact.

Good (G). Notes in this condition will exhibit blemishes as described for the condition of VG, only more severe. Corners of the note might be missing from wear.

Whatever the struggle, continue
the climb; it may be only one step
to the summit.

— *Diane Westlake*

Values

The value of an error note reflects several factors: its condition, relative rarity, eye-appeal, popularity, denomination, and availability. Estimates are provided for the grades of fine, extra fine (EF), and crisp uncirculated (CU). It appears unnecessary to provide value guidelines for each level of CU. In those instances where a value is omitted, the error remains generally unknown in that particular state of preservation. Where illustrated notes are unique or nearly so, such designators appear rather than hypothetical valuations.

In many situations—particularly on the fractional currency, large-size notes, and national currency illustrated—arriving upon a reasonable estimate proved problematic. Such mistakes appear for sale so infrequently that on most occasions the previous sales record is shattered in response to an ever-increasing demand against a fixed supply within a dynamic market.

The value estimates throughout this book follow careful analysis of auction sale records, private transactions, dealers' advertisements and price lists, internet auction sales, consultation with prominent collectors and dealers, and the author's intimate involvement in the field of paper money errors for twenty-plus years. The values reflect the current marketplace at the time of publication.

A man's dreams are an index
to his greatness.

— Zadok Rabinowitz

Relative Rarity Index

The relative rarity index, developed by the author and initiallypresented in the first edition, places errors on small-size Federal Reserve notes (FRN) and silver certificates (SC) into nine separate categories. An updated and refined index appears here.

The groups—each identified by a relative rarity [R] number—are arranged from R-1, the most common, through R-9, the extremely rare. Unlike most rarity rating systems, which rank items according to the number of pieces hypothesized to be in existence, the following table provides a relative scaling of errors. The mistakes in a given rarity category are of similar scarcity. In this instance, errors are relatively rarer than those in the preceding (lower) R groups and relatively commoner than those in the succeeding (higher) R groups.

After examining literally thousands of major and minor mistakes on small-size notes, during a twenty-year timeframe, the author believes that errors appear with comparable frequency on FRN and SC. The relative rarity index was formulated with this consideration in mind. Errors on fractional currency, large-size notes, and other classes of small-size paper money (national currency, Federal Reserve bank notes, gold certificates, and United States notes) appear too sporadically to be meaningfully included in the guide. Similarly, the relative rarity index only reflects the status of regular issue notes. Star or replacement notes, because of their limited production, $2 FRN, and notes produced on the web press move into the next higher R group. Two-dollar replacement notes move up two groups; likewise, one-dollar web note stars. However, in no case may a rarity greater than R-9 be assigned.

R-1
gutter or interior fold, single
ink smear, small
offset, partial
overprint shift, minor
partially turned or rolled digit

R-2
face on back offset, complete
faulty alignment, minor
ink smear, moderate
insufficient ink overprint, single digit
overprint shift, moderate

R-3

back on face offset, complete
board break, small
gutter or interior fold, large or multiple
insufficient back ink
obstructed print, small or moderate
overprint shift, one color
partially turned or rolled block letter
solvent smear

R-4

board break, large or multiple
cutting error, minor
engraving errors: $1 1981-A back plate 129
$1 1985 back plate 129
$1 1995 micro 295 back plate
faulty alignment, moderate
ink smear, major
insufficient face ink
insufficient ink overprint, complete
overprint shift, major
mismatched serial numbers: $1 1957 G 54xx/G 55xx
$1 1957-B U 37xx/U 47xx
$1 1969 F 68xx/F 67xx
$2 1976 xx523 A/xx623 A
$5 1977-A L 44xx/L 45xx
missing color shift ink
missing district seal, series 1996 or later
missing magnetic ink, partial
missing overprint, one color
printed fold, minor
stuck digit

R-5

cutting error, moderate
inverted overprint, Type I
inverted overprint, Type II
mismatched serial numbers (other than those in R-4)
missing magnetic ink, complete checkerboard pattern
obstructed print, major or multiple
overprint on back
printed fold, moderate
stuck block letter
transposed currency stock

R-6
cutting error, major
double print, partial
faulty alignment, major
inverted "back," Type I
mismatched block letters, including $2 1976 H-A/B-A
missing first print (blank back)
missing overprint

R-7
double or multiple first print
double or multiple second print
inverted "back," Type II
inverted block characters
overprint offset on back
printed fold, major

R-8
double or multiple third print
end of roll error
engraving errors (other than those listed in R-4)
missing second print
overprint on back, inverted

R-9
defective paper stock
double denomination
identical serial numbers; same denomination, series, block
mixed denomination set
obstructed print with retained fragment
pre-printed stock
printed scrap
wrong stock error

The empires of the future are
empires of the mind.

—*Winston Churchill*

Resources And References

Auction Houses

The following firms frequently sell paper money errors via public auction:

Bowers and Merena, P.O. Box 1224, Wolfeboro, New Hampshire, 03894

Currency Auctions of America, P.O. Box 700, Spicewood, Texas, 78669

Early American History Auctions, P.O. Box 3341, LaJolla, California, 92038

Lyn F. Knight, P.O. Box 7364, Overland Park, Kansas, 66207

R. M. Smythe, 26 Broadway, New York, New York, 10004

Spink America, 55 East 59th Street, New York, New York, 10022

Stack's, 123 West 57th Street, New York, New York, 10019

Periodicals

The following journals occasionally publish articles of interest to the collector of paper money errors:

Bank Note Reporter, Krause Publications, 700 East State Street, Iola, Wisconsin, 54990

Coin World, Amos Press, P.O. Box 150, Sidney, Ohio, 45365

Numismatic News, Krause Publications, 700 East State Street, Iola, Wisconsin, 54990

Paper Money, Society of Paper Money Collectors, P.O. Box 793941, Dallas, Texas, 75379

The Numismatist, American Numismatic Association, 818 North Cascade, Colorado Springs, Colorado, 80903

References

Bart, Dr. Frederick J., *Comprehensive Catalog of United States, Paper Money Errors.* BNR Press, Port Clinton, Ohio, 1994.

DeLorey, Thomas and Reed, Fred, *Price Guide for the Collector of Modern United States Paper Money Errors.* Amos Press, Sidney, Ohio,1977.

Donlon, William P., *United States Large Size Paper Money 1861 to 1923.* 6th Ed., Kagin's, Inc., Des Moines, Iowa, 1979.

Friedberg, Milton R., *The Encyclopedia of United States Fractional and Postal Currency.* NASCA, Long Island, New York, 1978.

Friedberg, Robert, *Paper Money of the United States.* 15th Ed., Coin and Currency Institute, Clifton, New Jersey, 1998.

Hessler, Gene, *The Comprehensive Catalog of U.S. Paper Money.* 5th Ed., BNR Press, Port Clinton, Ohio, 1993.

Huntoon, Peter and VanBelkum, Louis, *The National Bank Note Issues of 1929-1935.* Society of Paper Money Collectors, 1973.

Kelly, Don C., *National Bank Notes A Guide with Prices.* 3rd Ed., Paper Money Institute, Inc., Oxford, Ohio, 1997.

Krause, Chester L. and Lemke, Robert F., *Standard Catalog of United States Paper Money.* 19th Ed., Krause Publications, Iola, Wisconsin, 2000.

Kvederas, Bob Jr. and Kvederas, Bob Sr., *The Alexander Hamilton Web-Fed Press.* RAK Ink, Titusville, FL, 1998.

Murray, Doug, *Handbook of United States Large Size Star Notes.* BNR Press, Port Clinton, Ohio, 1995.

O'Donnell, Chuck, *The Standard Handbook of Modern United States Paper Money.* 6th Ed., Harry J. Forman, Inc., Philadelphia, 1977.

O'Mara, Tom, "Fractional Currency Inverts" in *Paper Money,* Society of Paper Money Collectors, 208:99, 2000.

Oakes, Dean and Schwartz, John, *Standard Guide to Small-Size U.S. Paper Money 1928 to Date.* rd Ed., Krause Publications, Iola, Wisconsin, 1999.

Rothert, Matt, *A Guide Book of United States Fractional Currency.* Whitman Publishing Co., Racine, Wisconsin, 1963.

Schwan, Fred, *Military Payment Certificates.* 2nd Ed., BNR Press, Port Clinton, Ohio, 1987.

Shafer, Neil, *A Guide Book of Modern United States Currency.* 8th Ed., Whitman Publishing Co., Racine, Wisconsin, 1979.

Sullivan, Stephen M., *US Error Note Encyclopedia.* Capital Currency, Melbourne, Florida, 1997.

PART TWO

FIRST AND SECOND PRINTING ERRORS

BOARD BREAKS

DOUBLE DENOMINATIONS

FACULTY ALIGNMENTS

INK SMEARS

INSUFFICIENT INKINGS

INVERTED BACKS

MISSING PRINTINGS

MULTIPLE ERRORS

OBSTRUCTED PRINTINGS

OFFSET PRINTINGS

We are all apprentices in a craft where
no one ever becomes a master.
— *Ernest Hemingway*

Board Breaks

The designation "board break" refers to the error resulting from a partially broken impression cylinder. An impression cylinder forces the unprinted currency paper into the intaglio recesses of the printing plate. The impression cylinder, or rigging, carries a wooden external wrapper; rigid enough to ideally sustain the workload, yet pliable enough to squeeze the currency sheet into the plate. The plate cylinder contains two or four 32-subject engraved printing plates. During the production of United States paper money, the currency sheet passes between the plate cylinder and the impression cylinder under forty to eighty tons of pressure. Because the impression cylinder must endure such extreme pressure, areas occasionally become fatigued.

The end result of such fatigue is failure, as segments either compress into the cylinder or fall away. The disruption of the continuity in the impression cylinder yields an area incapable of pushing the currency paper into the incuse design on the plate cylinder. This produces a white unprinted area on the finished piece of paper money that correlates directly to the portion of the plate cylinder opposite the broken segment of the impression cylinder. Consequently, every note printed using the imperfect impression cylinder will exhibit the identical error—matching in size, shape, and location—unless the defect expands and/or until the rigging is replaced.

Characteristically, board breaks occur at a single location, are fairly small, demonstrate irregular, jagged margins, and are discovered on numerous consecutive notes.

Fractional notes. At the dawn of the Civil War, the United States found itself in a precarious situation when fearful citizens began hoarding coinage because of the intrinsic metallic content. A shortage arose quickly, making a change in commerce extremely difficult. Although several temporary remedies arose (private scrips, tokens, checks, credit slips, and postage stamps), none proved satisfactory. The government introduced fractional currency to alleviate the shortage. The Treasury Department released 23 separate designs over five different issues. Although this class of paper money enjoys its share of errors, the board break is not among them.

Large-size notes. Absolute proof that board breaks actually exist on large-size paper money remains absent. A couple of "curious freak" notes—as errors were formerly designated—described as being printed from broken plates appeared without photographs in auction sales catalogues in the first half of the 1900s. One piece was described as a series 1923, $1 silver certificate with the signatures of Speelman-White; the other, a series 1907, $5 United States note with the Speelman-White combination. The whereabouts of the particular notes remain unknown. Consequently, inspection is impossible. Alternatively, item's authen-

ticity may since have been disproven or the etiology of the mistake ascribed to an alternate cause. No collector or dealer has reported the existence of a board break error on any large-size note in recent times.

Small-size notes. Federal Reserve notes (FRN), especially those after the 1963 series, hold most of the board break errors. Small runs of board breaks exist on virtually every series. The error appears on notes from every Federal Reserve district. The majority appear on the $1 denomination. Although, documented examples survive on every denomination of FRN through $100. Typically, board break errors affect a single location; nonetheless, I reported a batch of $20 FRNs bearing at least three separate defects. A smattering of board breaks occurred on United States notes (most notably the $2 series 1953-B) and silver certificates. The lone example reported on a small-size $5 National Currency seems to represent an alteration. The error remains unknown on gold certificates and Federal Reserve bank notes.

Insights and Incidents. The current focus in error collecting—which began in the mid-1990s—leans towards visually spectacular pieces. The humble board break, despite its relative scarcity, generates little excitement. Consequently, from a monetary perspective, board breaks appear to be among the most underpriced errors in the present marketplace.

An excellent group of multiple board breaks on series 1995, $2 FRNs from the Atlanta district surfaced in 1996. These offered collectors the premiere opportunity to acquire this error on a denomination infamous for a paucity of misprints. Initially, the pieces traded wholesale at forty dollars each; the immediate aftermarket witnessed retail sales around seventy-five dollars. However, after auction prices neared two hundred dollars, the price—not necessarily the value or scarcity—rose dramatically. A collector of even limited means can assemble a grouping of legitimately scarce error notes by concentrating on board breaks.

Examples Of The Error

MINOR

MODERATE

MAJOR

$1 FRN 1977 Circular board break obliterating the "O" in "ONE" R-3

Fine: $25 **EF: $35** **CU:$50**

$1 FRN 1977-A Serpentine defect from inferior margin to portrait R-3

Fine: $35 **EF: $75** **CU: $100**

$1 FRN 1969-D Board break encompassing lower-left corner R-4

Fine: $50 **EF: $75** **CU: $125**

$2 USN 1953-A Enormous board break left end with resultant design lacking

Fine: $100 **EF: $150** **CU: $250**

$2 FRN 1995 Multiple board breaks R-5

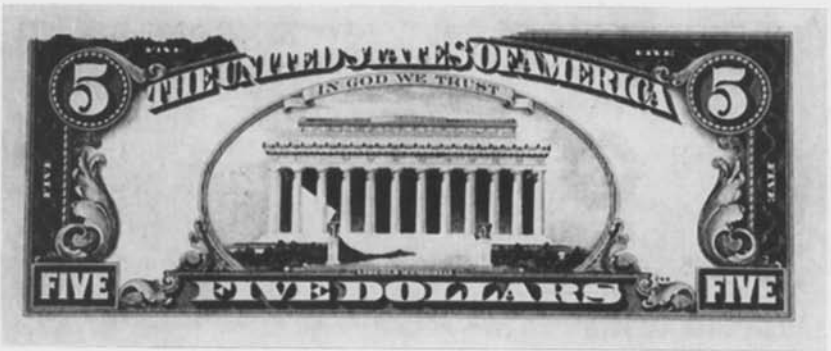
Fine: $50 **EF: $75** **CU: $175**

$5 FRN 1969 Linear board break affecting back plate 108 R-3

Fine: $25 **EF: $50** **CU: $100**

$5 FRN 1969 Terminal state of preceding board break R-4
Fine: $50 **EF: $75** **CU: $150**

$5 FRN 1977 Exceptional specimen with vertical involvement near portrait R-4
Fine: $50 **EF: $100** **CU: $150**



$5 FRN 1977 Above average example of the board break error R-4
Fine: $50 **EF: $75** **CU: $125**

$5 FRN 1977-A Changeover pair of consecutive notes, each demonstrating an identical board break error. The rectangular void exists in corresponding portions of the two sides. The rigging was utilized to impress cylinders for the face and back designs.

Fine: $150 **EF: $300** **CU: $500**

$10 FRN 1977-A Stellate-configured deficit of tremendous proportion R-4

Fine: $100 **EF: $150** **CU: $250**

$10 FRN 1981 Huge, diagonal board break error transecting back R-4

Fine: $50 **EF: $125** **CU: $200**

$20 FRN 1977 Multiple, cloud-like areas lack inking R-4

Fine: $50 **EF: $100** **CU: $150**

$1 FRN 1995 Pseudo-board break created by lifting of the design with adhesive tape. Although initially somewhat deceptive in appearance, examination of the paper shows disturbance.

We do not remember days,
we remember moments.

— *Cesare Pavese*

Double Denominations

The double denomination reigns supreme among paper money errors. No other mistake conjures the romance, mystique, and fascination of the double denomination. In fact, across the entire spectrum of paper money collecting, very few notes can equal the allure of the two-value oddity. More publicity and lines of catalogue descriptions are showered upon the double denomination than any other misprint.

The double denomination note—with the face and back each representing a different value—happens in a rather simple manner. After a currency sheet receives the back printing of one denomination, the sheet enters the face and overprinting operations for another denomination. The confusion presumably arises during the transportation of the currency stock to the second printing stage, after a storage period subsequent to the first printing.

Depending upon the orientation of the note, the error is either blatantly obvious or totally obscure to the viewer. When both sides of the notes are visible, as in turning a book page, the disparity in denominations is readily apparent. However, when either side is viewed independently no error shows, as each side is perfect unto itself.

Fractional notes. Until the recent past, genuine double denomination errors on fractional currency remained unverified. Notes advertised or catalogued as double denominations were later proven to be skillfully adjoined fiber paper notes of different face and back values. However, a couple of fractional currency pieces have appeared at public auction bearing every conceivable characteristic of a genuine double denomination. The notes, in crisp uncirculated condition, possess complete untrimmed margins and perfect design alignment. The edges demonstrate no evidence of tampering. Additionally, the texture feels appropriate for the issue.

Large-size notes. In sharp contrast to most errors, particularly the more profound mistakes, the double denomination exists in more varieties on large-size paper money than on small size. National currency accounts for most of the double denominations. These represent all three charter periods. Notes from fourteen states and one territory were affected, providing unusual geographic diversity. A factor contributing to the large number of double denominations known on large-size national currency is the sheet layout employed for some issues. In many cases, the uncut sheet contained two denominations. Examples are the $1-$1-$1-$2 format, the $10-$10-$10-$20 arrangement, and the $50-$100 set up. Therefore, if such a sheet was inverted for the face printing, the top and bottom notes became double denominations. Another contributing factor to the occurrence of double denominations on national currency is the large number of national banks (over 14,000 in total) mandating an astounding number of short printing runs at the Bureau of Engraving and Printing.

Large-size paper money was printed in uncut sheets of four notes. Consequently, a double denomination error involving a single sheet produced a mere handful of notes. The only large-size double denomination available with regular frequency is the $2 face/$1 back Federal Reserve bank note from the series of 1918. It occurred on at least three districts. Specimens of this two-value misprint cover all states of preservation from the well worn to the crisp uncirculated.

Small-size notes. The double denomination—aptly regarded as the "King of Errors"—remains the most pursued and coveted paper money mistake. Approximately two hundred double-denomination notes, representing as many as five face/back combinations, are believed to exist. Of these, the $5 face/$10 back from the series of 1934-D Federal Reserve note from the Kansas City district provide the preponderance.

The first edition of this book observed, "If additional double denominations do not develop, the upward spiral in value in response to an increasing demand for this spectacular oddity will almost surely continue." Prices have advanced by multiples of three to ten since those words were published in 1994!

Another speculation presented in the first edition, shortly after the polymer security thread became an integral part of counterfeit detection on United States paper money, "The potential for a new type of double denomination note now exists. Conceivably, a sheet of currency paper with security threads of one denomination could be printed by face and back plates of a different denomination, giving rise to a new hybrid." Presently there are two documented examples of series 1995, $1 FRNs from the Chicago district containing security threads from the ten-dollar denomination. Undoubtedly, additional specimens exist.

Whether the Bureau of Engraving and Printing will accommodate the enormous demand for double denomination errors by accidentally producing more in the future remains open to conjecture.

Insights and Incidents. At the time of publication of the first edition, the probability of any United States paper money error garnering in excess of fifty thousand dollars, within five years, seemed improbable. However, if forced to speculate on which variety might first reach such a lofty level, my initial guess was an extremely rare $100 face/$50 back or $50 face/$100 back large-size national currency double denomination. My intuition was partially correct: honors for the first paper money error to surpass the fifty thousand dollar plateau went to a series 1899 silver certificate bearing the face denomination of $2 and the back value of $1.

The incomparable Frank Levitan collection of United States paper money, auctioned by Lyn F. Knight in December of 1998, encompassed fourteen different varieties of the double-denomination mistake, amidst a host of other incredibly rare notes. The Levitan sale holds the record for the most double denominations publicly offered for sale since the landmark auctions of the Albert A. Grinnell collection more than one-half century before. The probability of a future collector equaling the feat seems infinitesimally small—although at least one collector is well on the way.

Unquestionably the most astonishing report concerning double denominations involves Harry E. Jones. At the American Numismatic Association show in Houston (Texas) during the 1980s, he purchased and sold a dozen pieces of the 1974 series $20 face/$10 back, shortly after their release.

New York paper money dealer, Carl Bombara, relates an interesting story, which initially stirred his interest. He heard reports of a series 1996 $100 FRN printed on paper intended for the five-dollar denomination. The stock contained the security thread and watermark of the lower denomination. A cursory examination immediately revealed removal of the design of the $5 value via mechanical or chemical methods and a crude photocopy of the $100 denomination. In general commerce, the note would pass testing with a counterfeit-detection pen (designed to verify contents of the paper) but, the ersatz image was woefully inadequate to fool a specialist.

Despite the high price tag on double denominations, dealers who purchase these for inventory typically reap only a modest profit. In the late-1980s, when the error traded in the $5,000 range, the sale yielded a ten-percent profit. In the current millennium, when double denominations sell for $15,000-$25,000 dollars, the transaction now nets the dealer closer to five percent. During my on-camera interviews with NBC reporters (2000) and a CNN correspondent (2002), the *only* error to elicit unabashed excitement from the jaded professionals was the double denomination.

Neither tremendously rare nor especially eye appealing, the double denomination will remain perennially popular...and expensive.

TABLE OF DOUBLE DENOMINATIONS

Fractional Currency

Denominations face/back	Issue	Catalog number (face)
5c/50c	2nd	KL-3229, Fr-1235
—/50c		KL-xxxx-SP, Fr-xxxx-SP (1)
50c/10c		KL-3245-SP, Fr-1314-SP (2)

Large-size Notes (except national currency)

Denominations face/back	Type	Series	Catalog number (face)
$2/$1	SC	1899	KL-139, Fr-258
$2/$1	FRBN	1918	KL-146, Fr-747 (Boston)
			KL-147, Fr-748 (Boston)
			KL-150, Fr-751 (New York)
			KL-155, Fr-756 (Philadelphia)
			KL-164, Fr-765 (Chicago)
$5/$10	FRN	1914	KL-296, Fr-868 (Chicago)
$20/$10	FRN	1914	KL-610, Fr-964 (Chicago)
			KL-634, Fr-988 (Chicago) (3)

Large-size National Currency

Denominations face/back	Series	Charter	Bank name, City, State
$10/$20	1865	1195	National Bank of Middlebury, VT
	1882	5225	Bank of Pittsburgh National Assoc., Pittsburgh, PA (4)
		5311	First National Bank, Smithton, PA (4)
		5318	Lowry National Bank, Atlanta, GA (4)
		5760	Old Citizens National Bank of Zanesville, OH (4)
		5770	1st National Bank, Barry, IL (4)
		5896	Citizens National Bank, Houghton, MI (4)
		5936	First National Bank, Northport, NY (4)

Denominations face/back	Series	Charter	Bank name, City, State
	1902	414	Second National Bank, Baltimore, MD (4)
		4541	Great Falls National Bank, Great Falls, MT
		6661	First National Bank, Parkers Prairie, MN (4)
		8542	American National Bank, Paris, TX (4)
		10610	National Bank of Lumberton, NC
		11142	Northwestern National Bank, Grand Forks, ND
$20/$10	1882	860	First National Bank, Washington, NJ (4)
		2524	German National Bank, Cincinnati, OH (4)
		5225	Bank of Pittsburgh National Assoc., Pittsburgh, PA (4)
		5311	1st National Bank, Smithton, PA (4)
		5318	Lowry National Bank, Atlanta, GA (4)
		5760	Old Citizens National Bank of Zanesville, OH (4)
		5771	1st National Bank, Barry, IL (4)
	1902	414	Second National Bank, Baltimore, MD (4)
		602	Bank of North America, Philadelphia, PA
		6661	First National Bank, Parkers Prairie, MN (4)
		8532	National City Bank, Chicago, IL
		8542	American National Bank, Paris, TX (4)
		11142	Northwestern National Bank, Grand Forks, ND
$50/$100	1882	2614	First National Bank, Albuquerque, New Mexico Territory (4)
		4251	Aetna National Bank, Kansas City, MO (4)
			Columbia National Bank, Buffalo, NY (4)
$100/$50	1882	2614	First National Bank, Albuquerque, New Mexico Territory (4)
			Columbia National Bank, Buffalo, NY (4)

Small-size Notes (except national currency)

Denominations face/back	Type	Series	Block	Catalog number (face)
$5/$10	FRN	1934-D	J-D	KL-1788, Fr-1960-J (Kansas City)
$10/$1	FRN/SC	1950-A	B-D	KL-2100, Fr-2011-B (New York) (5)
$10/$5	FRN	1928-A	E-A	KL-2002, Fr-2001-E (Richmond) (6)
$20/$10	FRN	1974	K-B	KL-2509, Fr-2071-K (Dallas) (7)

Small-size National Currency

Denominations face/back	Series	Charter	Bank name, City, State
$20/$10	1929-I	11280	First Seattle Dexter Horton National, Seattle, WA (8)

(1) Narrow margin, uniface specimen back with red printing of fifty-cent design and bronze surcharge "10" of ten-cent denomination.
(2) Experimental; stamped "SPECIMEN" in purple ink on both sides; contains two semi-lunar punch cancellations; lacking bronze denomination surcharges both sides.
(3) Cut sheet of four intact at time of publication of first edition (1994); now dispersed.
(4) Back design inverted relative to front printing.
(5) Face design of FRN; back design of SC.
(6) Twelve notes in Albert A. Grinnell sale (lot 5697A), November 30, 1946; later separated; most demonstrate minor to extensive evidence of prior mounting (especially tightly trimmed margin) along left edge.
(7) 128 notes—four full sheets—printed; reported 100 pieces recovered.
(8) Most authorities dispute the authenticity of the known example.

TABLE OF SERIAL NUMBER CENSUS OF SMALL-SIZE DOUBLE DENOMINATIONS

$5/$10 FRN 1928-B

B 69269157 A (1)

$5/$10 FRN 1934-D

J 43180723 A
J 43180743 A
J 43180744 A
J 43180746 A
J 43180748 A
J 43180749 A
J 43180750 A
J 43180814 A
J 43180815 A
J 43180815 A
J 43180816 A
J 43180817 A
J 43180819 A
J 43180820 A
J 43180822 A
J 43180823 A
J 43180824 A
J 43180826 A
J 43180827 A
J 43180828 A
J 43180829 A
J 43312744 A
J 43312749 A
J 43312750 A
J 43312751 A
J 43312752 A
J 43312813 A
J 43312817 A
J 43312818 A
J 43312820 A
J 43312823 A
J 43312824 A
J 43312826 A
J 43312827 A
J 48180749 A
J 543 18017 A

$10/$1 FRN/SC 1928-A

B 52580340 D
B 52620340 D
B 52680340 D
B 52820340 D
B 52860340 D

$10/$5 FRN 1928-A

E 04672279 A
E 04672280 A
E 04672281 A
E 04742279 A
E 04742280 A
E 04742281 A
E 04742282 A
E 04742284 A

$20/$10 FRN 1974

K 46358252 B
K 46358253 B
K 46458252 B
K 46458253 B
K 46458254 B
K 46658254 B
K 46678151 B
K 46678252 B
K 46696252 B
K 46698252 B
K 46698253 B
K 46698254 B

$20/$10 1929-I First Seattle Dexter Horton National Bank, Seattle, WA

E 007779 A (2)

(1) Serial number per Stephen M. Sullivan; authenticity of actual note doubtful, reportedly "created" by Theodore Kemm for illustrative purposes
(2) Most authorities dispute the authenticity of the known example.

\$10/\$20 NBN 1882-DB Double denomination: The First National Bank of Northport, NY, Charter-5936

Fine: \$25,000 **EF: \$30,000** **CU: \$35,000**

\$20/\$10 NBN 1902-PB Double denomination: The First National Bank of Parkers Prairie, MN, Charter-6661

Fine: \$25,000 **EF: \$30,000** **CU: \$35,000**

\$5/\$10 FRN 1914 Double denomination
Fine: \$20,000 **EF: \$25,000** **CU: \$27,500**

\$2/\$1 FRBN 1918 Double denomination
Fine: \$17,500 **EF: \$25,000** **CU: \$27,500**

\$10/\$5 FRN 1928-A Double denomination R-9

Fine: \$17,500 **EF: \$20,000** **CU: \$25,000**

\$10/\$1 FRN/SC1950-A Double denomination: note transcends two types of paper money with the face of Federal Reserve note and back of silver certificate. R-9

Fine: \$20,000 **EF: \$25,000** **CU: \$27,500**

\$20/\$10 FRN 1974 Double denomination
Fine: \$17,500 **EF: \$20,000** **CU: \$25,000**

\$5/\$1 SC 1934-A Spurious double denomination skillfully created by adjoining the face of a split \$5 with a split back of a \$1 note. Despite the excellent workmanship, examination of the edges—with a magnifier—exposes the fabrication.

You can't cross the sea merely by
staring at the water.

— *Rabindranath Tagore*

Faulty Alignments

The faulty alignment error results from an improper relationship between the printed design on one side of the note relative to the other. The currency sheet accepts the printing of one side off-register in comparison to the other side, which bears a correctly positioned image. Faulty alignment errors are correctly centered on one side. This criterion differentiates a faulty alignment mistake from a cutting error. The overprint frequently *appears* shifted, if the misalignment affects the second print. However, in actuality, the third printing rests in the correct position relative to the note edges.

Once the sheet is cut into individual notes, the effected side will have a portion of the adjacent note evident next to the primary note, or at least an abnormally wide margin of blank currency stock. The direction and magnitude of the misalignment—coupled with a particular note's position on the uncut sheet—determines whether the final product will include a segment of the adjacent design or a wide border.

The faulty alignment error is, in common vernacular, an "out of box" mistake. This refers to a mis-position of the back design beyond the boundaries of the design frame on the front. If uncertain as to the existence or etiology, the easiest method is to hold the note towards a strong light source. Observe the relationship between the face and back designs. If the design border from the back (which is smaller than the face design on all modern United States paper money) falls outside of the rectangular "box" formed by the face design, then a faulty alignment exists. Obviously, the greater the magnitude of misalignment the more spectacular and desirable the piece.

Fractional notes. Several significant examples of the faulty alignment error on fractional currency have traded publicly in recent years. In general, one major example sells annually. A select handful of stunning specimens exhibit one centimeter or more of the adjacent note alongside the primary note. Unlike most types of errors on fractional currency—where minor examples are scarce—moderate off-register printings prove readily available, even in high grade.

Large-size notes. Except for a few specimens on series 1914 Federal Reserve notes, most notably the five-dollar denomination, the spectrum of large-size paper money is devoid of major faulty alignment errors. Moderate examples appear on the "Black Eagle" design of the series 1899, $1 silver certificates and series 1918 Federal Reserve bank notes. Minor varieties surface with some regularity on series 1923, $1 silver certificates and series 1902 National currency.

Small-size notes. Magnificent examples of the faulty alignment error on small-size paper money have been infrequently available for decades. Inexplicably,

unprecedented numbers of legitimately dramatic specimens became somewhat more plentiful in the mid- to late-1990s.

Minor misalignments of the printings are common enough to continue through circulation, even among those astute enough to recognize the mistake. As a general guide to value, unless the error is immediately apparent, the note merits no premium. In fact, even those notes that show the design border from the adjacent note carry only a modest premium when in crisp uncirculated condition...and essentially zero premium when on circulated, high denomination pieces.

Locating minor to moderate off-register printings on small-size notes presents little challenge. Besides the commonly available Federal Reserve notes (FRN) and silver certificates (SC), the error

also exists, in limited numbers, on gold certificates, national currency, United States notes, and Federal Reserve bank notes. However, truly spectacular varieties exist only on FRN and SC; more notably the

former.

Insights and Incidents. Faulty alignment errors have come into greater favor among collectors, due to the increase in the availability of truly stunning specimens. The observation "...dramatic examples do not capture prices commensurate with their true rarity," asserted in the first edition no longer routinely holds true. In fact, the value of major misalignments has quadrupled in the past several years—outperforming essentially every other category of paper money error, with few possible exceptions.

Minor faulty alignments continue to be shunned by dealers and collectors alike. In the current marketplace, one magnificent example—at twenty times the cost—remains preferable to ten lesser pieces at one-half of the price. Eye-appeal means everything.

Thus far, there exists a paucity of dramatic examples on the redesigned paper money, which began, with the series of 1996 $100 denomination. Whether this shortage represents inspection changes within the Bureau of Engraving and Printing—or merely a production lull—is uncertain. A collector, in the enviable position of seeing a significant example, would do well to acquire it.

Examples Of The Error

MINOR

MODERATE

MAJOR

$1 SC 1934 Significant faulty alignment on one year type note R-4

Fine: $100 **EF: $200** **CU: $350**

$1 SC 1935-E Exceptional example with considerable quantity adjacent note R-6

Fine: $50 **EF: $150** **CU: $250**

$1 SC 1935-A "Hawaii" note with faulty alignment of back printing; observe apparent misplacement of HAWAII surcharge which actually rests in correct position relative to edges

Fine: $300 **EF: $500** **CU: $750**

$1 FRN 1974 Major misalignment of face printing R-6
Fine: $250 **EF: $750** **CU: $1250**

$1 FRN 1977-A Faulty alignment with denomination designator from adjacent note evident at extreme right R-4
Fine: $200 **EF: $400** **CU: $650**

$1 FRN 1977-A Upward displacement second printing with design frame from adjacent note visible at bottom R-2
Fine: $15 **EF: $35** **CU: $75**

$1 FRN 1995 Major example of the faulty alignment error; this note carries blind perforations from mechanical feeders R-6

Fine: $750 **EF: $1750** **CU: $2500**

$1 FRN 1995 Spectacular specimen, among the most dramatic known R-6

Fine: $1500 **EF: $3000** **CU: $5000**

$2 USN 1928 Skewed placement of back printing with sheet numbers in broad upper margin

Fine: $100 **EF: $250** **CU: $450**

$5 NBN 1929 Magnificent misalignment of back on national currency

Fine: $350 **EF: $750** **CU: $1000**

$5 FRN 1950 Christmas tree alignment indicator in huge inferior margin R-4

Fine: $75 **EF: $150** **CU: $300**

$5 FRN 1988-A Nearly one inch of white paper at right end due to left shift in second print R-6

Fine: $250 **EF: $750** **CU: $1250**

$10 FRN 1950 Minor faulty alignment R-2
Fine: $20 **EF: $35** **CU: $50**

$20 FRN 1974 Minute sections of four separate notes present at the lower left corner R-4
Fine: $75 **EF: $200** **CU: $300**

$20 FRN 1977 Star or replacement note demonstrating faulty alignment R-3
Fine: $75 **EF: $125** **CU: $200**

$20 FRN 1977 Faulty alignment of a borderline major magnitude R-4

Fine: $200 **EF: $400** **CU: $650**

$20 FRN 1995 Spectacular specimen with minimal room for improvement R-6

Fine: $1500 **EF: $3500** **CU: $5500**

$100 FRN 1996 Visually pleasing example of the error R-2

Fine: $125 **EF: $175** **CU: $250**

The universe is full of magical things,
patiently waiting for our wits to grow
sharper.

— *Eden Phillpotts*

Ink Smears

Ink smears result from inadequately cleaned printing plates. The amount of residual ink left on the surface of the plate determines the size and shape of the smear, which many range from a fine line or small spot to a broad band covering the entire face or back design. The extra ink either obliterates a portion of the intended design or covers areas normally left blank. The value or premium commanded by an ink smear relates directly to the size of the excess ink.

Under proper operating conditions, the ink fountain in the press machinery "charges" or covers the entire 32-subject printing plate, allowing some ink to fill the engraved intaglio design, with the surplus ink remaining on the surface. The plate then encounters a reciprocating mechanical wiper that removes the surface ink without disturbing the fluid resting in the incuse recesses forming the design. After a printing pass—wherein the plate makes contact with an uncut sheet of currency stock— the plate receives an application of a cleaning or solvent solution. The solvent serves to dilute the remaining ink, facilitating the cleaning process. The plate then encounters another mechanical wiper that removes the diluted ink, before being flooded or charged for the next printing run.

A performance failure within the series of reciprocating wipers, or the protracted use of dirty wiper rolls, allows the ink to remain on the plate and causes the familiar ink smear error.

In contrast to ink smears impacting the first or second printings, whose cause is outlined above, smears on the overprint typically occur due to an application of excess ink to the heads printing the serial numbers or seals. Ink smears involving the overprint, arise far less frequently than those on the first or second print. Alternatively, impatient press operators at the Bureau of Engraving and Printing (BEP) often grab the top sheet in a stack causing smearing or smudging of the overprint.

The designation "solvent smear" is a misnomer. It belies the true cause, as the error actually represents heavily diluted ink—not solvent—which smears. The mistake occurs when an excessive amount of the solvent solution reaches the printing plate. Unless the reciprocal wipers extract the excess, the residual solvent dilutes the consistency of the fresh layer of ink. The watery ink produces a blurry, hazy, and indistinct image on the printed design.

Ink smears lend themselves to fakery more readily than other types of errors, by the application of additional ink outside of the BEP. Nonetheless, with minimal experience, it becomes fairly simple to distinguish genuine smears by their texture. A government-manufactured error possesses a certain "look and feel" that seems virtually impossible to duplicate after the note reaches circulation.

Fractional notes. Since the publication of the first edition, the author has examined three pieces of fractional currency bearing seemingly genuine characteristics of ink smears. In each case, the excess ink assumed an ovoid or blotch configuration, rather than a linear pattern common on modern small-size paper money. Two specimens came from the first issue (five-cent and ten-cent denominations); the other a twenty-five-cent note from the third issue. These Civil War-era paper substitutes for coinage were surface printed or lithographed.

Large-size notes. Large-size paper money began with the series 1861 Demand Notes; they terminated with the series of 1923 silver certificates and United States notes. Despite the long time frame, ink smears appear rather infrequently on large size notes. Additionally, the smears tend to be proportionately smaller than those found on the reduced size currency. Among those documented, most are $1 notes from the series of 1899 and 1923. A major ink smear on a piece of large-size currency would be a newsworthy discovery.

Small-size notes. Ink smears represent the most common collectible small-size paper money error; more escape the visual and electronic inspections at the BEP than any other mistake. Although minor smears appear fairly regularly (a mean average of one identifiable ink smear per 1,000 notes searched), massive smears covering twenty-five percent or more of one side remain extremely elusive. Major ink smears can be confirmed on every class of small-size notes except national currency, Federal Reserve bank notes, and gold certificates.

Solvent smears—which on the average—affect a larger surface area than an ink smear are restricted to Federal Reserve notes and silver certificates.

Insights and Incidents. Ink smears, the most plentiful BEP mistake to escape, and their cousins, the solvent smears, generally are ignored . Unfortunately, even significant to spectacular examples generate

little interest when offered for sale. The single exception is ink smears on $2 FRNs. These seem to trade at prices above their actual scarcity. Although historically $2 errors have proven challenging

to locate, literally hundreds of errors (of varying magnitudes and types) surfaced between 1993-1995 as banks cleared series 1976 deuces from their vaults to accept the newly printed series 1995.

The astute collector will judiciously pursue acquiring superb specimens of the ink and solvent smear errors, at favorable prices, in about uncirculated or better condition.

Examples Of The Error

MINOR

MODERATE

MAJOR

$1 FRN 1969 Impressive ink smear obliterating 40% face printing R-4

Fine: $50 **EF: $100** **CU: $200**

$1 FRN 1977 Multiple ink smears resembling flames R-2

Fine: $25 **EF: $75** **CU: $100**

$1 FRN 1977 Broad, dramatic band of heavy ink R-4

Fine: $50 **EF: $75** **CU: $125**

$1 FRN 1977-A Over-inking of district seal with internal details obscured R-1

Fine: $10 **EF: $25** **CU: $50**

$1 FRN 1977-A Average example of this prolific error R-1

Fine: $10 **EF: $15** **CU: $25**

$1 FRN 1981 Exceptional example of a solvent smear R-3

Fine: $25 **EF: $50** **CU: $100**

$1 FRN 1988-A Web press note with large solvent smear R-4
Fine: $100 **EF: $150** **CU: $250**

$1 FRN 1988-A Web press note with large solvent smear R-4
Fine: $100 **EF: $150** **CU: $250**

$2 FRN 1976 Interesting ink smear with raindrop pattern R-5
Fine: $50 **EF: $100** **CU: $175**

$5 SC 1934-C Solvent smear with indistinct, hazy appearance to details R-3

Fine: $50 **EF: $125** **CU: $200**

$5 FRN 1977-A Lincoln appears to be crying from excessive ink splatter R-2

Fine: $25 **EF: $50** **CU: $75**

$5 FRN 1981 Application of thick layer of excessive ink R-2

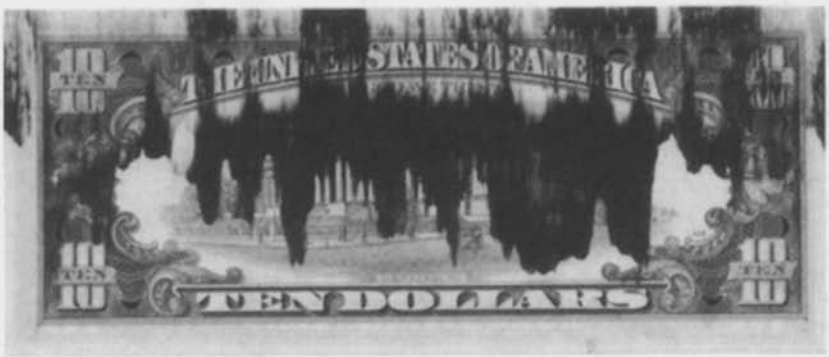
Fine: $25 **EF: $50** **CU: $75**

$10 FRN 1969-C Right end blurry from unchecked use of solvent R-3

Fine: $50 **EF: $75** **CU: $125**

$10 FRN 1977 Short, linear smear as often encountered R-1

Fine: $10 **EF: $15** **CU: $20**

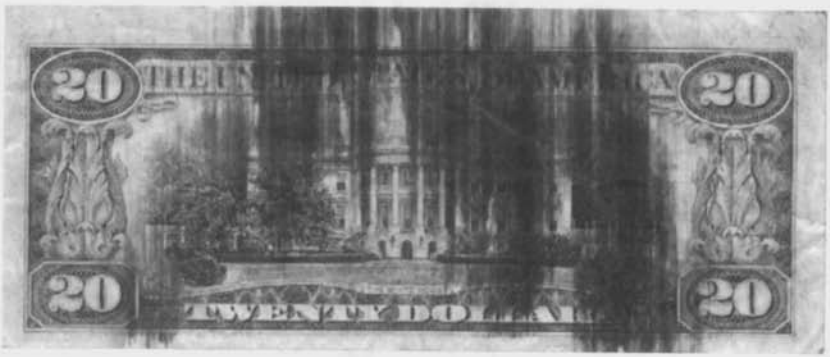


$10 FRN 1981 Multiple ink smears masquerading as torrential rain R-4

Fine: $50 **EF: $75** **CU: $100**

$10 FRN 1985 Hamilton's portrait covered by swath of ink R-2
Fine: $50 **EF: $75** **CU: $100**

$20 FRN 1977 Entire face covered with black ink obscuring many details R-4
Fine: $150 **EF: $350** **CU: $500**



$20 FRN 1977-A Paintbrush effect from wipers R-4
Fine: $50 **EF: $75** **CU: $100**

$20 FRN 1993 Unusual solvent smear giving Jackson an eerie appearance R-3

Fine: $50 **EF: $100** **CU: $150**

$50 FRN 1977 Common size and shape of the ink smear error R-2

Fine: $65 **EF: $85** **CU: $100**

$100 FRN 1993 Fantastic solvent smear involving nearly one-half of front R-3

Fine: $125 **EF: $200** **CU: $250**

$100 FRN 1996 Ink smear left 25% of back R-2
Fine: $100 **EF: $125** **CU: $150**

$1 FRN 1963 Partial portion of teller's stamp simulating ink smear error on a star or replacement note. Such accidents are often on Internet auction sites as genuine errors.

$1 FRN 1993 Application of extraneous green ink, outside of the BEP, intended to replicate a government-made mistake. The color varies slightly and the texture differs moderately.

The world is round and the place
which may seem like the end
may also be only the beginning.
— *Ivy Baker Priest*

Insufficient Inkings

The insufficient inking error develops when the ink fountain fails to fully charge or fill the printing plate with ink. The ink fountain stores the ink alongside the press. When the reservoir runs low, pressure weakens, or a partial obstruction in the supply tube occurs, inadequate amounts of ink flood the intaglio design in the plate. The net result is a printed image, which is faint or incomplete.

The insufficient inking may affect all or part of the design, depending upon the area affected on the printing plate. Typically, the error involves a significant portion of, if not the entire, design. However, isolated segments of insufficient ink are not uncommon. Predictably, the larger the insufficiently inked area the greater the premium.

Most insufficient inking mistakes appear on the first or second printing. The overprint is occasionally affected. The typical presentation of insufficient ink on the third print involves a single digit in the serial number, which in whole or part is absent. Less commonly, the entire green or black elements of the bi-color overprint are missing.

Numerous anti-counterfeiting devices were incorporated into United States paper money, commencing with the series 1990. The heightened measures included micro printing surrounding the portrait oval, use of an embedded polymer security thread, and utilization of magnetic ink for portions of the face printing, among other techniques. Implementation of magnetic ink gave rise to a new breed of insufficient inking errors, as alternate fountains were filled with magnetic and nonmagnetic ink. The overall pattern resembles a checkerboard. Most examples of the missing magnetic ink begin at the left end of the face, in the upper and lower corners; sometimes extending, in sections, across the entire front. The etiology of the segmental missing magnetic ink is identical to insufficient inking errors.

Fractional notes. The two alleged insufficient inking errors on fractional currency examined by the author are in circulated condition. As such, it was impossible to unhesitatingly declare them genuine; likewise, inadequate proof existed to deem them alterations. Drawing a definite conclusion, from such tenuous evidence, would have been irresponsible.

Large-size notes. Examples of the insufficient inking error on large-size paper money appear infrequently. Several notes—most notably from the series 1923, $1 silver certificates—show inadequate inking on digit(s) within the serial number. One example from the series $1 United States notes, demonstrates insufficient ink on the entire overprint; the note grades crisp uncirculated, remains deeply embossed, and appears utterly unmolested. Many heavily circulated large-

size notes lack the overprint; all suggest a prior washing and/or exposure to chemical vapors. Their authenticity is doubted by most authorities.

A literal smattering of large-size notes demonstrate irregular areas of insufficient ink. Caution must be exercised when evaluating these, as alterations (either accidental or deliberate) outnumber genuine pieces. There are no verified examples of an entire back or face printed from inadequately inked plates.

Small-size notes. The insufficient inking error is generally elusive on notes manufactured prior to the series 1963. The Giori presses, which the Bureau of Engraving and Printing still employs, were introduced slowly with the series of 1963. The Giori presses replaced the sheet-fed rotary and flatbed presses. Along with greatly expanded production capabilities, errors of previously limited occurrence began to surface...including examples of the insufficient inking error. Despite technological advances in subsequent presses, notes with inadequate ink on the design continue to escape the BEP.

Staggering quantities of $1, series 1988 Federal Reserve notes—and to a lesser extent series of 1988-A—were printed with defective black ink for the second printing. The finished notes visually appeared perfect through the final inspection phases at the BEP. Ultimately, the ink flaked off while the notes passed through circulation! Representatives from the BEP refused to acknowledge changes in the ink formulation or provide a technical explanation as to the cause. These error notes are extremely common and command essentially no premium.

Notes with insufficient inking of the face and back design should exist with equal frequency. However, fewer examples are encountered with poor inking on the face. Those with a faint impression of either the black or green portions of the third printing are even less available. A few isolated specimens of insufficient inking exist on the later series of silver certificates. Two-dollar and five-dollar United States notes rarely contain insufficient inking; when the error appears it involves only a portion of the design. There are no documented examples of the error involving either the entire face or back printing on national currency, Federal Reserve bank notes, or gold certificates. Two pieces of 1929 national currency with alleged insufficient ink have been examined; both were altered.

Insights and Incidents. Since the release of the first edition, two significant "hoards" of insufficient inking errors have escaped the BEP. A group of nearly 150 sequential $20, series 1993 FRNs from the New York district surfaced at the Florida United Numismatists (FUN) convention in Orlando in 1997. The mistake involved varying degrees of inadequate ink on the back, typically affecting the left end. The other large quantity of insufficient inking errors released were an estimated 600 pieces (four original consecutive packs verified by the author) of series 1995, $5 notes from the Richmond district. The light to absent ink bothered the green serial numbers and Treasury seal. Most examples showed a single digit—in the seventh or eighth position—lightly but, legibly inked. The remainder of the green portion of the overprint was entirely missing. Prices fluctuated wildly with the notes trading wholesale at $50-$125. All packs were initially distributed by Brink's from a shipment of new money. Two or three packs surfaced in St. Louis; another 200 notes came out in the San Francisco bay area. Due to

the extensive marketing of both the series 1993, $20 and the series 1995, $5 FRNs, interest in insufficient inking errors has increased slightly.

A facet of insufficient ink errors garnering escalating attention—and prices—are notes missing large portions of the second or face print. Such pieces demonstrate the green and black portions of the overprint against a stark white background. This makes for thrilling viewing.

One of the anti-counterfeiting methods initiated on the redesigned small-size paper money, which began with series 1996, $100 denomination, was the use of a color-shift ink. The color-shift ink appears in the lower right corner of the face. It changes from black to green as the note moves from a vertical to horizontal position. The color shift ink is applied over a waffle pattern constructing the numerals equal to the denomination. Large quantities of insufficient to entirely absent color shift ink entered the marketplace. Collectors, in general, were unimpressed. Overall, the notes sold poorly. Eventually, at least two dealers spent the examples remaining in their inventories at face value!

Examples Of The Error

MINOR

MODERATE

MAJOR

$1 SC 1957 Left 35% of face printing weakly present R-4
Fine: $50 **EF: $125** **CU: $175**

$1 FRN 1969-D Insufficient ink as a result of improper or collapsed batting R-4
Fine: $75 **EF: $150** **CU: $200**

$1 FRN 1974 Ghost-like density to black portion of bicolor overprint R-4
Fine: $50 **EF: $100** **CU: $150**

$1 FRN 1974 Hint of green overprint present, a mirror image of error above R-4

Fine: $50 **EF: $100** **CU: $150**

$1 FRN 1977-A Ink jet failure affecting one-third of back R-3

Fine: $20 **EF: $40** **CU: $75**

$1 FRN 1977-A Faint and mottled appearance to second print with excellent contrast between overprint and paper R-4

Fine: $75 **EF: $150** **CU: $250**

$1 FRN 1988 Uncommon pattern with exceptional eye-appeal R-3

Fine: $50 **EF: $125** **CU: $250**

$1 FRN 1988-A Poor ink adherence causing post-release insufficient ink

Fine: $5 **EF: $10** **CU: $25**

$1 FRN 1988-A Entire first printing weak to absent R-3

Fine: $50 **EF: $150** **CU: $250**

$2 FRN 1976 Insufficient ink on lower left serial number R-5

Fine: $75 **EF: $200** **CU: $400**

$2 FRN 1976 Absent digit in 6th position secondary to inadequate ink R-3

Fine: $25 **EF: $50** **CU: $75**

$5 FRN 1988-A Entire front inadequately inked, especially left 75% R-4

Fine: $50 **EF: $125** **CU: $250**

$5 FRN 1995 Single digit inked, remainder of green overprint absent R-4

Fine: $25 **EF: $50** **CU: $100**

$10 FRN 1985 Upper crescent of green Treasury seal and essentially all of left serial number lacking proper quantity of ink R-4

Fine: $50 **EF: $100** **CU: $150**

$10 FRN 1990 One-half of back improperly inked R-3

Fine: $25 **EF: $50** **CU: $100**

$10 FRN 1993 Uncommonly attractive variety with upper 75% back absent R-3

Fine: $50 **EF: $100** **CU: $200**

$20 FRN 1977 Weak impression of face design R-4

Fine: $50 **EF: $75** **CU: $100**

$20 FRN 1990 Regular or non-magnetic ink insufficiently present on front R-4

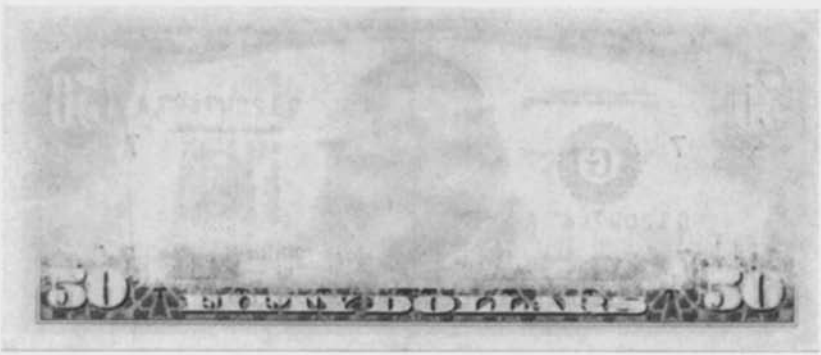
Fine: $75 **EF: $150** **CU: $250**

$1 FRN 1969-D Dramatic presentation with entire 2nd print weak to absent R-4

Fine: $100 **EF: $200** **CU: $400**

$20 FRN 1996 Single ink jet functioned properly in charging plate R-3

Fine: $50 **EF: $100** **CU: $200**

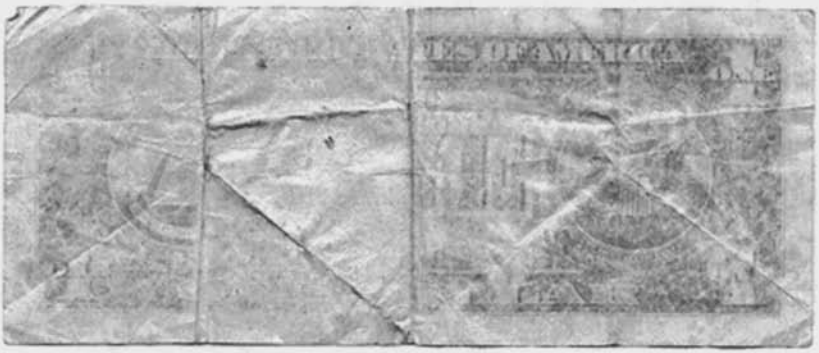


$50 FRN 1974 Stellar specimen on a denomination with a paucity of outstanding examples R-3

Fine: $150 **EF: $250** **CU: $450**

$100 FRN 1996 Color shift ink in lower right corner nearly lacking R-4

Fine: $100 **EF: $110** **CU: $125**



$1 FRN 1995 Exposure to caustic agent affecting partial removal back. The sharp demarcation along the centerfold offers a telltale clue to alteration outside of government facilities.

$5 USN 1953 Seeming insufficient inking on overprint resultant from partial extraction of dyes leaving a yellowish hue. Such findings on a note *always* indicate alteration.

We cannot hold a torch to another's
path without brightening our own.
— *Ben Sweetland*

Inverted Backs

In actuality, the so-called "inverted back" error is an inverted face. Although the verso appears upside down when viewing both sides of the note from the front—as in turning a book page—the traditional designation "inverted back" contradicts the printing sequence. At the Bureau of Engraving and Printing, the back of the note accepts the first printing operation and rightfully should serve as the reference to judge the alignment of subsequent printings.

The inverted back error arises when a stack of currency sheets, after receiving the first (or back) printing, rotates 180 degrees and enters the presses upside down for the face and overprinting stages. Considering: [1] that the uncut sheets are physically moved between printings—therefore, subject to potentially having the ends transposed— and [2] when viewed independently, each side of the completed paper money appears perfect unto itself, one can readily appreciate the probability for manufacture and release of the inverted back. This type of mistake exists on virtually every category of United States paper money from colonial currency through fractional currency and military payment certificates to modern-size Federal Reserve notes.

Fractional notes. The inverted positioning of the face design occurs on every denomination of fractional currency. Examples exist on nearly fifty percent of the major types within this class of paper money. The five-cent denomination of the first issue, authorized by the Act of March 3, 1863, (specificallyFr-1230), provides the most abundant specimens. An uncut 20-subject sheet bearing inverted backs appeared at auction in 1980, more than one century after its accidental manufacture. In uncirculated condition, inverted backs remain relatively more available on the shinplaster notes than on either large- or small-size paper money.

Large-size notes. As opposed to most errors, inverted backs exist in relatively greater supply on large-size currency than on modern paper money. This mistake involves large-size United States notes, silver certificates, Federal Reserve notes, treasury notes, national currency, gold certificates, and Federal Reserve bank notes; none of the seven denominations between $1 and $100 is exempt. Locating a high-grade piece presents a formidable challenge, as most circulated unnoticed. The series of 1899 $1 silver certificates (Fr-233) yielded the most examples. A mere handful of large-size star or replacement notes with inverted backs are known; each represents a legitimate rarity.

Small-size notes. The collector seeking an example of the inverted back error must rely upon the series of 1928 $1 silver certificates and the series of 1928 and 1934, $5 and $10 Federal Reserve notes. The error affects countless blocks among the silver certificates and numerous districts on the Federal Reserve notes. Unquestionably, the list of currently reported blocks is incomplete. The inverts

known represent all states of preservation, from about-good to gem-crisp uncirculated, although predictably they favor the circulated grades. The error exists on all denominations from $1 through $100.

Insights and Incidents. The inverted back error—while always moderately popular—receives more attention now than at anytime in the past. Two logical explanations exist for this occurrence: [1] collectors are finally beginning to recognize the genuine scarcity of the error on small-size notes, especially in extremely fine or better and [2] unlike other types of mistakes, the Bureau of Engraving and Printing has proven stingy in the release of inverted backs during the past sixty years. While a few trickle out occasionally on modern FRNs, the supply has been woefully inadequate.

Prices on inverted backs—like all United States paper money errors—escalated dramatically since the publication of the first edition. "Common" inverted backs (series of 1899, $1 SC; series of 1928 and 1934, $5 and $10 FRNs; and series of 1928, $1 SC), in very good to very fine, often garner prices greater than their scarcity might dictate. In contradistinction, genuinely scarce pieces (and common notes in AU or better) frequently sell at bargain levels, despite keen competition among bidders. Retail sales of inverted backs on FC remain sluggish. Nonetheless, Currency Auction of America's (CAA) sale of the Milton Friedberg collection placed unprecedented numbers of the errors into the hands of collectors, many at very strong levels.

I enjoyed the privilege of offering for sale the largest collection of inverted backs ever formed. The incomparable achievement took 20 years of painstaking dedication. The amazing assemblage, encompassing nearly 300 notes, including many unique varieties in both large and small size. It dwarfed the efforts of Albert A. Grinnell and other private collectors, and the Smithsonian Institution and other public holdings. A portion of the collection was sold via private treaty; CAA auctioned the remainder in January, 2000. Due to the enormity of the offering, relatively "common" notes in circulated grades sold well-below market value. High-grade notes brought prices commensurate with their scarcity. The unique—and extremely rare—inverted backs, particularly those in heavily circulated conditions, sold far below their rarity deserved.

TABLE OF INVERTED BACKS

Fractional Currency

Denomination	Issue	Catalog number
3c	3rd	KL-3252, Fr-1226
		KL-3252, Fr-1227
5c	1st	KL-3209, Fr-1228
		KL-3210, Fr-1229
		KL-3211, Fr-1230 (1)
		KL-3212, Fr-1231
	2nd	KL-3226, Fr-1232
		KL-3227, Fr-1233
	3rd	KL-3256, Fr-1238
		KL-3257, Fr-1239
10c	1st	KL-3214, Fr-1241
		KL-3215, Fr-1242
		KL-3216, Fr-1243
	2nd	KL-3230, Fr-1244
		KL-3232, Fr-1246
	3rd	KL-3264, Fr-1256
25c	1st	KL-3218, Fr-1280
		KL-3219, Fr-1281
		KL-3220, Fr-1282
	2nd	KL-3239, Fr-1286
	3rd	KL-3268, Fr-1294
		KL-3270, Fr-1296
50c	1st	KL-3221, Fr-1310
		KL-3223, Fr-1311
		KL-3224, Fr-1312
		KL-3225, Fr-1313
	2nd	KL-3245, Fr-1316
		KL-3246, Fr-1317
		KL-3247, Fr-1318
		KL-3249, Fr-1321
		KL-3250, Fr-1322
	3rd	KL-3283, Fr-1331
		KL-3284, Fr-1332
		KL-3285, Fr-1333
		KL-3286, Fr-1334

Denomination	Issue	Catalog number
		KL-3290, Fr-1338
		KL-3291, Fr-1339
		KL-3309, Fr-1357
		KL-3317, Fr-1365
		KL-3322, Fr-1370

Large-size Notes (except national currency)

Denomination	Type	Series	Catalog number
$1	TN	1890	KL-56, Fr-348
			KL-57, Fr-349
		1891	KL-58, Fr-350
			KL-59, Fr-351
			KL-60, Fr-352
	SC	1886	KL-29, Fr-215
			KL-31, Fr-217
		1899	KL-40, Fr-226
			KL-41, Fr-226a
			KL-42, Fr-227
			KL-43, Fr-228
			KL-44, Fr-229
			KL-45, Fr-230
			KL-45-★, Fr-230-★ (2)
			KL-47, Fr-232
			KL-48, Fr-233 (3)
			KL-49, Fr-234 (4)
			KL-50, Fr-235
			KL-51, Fr-236
		1923	KL-52, Fr-237
			KL-52-★, Fr-237-★ (2)
			KL-53, Fr-238
	USN	1917	KL-23, Fr-36
			KL-24, Fr-37
			KL-26, Fr-38
			KL-27, Fr-39
		1923	KL-28, Fr-40
	FRBN	1918	KL-65, Fr-712 (New York)
			KL-70, Fr-717 (Philadelphia)
			KL-71, Fr-718 (Cleveland)
			KL-78, Fr-725 (Atlanta)
			KL-83, Fr-730 (St. Louis)
			KL-90, Fr-737 (Kansas City)
			KL-97, Fr-744 (San Francisco)

Denomination	Type	Series	Catalog number
$2	SC	1886	KL-123, Fr-242
			KL-130, Fr-249
			KL-132, Fr-251
			KL-134, Fr-253
			KL-136, Fr-255
			KL-137, Fr-256
			KL-139, Fr-258
	USN	1880	KL-110, Fr-50
			KL-117, Fr-57
			KL-117-★, Fr-57-★ (2)
			KL-118, Fr-58
			KL-120, Fr-60
			KL-120-★, Fr-60-★ (2)
	FRBN	1918	KL-150, Fr-751 (New York)
			KL-159, Fr-760 (Richmond)
			KL-166, Fr-767 (Chicago)
$5	SC	1891	KL-237, Fr-267
		1896	KL-240, Fr-270
		1899	KL-241, Fr-271
			KL-242, Fr-272
			KL-243, Fr-273
			KL-245, Fr-275
			KL-247, Fr-277
	USN	1880	KL-207, Fr-77 (5)
		1907	KL-217, Fr-87
			KL-221, Fr-91
	FRN	1914	KL-275, Fr-847 (Boston)
			KL-276, Fr-848 (New York)
			KL-277, Fr-849 (New York)
			KL-280, Fr-852 (Philadelphia)
			KL-298, Fr-870 (Chicago)
			KL-309, Fr-881 (Kansas City)
			KL-316, Fr-888 (San Francisco)
$10	SC	1908	KL-427, Fr-302
	USN	1901	KL-380, Fr-114
			KL-388, Fr-122
	FRN	1914	KL-444, Fr-893 (New York)
			KL-457, Fr-906 (Boston)
			KL-469, Fr-918 (Cleveland)
			KL-495, Fr-944 (Dallas)
	GC	1922	KL-442, Fr-1173
$20	SC	1891	KL-591, Fr-321
			KL-592, Fr-322
	FRN	1914	KL-604, Fr-958 (Chicago; red seal)

Denomination	Type	Series	Catalog number
			KL-634, Fr-988 (Chicago)
			KL-637, Fr-991 (Chicago)
	GC	1922	KL-564, Fr-1187
$50	GC	1922	KL-705, Fr-1200
$100	FRN	1914	KL-871, Fr-1098 (Cleveland)

Large-size National Currency

Denomination	Series	Charter	Bank name, City, State
$5	1882	5760	Old Citizens Nat'l Bank, Zanesville, OH
	1902	3600	Commercial Nat'l Bank, Shreveport, LA
$10	1882	5225	Bank of Pittsburgh National Association, Pittsburgh, PA
		5311	1st National Bank, Smithton, PA
		5318	Lowry National Bank, Atlanta, GA
		5760	Old Citizens Nat'l Bank, Zanesville, OH
		5771	First National Bank, Barry, IL
		5896	Citizens National Bank, Houghton, MI
		5936	First National Bank, Northport, NY
	1902	414	Second National Bank, Baltimore, MD
		6661	First Nat'l Bank, Parkers Prairie, MN
		8542	American National Bank, Paris, TX

Small-size Notes (except national currency)

Denomination	Type	Series	Block	Catalog number
$1	SC	1928	A-A	KL-1445, Fr-1600
		C-A		
			E-A	
			F-A	
		1928-A	★-A	KL-1446-★, Fr-1601-★ (2)
			G-A	KL-1446, Fr-1601
			I-A	
			L-A	
			N-A (6)	
			R-A	

Denomination	Type	Series	Block	Catalog number
			S-A	
			T-A	
			U-A	
			X-A	
			Y-A	
			Z-A	
		1928-B	E-B	KL-1447, Fr-1602
			F-B	
			G-B	
			H-B	
			I-B	
		1934	★-A	KL-1451-★, Fr-1606-★ (2)
			A-A	KL-1451, Fr-1606
			B-A	
			C-A	
			D-A	
			E-A	
			F-A	
			G-A	
		1935	A-A	KL-1452, Fr-1607
			B-A	
			J-A	
			L-A	
		1935-A	P-A	KL-1453, Fr-1608
			R-A	
			S-A	
			T-A	
			U-A	
			D-B	
			H-B	
			M-B	
			W-B	
			K-C	
			R-C	
			V-C	
		1935-B	H-D	KL-1454, Fr-1609
		1935-C	★-B	KL-1455-★, Fr-1610-★ (2)

Denomination	Type	Series	Block	Catalog number
		1935-E	★-D	KL-1457-★, Fr-1614-★ (2)
			★-E	
			X-G	KL-1457, Fr-1614
			B-H	
			G-H	
	FRN	1974	L-F	KL-1584, Fr-1908 (San Francisco)(7)
		1985	A-E	KL-3700, Fr-1913 (Boston) (10)
		1995	D-C	KL-4087, Fr-1921 (Cleveland)(10)
			F-G	KL-4089, Fr-1921 (Atlanta) (10)
$2	USN	1928	A-A	KL-1613, Fr-1501
		1928-C	B-A	KL-1616, Fr-1504
			C-A	
			E-A	
			F-A	
		1928-D	C-A	KL-1617, Fr-1505
			D-A	
		1928-G	B-A	KL-1620, Fr-1508
	FRN	1976	E-A	KL-1631, Fr-1935 (Richmond)
$5	FRBN	1929	G-A	KL-1665, Fr-1850 (Chicago)
	USN	1928	A-A	KL-1639, Fr-1525
			B-A	
			C-A	
		1928-B	D-A	KL-1641, Fr-1527
		1928-E	H-A	KL-1644, Fr-1530
	SC	1934	B-A	KL-1651, Fr-1650
			C-A	
			D-A	
			E-A	
	FRN	1928	A-A	KL-1671, Fr-1950 (Boston)
			C-A	KL-1673 (Philadelphia)
			D-★	KL-1674-★ (Cleveland) (2)
			D-A	KL-1674 (Cleveland)
			E-A	KL-1675 (Richmond)
			G-A	KL-1677 (Chicago)
			K-★	KL-1681-★ (Dallas) (2)
			K-A	KL-1681 (Dallas)
			L-A	KL-1682 (San Francisco)

Denomination	Type	Series	Block	Catalog number
		1928-A	A-A	KL-1683, Fr-1951 (Boston)
			B-A	KL-1684 (New York)
			D-A	KL-1686 (Cleveland)
			E-A	KL-1687 (Richmond)
			F-A	KL-1688 (Atlanta)
			G-A	KL-1689 (Chicago)
			H-A	KL-1690 (St. Louis)
		1928-B	A-A	KL-1695, Fr-1952 (Boston)
			D-A	KL-1698 (Cleveland)
		1934	B-A	KL-1732, Fr-1955 (New York)
			D-A	KL-1734 (Cleveland)
			J-A	KL-1740 (Kansas City)
			K-A	KL-1741 (Dallas)
		1934-A	B-A	KL-1744, Fr-1956 (New York)
			I-A	(Minneapolis)
		1995	F-B	KL-4101, Fr-1984 (Atlanta) (10)
$10	GC	1928	A-A	KL-1963, Fr-2400
	SC	1934	A-A	KL-1966, Fr-1701 (8)
		1934-A	B-A	KL-2260, Fr-2309 (No Africa) (9)
	FRN	1928	A-A	KL-1986, Fr-2000 (Boston)
			C-A	KL-1988 (Philadelphia)
			D-A	KL-1989 (Cleveland)
			K-A	KL-1996 (Dallas)
		1928-A	B-A	KL-1999, Fr-2001 (New York)
			D-A	KL-2001 (Cleveland)
			E-A	KL-2002 (Richmond)
			G-A	KL-2004 (Chicago)
		1928-B	D-A	KL-2013, Fr-2002 (Cleveland)
			J-A	KL-2019 (Kansas City)
		1928-C	B-A	KL-2022, Fr-2003 (New York)
		1934	B-A	KL-2028, Fr-2005 (New York)
			D-A	KL-2030 (Cleveland)
			G-A	KL-2033 (Chicago)

Denomination	Type	Series	Block	Catalog number
		1934-A	A-A	KL2039-Fr-2006 (Boston)
			B-B	KL-2040 (New York) (6)
			B-C	(New York)
			D-A	KL-2042 (Cleveland)
			G-A	KL-2045 (Chicago)
			G-B	(Chicago)
			L-B	KL-2050 (San Francisco)
		1934-C	G-C	KL-2069, Fr-2008 (Chicago)
		1934-D	B-★	KL-2076-★, Fr-2009★ (New York)(2)
		1950-A	A-B	KL-2099, Fr-2011 (Boston)
			B-D	KL-2100 (New York)
			G-D	KL-2105 (Chicago)
			H-A	KL-2106 (St. Louis)
		1950-B	G-E	KL-2217, Fr-2012 (Chicago)
		1990	B-A	KL-4001, Fr-2030 (New York)(10)
$20	FRBN	1929	K-A	KL-2272, Fr-1870 (Dallas)
	FRN	1928	F-A	KL-2279, Fr-2050 (Atlanta)
			G-A	KL-2280 (Chicago)
			I-A	KL-2282 (Minneapolis)
			J-A	KL-2283 (Kansas City)
		1934	A-A	KL-2310, Fr-2054 (Boston)
			B-A	KL-2311 (New York)
			E-A	KL-2314 (Richmond)
			G-A	KL-2316 (Chicago)
			J-A	KL-2319 (Kansas City)
		1934-A	A-A	KL-2322, Fr-2055 (Boston)
			B-A	KL-2323 (New York)
			G-A	KL-2328 (Chicago)
			L-A	KL-2333 (San Francisco)
		1934-B	F-A	KL-2339, Fr-2056 (Atlanta)
			G-B	KL-2340 (Chicago)
		1950-A	B-A	KL-2383, Fr-2060 (New York)
			G-A	KL-2388 (Chicago)

Denomination	Type	Series	Block	Catalog number
		1985	D-D	KL-3739, Fr-2027 (Cleveland)(10)
$50	FRN	1934	B-A	KL-2558, Fr-2102 (New York)
		1974	A-A	KL-2721, Fr-2118 (Boston) (10)
$100	FRN	1934	C-A	KL-2786, Fr-2152 (Philadelphia)
		1996	AD-A	KL-4135, Fr-2175 (Cleveland) (10,11)

Small-size National Currency

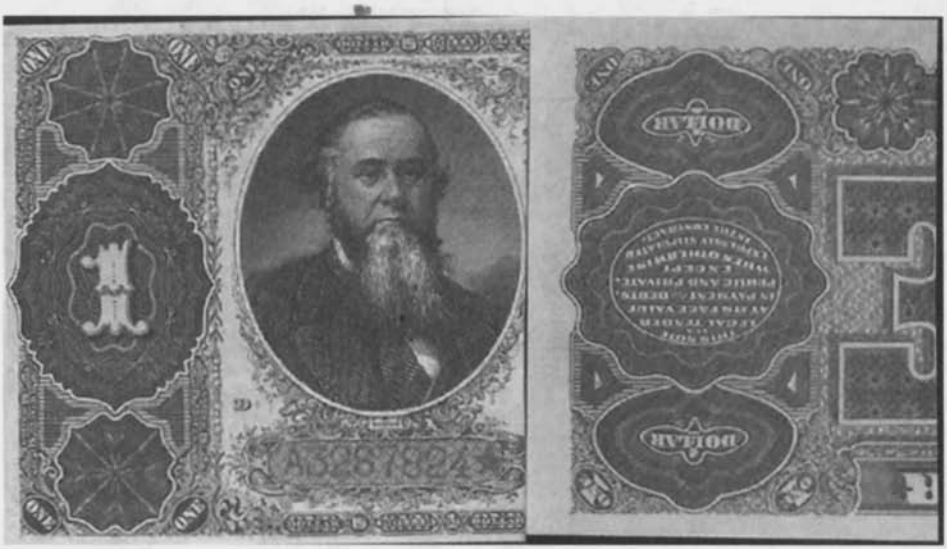
Denomination	Series	Charter	Bank name, City, State
$5	1929-I	252	Second National Bank, Pittsburgh, PA
		1741	Crocker First National Bank, San Francisco, CA
		6301	Mellon National Bank, Pittsburgh, PA
		12398	Queensboro Nat'l Bank, New York, NY
		13325	No. Broad Nat'l Bank, Philadelphia, PA
$10	1929-I	1685	First National Bank, Sharon, PA
		2916	Lake Shore Nat'l Bank, Dunkirk, NY
		7620	Peoples Nat'l Bank, Reynoldsville, PA
		13629	First National Bank, Plainfield, NJ
	1929-II	3623	First National Bank, Dallas, TX
		5065	Ohio National Bank, Columbus, OH

(1) 20-subject uncut sheet plus numerous individual pieces known
(2) "star" or replacement note
(3) most common "Black Eagle" signature combination with inverted back error
(4) cut sheet of four remains intact
(5) contemporary counterfeit known with inverted back
(6) 6-subject cut half-sheet remains intact
(7) note possesses inverted back *and* inverted overprint; technically categorized as an inverted second (face) print; only one confirmed
(8) mule and non-mule back designs exist with error
(9)"North Africa" note with yellow Treasury seal; only one confirmed
(10) exhibits faulty alignment appearance on back with portion of adjacent note visible
(11) demonstrates apparent transposed security thread and watermark

Examples Of The Error

TYPE I

TYPE II



$1 TN 1890 Inverted back
Fine: $2500 **EF: $5500** **CU: $—**

$1 SC 1899 Inverted back
Fine: $500 **EF: $950** **CU: $1500**

$1 SC 1923
Fine: $400 **EF: $750** **CU: $1250**

$2 SC 1899 Inverted back
Fine: $750 **EF: $1250** **CU: $2750**

$5 SC 1899 Inverted back
Fine: $1500 **EF: $3500** **CU: $5500**

$5 USN 1907 Inverted back
Fine: $750 **EF: $1250** **CU: $2750**

$10 USN 1901 Inverted back
Fine: $1500 **EF: $3500** **CU: $5500**

$10 SC 1908
Fine: $2500 **EF: $5500** **CU: $—**

$20 FRN 1914 Inverted back
Fine: $750 **EF: $1250** **CU: $2750**

$20 GC 1922 Inverted back
Fine: $1500 **EF: $3500** **CU: $5500**

$1 SC 1928 Inverted back R-6
Fine: $350 **EF: $500** **CU: $950**

$1 SC 1934 Inverted back R-6
Fine: $450 **EF: $650** **CU: $1250**

$1 SC 1935 Inverted back R-6
Fine: $450 **EF: $650** **CU: $1250**

$1 FRN 1999 Inverted back, Type II R-7
Fine: $500 **EF: $750** **CU: $1500**

$5 USN 1928-F Inverted back
Fine: $500 **EF: $900** **CU: $1500**

$5 SC 1934 Inverted back R-6
Fine: $450 **EF: $800** **CU: $1400**

$5 FRN 1934-A Inverted back R-6
Fine: $400 **EF: $750** **CU: $1250**

$10 NBN 1929-II Inverted back, First National Bank in Dallas, Texas
Fine: $1250 **EF: $1750** **CU: $2500**

$20 FRN 1934 Inverted back R-6
Fine: $450 **EF: $750** **CU: $1250**

$100 FRN 1934 Inverted back R-6
Fine: $500 **EF: $1500** **CU: $2000**

$1	SC	1957-B	Note fabricated to create the illusion of an inverted back. Two notes were pasted together, with one side inverted relative to the other. Apparently the item circulated somewhat after being adjoined, as similar wear and soil appear on both sides. Close inspection reveals that the finished product feels too thick and the texture too stiff.

If a man does not keep pace with
his companions, perhaps it is because
he hears a different drummer. Let
him step to the music which he hears,
however measured or far away.

— *Henry David Thoreau*

Missing Printings

The missing printing error reaches circulation devoid of an entire impression. Technically, the first, second, or third printing design elements might be absent. However, because the missing overprint error is addressed in a later chapter only notes lacking the first or second printing are discussed here.

To properly qualify as a missing printing error, the note must have *completely* failed to receive any portion of the intended design at the skipped printing stage. Notes which demonstrate even the tiniest portion of the design originate from an alternate etiology and are not classified as missing printings.

There are three distinct causes for a missing printing error. Most commonly, two uncut sheets of currency stock enter the printing press simultaneously with one atop the other. The uppermost sheet accepts the imprint normally while the lower sheet—because it is protected by the top layer—passes through blank. Less frequently, an entire stack of sheets is advanced to subsequent printing and/or cutting operations after skipping a printing stage. Alternate causes of the error are the press operator shutting down the presses in the middle of a run or the printing plates contacting the currency paper and retracting prematurely. In the later scenarios, the lead portion of the currency sheet will receive impressions from the plate while the tail segment will remain unprinted.

Notes missing the first or back printing are commonly referred to as "blank backs." Notes missing the second or face printing typically enter the overprinting presses normally. This produces a visually spectacular effect with the serial numbers and seals resting in sharp contrast on the white currency paper. All missing printing errors are scarce to rare.

Fractional notes. Aside from pieces intentionally produced as specimens, trials, essays, or proofs there are no known examples of fractional currency without the basic face or back design. Twice a decade a purported "blank back" fractional denomination note will surface. Thus far, all have represented alterations consisting of carefully split notes.

Large-size notes. The lone example of a missing face printing on large-size paper money encompasses an enigmatic specimen of the $500 denomination from the series of 1882 gold certificates. The note lacks the basic face printing, serial numbers, and seal. It exhibits the word "GOLD" surcharge on the front and a normally printed back. Whether the example actually represents an error of accidental manufacture or an unfinished essay or trial piece remains subject to debate and further research.

Small-size notes. Until the recent past, the missing printing error was extremely rare. There are a miniscule number of blank backs on silver certificates; none on United States notes, gold certificates,

National currency, or Federal Reserve bank notes. Fortunately, the large number of missing printing errors on Federal Reserve notes provide collectors with opportunities. The missing first printing error appears on all seven denominations from $1 through $100. The missing second print remains unknown on the $2 value, but occurs on the other six denominations. The missing first printing or blank back mistake—while scarce in itself—is probably ten-times more plentiful than the missing face printing.

Insights and Incidents. In the spring of 1995, shortly after the release of the first edition of this book, a group of twenty or so $10 FRN missing the second printing surfaced in the Detroit (MI) area. My father—a fulltime numismatist with four decades of paper money experience—handled many of them. Even that recently, disposing of a dozen or more examples was somewhat of a task. Today,I would relish the opportunity!

Two comments concerning the missing face print: [1] even in the new millennium the error remains difficult to locates in dealers' inventories; available specimens tend to be circulated or drastically overpriced and [2] with the stratospheric levels achieved by other spectacular and dramatic misprints, this eye-popping blunder seems undervalued. The astute collector might attempt to assemble an eleven-piece set from $1 through $100 (minus the deuce) with examples of designs before and after the revamping of small size paper money, which began with the series 1996, $100 FRN.

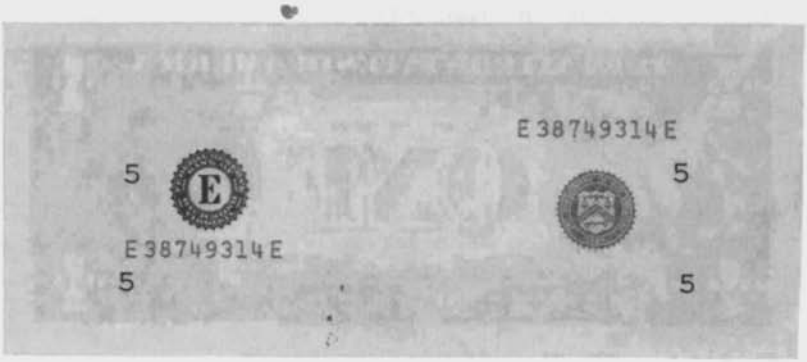
The most exciting discovery in missing face prints appeared in the May, 1998 sale by Currency Auctions of America (CAA). It showcased a $10 star or replacement note minus the second print. Prior to the auction consignment, not even rumors existed about the (thus far) unique error.

A phenomenal trophy was among the Ray Burns collection auctioned by CAA: a genuine blank face—totally blank, not simply missing the second print. In this particular case, the $50 FRN demonstrated a normal first (back) impression, absence of the second print, and application of the third (over) print on the back! A tantalizing assortment of mistakes to create an incredible sequence and outcome. There are presently three known examples from the same half-sheet. One resides in the incomparable Whitney collection, a small portion of which was on exhibit at the 2002 convention of the American Numismatic Association in New York City. The exhibit cleverly utilized a mirror to allow viewers to inspect both sides of the note simultaneously. The incomprehensible display—actually a museum unto itself—won First Place for U.S. Paper Money and also the People's Choice Award.

Over the years, several deceptive pieces—allegedly blank faces—have traded hands. These originated from an East Coast dealer who had six or so in 1981. My opinion was that the pieces represented alterations via mechanical abrasion. This was later confirmed by Bureau of Engraving and Printing personnel who verified surface disturbance with a scanning electron microscope and iron pigment particles (from the removed black ink) via spectroscopy. Unfortunate for the collector

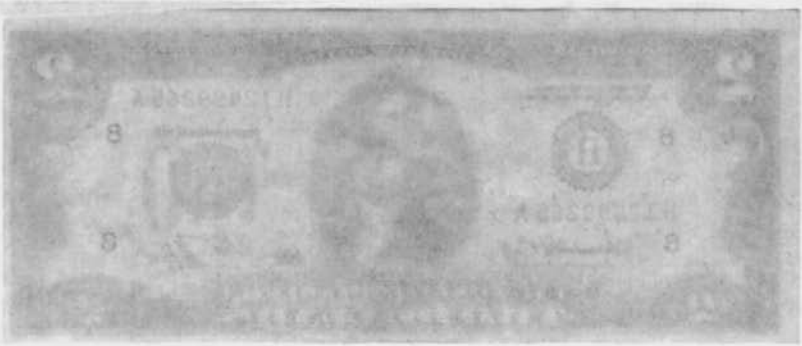
who purchased the "error" and submitted it for authentication. A prudent collector, considering the purchase of a purported blank face, should restrict the search to individual dealers with extensive experience in authenticating error notes and possessing an intimate working knowledge of paper money production...and those willing to provide a refund should the piece later be determined to be an alteration.

The rarity of a missing first printing or blank back error on a star or replacement note cannot be overrated. During the past twenty years, I've seen only six...with three examples originating from the series of 1996, $100 FRN. Although expensive, they are tremendously more elusive than the highly touted and higher priced double denominations.



$1 FRN 19xx Missing 2nd (face) printing R-8
Fine: $250 **EF: $450** **CU: $750**

$1 FRN 1995 Missing 1st (back) printing R-6
Fine: $100 **EF: $175** **CU: $275**



$2 FRN 1976 Missing 1st (back) printing, extremely rare denomination R-7
Fine: $5000 **EF: $7500** **CU: $12,500**

$2	FRN	1976	Missing 1st print with normal notes before and after; unique set for denomination and unique example for district	R-7

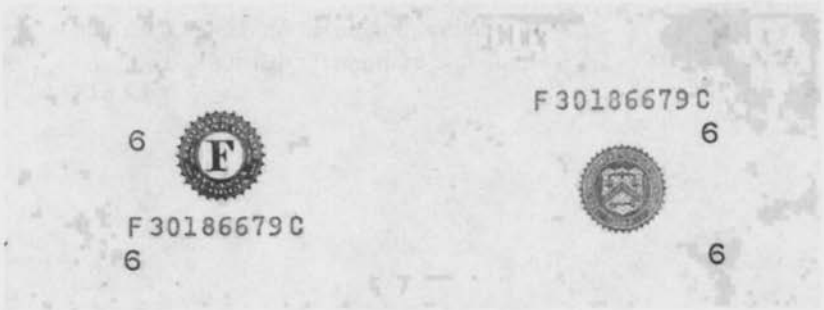
CU: $25,000

$5 FRN 1985 Star or replacement note missing 1st (back) printing; incredibly rare with few examples documented on all denominations R-7

Fine: $2500 **EF: $4500** **CU: $7500**

$5 FRN 19xx Missing 2nd (face) printing R-8

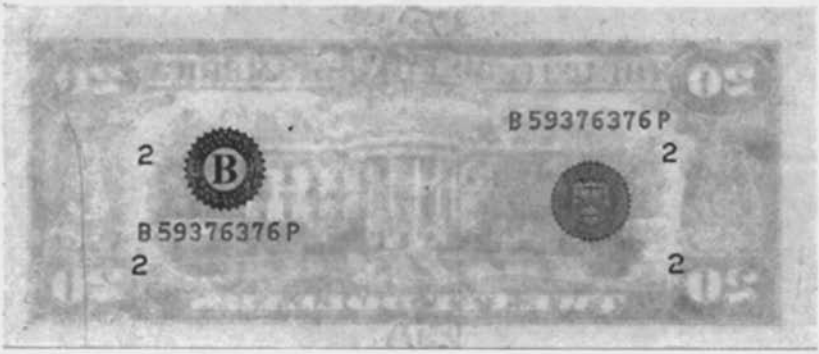
Fine: $250 **EF: $450** **CU: $750**



$10 FRN 19xx Missing 2nd (face) printing R-8

Fine: $250 **EF: $450** **CU: $750**

$10 FRN 1977-A Missing 1st (back) printing R-6
Fine: $125 **EF: $175** **CU: $300**



$20 FRN 19xx Missing 2nd (face) printing R-8
Fine: $250 **EF: $500** **CU: $750**

$20 FRN 1996 Missing 1st (back) printing R-6
Fine: $250 **EF: $450** **CU: $650**

$50 FRN 19xx Missing 2nd (face) printing R-8
Fine: $500 **EF: $1250** **CU: $2000**

PME2-527

$50 FRN 1977 Missing 1st (back) printing R-6
Fine: $250 **EF: $500** **CU: $100**

$100 FRN 1985 Missing 1st (back) printing R-6
Fine: $500 **EF: $750** **CU: $1250**

Failure is only the opportunity to
more intelligently begin again.
— *Henry Ford*

Multiple Errors

Despite common opinion to the contrary, the occurrence of one error affecting a particular note rarely coincides with the occurrence of a separate error on the same note. A multiple error note shows two or more distinct and unrelated types of mistakes on the same piece of paper money. The errors must arise independently of each other during or between the printing and cutting operations. A combination of even the most common errors on the same note is a prized discovery. The value of the multiple error is *not* the simple sum of the premium that each error commands. Rather, the value largely remains a matter of agreement between the seller and buyer. The price reflects both the relative scarcity of each mistake, and the overall eye appeal of the note.

The scarcity of the multiple error cannot be overstated. To recognize just how infrequently two distinct errors appear on the same note, the reader is reminded that the chance (or odds) of the joint occurrence equals the frequency of appearance of one error *multiplied* by the frequency of appearance of the second. One can immediately appreciate the low statistical probability of such an event.

One must consider the production sequence at the Bureau of Engraving and Printing before classifying a note as a multiple error. For example, a large-size double denomination with an inverted "back" remains a single error; as it is the transposition of the sheet which begat the double denomination in plate positions A and D. Likewise, on modern FRNs which demonstrate both an inverted overprint and contain a segment of the next note; these Type II inverts result from a trimming or cutting of the top of the sheet prior to the application of the overprint. Such notes are often encountered mislabeled as "double errors" and carrying outrageous prices tags from unknowing or unscrupulous sellers.

Fractional notes. The single most important example of a double error on fractional currency involves inverted corner surcharges on the back coupled with an interior gutter fold visible on the face. Undoubtedly, very few examples of the multiple error exist.

Large-size notes. Two examples of multiple errors on large-size paper money are known to me. One is a $1, series of 1917 United States note with an obstructed print through the portrait of George Washington and a fairly reasonable solvent smear on the back. The other is a $1, series of 1923 silver certificate showing minor ink smears and an interior fold on the face. However, there are numerous unconfirmed reports of multiple errors on other pieces of large-size paper money.

Small-size notes. Aside from a handful of notes bearing an ink smear-gutter fold combination—which seemingly should be the most common multiple error as it is composed of the two most common individual errors—and perhaps a slightly lesser number with an ink smear-faulty alignment or offset printing-gutter fold pairing, the legitimate multiple errors on small-size paper money exist in

extremely limited quantities. All multiple errors worthy of mention appear on Federal Reserve notes.

Insights and Incidents. Multiple errors are generally under-appreciated in the current market. This phenomenon is likely due to their typically less-than-spectacular appearance. Too many collectors—especially among those who have entered the error note arena with the past five to ten years—opt for eye appeal above rarity. While everyone drools over visually thrilling mistakes, lesser numbers admire the genuine scarcity of multiple mistakes upon the same piece of paper money. Perhaps it takes a true specialist to fully recognize the excitement that even an ink smear-gutter fold combination should merit. Hopefully, interest in multiple errors will increase but, not too dramatically, as there is an insufficient supply.

After a careful analysis it seems that approximately one out of every 125 error notes will classify as a *bona fide* multiple error.

$1 SC 1935-E Offset of blue overprint with triangular-shaped cutting error

Fine: $250 **EF: $450** **CU: $750**

$1 SC 1935-E Oblique gutter fold in combination with partial offset of front

Fine: $150 **EF: $250** **CU: $350**

$1 FRN 1977 3rd print on back in conjunction with numerous ink smears

Fine: $150 **EF: $250** **CU: $450**

$1 FRN 1977 Offset of front design onto back with moderate ink smear

Fine: $150 **EF: $250** **CU: $350**

$1 FRN 1988 Missing overprint plus moderate misalignment for cutting

Fine: $250 **EF: $500** **CU: $750**

$5 FRN 1977 Faulty alignment, with back design biased towards top of note, mated with abundant ink smears

Fine: $100 **EF: $150** **CU: $200**

\$10 FRN 1950-A Spectacular shift of 3rd printing with the black district seal buried within the portrait oval coupled with Treasury seal missing from note

Fine: \$350 **EF: \$750** **CU: \$1000**

\$10 FRN 1981 Misalignment of overprint with partial obstruction of green Treasury seal and complete loss of right serial number

Fine: \$75 **EF: \$200** **CU: \$300**

Life can only be understood backwards,
but it must be lived forwards.
— *Albert Camus*

Multiple Printings

The multiple printing error bears the normal impression of the first, second, and third printing operations *plus* a complete or partial extra impression of one of the printings. The error can result from several causes. The most common origin involves a stack of imprinted sheets being re-fed through the press for a printing it has already received. This produces a sheet of notes with two complete images that are separated, as the sheet does not contact the printing plates in the identical location each time. The greater the disparity in the alignment of the subsequent printing, relative to the original impression, the more dramatic and more valuable the error. If the extra impression involves the first or second printing operation, the note usually shows two different plate check numbers on the affected side. When the error appears on the face of the note, it is sometimes referred to as a "four eye" error because the portrait is doubled.

Multiple printings can also occur when a currency sheet enters the press and the press operator stops the machinery. The sheet subsequently returns to the beginning of the press and receives the complete impression of the design on the second pass through. In this instance, the head portion of the sheet will demonstrate a multiple printing, whereas the tail segment will possess a single impression only.

The loose cylinder error is often mistaken for a legitimate multiple printing. With the loose cylinder error, the printing plate "rocks" or "bounces" when contacting the currency paper. This causes a multiple impression with secondary image(s) lighter and ghostlike. Obviously, all images will bear the same plate check number on a given note. When a loose cylinder is responsible, literally hundreds of notes can be affected during one run.

Fractional notes. Salmon P. Chase recommended the use of fractional denominations in paper money and appealed to the United States Congress for approval of the project. Chase recognized the need for government intervention to alleviate the dwindling supply of circulating coinage during the Civil War. Although the proposal was accepted and successfully remedied the problem for several years, the fractional currency series offers only a paltry number of errors. Whether many more mistakes were manufactured and either lost or redeemed (as only a fraction of the original production remains outstanding) or whether the amount known accurately reflects the proportion manufactured will never be known with certainty. Irregardless, at this time there are no documented double printed fractional currency notes.

Large-size notes. As with fractional currency, I am unaware of any multiple printings on large-size paper money. The closest that a collector might find is a national currency note with the facsimile signatures of the bank officials stamped

more than once. However, because the signatures typically were applied at the individual banking institutions and not within government facilities, such pieces are not generally regarded to be multiple printings.

Small-size notes. Herein lie the only examples of the multiple printing error. Small-size notes with doubled impressions are extremely rare. They rank among the scarcest of all currency mistakes. I have observed complete double-printed back designs on the $1 and $5 silver certificates (SC) and Federal Reserve notes (FRN), as well as on the $10 through $100 FRN. Complete double second or face printings have been recorded on the $1 SC, $1 through $100 FRN, plus a circulated $2 United States note series of 1928-G. Although scattered examples exist among the early FRN, most come from the series of 1977 and later.

The series of 1950-D $5 FRN from Richmond gave birth to a most unusual multiple printing: *four distinct impressions* from *four different back plates.* Inspection of two notes from the same sheet yielded identical results confirming authenticity. From top to bottom, the back plate numbers are: 2429 (lightest impression), 2556, 2481 (strongest impression), and 25xx buried into the design scroll.

In regards to multiple printings of the serial numbers and seals, those on SC and series of 1950 FRN are typically incomplete and greatly shifted horizontally. They remain extremely rare. The few known on later FRN generally appear with the second impression situated above or below the initial printing. Unarguably, the most visually spectacular of all multiple printings involves the series of 1976 $2 FRN with complete doubling of the overprint. These dramatic examples demonstrate wide separation between the impressions, which are situated one above the other. A limited quantity of nine pieces surfaced in 1986 at the Long Beach (CA) show. A slightly smaller number entered numismatic channels through other sources.

Insights and Incidents. The past five or so years have witnessed an unprecedented number of multiple printings for sale. Not simply the result of the dispersal of a few significant collections, but because of a trickle of individual pieces and small groups of two to six notes. The preponderance demonstrate double impressions of the entire second print, often from two different face plates. Most exhibit minor to moderate separation; a handful of stellar examples show gaps of 4-6mm between the images.

Another fascinating variant of the multiple printing error is the application of a secondary first (back) printing *inverted* relative to the primary printing. Harry Jones aptly applied the term "fourth printing" to this mistake. Although four printings exceed the BEP's intention, his nomenclature cannot be improved.

In the mid-1990s a run of nearly 150 pieces of the series of 1988-A $10 FRN from the A-B block on the Boston district escaped the Bureau bearing multiple impressions of the back design. These notes—some rather dramatic—resulted from a loose impression cylinder, which created doubled or tripled images upon contact with the currency paper. To the uninitiated the mistake appeared to be a multiple printing...and countless examples were advertised and priced as such. The telltale difference among these groups is that the secondary and tertiary images are fainter and hazier than the intended printing. Additionally, the back

plate check number is the same. Although genuine multiple printings can occur from repeat contact with the identical face or back plate, such occurrences remain less common. Lastly, unless convincing evidence to the contrary exists (for example, different plate check numbers) each image should be of essentially equal darkness.

A final caveat: with the widespread availability of color laser printers and ever-advancing computer technology, the probability of encountering notes altered outside of the BEP increases daily. Thus far, I have examined countless poor, and several rather deceptive, fabrications. The diagnostic hallmark of a genuine multiple printing is the presence of raised portions of the paper correlating to the intaglio engraving in the printing plates used to impart the back and face designs.

As always, the cautious collector acquires notes only from sources expert at differentiating causes and establishing authenticity of error notes.

Examples Of The Error

MINOR

MODERATE

MAJOR

$1 SC 1935-E Dramatic multiple impressions of signatures, serial number on left, series designator, and lower one-half of seal R-8

Fine: $2500 **EF: $3500** **CU: $4500**

$1 SC 1935-E Spectacular example of multiple 3rd print with huge separation between impressions R-8

Fine: $2500 **EF: $3500** **CU: $4500**

$1 SC 1935-E Double impression of back on a silver certificate R-7

Fine: $1000 **EF: $1500** **CU: $2500**

$1 FRN 1969-B Upper one-third of second (face) printing nicely doubled R-6

Fine: $250 **EF: $750** **CU: $1000**

$1 FRN 1969-D Double printed back with secondary impression inverted R-7

Fine: $1500 **EF: $2500** **CU: $4500**

$1 FRN 1974 Extraneous black overprint markedly mal-positioned R-8

Fine: $750 **EF: $1500** **CU: $2500**

$1 FRN 1988-A Incomplete back printing inverted on front and impressed prior to correct 2nd and 3rd printings R-6

Fine: $750 **EF: $1500** **CU: $2500**

$1 FRN 1993 Double impression lower segment of back design R-6

Fine: $250 **EF: $750** **CU: $1000**

$2 FRN 1976 Penultimate multiple printing error with radical separation between primary and secondary impressions on two dollar denomination which rarely yields spectacular mistakes R-9

Fine: $— **EF: $5000** **CU: $6500**

$5 FRN 1974 Additional back printing inverted relative to proper orientation R-7

Fine: $1500 **EF: $2500** **CU: $4500**

$5 FRN 1977 Complete doubling of second (face) printing albeit with variation in the darkness of the second image R-7

Fine: $500 **EF: $1250** **CU: $1750**

$10 FRN 1950-A Multiple impressions from the same back plate R-7

Fine: $750 **EF: $1000** **CU: $1500**

$10 FRN 1988-A Multiple impressions—not actually multiple printings—from a loose impression cylinder bouncing upon contact, causing a cascade of fainter and less distinct secondary images

Fine: $50 **EF: $100** **CU: $250**

$10 FRN 1993 Extra second impression with horizontal displacement R-7

Fine: $500 **EF: $750** **CU: $1250**

$20 FRN 1950-B Doubling confined to signatures, series, and lower numbers

Fine: $250 **EF: $350** **CU: $650**

$50 FRN 1977 Front double printed by two different plates as evidenced by different face check numbers R-7

Fine: $750 **EF: $1250** **CU: $2000**

$1 FRN 1985 Alleged multiple printing with seals from two different districts, such fabrications frequently appear on Internet auctions sites.

$50 FRN 1990 A fantasy piece created by using a genuine fifty-dollar note as the host to receive a photocopied image from another bill. As the piece bears supposed double printings of both the 2nd and 3rd printings, one should be immediately suspect. Further, the second set of serial numbers appears in black ink, not green.

Hold every moment sacred.

— *Thomas Mann*

Obstructed Printings

Whenever stray material comes between the currency paper and the printing plate during a printing operation, an obstructed printing error occurs. Typically, a scrap of paper lies atop the unfinished sheet of currency stock as it passes through the press. However, other miscellaneous foreign items (such as tissue paper, cellophane, fiber threads, adhesive bandage backings, masking tape, cloth, cardboard, etc.) may be responsible for a blank area on the bill. The design void on the completed note corresponds to the dimensions of the obstructing material.

In the typical scenario, the scrap falls from the currency paper during the subsequent printing, cutting, and packaging stages. If the resulting white space on the note is not detected, the piece enters circulation, while the foreign scrap remains within the Bureau of Engraving and Printing (BEP). On rare occasions, the scrap adheres to the note throughout subsequent printing stages. With the errant material in place, no error may be apparent; however, upon removal the void becomes obvious. By possessing both portions, one is able to recreate and explain the occurrence. The obstructed print error retaining the foreign material ranks among the rarest and most valuable paper money mistakes.

Fractional notes. Even though almost $369 million worth of these odd denomination and miniature size pieces of paper money were printed between 1862 and 1876 (of which about one-tenth of one percent remain unredeemed), the author recalls only three examples of an obstructed print on fractional currency. In terms of sheer size, none is especially exciting. Apparently, the combination of stricter control over debris within the Treasury Department and the lithographic or surface printing method (as opposed to high-speed intaglio printing) accounts for the paucity of examples.

Large-size notes. Excess clumps of fibers from the pulp utilized to create rolled out currency sheets are responsible for most of the obstructed print errors on horse blanket bills. The thick strands of fibers leave a peculiar, irregularly shaped blank area on the note after separating from it. Unless unusually large, such bills possess a dual problem. They are not dramatic enough for the error collector, and too imperfect for the collector of type notes.

The obstructed print error caused by redundant fibers appears on virtually every type and denomination of currency manufactured during the production of large-size paper money, including a $1000 Federal Reserve note (FRN) series of 1918. However, numerous examples of the obstructed print mistake caused by paper scrap are also known. The most dramatic involves the right end of the face printing on a series of 1917, $1 United States note.

Small-size notes. During the early period of small or modern note production, using the wet intaglio process, sheets of non-currency paper were inserted between freshly printed currency sheets to prevent wet ink transfers or offsets of one design onto the adjacent sheet. The currency sheets were stacked with paper

tabs between each pile of one hundred sheets. Not infrequently, the tabs slipped into the presses during subsequent printing operations. These rectangular tabs or strips were responsible for the vast majority of the obstructed printing errors that occurred while the wet intaglio process was employed at the BEP. As such, on a percentage basis, obstructed prints appear more commonly on the earlier issues of small size paper money; especially the FRN. However, obstructed printing errors are known on every class of small-size paper money, including gold certificates, national currency, and Federal Reserve bank notes. Most obstructed print errors tend to be small, and involve only a fraction of the note. Large obstructions remain rare.

The rarity of a note reaching circulation with the obstructing fragment still adhering cannot be overstated. Since 1995, there has been a release of a modest amount of notes with masking tape alone or in combination with a paper tab. In general, these foreign objects seem to capture a portion of the overprint. Although slightly more plentiful than previous, neither their relative rarity nor desirability has diminished.

Insights and Incidents. Several spectacular obstructed printing errors surface every year. Not necessarily new examples, but an admixture of specimens eking out from established collections and freshly produced ones escaping the watchful eyes of BEP inspectors.

Even more staggering than the dramatic obstructed prints filtering into the marketplace are the obstruction errors, which possess the retained fragment. Historically, these have been exceedingly rare…fully on par with double denominations. However, in recent years the BEP has graciously—but undoubtedly unintentionally—provided a steady trickle of magnificent obstructed printings with the intervening material; yet no new double denominations have been produced in nearly one-quarter century.

An especially interesting variety of the retained fragment is the adhesion of masking tape to the currency sheet before printing; some examples also have a section of light brown to manila color thin cardboard affixed with the tape. One or two dramatic examples of this new type (as opposed to the more traditional obstructions from Kraft paper or scraps of currency stock) appear every six months or so. The collector enamored with this variety of obstructed printings might consider acquiring an attractive piece in the near future, as the BEP likely will implement changes to reduce the release of these pieces.

Unquestionably, the most important obstructed print with retained fragment known surfaced in the summer of 2000. It consists of the complete overprint of a *star* note on a 3 x 5 index card. The card was so deeply embossed that the host note also demonstrated a blind impression of the third printing, further attesting to the authenticity. Harry Jones and I jointly handled the unique specimen.

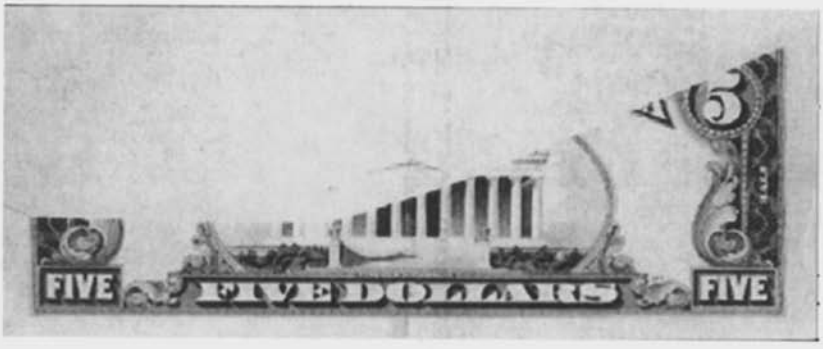
A modern myth is the existence of a lamination error on paper money. Although a note can be purposely split, the production process at Crane and Company—which supplies currency stock to the BEP— negates the possibility of paper separation. I mention that here as one occasionally encounters obstructed print errors mislabeled as originating from a lamination in the currency stock. This seems especially common when the overprint rests atop a void

in the face design. Admittedly, I have never employed a micrometer or scanning electron microscope to evaluate alleged variations in the thickness of a purported lamination error. Nor have I felt the need as a more logical explanation exists. Two decades of involvement in the field of paper money errors have taught me that *anything* can happen inside the BEP. However, thus far, I have not seen a lamination error on paper money. *Caveat emptor.*

Examples Of The Error

MINOR

MODERATE



MAJOR

$1 TN 1891 Treasury seal absent from mid to lower-right end
Fine: $2500 **EF: $3000** **CU: $3500**

$10 FRN 1914 Javelin-shaped void traversing left one-half of back
Fine: $500 **EF: $750** **CU: $1000**

$1 SC 1935-A Multi-fragment obstruction capturing imprint of serial number R-9 and seal; earliest known retained fragment

Fine: $— **EF: $—** **CU: $5000**

$1 SC 1935-E Enormous retained fragment, the largest documented on any silver certificate R-9

Fine: $— **EF: $—** **CU: $7500**

$1 SC 1935-E Obstruction by tab used to separate stacks of currency R-5

Fine: $150 **EF: $350** **CU: $500**

$1 SC 1935-E Retained fragment of currency stock which obstructed printing R-9

Fine: $— **EF: $—** **CU: $3250**

$1 FRN 1977 Incomplete second (face) print caused by fold in sheet which opened prior to the overprint operation R-3

Fine: $50 **EF: $150** **CU: $200**

$1 FRN 1977-A Nearly rectangular fragment overlaying back prior to printing and recovered with finished product R-9

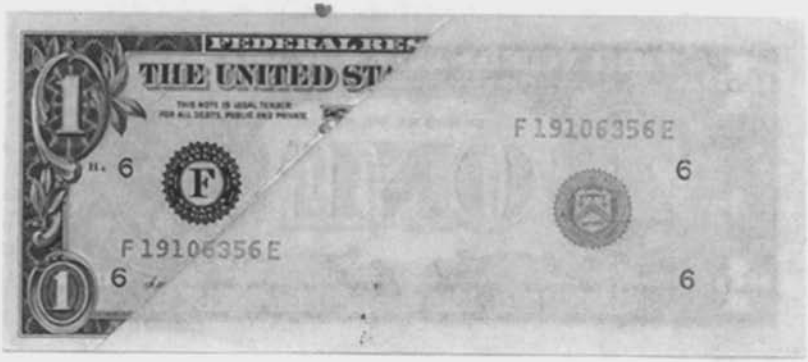
Fine: $— **EF: $—** **CU: $5000**

$1 FRN 1981 Large obstruction with non-currency stock accepted overprint R-9

Fine: $— **EF: $—** **CU: $6500**

$1 FRN 1981-A Bizarre combination of Kraft paper and masking tape causing obstruction and retention of fragment to host note R-9

Fine: $2500 **EF: $3500** **CU: $5500**



$1 FRN 19xx Major obstruction due to large oblique fold in uncut sheet R-5

Fine: $100 **EF: $300** **CU: $650**

$1 FRN 1995 Star or replacement note with entire overprint captured by R-9 wayward 3" x 5" index card; embossing of serial numbers and seals evident on note, unique

Fine: $— **EF: $—** **CU: $12,500**

$2 FRN 1976 Two tabs obstructed back printing on Bicentennial deuce R-6

Fine: $500 **EF: $750** **CU: $1250**

$5 FRN 1977-A Unusually large imprinted fragment recovered with note R-9

Fine: $— **EF: $—** **CU: $4500**

$10 FRN 1934-D Coarse wiping paper—used to clean plates—received imprint R-9

Fine: $— **EF: $—** **CU: $4500**

$10 FRN 1950 Lasso-shaped obstruction with twisted scrap of currency stock R-9

Fine: $— **EF: $—** **CU: $4500**

$10 FRN 1977-A Gigantic piece of non-currency stock R-9
Fine: $— **EF: $—** **CU: $5500**

$20 FRN 1969 Stray material accepted printing of Treasury seal R-3
Fine: $50 **EF: $75** **CU: $100**

$20 FRN 1985 Major obstruction of second (face) printing R-5
Fine: $100 **EF: $200** **CU: $500**

$20 FRN 1993 Approximately 50% back design missing R-3
Fine: $50 **EF: $150** **CU: $300**

$50 FRN 1996 Apparently an irregular-shaped object interfered with printing R-3
Fine: $75 **EF: $200** **CU: $400**

$100 FRN 1977 Green Treasury seal and right serial and district numbers gone R-3

Fine: $150 **EF: $250** **CU: $400**

$100 FRN 1981 Sizeable section of second (face) printing intercepted by scrap R-3

Fine: $200 **EF: $300** **CU: $450**

$1 FRN 1969 Note altered to create the impression of an obstruction in the face printing. A soft eraser was employed to remove the design on the right. The texture in the altered portion varies from the balance of the note. The paper feels thinner and exhibits a shiny appearance.

The foolish and the dead
never change their opinions.

— *James Russell Lowell*

Offset Printings

Offset printings are impressive currency errors. They look like one side of the note "bled through" to the other. However, an inspection will demonstrate that the offset printing is on the surface and is a mirror image of the note's opposite side. That is, the offset or wet ink transfer places a retrograde image on the wrong side of the bill. Within the printing industry, including the Bureau of Engraving and Printing (BEP), offsets carry the designation of blanket impressions.

A brief review of the printing process will permit the reader to better understand how the error occurs. Under normal operating conditions, a sheet of currency paper passes between the inked printing plate and the impression cylinder. The impression cylinder forces the paper into the intaglio recesses in the printing plate. When the paper fails to enter the press, the plate contacts the impression cylinder. As the next and subsequent sheets of currency paper enter the press, they receive not only the intended printing on the correct side but, on the opposite side a transfer or offset printing as well. This transfer or offset originates from the ink on the impression cylinder. The transferred image becomes lighter with each sheet and disappears entirely after ten to twelve sheets. The rich, bold offset impressions from the first couple of sheets bring the highest prices.

Partial or incomplete offset printings arise in much the same fashion as the complete offsets described above. However, as the name indicates, partial offsets involve merely a portion of the design. An incomplete offset develops when the impression cylinder becomes exposed to part of the inked printing plate through a fold, tear, or defect in a sheet of currency stock. Partial offsets come in an array of sizes and configurations. Their values lie considerably lower than those of complete wet ink transfers.

Although offset printings presently arise in the above manner, such was not always the case. Prior to the introduction of the dry intaglio method of printing at the BEP, notes were produced via the wet intaglio process. The notes were printed on dampened paper, to facilitate the impregnation of the ink into the paper. Consequently, the ink remained moist for a period of time. Sheets of impervious paper were inserted between the freshly printed pages of paper money. When the interleaves were not inserted or improperly aligned, the wet ink transferred directly to another printed sheet. These early offsets are typically much darker than those produced today.

Offsets—complete or partial—of the first printing onto the face, the second printing onto the back, or the third printing onto the back may occur. The so-called back-to-face, sometimes abbreviated B2F, and face-to-back, sometimes abbreviated F2B, offsets are probable to happen in statistically similar numbers. However, because the face of the note is inspected more times than the back, fewer of the back-to-face offsets reach circulation. By far, the offset of the overprint onto the back remains the scarcest.

Fractional notes. Fourteen offset errors on fractional denomination notes have been examined. Nine specimens exhibited an offset of the back printing on the face. Each note was circulated, to one extent or another. One fascinating piece represented a complete ink transfer. Two showed approximately one-half of the design; the remainder displayed only a small portion. Five fractional currency notes exhibited partial offsets of the face printing on the back.

Large-size notes. Numerous examples of partial or incomplete wet ink transfers are known on large-size paper money. Predictably, the effected notes favor the later series. The largest offset impression documented covered about 40 percent of the face on a $1, series of 1923 silver certificate. Another sizeable example exists on a series of 1918, $1 Federal Reserve bank note. Most offsets on large-size paper money involve simply a small area along the top, bottom, side margin, or corner. Although none of the contributors to this book recall a complete offset on a large-size note, the consensus is that such an error probably exists. Until one is found, the only complete offset that a collector might hope to acquire is a wet ink transfer of the overprint elements onto the back, occasionally encountered on the series of 1923, $1 silver certificates with the Speelman-White signature combination.

Small size notes. Offset printings on small-size paper money rank among the most popular of errors. In fact, many neophyte collectors acquire an offset before any other misprint. This is apparently due to the obviousness of this mistake (so blatant that even non-collectors can readily appreciate it) and the affordable price. Wet ink transfers seem relatively common, especially on Federal Reserve notes (FRN).

However, especially dark offsets, from the first or second impressions, remain elusive. Complete and partial offsets of the back-to-face, face-to-back, and third printing on back are known on all denominations, on the FRN, from $1 to $100, including the $2. A triangular-shaped offset of the face-to-back is known on a series of 1934-A $500. Silver certificates also possess their fair share of offset printing errors; both complete and partial. Partial offsets also exist on gold certificates, national currency, Federal Reserve bank notes, and United States notes.

The most intriguing, valuable, and initially perplexing offsets involve two different denominations. These are bona fide double-denomination notes, yet sell for a fraction of their more traditional counterparts. Two specimens exist. Both show the back design of one denomination transferred across the face of a different-valued note. The potential for a double-denomination offset occurs when an inked plate contacts an impression cylinder shortly before the printing plates are changed to another denomination. The first report arrived in 1977. It involved the back of a $20 FRN on the face of a series of 1976, $2 FRN. The second note includes the back of a $1 FRN across the face of a series of 1981 $5 FRN. It was declared genuine by authorities at the BEP.

Insights and Incidents. For years, offsets were, more often than not, the first error purchased by beginning collectors. The enormous eye-appeal coupled with a modest cost enticed many people. The offset served as a springboard to collecting misprints. Somewhere in the mid-1990s, the pendulum swung and the quality of entry level purchases by new collectors escalated. They began to demand more

sophisticated mistakes (such as inverted overprints, printed folds, and missing printings) for the initial acquisition. Consequently, there was a temporary surplus of unsold offset printing errors sitting in dealers' inventories. In the late-1990s, due to the popularity of Internet sales and on-line auctions, the pendulum swung back and the demand for offsets increased to a level never before achieved. One factor which remained—and continues to remain—constant is the overwhelming favor for early, bold first and second impression transfers.

The purchaser needs to understand the experience of the seller in quantifying the darkness of any offset offered. Entirely too often, collectors have been duped into paying unnecessarily high prices for medium or average darkness offsets because the seller has described them as "the darkest ever seen," "extremely sharp," "very bold," or similar hyperbole. Until a seller has seen hundreds, if not thousands, of offset printing errors the potential purchaser should temper any adjectives with skepticism.

Another cause for overwhelming concern is the pseudo-offsets readily generated by image reversal software and a desktop printer. Most personal computers come equipped with software, which can reverse an image. By scanning a note, especially the back, reversing the image, sending the image to the printer, and printing it on the face of another note, the troublemaker has created the appearance of an offset. Such practice occurs more frequently than the average collector might assume. At almost every major numismatic show, I am offered at least one such "error." Magnification is sometimes beneficial to expose a dot matrix pattern or an image of lesser sharpness than typical. Such shenanigans offer another instance of *caveat emptor.*

One of the most important offsets known sold in the Lyn F. Knight auction of the author's collection in 1998. Albeit somewhat light, the piece demonstrated a mirror image of the back of a $1, FRN across the face of a series of 1981, $5 FRN from the Richmond district. A photocopy of the letter of authentication from the BEP accompanied the lot. The amount of circulation (and weakness of the image transfer) enabled the buyer to acquire a legitimate rarity at a reasonable price.

Examples Of The Error

MINOR

MODERATE

MAJOR

$1 FRBN 1918 First impression offset of serial numbers and seal
Fine: $2500 **EF: $3500** **CU: $5000**

$5 USN 1862 Sharp transfer of signatures
Fine: $2500 **EF: $3500** **CU: $5000**

$1 SC 1957-A Matching triangular offsets on both sides, very uncommon R-3

Fine: $50 **EF: $150** **CU: $350**

$1 SC 1935-E Star or replacement note with vivid offset R-2

Fine: $75 **EF: $150** **CU: $250**

$1 FRN 1969-D Offset of part of the back from two different notes which occurred on the Magna quad-press

Fine: $1500 **EF: $2500** **CU: $3500**

$1 FRN 1981 Star note with offset through torn sheet resembling a crown R-2

Fine: $25 **EF: $75** **CU: $150**

$1 FRN 1981 Partial offset of back design across front R-1

Fine: $15 **EF: $20** **CU: $35**

$1 FRN 1988-A Exceptionally dark offset affecting two-thirds of front R-1

Fine: $25 **EF: $50** **CU: $75**

$2 FRN 1976 100% of the face transferred onto the back, very dark R-3

Fine: $500 **EF: $750** **CU: $1750**

$2 FRN 1976 100% of back design offset onto the face, very dark R-4

Fine: $500 **EF: $1250** **CU: $2000**

$2 FRN 1976 Roller transfer with extra district seals and district numbers

Fine: $25 **EF: $75** **CU: $150**

$5 FRN 1981 Double denomination offset: back of $1 transferred across front of $5, authenticated by BEP personnel

Fine: $2500 **EF: $3500** **CU: $4500**

$10 FRN 1977-A Total transfer of front onto back, of medium darkness R-2

Fine: $25 **EF: $50** **CU: $100**

$10 FRN 1981 Consecutive pair showing printed fold which gave rise to offset of overprint on subsequent sheet through press R-7

Fine: $— **EF: $—** **CU: $750**

$10 FRN 1993 Matte variety offset with underlying crosshatch pattern to ink R-3

Fine: $25 **EF: $50** **CU: $125**

$10 FRN 1995 Dark offset of the 3rd printing elements onto the back R-7

Fine: $150 **EF: $250** **CU: $350**

$20 FRN 1977 First impression transfer of the entire front across the back R-2

Fine: $75 **EF: $125** **CU: $200**

$20 FRN 1996 100% of the face design offset onto the back R-2
Fine: $75 **EF: $150** **CU: $300**

$20 FRN 1996 Rich green color on this first impressi on offset R-3
Fine: $100 **EF: $200** **CU: $350**

$50 FRN 1977 Deep black impression of the front in a mirror image on back R-2
Fine: $100 **EF: $200** **CU: $450**

$50 FRN 1977 Complete transfer of the back design cross the front R-3

Fine: $100 **EF: $200** **CU: $450**

$100 FRN 1985 Mirror image offset of Treasury seal and terminal digits in serial number in conjunction with a correctly oriented seal and serial numbers from printed fold R-7

Fine: $750 **EF: $1500** **CU: $3000**

$100 FRN 1996 Sharp transfer of moderate portion front design R-1

Fine: $115 **EF: $135** **CU: $175**

$100 FRN 1996 100% offset of back design, moderate intensity R-3

Fine: $200 **EF: $350** **CU: $550**

$1 FRN 1963-B False suggestion of an offset error caused by prolonged exposure to pressure, moisture, and heat. Unlike real errors, these pseudo-offsets are removable with water and a cotton-tipped applicator.

$1 FRN 1995 Fake offset generated with image reversal software. Under magnification, a faint dot matrix pattern is apparent and the color bears a brownish hue.

One chance is all you need.
— *Jesse Owens*

Overprints On Back

Not surprisingly, the overprint on back error demonstrates the third printing elements on the back of the note. The serial numbers, Treasury seal, and, if applicable, the Federal Reserve bank or universal seal and corresponding district numerals appear on the wrong side. The error develops when an uncut half sheet enters the overprinting press with the back—instead of the face—closest to the printing heads. This produces a note with the appearance of a mistake on *both* sides. The face, which lacks the third printing elements, resembles "play money," with a sharp contrast between the black ink of the second printing and the white currency paper. The back, which carries the third printing elements, seems too crowded as portions of the overprint rest atop and blend into the ornate design.

The overprint on back error and the inverted overprint error captured headlines in numismatic and daily newspapers in 1976 and 1977 when unprecedented numbers were released from the Federal Reserve banks. These dramatic blunders sparked a major interest in error currency.

Fractional notes. Errors in the overprints applied to this class of paper money account for the greatest percentage of mistakes. These surcharge errors take many forms including: missing (especially the characters in the corners on the back), misaligned (common on the bronze oval on the face), and inverted (rarest on the denomination designator on the back). However, aside from essays and specimens, the appearance of an overprint on the wrong side of an issued fractional currency note remains unknown.

Large-size notes. Overprint elements on the back of a large-size note resulting from a four-subject uncut sheet being inserted into the press wrong side up are also unknown. Both wet ink transfers or offsets and printed folds have caused complete or partial overprints to appear on the back, but these represent different types of errors. In the wet ink transfer, the third print exists in a mirror or retrograde image. In the printed fold, a crease is evident in the currency paper. The fold, when opened, separates the portion of the overprint present on the back from that on the face.

Small-size notes. Despite the sophisticated electronic sensors of the currency overprinting and processing equipment (COPE)—which intend to eliminate and identify the manufacture of errors during the final printing, cutting, and banding operations—the overprint-on-back error now escapes in almost sufficient quantity to satisfy collector demand. Prior to the introduction of the COPE, fewer examples of the overprint on back escaped the watchful eyes of seasoned inspectors. The series of 1974 and later Federal Reserve notes (FRN) offer the only readily available pieces.

The error appears with approximately equal frequency on all denominations, proportionate to the number of notes produced, with the exception of the $2 value. Only six to nine examples of the third print on back exist on the series of

1976 $2 FRN; thus far, none are known on the series of 1995. The second scarcest denomination is the $50; followed by the $100.

The overprint-on-back error is scarce on silver certificates. It is unknown on national currency, gold certificates, United States notes, and Federal Reserve bank notes.

Insights and Incidents. Error notes demonstrating the overprint on the incorrect side remain as popular as ever. Collectors can begin to assemble denomination sets of FRN—from $1 to $100, minus the deuce—on both old and redesigned paper money. Such an assortment would make quite a display!

In reference to the $2 FRN, six pieces with the third print on the back were unleashed by a bank in rural Indiana in 1995. I handled the notes; all continue to reside in advanced collections. Like other mistakes (most notably the blank back), certain misprints were essentially unknown on $2 FRN until banks began clearing out stagnant supplies of the bicentennial issue to make room for the unequally unpopular series of 1995.

Perhaps the most intriguing—and unarguably the rarest—notes bearing the overprint on the back are star or replacement pieces. Exactly two pieces have been verified: a $5 FRN and $20 FRN. The former sold at auction in February, 1998; the later reposed in the most advanced collection of overprint mistakes ever amassed until the assemblage was sold intact.

The inverted overprint on back appears to be a major "sleeper" among United States paper money mistakes. Unless the BEP ferrets out additional examples, existing pieces should prove to be extremely rare. Even if the Bureau accommodates collectors' desires, new examples are most likely to appear on the redesigned FRN. Four of the $20 FRN with an inverted orientation of the third print on the back—all from the same half sheet—surfaced in metropolitan Detroit. Interestingly, each note went to different coin dealers before I acquired them.

In March of 2001, a series of 1988-A FRN, printed on the *web press,* containing the overprint on the back surfaced...more than a decade after its accidental manufacture. The note originated from run 8 of the G-P block and carries the 5/8 combination of face and back plates. Within ten days, rumors of a second piece—arising within a 100-mile radius of the location of the discovery note—started. The rumors proved to be unfounded. And, although a 16-subject half sheet was likely produced, the note remains unique.

$1 FRN 1977-A Overprint on back R-5
Fine: $100 **EF: $200** **CU: $250**

$1 FRN 1995 Overprint on back, inverted R-8
Fine: $350 **EF: $750** **CU: $1500**

$5 FRN 1981 Overprint on back R-5
Fine: $100 **EF: $200** **CU: $300**

$5 FRN 1981-A Star or replacement note with overprint on back, also flame-shaped ink smear effecting a double error R-6

Fine: $1500 **EF: $2500** **CU: $3500**

$10 FRN 1977-A Overprint on back R-5

Fine: $100 **EF: $200** **CU: $300**

$20 FRN 1985 Overprint on back R-5

Fine: $100 **EF: $150** **CU: $300**

$20 FRN 1993 Overprint on back, inverted R-8
Fine: $500 **EF: $750** **CU: $1500**

$20 FRN 1996 Overprint on back R-5
Fine: $125 **EF: $250** **CU: $350**

$50 FRN 1985 Overprint on back R-5
Fine: $150 **EF: $450** **CU: $750**

$50 FRN 1995 Overprint on back, inverted R-8
Fine: $500 **EF: $750** **CU: $1500**

$100 FRN 1990 Overprint on back R-5
Fine: $300 **EF: $500** **CU: $1000**

$100 FRN 1996 Overprint on back R-5
Fine: $350 **EF: $750** **CU: $1250**

PART THREE

OVERPRINT ERRORS

INVERTED OVERPRINTS

MISALIGNED OVERPRINTS

MISMATCHED SERIAL NUMBERS, CHARTER NUMBERS, AND BLOCK LETTERS

MISSING OVERPRINTS

OVERPRINTS ON BACK

STUCK DIGITS, STUCK BLOCK LETTERS, AND INVERTED BLOCK CHARACTERS

The tragedy of life is what dies
inside a man while he lives.
— *Albert Schweitzer*

Inverted Overprints

Inverted overprints demonstrate the seals and serial numbers upside down relative to the face design. These dramatic errors result from uncut half sheets of currency being inserted into the overprinting presses 180 degrees from the correct orientation. After accepting properly aligned first and second printings, the ends of the uncut half sheets are inadvertently transposed prior to entering the currency overprinting and processing equipment (COPE) for the third or overprinting operation.

On the earlier issues (series of 1935 through 1963-A) of small-size notes, the facsimile signatures of the Treasurer of the United States and Secretary of the Treasury and the series designation were applied during the overprinting stage. Thus, they also assumed an inverted position when the error occurred. Since the series of 1963-B Federal Reserve notes (FRN), engravers have reproduced the signatures directly into the intaglio plate used for the second or face printing.

The inverted overprint generated nationwide interest in the field of paper money errors in 1976-78 after unprecedented numbers escaped the Bureau of Engraving and Printing (BEP). Upon release through the Federal Reserve system, the media were inundated with reports of the mistake. A new wave of collecting interest ensued.

Beginning with the series of 1981, the BEP began to trim the selvedge paper from the top of the sheet *prior* to the third printing; a step previously accomplished after all printings were finished. In the application of an appropriately positioned overprint, the serial numbers and seals fall directly into their designated location. However, when the sheet becomes inverted, the overprint appears to shift toward the bottom of the note. When the upside-down half sheets enter subsequent cutting stages—for separation into individual notes—the resulting product contains either a segment of the adjacent note or the upper margin from the sheet at the top. This appearance typifies *every* inverted overprint beginning with the series of 1981. Robert Apziazu coined the term "Type II" invert to describe this variety.

Fractional notes. Bronze or gold-colored surcharges or overprints—primarily consisting of a large, outlined numeral corresponding to the denomination of the note—were employed on the second and third issues of fractional currency. The overprint was applied to the back of the note by the Treasury Department as an additional measure to discourage counterfeiting. Inverted surcharge printings on fractional currency are scarce. The author estimates the total number in existence at less than one hundred pieces. Nonetheless, a previously unreported specimen seems to surface every year or so.

Large-size notes. Unlike the inverted back error, the inverted overprint ranks among the rarest misprints on large-size currency. The dramatic effect of upside-down serial numbers and seals is seldom witnessed. A mere handful of seven different examples have traded hands publicly in the past sixty years; perhaps an

equal number, at most, changed ownership privately during the same period. A crisp uncirculated example of the series of 1917, $1 United States notes with an inverted overprint commands a low five-figure price.

A keen-eyed researcher made a major syngraphic discovery in 2002: an 1863 (series 1), $2 USN from the B sheet position with an inverted Treasury seal. All other printings—including the serial numbers—were oriented correctly on this Fr-41a.

Small-size notes. Once considered a major rarity, particularly on the higher denomination bills, inverted overprints have flooded the marketplace in recent years. Inverted overprints are most plentiful on FRN, with silver certificates (SC) ranking a moderate second. Scattered examples exist of inverts exist on national currency and United States notes. An inverted overprint on a small-size gold certificate has been reported; its existence remains in question. None is rumored on the Federal Reserve bank notes from the series of 1929, which were printed under emergency financial conditions.

Unlike many types of errors that tend to slip into circulation unnoticed, most inverted overprints on modern paper money are preserved by bank tellers in new condition.

Any attempt to list the known inverted third printings on small-size notes would be so extensive, yet so incomplete, as to make the task impractical.

Insights and Incidents. In February 1998 a then new world's record was firmly established for a small-size United States paper money error. The magnificent note was a series of 1934-A $5 FRN with inverted brown serial numbers and Treasury seal against black "Hawaii" surcharges. The hammer price was $26,000, plus a 10% buyer's fee. This demolished the standing record for a small-size error note (double denomination $5 face/$10 back series of 1934-D FRN sold by Stack's) by nearly $10,000.

Interest in upside-down third printings flourishes among collectors, especially with the myriad of possibilities available. Since the first edition's publication, several significant changes in United States paper money production and design have transpired. One change, the trimming of the top of the uncut sheet prior to the final print, directly impacts the appearance of inverted overprints. These Type II inverts contain either a portion of the adjacent note or the upper margin of the uncut sheet at the top. Such notes are not double (or multiple) errors—contrary to the hype espoused by non-specialists. I've engendered more heated debates about this topic than all other aspects of paper money errors combined!

The contemporary collector enjoys a greater spectrum of inverted overprints than ever before. Obviously, fractional currency, large-size, and small-size SC, FRN, United States notes, and national currency inverts have been around for one-half century. However, the Type II invert—coupled with the design changes—makes the permutations nearly endless. No longer should one aspire to merely acquire a denomination set of $1 through $100 FRN, but collect the aforementioned in Type I and Type II plus inverted overprints on the redesigned FRN.

A final commentary: as the new designs (effective with the series of 1996 $100) will likely persist for decades, the collector need not pay extravagant sums to acquire an invert—or any other error—on the current design. Errors are essentially type notes and few collectors care which series begot a particular misprint.

TABLE OF INVERTED OVERPRINTS

Fractional Currency

Denomination	Issue	Catalog number
5c	2nd	KL-3226, Fr-1232
		KL-3227, Fr-1233
10c	2nd	KL-3230, Fr-1244
		KL-3231, Fr-1245
		KL-3232, Fr-1246 (1)
		KL-3233, Fr-1247
		KL-3235, Fr-1249
	3rd	KL-3262, Fr-1255 (2)
		KL-3264, Fr-1256 (3)
25c	2nd	KL-3236, Fr-1283
		KL-3237, Fr-1284
		KL-3239, Fr-1286
		KL-3241, Fr-1288
		KL-3242, Fr-1289
		KL-3243, Fr-1290
	3rd	KL-3265, Fr-1291
		KL-3268, Fr-1294
		KL-3270, Fr-1296
		KL-3271, Fr-1297
		KL-3272, Fr-1298
50c	2nd	KL-3245, Fr-1316
		KL-3246, Fr-1317
		KL-3247, Fr-1318
		KL-3249, Fr-1321
		KL-3250, Fr-1322
	3rd	KL-3283, Fr-1331
		KL-3284, Fr-1332
		KL-3285, Fr-1333
		KL-3286, Fr-1334
		KL-3287, Fr-1335
		KL-3288, Fr-1336
		KL-3289, Fr-1337
		KL-3290, Fr-1338
		KL-3291, Fr-1339

Denomination	Issue	Catalog number
		KL-3292, Fr-1340
		KL-3293, Fr-1341
		KL-3294, Fr-1342
		KL-3312, Fr-1360
		KL-3314, Fr-1362
		KL-3315, Fr-1363
		KL-3316, Fr-1364
		KL-3317, Fr-1365
		KL-3318, Fr-1366
		KL-3319, Fr-1367
		KL-3320, Fr-1368
		KL-3321, Fr-1369
		KL-3322, Fr-1370
		KL-3324, Fr-1372
		KL-3325, Fr-1373

Large–size Notes

Denomination	Type	Series	Catalog number
$1	SC	1899	KL-49, Fr-234
			KL-52, Fr-237
	USN	1917	KL-23, Fr-36
			KL-26, Fr-38
	FRBN	1918	KL-66, Fr-713 (New York)
			KL-72, Fr-719 (Cleveland)
			KL-79, Fr-726 (Atlanta)
			KL-96, Fr-743 (San Francisco)
			KL-97, Fr-744 (San Francisco)
$2	SC	1899	KL-139, Fr-258
$5	SC	1899	KL-241, Fr-271
	FRN	1914	KL-279, Fr-851 (New York)
			KL-283, Fr-855 (Philadelphia)

Small-size National Currency

Denomination	Series	Charter	Bank name, City, State
$5	1929-I	2154	First National Bank, Belleville, NY
		6499	Farmers Merchants National Bank, Tyrone, PA
		12352	Liberty Nat'l Bank Trust Company, New York, NY
$10 1929-I		1085	National Bank of, Wrentham, MA
			First National Bank, Guttenberg, NJ

Small-size "HAWAII" Notes

Denomination	Type	Series	Block	Catalog number
$5	FRN	1934-A	L-A	KL-1961, Fr-2302 (4)
$10	FRN	1934-A	L-A	KL-2258, Fr-2303 (5)
$20	FRN	1934-A	L-A	KL-2524, Fr-2305 (5)

(1) uncut blocks of nine and four known, plus uncut pair, and several singles

(2) inverted overprint varieties, on this number include: inverted face surcharge, inverted back surcharge, and inverted face and back surcharges

(3) inverted face and back surcharges

(4) inverted brown serial numbers and Treasury seal; two known

(5) inverted black "HAWAII" surcharge on back; four or five known

Examples Of The Error

Type I

Type II

$1 SC 1899 Inverted overprint
Fine: $6000 **EF: $9500** **CU: $12,500**

$1 USN 1917 Inverted overprint
Fine: $6000 **EF: $9500** **CU: $12,500**

$1 FRBN 1918 Inverted overprint

Fine: $6000 **EF: $9500** **CU: $12,500**

$1 SC 1935-D Inverted overprint R-5

Fine: $200 **EF: $500** **CU: $750**

$1 SC 1935-E Inverted signatures and series only, an error which could occur only on face plates 7500 to 7999 during the transition between imprinting the series and signatures with the overprint to having them directly engraved into the plate

Fine: $1500 **EF: $2000** **CU: $2750**

$1 FRN 1974 Inverted overprint, Type I R-5
Fine: $100 **EF: $200** **CU: $300**

$1 FRN 1981-A Inverted overprint, with misalignment characteristic, Type II R-5
Fine: $100 **EF: $200** **CU: $350**

$2 USN 1953 Inverted overprint
Fine: $2500 **EF: $5000** **CU: $9500**

$2 FRN 1976 Inverted overprint, Type I R-6
Fine: $500 **EF: $850** **CU: $1500**

$5 NBN 1929-I Inverted overprint
Fine: $25,000 **EF: $30,000** **CU: $—**

$5 SC 1934-C Inverted overprint R-5
Fine: $2500 **EF: $3500** **CU: $5500**

$5 FRN 1950-A Star or replacement note with inverted overprint, Type I R-6

Fine: $2500 **EF: $3500** **CU: $4500**

$5 FRN 1934-A HAWAII note with inverted overprint, two known

Fine: $— **EF: $—** **CU: $27,500**

$10 FRN 1934-A HAWAII surcharge inverted on back

Fine: $5000 **EF: $6500** **CU: $8500**

$10 FRN 1977 Inverted overprint, Type I R-5
Fine: $125 **EF: $200** **CU: $300**

$20 FRN 1950-A Star or replacement note with inverted overprint, Type I R-6
Fine: $2500 **EF: $3500** **CU: $4500**

$20 FRN 1974 Inverted overprint, Type I R-5
Fine: $125 **EF: $200** **CU: $300**

$100 FRN 1977 Inverted overprint, Type I R-6
Fine: $350 **EF: $600** **CU: $1000**

$100 FRN 1985 Inverted overprint, Type II R-6
Fine: $500 **EF: $750** **CU: $1250**

$100 FRN 1996 Inverted overprint, Type II R-6
Fine: $500 **EF: $950** **CU: $1500**

The height of your accomplishments
will equal the depth of your convictions.
— *William F. Scolavino*

Misaligned Overprints

Misaligned overprint errors are readily recognized by the eccentric placement of the final printing elements. Typically, this involves the serial numbers and seals. The overprint may assume a skewed or shifted orientation.

The apparent shift in the overprint on the completed note usually results from the improper feeding of the currency sheet into the overprinting press. The sheet enters the final printing operation at an angle or with unequal amounts of paper on the right and left sides. The overprint shift may also arise from an existing fold in the currency paper that affects the dimensions of the uncut half sheet and consequently alters the relative position of the notes receiving the final printing. In the former instance, each note on the sheet will bear a nearly identical misalignment; in the later, the degree of the shift will be a function of the note's relation to the fold.

For a misalignment to legitimately qualify as an error, a portion of the overprint must rest atop a portion of the design it was not intended to cover. Despite excellent quality control within the Bureau of Engraving and Printing (BEP), minor variances in position are within acceptable tolerance limits.

Shifts with the overprint abnormally close to the right end of the note are the most common. Those towards the bottom rank a distant second. Vertical shifts in an upward direction fall close behind. While shifts with the overprint misaligned to the left end are by far the least common.

Fractional notes. Despite the typically high production and inspection standards maintained within the Treasury Department during the issuance of fractional currency—which probably accounts for the relatively miniscule supply of other types of errors—misalignment of the overprint or surcharge elements is a commonly found mistake. In fact, slightly out of position overprints are so common as to pose a dual problem. They appeal to neither the error collector, who seeks a more striking example, nor to the non-error collector who desires a more ideally placed overprint. While the minor shifts are commonplace, truly major misalignments are elusive. Minor misalignments are known for every type of note printed with a surcharge; whether the overprint is the large outlined numeral on the back corresponding with the denomination, the bronze oval surrounding the portrait on the face, or the designators in the corners on the back. Moderate to major misalignments are known on the more common fractional currency designs, in limited quantities.

Large-size notes. The author remains aware of a few examples of a major shift of the overprint on a piece of large-size paper money. One is a series of 1899, $1 silver certificate. Although only in very fine condition, the note also bears a courtesy autograph of a treasury official. The other variety—of which three specimens from the same sheet of four are known—is the series of 1923 $1 United

States note with an enormous upward shift in the red Treasury seal and large numeral "1." There are unconfirmed reports of two major shift errors on national currency from the series of 1902. This phenomenon seems perplexing as missing overprint and inverted overprint errors, which should have proven easier for the inspectors to catch, are seen on occasion. Even a moderately mis-positioned overprint on large-size currency would be a prized discovery.

Small-size notes. Minor shifts in the overprinting occur so often on small size paper money that many continue to pass through circulation, even among those alert enough to identify the error. However, truly major misalignments—in terms of distance or angle—remain important enough to capture the attention of the numismatic press. Moderate to major shifts in the overprinting elements are known on all six classes of small size notes including gold certificates and Federal Reserve bank notes, which are frequently exempt from other types of mistakes.

Insights and Incidents. Misaligned overprints—or "shifts" in the common vernacular—remain popular, with the wildest mal-positions most actively pursued. Truly fantastic shifts with enormous displacements or bearing portions of overprints from two or more separate notes prove to be exceedingly rare and command prices commensurate with their scarcity.

A candidate for the most spectacular example of a misaligned overprint surfaced in October of 2000. The note, a series of 1974, $1 FRN from the Cleveland district, contains a horizontal shift so enormous that the right side of the note bears the black district seal and serial number (intended for the left end); the left side carries a green Treasury seal and serial number from the left end of the adjacent note on the uncut half sheet. I enjoyed the privilege of purchasing the error from the discoverer, through an intermediary, and selling it to another specialist.

In general, errors on two-dollar notes are more difficult to locate than on other denominations. This is definitely not the case with minor misalignments of the overprint. Minor shifts (particularly in a downward direction with the serial numbers barely contacting the words "Washington, D.C.") are extremely common on series of 1976 FRN. Although the uniformed and the unscrupulous attempt to overstate the rarity, especially on Internet auction sites, such minor shifts prove unexciting to the knowledgeable collector.

Star or replacement note errors capture special attention and garner an extra premium. Nonetheless, overall star note errors remain under priced in relation to their relative rarity. Misaligned overprints are no exception. A major mal-position of the overprint on a star note should be aggressively pursued by all collectors needing a representative example. On star notes, stupendous shifts are nearly as elusive as inverted overprints…of which a mere handful exist.

Examples Of The Error

MINOR

MODERATE

MAJOR

$1 USN 1923 Spectacular shift of red Treasury seal and large numeral "1"

Fine: $— **EF: $10,000** **CU: $12,500**

$1 SC 1935-A Markedly skewed "HAWAII" overprint

Fine: $750 **EF: $2000** **CU: $4500**

$1 SC 1935-D "Split shift" of serial numbers and seals only, with signatures and series in correct position, possible only on face plates of 7500 through 7999 during a transitional period

Fine: $250 **EF: $750** **CU: $1250**

$1 SC 1935-D Opposite of above with only signatures and series shifted

Fine: $250 **EF: $750** **CU: $1500**

$1 SC 1935-E Major misalignment of overprint elements on silver certificate R-4

Fine: $150 **EF: $350** **CU: $750**

$1 SC 1935-E Spectacular shift with overprints from two notes R-4

Fine: $500 **EF: $1500** **CU: $2500**

$1 SC 1935-F Star or replacement note with marvelous misalignment R-5

Fine: $750 **EF: $1000** **CU: $1250**

$1 FRN 1969-D Stupendous shift with district seal atop Washington's face R-4

Fine: $150 **EF: $500** **CU: $750**

$1 FRN 1974 Stunning shift with overprint from adjacent note at bottom R-4

Fine: $500 **EF: $750** **CU: $1250**

$1 FRN 1974 Progression of above error from another sheet position with district seal and left serial number from this note at right and Treasury seal and right serial from another note at left R-4

Fine: $1500 **EF: $2500** **CU: $3500**

$1 FRN 1981 Breath-taking blunder with terrific horizontal displacement R-4

Fine: $500 **EF: $750** **CU: $1750**

$1 FRN 1981 Minor to moderate shift R-1
Fine: $5 **EF: $15** **CU: $25**

$1 FRN 1981-A Dropped district block with one color shift of overprint R-3
Fine: $50 **EF: $100** **CU: $150**

$5 NBN 1929 Upward shift in brown serial numbers and seal
Fine: $1500 **EF: $2500** **CU: $3500**

$5 USN 1953 Star or replacement note with major misplacement

Fine: $500 **EF: $750** **CU: $1250**

$5 FRN 1950-A Oblique orientation to overprints intended for three different notes R-4

Fine: $1000 **EF: $2000** **CU: $3000**

$5 FRN 1974 Moderate shift with district seal bisecting portrait oval R-2

Fine: $50 **EF: $100** **CU: $150**

$10 FRN 1934-A Pronounced left shift in "HAWAII" surcharge
Fine: $2500 **EF: $3500** **CU: $4500**

$10 FRN 1950 Phenomenal mal-alignment, Treasury seal within portrait oval R-4
Fine: $750 **EF: $1250** **CU: $1750**

$20 FRN 1969-C Third print radically displaced towards right R-4
Fine: $200 **EF: $450** **CU: $750**

$20 FRN 1977 Uni-color shift of district information R-3
Fine: $100 **EF: $200** **CU: $450**

$20 FRN 1993 Exceptional example of the left shift error R-4
Fine: $200 **EF: $500** **CU: $750**

$20 FRN 1999 A misalignment of epic proportions, essentially without equal R-4
Fine: $750 **EF: $1750** **CU: $2500**

$50 FRN 1981 Enormous error on difficult denomination to secure shifts R-4

Fine: $250 **EF: $500** **CU: $1000**

$100 FRN 1988 Dropped block containing district designators R-3

Fine: $150 **EF: $250** **CU: $450**

$100 FRN 1996 Minor to moderate misalignment of overprint elements R-2

Fine: $150 **EF: $200** **CU: $250**

Life is like a B-grade movie.
You don't want to leave in the
middle of it, but you don't want
to see it again.

— *Ted Turner*

Mismatched Serial Numbers, Charter Numbers, And Block Letters

Mismatched serial numbers have plagued United States currency since its introduction. However, it took the abundant production and extensive publicity of the U 37xx/ U 47xx mistake on the series of 1957-B, $1 silver certificate (SC), to popularize the error.

In those instances where the lower-left serial number differs from that in the upper-right position, either manual or mechanical factors are at fault. Most numbering irregularities stem from a press operator failing to set the same sequence of numbers on the two different numbering wheels prior to initiating a printing run. Under this circumstance, the mismatch is typically evident among the digit(s) in the beginning of the serial number, while those digits towards the right end are identical. Examples of this manual mistake in the press set-up are the U 37xx/U 47xx, G 55xx/G 54xx, and the A 97250xx/A 86139xx errors. Mismatched serial numbers will happen also when one numbering machine sticks at a particular serial number, while the other continues to advance normally. Under this scenario, the error is evident among the digit(s) at the ends of the serial numbers, with those at the beginning being identical. Examples of this mechanical mistake in one of the numbering wheels are the xx49 I/xx50 I, xx815 C/xx700 C, and xx595 A/xx601A errors.

Aside from mismatched serial numbers, other numbering or lettering irregularities infrequently occur. The Albert A. Grinnell collection contained a series of 1902, $10 note of the First National Bank of Bay Shore, New York with charter number 10026 on the left side and charter number 10029, the correct one, on the right. Two examples of mismatched charter numbers are known on the series of 1902, $5 from the National Bank of Savannah, Georgia. These show charter number 3046 on the left side and charter number 3406, the correct one, on the right. The error further is documented on a small-size note from the First National Bank in Tigerton, Wisconsin. It exhibits charter number 14150, the correct one, on the left side and charter number 12150 on the right. More careful examination of national currency presently residing in collections might add to the current list.

Prefix and suffix letters—the characters immediately preceding and following the serial number—are also subject to mismatch. Two different "blocks" (a block being the combination of the prefix and suffix letters on a given note) result from human error during the press set-up. The mistake appears on nearly twenty separate series. The most startling being the uncut sheets of series of

1981, $1 Federal Reserve notes (FRN) sold directly to the public by the Bureau of Engraving and Printing (BEP).

Fractional notes. Serial numbers were not used on fractional currency.

Large-size notes. Despite the millions of large-size notes printed in numerous design types over a span of almost three-quarters of a century, the two serial numbers rarely lost synchronization; a mere ten examples have been reported.

The earliest mismatches known appear on the series of 1862 $1 United States notes. Since the Albert A. Grinnell sales of the 1940s, a solo specimen was recorded. However, subsequent to the publication of the first edition of this book, a second piece has surfaced in the estate of a prominent stamp collector in Texas; it remains ensconced.

Later large-size issues are lightly sprinkled with numbering irregularities: the series of 1899, $1 "Black Eagle" and $5 "Chief Oncpapa" SC, and the series of 1917, $1 United States note. In the past ten years, both a series of 1923 $1 SC and a series of 1902 national currency bearing mismatched serial numbers have appeared at public auction. No doubt the subtle nature of the error, incomplete records, and attrition have removed additional serial number discrepancies from the domain of the modern researcher and collector. Mismatched serial numbers on large-size notes rightfully carry a price comparable to the double denomination error. They reside among the most expensive paper money misprints.

Small-size notes. The government first released small-size paper money into circulation on January 10, 1929—after pondering the concept for more than fifteen years—as a measure to reduce printing and paper expenses. Shortly after the debut, the first numbering error occurred. Approximately 125 distinct mismatches exist on at least seven different denominations, including the series of 1934, $1000 FRN. The mistake affects every class of small-size paper issued since the series of 1928, with the possible exception of the Federal Reserve bank notes.

FRN capture the lion's share of the mismatched serial numbers. SC follow closely behind. The $1 and $5 denominations account for most of the discoveries. The majority of mismatches involve a single digit discrepancy. However, both a series of 1928, $10 FRN on the Chicago district and a series of 1977-A $1 FRN on the Boston district have the first five numerals mismatched.

As a general rule, the production of a particular mismatch amounts to just a few pieces; although a couple of notable exceptions exist. Literally thousands of the U 37xx/U 47xx mistakes escaped on the series of 1957-B $1 SC. Nearly fifty years after their discovery, one consecutively numbered pack of one hundred bills remains extant. A somewhat similar event transpired in the summer of 1963 when almost ten thousand $1 SC from the series of 1957—bearing serial numbers beginning G 55xx on the left and G 54xx on the right—were released from storage at Fort Benning, Georgia. Even though a large number of G 55xx/G 54xx errors circulated, many reached the numismatic marketplace unimpaired. On FRN, the most abundant mismatched serial number produced, with quantities in the thousands, is the series of 1969, $1 starting with F 68xx on the left and F 67xx on the right. In 1992 a tremendous amount of mismatched serial numbers of the series of 1976, $2 FRN was discovered. These xx523A/ xx623A errors, from

the New York district, provided a bonanza for collectors who previously had been unable to secure an example of the error on the two-dollar denomination. A somewhat smaller number surfaced with mismatched prefix letters. Unless a particular mismatch is printed and released in large numbers, so that astute bank tellers and cash handlers can procure uncirculated specimens, the error typically enters commerce before being noticed.

The following lists of mismatched serial numbers, charter numbers, and block letters are undoubtedly incomplete. This compilation simply includes the varieties documented at the time of publication. Unquestionably other mismatches exist. Their absence does not imply any greater rarity than those recorded.

Insights and Incidents. In the early 1980s, I owned and advertised four of the then seven known mismatched serial numbers on large-size paper money. Two originated from the estate of Amon G. Carter, Jr. One, a gem crisp uncirculated $1 series of 1862 (Fr-16) appeared at a Kagin's auction held during the Memphis Paper Money Show. The other, a low-grade series of 1862, $2 United States note (Fr-41) arrived via private treaty with a prominent dealer. The other two (a series of 1917 $1 United States note (Fr-39) and a *three digit* mismatch on a series of 1923 $1 SC (Fr-237)) left an advanced New England collection. Nearly twenty years later, all four pieces continue to reside in a prominent Manhattan collection.

Although the above recollection serves as a reminder of foregone days, it pales in comparison to the incident related by Harry Jones. He reported that a United States serviceman stationed in Germany discovered two packs of the mismatched $2 series of 1976 FRN. Being unfamiliar with the numismatic fraternity, the serviceman's wife flew the notes from Germany to the United States to accept payment and complete the transaction! Undoubtedly, if a miniscule number of specimens had surfaced, the price tag might create sticker shock. Instead, ample mismatches exist on the series of 1976, $2 FRN from the New York district to suppress the cost to a modest level.

Newly discovered mismatched serial numbers surface with some regularity; combining new releases with older notes coming to light for the first time. A typical quantity consists of a mere one to four pieces. A thrilling exception is the series of 1988 $1 FRN *star* or replacement notes with a *two-digit* mismatch created at the Fort Worth facility. A truck stop operator in Arkansas found forty-seven consecutive notes in a pack. I was fortunate enough to handle nearly all of those released into the numismatic marketplace.

The series of 1934 $1000 FRN mismatch carries a most unusual history. John Rowe, at the roundtable discussion sponsored by Lyn F. Knight during the auction of the Frank Levitan collection in December of 1998, provided the details. The mismatch, originally owned by William Philpott, served as the catalyst to terminate "Mr. Phil's" relationship with a Federal Reserve bank branch. He lost a valuable source; wherein the pioneer paper money dealer could acquire crisp uncirculated large-size notes at face value as needs dictated. The note was subsequently sold as a unique $1000 mismatch; which it remains until this day. The significance of the piece was later forgotten. It later re-sold as a generic high denomination note. In the ensuing years, the mismatch was once again discovered. A diligent east coast collector spent more than ten years—and a consider-

able sum of money—to acquire it in 2000. Hopefully, the importance of this unique error will not again become lost.

A seasoned and observant veteran of paper money collecting "cherry picked" a rare mismatched block error on a $10 series of 1929 national currency from an Internet auction site at a price commensurate with a common-type note. His success should enthuse all collectors. Knowledge remains king.

TABLE OF MISMATCHED SERIAL NUMBERS

Large-size Notes

Denomination	Type	Series	Left serial	Right serial	Catalog number
$1	USN	1862	40863	40857	KL-3, Fr-16
			40857	40853	KL-3, Fr-16
		1917	H65400001A	H65410001A	KL-24, Fr-37
			R22514789A	R22514791A	KL-27, Fr-39 (1)
			R22514791A	R22514793A	KL-27, Fr-39
	SC	1899	D38477001A	D38476001A	KL-48, Fr-233
		1923	B68073098D	B68073102D	KL-52, Fr-237
$2	USN	1862	90890	96890	KL-100, Fr-41
$5	SC	1899	M82762358	M82762354	KL-248, Fr-278

Denomination	Type	Series	Left serial	Right serial	Charter number Bank name, City, State
$5	NC	1902	11200	10200	Ch-8411 First Nat'l Bank, Sabina, OH (2)

Small-size Notes

Denomination	Type	Series	Left serial	Right serial	Catalog number
$1	SC	1934	A84xxx561A	A83xxx651A	KL-1451, Fr-1606
			Dxxxxxx28A	Dxxxxxx38A	
	1935-A		I524xxxxxB	I525xxxxxB	KL-1453, Fr-1608
			Txxxxxx12C	Txxxxxx32C	
			Xxxxxxx38B	Xxxxxxx28C	
			Yxxxxxx76B	Yxxxxxx66B	
	1935-B		Hxxxxxx06D	Hxxxxxx16D	KL-1454, Fr-1609 (3)
	1935-C		Pxxxx4009D	Pxxxx3993D	KL-1455, Fr-1612
			T009xxxxxD	T000xxxxxD	
	1935-D		B0736xxxxF	B0735xxxxF	KL-1456, Fr-1613 (W)
			Bxxxxxx76G	Bxxxxxx86G	KL-1456-A, Fr-1613 (N)

Denomination	Type	Series	Left serial	Right serial	Catalog number
			K6975xxxxG	K6976xxxxG	
			Wxxxxxx68F	Wxxxxxx58F	(4)
			Xxxxxxx76F	Xxxxxxx86F	
		1935-E	★35xxxxxxD	★34xxxxxxD	KL-1457-★, Fr-1614-★
			A19xxxxxxH	A29xxxxxxH	KL-1457, Fr-1614
			Axxxxxx95H	Axxxxxx79H	
			Dxxxxxx49I	Dxxxxxx50I	
			F84xxxxxxI	F86xxxxxxI	
			G25xxxxxxH	G14xxxxxxH	
			Nxxxxx205H	Nxxxxx198H	(5)
			Sxxxxx814H	Sxxxxx956H	
			X53xxxxxxG	X54xxxxxxG	
			Y3xxxxx61[]	Y2xxxxx70G	(6)
			Z160xxxxxG	Z161xxxxxG	
		1935-F	★xxxxxx42F	★xxxxxx32F	KL-1458, Fr-1615
		1935-G	★xxxxxx30G	★xxxxxx28G	KL-1459-★, Fr-1616-★
			Dxxxxxx51J	Dxxxxxx41J	KL-1459, Fr-1616
		1957	G55xxxxxxA	G54xxxxxxA	KL-1462, Fr-1619
			U261xxxxxA	U260xxxxxA	
		1957-A	D4662xxxxA	D4663xxxxA	KL-1463, Fr-1620
		1957-B	★xxxxxx67A	★xxxxxx47A	KL-1464-★, Fr-1621-★
			★xxxxxxx0B	★xxxxxxx8B	KL-1465-★, Fr-1621
			★xxxxxxx1B	★xxxxxxx0B	
			Sxxxxxx55A	Sxxxxxx48A	
			U37xxxxxxA	U47xxxxxxA	
	FRN	1963	Axxxxx961★	Axxxxx849★	KL-1465-★, Fr-1900-★ (Boston)
			Bxxxxxx65A	Bxxxxxx75A	KL-1466 (New York)
			Bxxxxxxx2A	Bxxxxxxx1A	
			Bxxxxx821A	Bxxxxx921A	
			Hxxxxxx15A	Hxxxxxx24A	KL-1472 (St. Louis)

Denomination	Type	Series	Left serial	Right serial	Catalog number
			H87xxxxxxA	H89xxxxxxA	
			Lxxxxx814B	Lxxxxx924B	KL-1476 (San Francisco)
		1969	F68xxxxxxA	F67xxxxxxA	KL-1506, Fr-1903
		1969-A	D42xxxxxxB	D32xxxxxxB	KL-1516, Fr-1904
		1969-B	Bxxxxxxx7C	Bxxxxxxx5C	KL-1526, Fr-1905
		1969-D	B760xxxxxC	B761xxxxxC	KL-1562 Fr-1907
			B44xxxxxxD	B43xxxxxxD	
			Cxxxx7900B	Cxxxx8000B	KL-1563 (Philadelphia)
			G0xxxxxxxC	G9xxxxxxxC	KL-1567 (Chicago)
		1974	B760xxxxxC	B761xxxxxC	KL-1574, Fr-1908
			D2409xxxxA	D2400xxxxA	KL-1576 (Cleveland)
			D8888xxxxA	D8889xxxxA	
			Exxxx4665D	Exxxx6665D	KL-1577 (Richmond)
			E3700xxxxD	E3702xxxxD	
			E75xxxxxxD	E74xxxxxxD	
			F800xxxxxC	F801xxxxxC	KL-1578 (Atlanta)
			G539xxxxxB	G530xxxxxB	KL-1579 (Chicago)
		1977	E0020xxxxE	E0022xxxxE	KL-1589, Fr-1909 (Richmond)
		1977-A	A97250xxxB	A86139xxxB	KL-1597, Fr-1910 (Boston)
		1981	Exxxxx095B	Exxxxx195B	KL-3504, Fr-1911 (Richmond)
			F522xxxxxE	F511xxxxxE	KL-3505 (Atlanta)
			J47xxxxxxB	J37xxxxxxB	KL-3509 (Kansas City)
		1981-A	F7003xxxxB	F7002xxxxB	KL3605, - Fr-1912 (Atlanta)
			F99xxxxxxD	F98xxxxxxD	

Denomination	Type	Series	Left serial	Right serial	Catalog number
			K6696xxxxB	K6697xxxxB	KL-3610 (Dallas)
		1985	E03xxxxxxG	E33xxxxxxG	KL-3704 Fr-1913 (Richmond)
			F31xxxxxxG	F21xxxxxxG	KL-3705 (Atlanta)
			Lxxxx5574A	Lxxxx5474A	KL-3711 (San Francisco)
		1988-A	G11xxxxxx★	G00xxxxxx★	KL-3850-★, Fr-1915 (Chicago)(7)
			G2590xxxxA	G2599xxxx	KL-3850, Fr-1915 (Chicago)
		1995	=I73707330N	I06030650N	KL-4092, Fr-1922 (Minneapolis) (8)
		1999	Bxxxxx282J	Bxxxxx442J	KL-4175, Fr-1923 (New York)
		2001	Bxxxxx857B	Bxxxxx907B	KL-KL-4187 (New York)
$2	FRN	1976	Bxxxxx523A	Bxxxxx623A	KL-1628, Fr-1935 (9)
			F7001xxxxB	F7000xxxxB	KL-1632 (Atlanta)
					Charter number Bank name, City, State
$5	NC	1929-I	C000001A	C001001A	Ch-5089 Milliken National Bank, Decatur, IL
					Catalog number
	USN	1928	Axxxxxx27A	Axxxxxx21A	KL-1639, Fr-1525
		1953	A1009xxxxA	A1000xxxxA	KL-1646, Fr-1532
			Axxxxxx40A	Axxxxxx30A	
	SC	1934-D	Dxxxxx579A	Dxxxxx601A	KL-1655, Fr-1654
		1953	Axxxx7000A	Axxxx6000A	KL-1656, Fr-1655
			A4774xxxxA	A4775xxxxA	

Denomination	Type	Series	Left serial	Right serial	Catalog number
			Axxxxx211A	Axxxxx100A	
	FRN	1950	Gxxxxxx19A	Gxxxxxx29A	KL-1797, Fr-1961 (Chicago) (W)
		1950-A	Bxxxxx801C	Bxxxxx700C	KL-1804, Fr-1962 (New York) (10)
			Exxxxxx98A	Exxxxxx99A	KL-1807 (Richmond)
			Fxxxxx085B	Fxxxxx193B	(Atlanta) (11)
			H4038xxxxA	H4039xxxxA	KL-1810 (St. Louis)
			H84xxxxxxA	H48xxxxxxA	
			Lxxxx6003B	Lxxxx6000B	KL-1814 (San Francisco)
		1950-B	Ixxxxxx39A	Ixxxxxx46A	KL-1823, Fr-1963 (Minneapolis)
		1950-C	Gxxxx9009D	Gxxxx8979D	KL-1833, Fr-1964 (Chicago)
		1969	Cxxxxxx11A	Cxxxxxx00A	KL-1878, Fr-1969 (Philadelphia)
		1969-A	I2291xxxxA	I2290xxxxA	KL-1896, Fr-1970 (Minneapolis)
		1974	I611xxxxxA	I612xxxxxA	KL-1932, Fr-1973 (Minneapolis)
			J36xxxxxxB	J35xxxxxxB	KL-1933 (Kansas City) (12)
		1977-A	E0409xxxx★	E0408xxxx★	KL-1952-★, Fr-1975-★ (Richmond)
			Hxxxx6125A	Hxxxx5292A	KL-1955, Fr-1975 (St. Louis)(13)
			L44xxxxxxA	L45xxxxxxA	KL-1959 (San Francisco)
		1985	Gxxxxx700B	Gxxxxx630B	KL-3718, Fr-1977 (Chicago)
		1988-A	D68398xxxB	D68399xxxB	KL-3859, Fr-1980 (Cleveland)

Denomination	Type	Series	Left serial	Right serial	Catalog number
		1995	E010xxxxxC	E001xxxxxC	KL-4100, Fr-1984 (Richmond)
$10	FRN	1928-B	G44460xxxA	G35208xxxA	KL-2016, Fr-2002 (Chicago)
		1950	J2951xxxxA	J2950xxxxA	KL-2096, Fr-2010 (Kansas City) (W)
		1950-A	Bxxxx6999C	Bxxxx7000C	KL-2100, Fr-2011 (New York)
			Dxxxxxx66A	Dxxxxxx65A	KL-2102 (Cleveland)
			E0111xxxx★	E0110xxxx★	KL-2103-★ (Richmond)
			Fxxxxx355★	Fxxxxx407★	KL-2104-★ (Atlanta) (14)
			Fxxxxxx90B	Fxxxxxx23B	KL-2104
		1950-B	Cxxxxx591★	Cxxxxx691★	KL-2113-★, Fr-2012-★ (Philadelphia)
		1950-D	E110xxxxx★	E111xxxxx★	KL-2139★, Fr-2014-★ (Richmond)
		1963-A	E63xxxxxxA	E64xxxxxxA	KL-2166, Fr-2017 (Richmond)
		1990	H3639xxxxA	H3635xxxxA	KL-4007, Fr-2030 (St. Louis)
Charter number					Bank name, City, State
$20	NC	1929-I	Bxxx221A	Bxxx187A	Ch-1487 First National Bank of Red Wing, MN
Catalog number					
	GC	1928	Axxxxxx29A	Axxxxxx28A	KL-2261, Fr-2402
	FRN	1950-A	Axxxxxx34A	Axxxxxx33A	KL-2382, Fr-2059 (Boston)
		1950-C	Fxxxxxx30B	Fxxxxxx29B	KL-2411, Fr-2062 (Atlanta)

Denomination	Type	Series	Left serial	Right serial	Catalog number
		1977	G4506xxxxB	G4507xxxxB	KL-2517, Fr-2072 (Chicago)
		1981-A	B10xxxxxxD	B00xxxxxxD	KL-3637, Fr-2075 (NewYork)
		1993	Jxxxx1957A	Jxxxx1657A	KL-4057, Fr-2079 (Kansas City)
					Charter number Bank name, City, State
$100	NC	1929-I	B000064A	B000062A	Ch-2604 Winters Nat'l Bank & Trust Co, Dayton, OH
					Catalog number
	FRN	1985	B0599xxxxA	B0589xxxxA	KL-3761, Fr-2171 (New York)
		1996	AB152xxxxxS	AB156xxxxxS	KL-4133, Fr-2175 (New York)
			ABxxxxx658X	ABxxxxx648X	
$1000	FRN	1934	Hxxxxxx67A	Hxxxxxx37A	KL-3004, Fr-2211 (St. Louis)

(1) another note with similar mismatch rumored to exist

(2) left serial number incorrect; highest sheet serial issued was 11174

(3) numeral "1" in right serial number rotated downward

(4) error began at W63572857F; numeral "6" in left serial number rotated upward; group discovered in Panama Canal Zone in 1952

(5) varieties also known with differences of seven and nine numbers

(6) the Y-[]/Y-G blocks with rectangular suffix character also qualifies as a mismatched block

(7) printed at Western Production Facility in Forth Worth, Texas

(8) authenticity of this note questioned by most authorities; in-person examination not available; sold on eBay in October 2000

(9)B59208576A bears identical serial numbers on both sides; mismatch begins with B59208575A (left) and B59208675A (right) exhibiting a slash through numeral "6" and annotated "5" in ink above digit

(10) right serial number stuck; left numbering wheel advanced at least as far as 862

(11) numeral "5" in left serial number rotated upward

(12) one example with courtesy autograph of William E. Simon

(13) others known with left serial number ending in xxxx6122, xxxx6123, and xxxx6126; existence of note ending with xxxx6124 probable albeit unconfirmed

(14) final numeral "5" in left serial number rotated upwards

$1 USN 1862 40853/40857 Mismatch
Fine: $—** **$— **$7500**

$1 SC 1935-E G 25xx/G 14xx Mismatch R-5
Fine: $250 **EF: $350** **CU: $550**

$1 SC 1935-E Multiple mismatches, the most important small size silver certificate mismatch, unique R-5
Fine: $— **EF: $4000** **CU: $5000**

$1 SC 1957 G 55xx/G 54xx Mismatch R-4
Fine: $75 **EF: $150** **CU: $200**

$1 SC 1957-B U 37xx/U 47xx Mismatch R-4
Fine: $75 **EF: $150** **CU: $200**

$1 SC 1957-B Star or replacement note with xx45 A/xx25 A mismatch R-6
Fine: $500 **EF: $750** **CU: $1500**

$1 SC 1957-B xx9 A/xx4 A Mismatch with rotation last two digits on left R-5

Fine: $250 **EF: $350** **CU: $450**

$1 FRN 1969 F 68xx/F 67xx Mismatch R-4

Fine: $75 **EF: $150** **CU: $200**

$1 FRN 1969-A D 42xx/D 32xx Mismatch R-5

Fine: $150 **EF: $250** **CU: $350**

$1 FRN 1969-B xx701 C/xx699C and xxx699 C/ xx697 C, a changeover pair of mismatched serial numbers with each note bearing the exact same number in different positions, unique R-5

Fine: $— **EF: $—** **CU: $7500**

$1 FRN 1969-D B 44xx/B 43xx Mismatch R-5

Fine: $150 **EF: $250** **CU: $350**

$1 FRN 1977-A A 97250xx/A 86139xx Mismatch, five digits vary R-5

Fine: $250 **EF: $500** **CU: $1000**

$5 NBN 1929-I C 000001 A/C 001001 A Mismatch, on national bank note

Fine: $— **EF: $—** **CU: $50,000**

$5 FRN 1950-A H 84xx/H 48xx Mismatch R-5

Fine: $200 **EF: $300** **CU: $500**

$5 FRN 1950-A xx862 C/xx700 C Mismatch R-5
Fine: $200 **EF: $400** **CU: $600**

$5 FRN 1977-A L 44xx/L 45xx Mismatch R-3
Fine: $75 **EF: $150** **CU: $250**

$5 FRN 1977-A xx6125 A/xx5292 Mismatch, four varieties known R-5
Fine: $250 **EF: $500** **CU: $750**

$10 FRN 1950 J 2951xx/J 2950xx Mismatch R-5
Fine: $250 **EF: $600** **CU: $750**

$2 FRN 1976 Illusion of xx93 A/xx98 A mismatch, as insufficient ink on final digit in the lower serial number causes "8" to resemble a "3".

$1 FRN 1977-A Deceptive alteration of a note to simulate a mismatched serial number. A "0"—harvested from another note—pasted on the "1", after thinning adjoining surfaces. Careful inspection will reveal margins around the added number.

Table of Mismatched Charter Numbers

Large-size Notes

Denomination	Series	Charter number	Bank name, City, State
$5	1902-DB	Ch-3406	Nat'l Bank, Savannah, GA (1)
	1902-DB	Ch-1205	Mechanics & Metals Nat'l Bank New York, NY (2)
$10	1902-DB	Ch-10029	First Nat'l Bank, Bay Shore, NY (3)

Small-size Notes

Denomination	Series	Charter number	Bank name, City, State
$5	1929-II	Ch-11978	First Nat'l Bank Ashland, VA (4)
$10	1929-II	Ch-14150	First Nat'l Bank Tigerton, WI (5)

(1) correct charter number (3406) on right; incorrect number (3046) on left

(2) correct charter number (1250) in six positions along border; both overprinted charter numbers (3557) incorrect

(3) correct charter number (10029) on right; incorrect (10026) on left

(4) correct charter number (11978) in black at each end; both charter numbers in brown ink adjacent to serial numbers are incorrect (11878)

(5) correct charter number (14150) near left serial number and both black overprints; incorrect (12150) preceding right serial number

$10 NBN 1929-II 14150/12150 Mismatch charter numbers
Fine: $12,500 **EF: $—** **CU: $—**

Table of Mismatched Block Letters

Small-size Notes

Denomination	Type	Series	Left block	Right block	Catalog number
$1	SC	1935-E	Y-[]	Y-G	KL-1457, Fr-1614 (1)
		1957	A-A	Q-A	KL-1462, Fr-1619
			M-A	M-A(2)	
	FRN	1969-B	C-C	B-C	KL-1526, Fr-1905 (New York)
		1977-A	B-D	A-D	KL-1597, Fr-1910 (Boston)
		1981	A-H	B-H	KL-3500, Fr-1911 (Boston) (3)
		1988-A	K-G	L-G	KL-3854, Fr-1915 (Dallas) (4)
		1995	A-C	K-G	KL-4094, Fr-1922 (Dallas) (5)
			=I-N	I-N	KL-4092 (Minneapolis)
		1999	C-E	C-I	KL-4176, Fr-1923 (Philadelphia)
$2	FRN	1976	H-A	B-A	KL-1628, Fr-1935 (New York)
$5	SC	1953-A	D-A	A-A	KL-1657, Fr-1656
	FRN	1950-B	D-B	E-B	KL-1819, Fr-1963 (Richmond) (6)
		1981	J-A	K-A	KL-3521, Fr-1976 (Kansas City)

Denomination	Type	Series	Left block	Right block	Catalog number
					Charter number Bank name, City, State
$10	NC	1929-I	B-A	E-A	Ch-200 First Nat'l Bank Boston, MA
					Catalog number
	FRN	1981	I-★	L-★K	L-3532, Fr-2025 (Minneapolis)
		1995	E-C	-E-C	KL-4112, Fr-2033 (Richmond)
$50	FRN	1977	A-★	K-★	KL-2733-★, Fr-2119-★ (Boston)
$100	FRN	1996	AC-A	AG-A	KL-4138, Fr-2175 (Chicago)

(1) solid, rectangular suffix character on left; note also contains mismatched serial numbers
(2) right serial number bears an inverted "W" instead of the correct "M" prefix
(3) exists only on uncut sheets sold to the public by the BEP; plate position G3
(4) prefix and suffix letters mismatched; correct block is K-G as note bears district seal and numbers for Dallas
(5) authenticity of this error questioned by some authorities; in-person examination not available; sold on eBay in October, 2000; two additional examples surfaced
(6) "D" prefix rotated downward

$1 SC 1957 A-A/Q-A Mismatch R-6
Fine: $250 **EF: $500** **CU: $1000**

$1 SC 1957 Inverted block character, upside down "W" instead of "M" in upper right prefix R-7
Fine: $250 **EF: $500** **CU: $750**

$2 FRN 1976 H-A/B-A Mismatch R-6
Fine: $100 **EF: $200** **CU: $350**

$5 SC 1953-A D-A/A-A Mismatch R-7
Fine: $500 **EF: $1000** **CU: $2500**

$5 FRN 1981 J-A/K-A Mismatch R-7
Fine: $500 **EF: $1000** **CU: $2500**

$50 FRN 1977 A-★/K-★ Mismatch R-8
Fine: $1500 **EF: $2500** **CU: $5000**

We can draw lessons from the past,
but we cannot live in it.

— *Lyndon B. Johnson*

Missing Overprints

The missing overprint error lacks the application of the third printing elements on the note. Typically, such notes do not demonstrate the serial numbers and seals; although the series designation and facsimile signatures were included in the overprinting process through the series of 1963-A. The missing overprint error possesses only the basic green back and black face printings. It looks very much like "play money."

The error develops from any of four separate causes. The most frequent etiology is the feeding of two uncut half sheets through the overprinting press simultaneously. The uppermost sheet makes contact with the overprinting machinery and accepts the impression. While the bottom sheet is protected during the printing operation and transported to the cutting knives without the elements of the third print. An alternate origin lies in a single half sheet entering the overprinting press properly, but the press fails to engage and impart the serial numbers and seals. Another cause for the error is the accidental advancement of a stack or pallet of currency sheets from the second or face printing presses directly to all ensuing cutting operations. In this instance, a large quantity of missing overprints will be created. The last explanation for the mistake is a major obstructed print, where either a large fragment of foreign matter or a major fold elsewhere in the sheet covers enough of one or more notes to capture the entire overprinting. If the foreign matter dislodges prior to entering circulation or the sheet unfolds prior to the cutting operation, the note escapes without any indication as to the actual cause. There is no variance in the pricing structure of missing overprints based upon presumed causes for the mistake.

Fractional notes. Overprints were added to the backs of notes during the second and third issues. One was a large, outlined numeral that corresponded to the value. This final printing step offered another measure to combat the rampant counterfeiting of the era. The omission of the value overprint on fractional currency was an apparently rare event. Less than six examples are known to the author, all in circulated condition. The mistake of omitting minor overprints on the corners of the backs was much more frequent.

Large-size notes. Extensive research reveals that the missing overprint error on large-size paper money is more common than one might suspect. Throughout the sixty-eight years of production, the mistake affected a host of denominations and types. The missing overprint error—like most blunders on large-size notes—appears most often on the $1 bills of later series. Whether this reflects the increased manufacture of currency, which allowed more opportunities for accident, or increased sloppiness within the government facilities remains open to conjecture.

Because the note looks essentially complete to the untrained eye and due to the periods of economic hardship during which the pieces were printed, most cir-

culated at least briefly. Caution must be exercised in contemplating the purchase of a missing overprint error in well-worn condition. Some notes which have been available suggest possible evidence of tampering to selectively remove the overprint elements.

Small-size notes. Although the missing overprint rightfully commands a respectable premium, this type of paper money mistake exists in relatively plentiful numbers. Small-size notes missing the third printing are known for every denomination of Federal Reserve note (FRN) from the $1 through $100, including a handful of examples of the $2. Gold certificates, silver certificates (SC), national currency, Federal Reserve Bank notes, and United States notes also fell victim to the error.

The missing overprint typically affects a 16-subject half-sheet. Therefore, the quantity released is a usually a multiple of 16, rather than a solo piece or random amount as in some other types of errors.

On the early series of FRN and SC, inspectors at the Bureau of Engraving and Printing (BEP) sometimes wrote the correct (yet missing) serial number on the sheet when it was discovered to be devoid of an overprint. Some of these annotated errors accidentally reached circulation; including six consecutive series of 1928-A $1 SC which remain intact.

During the 1930s and 1940s, many missing overprint errors passed freely through multiple transactions before being retrieved from circulation. Economic hardships, fear of holding a perceived counterfeit note, and lack of familiarity with paper money of the realm likely contributed to the unabated spending. However, in today's more error-conscious society, most notes lacking the serial numbers and seals frequently are preserved in uncirculated condition.

Printing changes at the BEP—which began with the redesigned series of 1996 $100 FRN—now include the application of the green Treasury seal *separate* from the black universal Federal Reserve seal and green serial numbers. Consequently, a missing overprint on the redesigned paper can encompass a note bearing a Treasury seal, but lacking the serial numbers and black seal. As production within the BEP continues to evolve, by necessity, so does our definition of certain error types.

Insights and Incidents. In 1998, I advertised a small-size series of 1928 gold certificate missing the overprint. The note graded extremely fine. It originated from face plate 53 and back plate 71, as is the case with the few others known from the 6-subject half sheet. It was priced at $900 in the *Bank Note Reporter.* Although I clearly recognized the rarity, I markedly under appreciated its market value...as a deluge of potential orders confirmed. Only months later, a crisp uncirculated example sold for $17,600 in a Currency Auctions of America sale. Even the "experts" make mistakes, even while making a profit!

An alarming increase in altered large-size notes, purporting to possess a missing overprint error—have appeared for sale at auction, on fixed pricelists, and in dealers' inventories. Either the high prices error notes command in the current market have drawn long held pieces out from various collections or modern charlatans are chemically removing BEP-applied overprints to dupe the wave of new collectors. Perhaps an unhealthy dose of skepticism has caused me to silently

denounce an occasional genuine error as phony. On the other hand, I'd much prefer to err on the conservative side than purchase a possibly altered piece. I suspect that most collectors share similar sentiments. Unfortunately, too many accept, as gospel truth, opinions advanced by sellers with inadequate experience in the specialized arena of error notes. The purchaser must remain ever-vigilant, especially when examining a heavily circulated example.

The color shift ink, positioned in the lower-right corner on the face of the note, technically qualifies as an overprint as it is not part of the basic back or face printings. This anti-counterfeiting device, with numerals equivalent to the denomination, was introduced with the series of 1996 $100 redesigned FRN. Literally hundreds of pieces exist on the $100; a much smaller number appear on the $20. The missing color shift ink error proved so unpopular with collectors that one dealer elected to spend his inventory of thirty-some pieces, at a loss, rather than continue to tie up working capitol.

$2 SC 1896 Treasury seal overprint missing
Fine: $5000 **EF: $7500** **CU: $—**

$1 USN 1917 Missing overprint
Fine: $2500 **EF: $3500** **CU: $5500**

$1 SC 1928 Missing overprint R-6
Fine: $250 **EF: $750** **CU: $1250**

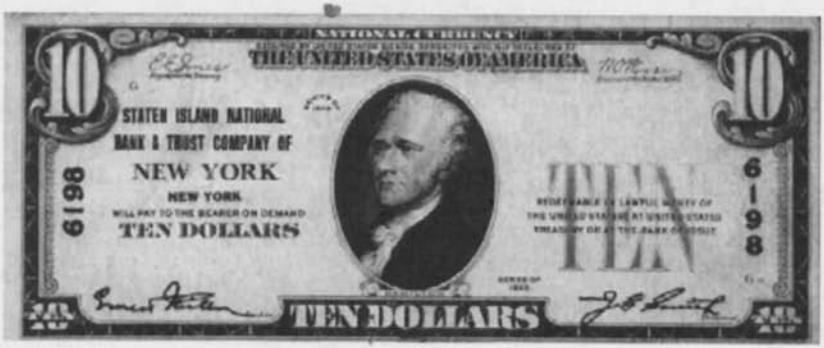
$1 SC 1935-era Missing overprint with intended serial numbers annotated by BEP inspector who recognized error, yet failed to pull sheet R-6
Fine: $150 **EF: $300** **CU: $500**

$1 FRN 1977-A Missing overprint R-6
Fine: $100 **EF: $175** **CU: $250**

$5	FRBN	1929	Missing black overprint with absence of information on the Federal Reserve Bank of Atlanta and signatures of the bank officials	
Fine: $2500			**EF: $4500**	**CU: $—**

$5	SC	1953-era	Missing overprint	R-6
Fine: $500			**EF: $750**	**CU: $1250**

$5	FRN	1985	Missing overprint	R-6
Fine: $100			**EF: $200**	**CU: $300**



$10 NBN 1929 Missing brown overprint with seal and serial numbers absent

Fine: $1250 **EF: $2500** **CU: $4500**

$10 FRN 1934-A Missing black "HAWAII" surcharge

Fine: $3500 **EF: $5500** **CU: $6500**

$10 FRN 1977-A Missing overprint R-6

Fine: $100 **EF: $200** **CU: $300**

$20 GC 1928 Missing overprint
Fine: $— **EF: $12,500** **CU: $15,000**

$20 FRN 1985 Missing black portion of bi-color overprint R-4
Fine: $75 **EF: $150** **CU: $250**

$20 FRN 1990 Missing overprint R-6
Fine: $100 **EF: $200** **CU: $300**

$20 FRN 1996 Missing Treasury seal portion of overprint R-4
Fine: $25 **EF: $75** **CU: $100**

$20 FRN 1996 Missing color shift ink overlaying "20"in lower right corner R-4
Fine: $25 **EF: $35** **CU: $50**

$50 FRN 1981 Missing overprint R-6
Fine: $150 **EF: $400** **CU: $650**

$50 FRN 1996 Missing overprint R-6
Fine: $15o **EF: $450** **CU: $750**

$100 FRN 1985 Missing overprint R-6
Fine: $250 **EF: $500** **CU: $950**

$1 SC 1957 Chemical extraction of overprint with removal of serial numbers and seal. Disturbance to remaining black ink from second printing suggests alteration.

One chance is all you need.
— *Jesse Owens*

Overprints On Back

Not surprisingly, the overprint on back error demonstrates the third printing elements on the back of the note. The serial numbers, Treasury seal, and, if applicable, the Federal Reserve bank or universal seal and corresponding district numerals appear on the wrong side. The error develops when an uncut half sheet enters the overprinting press with the back—instead of the face—closest to the printing heads. This produces a note with the appearance of a mistake on *both* sides. The face, which lacks the third printing elements, resembles "play money," with a sharp contrast between the black ink of the second printing and the white currency paper. The back, which carries the third printing elements, seems too crowded as portions of the overprint rest atop and blend into the ornate design.

The overprint on back error and the inverted overprint error captured headlines in numismatic and daily newspapers in 1976 and 1977 when unprecedented numbers were released from the Federal Reserve banks. These dramatic blunders sparked a major interest in error currency.

Fractional notes. Errors in the overprints applied to this class of paper money account for the greatest percentage of mistakes. These surcharge errors take many forms including: missing (especially the characters in the corners on the back), misaligned (common on the bronze oval on the face), and inverted (rarest on the denomination designator on the back). However, aside from essays and specimens, the appearance of an overprint on the wrong side of an issued fractional currency note remains unknown.

Large-size notes. Overprint elements on the back of a large-size note resulting from a 4-subject uncut sheet being inserted into the press wrong side up are also unknown. Both wet ink transfers or offsets and printed folds have caused complete or partial overprints to appear on the back, but these represent different types of errors. In the wet ink transfer, the third print exists in a mirror or retrograde image. In the printed fold, a crease is evident in the currency paper. The fold, when opened, separates the portion of the overprint present on the back from that on the face.

Small-size notes. Despite the sophisticated electronic sensors of the currency overprinting and processing equipment (COPE)—which intend to eliminate and identify the manufacture of errors during the final printing, cutting, and banding operations—the overprint on back error now escapes in almost sufficient quantity to satisfy collector demand. Prior to the introduction of the COPE, fewer examples of the overprint on back escaped the watchful eyes of seasoned inspectors. The series of 1974 and later Federal Reserve notes (FRN) offer the only readily available pieces.

The error appears with approximately equal frequency on all denominations, proportionate to the number of notes produced, with the exception of the $2 value. Only six to nine examples of the third print on back exist on the series of

1976 $2 FRN; thus far, none are known on the series of 1995. The second scarcest denomination is the $50; followed by the $100.

The overprint on back error is scarce on silver certificates. It is unknown on national currency, gold certificates, United States notes, and Federal Reserve bank notes.

Insights and Incidents. Error notes demonstrating the overprint on the incorrect side remain as popular as ever. Collectors can begin to assemble denomination sets of FRN—from $1 to $100, minus the deuce—on both old and redesigned paper money. Such an assortment would make quite a display!

In reference to the $2 FRN, six pieces with the third print on the back were unleashed by a bank in rural Indiana in 1995. I handled the notes; all continue to reside in advanced collections. Like other mistakes (most notably the blank back), certain misprints were essentially unknown on $2 FRN until banks began clearing out stagnant supplies of the bicentennial issue to make room for the unequally unpopular series of 1995.

Perhaps the most intriguing—and unarguably the rarest—notes bearing the overprint on the back are star or replacement pieces. Exactly two pieces have been verified: a $5 FRN and $20 FRN. The former sold at auction in February 1998; the latter reposed in the most advanced collection of overprint mistakes ever amassed until the assemblage was sold intact.

The inverted overprint on back appears to be a major "sleeper" among United States paper money mistakes. Unless the BEP ferrets out additional examples, existing pieces should prove to be extremely rare. Even if the Bureau accommodates collectors' desires, new examples are most likely to appear on the redesigned FRN. Four of the $20 FRN with an inverted orientation of the third print on the back—all from the same half sheet—surfaced in metropolitan Detroit. Interestingly, each note went to different coin dealers before I acquired them.

In March of 2001, a series of 1988-A FRN, printed on the web press, containing the overprint on the back surfaced...more than a decade after its accidental manufacture. The note originated from run 8 of the G-P block and carries the 5/8 combination of face and back plates. Within ten days, rumors of a second piece—arising within a 100-mile radius of the location of the discovery note—started. The rumors proved to be unfounded. And, although a 16-subject half sheet was likely produced, the note remains unique.

$1 FRN 1977-A Overprint on back R-5
Fine: $100 **EF: $200** **CU: $250**

$1 FRN 1995 Overprint on back, inverted R-8
Fine: $350 **EF: $750** **CU: $1500**

$5 FRN 1981 Overprint on back R-5
Fine: $100 **EF: $200** **CU: $300**

$5 FRN 1981-A Star or replacement note with overprint on back, also flame-shaped ink smear effecting a double error R-6

Fine: $1500 **EF: $2500** **CU: $3500**

$10 FRN 1977-A Overprint on back R-5

Fine: $100 **EF: $200** **CU: $300**

$20 FRN 1985 Overprint on back R-5

Fine: $100 **EF: $150** **CU: $300**

$20 FRN 1993 Overprint on back, inverted R-8
Fine: $500 **EF: $750** **CU: $1500**

$20 FRN 1996 Overprint on back R-5
Fine: $125 **EF: $250** **CU: $350**

$50 FRN 1985 Overprint on back R-5
Fine: $150 **EF: $450** **CU: $750**

$50 FRN 1995 Overprint on back, inverted R-8
Fine: $500 **EF: $750** **CU: $1500**

$100 FRN 1990 Overprint on back R-5
Fine: $300 **EF: $500** **CU: $1000**

$100 FRN 1996 Overprint on back R-5
Fine: $350 **EF: $750** **CU: $1250**

One person can make a difference
and every person must try.
— *John F. Kennedy*

Stuck Digits Stuck Block Letters, And Inverted Block Characters

Stuck digit errors are sometimes called partially turned digits, although the two terms actually represent different forms of a similar mistake affecting the serial number. The stuck digit error demonstrates parts of *two different* digits in the *same* position. It transcends two sequential numbers, with the bottom portion of the higher number at the top and the lower number at the bottom. The partially turned or rolled digit error evidences only one digit rotated upwards and out of alignment with the margins of the adjacent numerals.

Both the stuck digit and partially turned digit result from a clogging of the numbering wheel on the cylinder that imprints the serial number. If the wheel freezes into place in a particular position, each successive note will appear identical. If, however, the wheel initially locks into place to print a partially turned digit and later advances just slightly a stuck digit might result. These are mechanical malfunctions, which arise during a printing run and generally do not result during the press set-up. Stuck digits are of a rarity comparable to the more popular mismatched serial numbers. As such, they remain under-priced in the marketplace relative to their actual scarcity.

Stuck block letters and their counterparts, partially turned block letters appear identical as the stuck digits and partially turned digits described above. However, these commonly occur due to failure of the press operator to accurately align the prefix and suffix letters prior to initiating a run. Although stuck and partially turned digits occur with some mild regularity, similar errors affecting the alphabetical characters preceding and following the numerals prove extremely difficult to secure.

Inverted block letters develop when a press operator manually inserts the alphabetical character or star upside down prior to initiating a run. Like the stuck digits, partially turned digits, stuck block letters, and partially turned blocks, this error occurs in only one position on the uncut half sheet.

Fractional notes. This class of paper money obviously remains exempt from these errors as the currency was printed without serial numbers.

Large-size notes. Examples of the partially turned or rolled digit appear frequently on large-size notes, most especially the series of 1923, $1 silver certificates (SC). In fact, even moderate rotations of a single digit or suffix letter are so commonplace as to be non-collectible as errors. The stuck digit, however, provides a formidable challenge. The author documents a sole example of a legitimate stuck digit with portions of two numerals in the same position. There are unconfirmed reports of three or four others.

Stuck and inverted block letters continue to be unreported on large-size paper money.

Small-size notes. Locating a specimen of the partially turned digit error should present little difficulty. Examples are occasionally seen in circulation. Likewise, with minimal persistence, the stuck digit can be procured on small-size paper money. Both the partially turned digit and stuck digit errors have been observed on every class and denomination (through $100) of currency manufactured since the series of 1928. The errors appear most commonly on the $1 denomination and predominate on Federal Reserve notes (FRN) and SC. As with most mistakes, they prove more difficult to locate on the $2 denomination and on national currency, Federal Reserve bank notes, and gold certificates. Stuck block letters exist only on FRN. As one might anticipate, in evaluating stuck versus partially turned block letters, the preponderance are partially turned. Thus far, the suffix has been overwhelmingly affected.

In sharp contrast to other errors, a greater percentage of known inverted block characters involve a star rather than a letter. The most abundant are the series of 1935-G $1 SC with motto. The notes come from plate position H. The lower left serial number begins with an inverted star prefix. The two other inverted star prefix errors both involve the series of 1928, $100 FRN. Some of the notes from the Dallas and San Francisco districts end with inverted star suffixes on both serial numbers. Research by Peter Huntoon uncovered the use of an inverted M (instead of a W) as the prefix in the upper-right serial number of a series of 1957, $1 SC.

Insights and Incidents. To paraphrase a Vietnam War-era pop song, "where have all the collectors gone?" Collectors—even novices—seem to be actively avoiding the stuck digit error. Not merely exercising benign neglect, but consciously ignoring it. Admittedly, stuck digits fail to provide much visual excitement. Nonetheless, the error is not especially common; an example belongs in every type collection of errors.

In a comparative sense (number of stuck digits seen versus total quantity of notes printed), I believe this mistake is relatively more plentiful on $1 SC than on $1 FRN.

In 1997 I distributed a cache of seventy-five or so $1 FRN with a turned suffix letter. The lower one-half of the C suffix evidenced itself in the upper 50%. Until this group entered the marketplace, the error was definitely uncommon. Stuck and turned prefix letters remain rare.

My opinion—mentioned in the first edition and reiterated here—is that stuck digits are of equal scarcity as the most common mismatched serial numbers (and occasionally a precursor to them) still rings true.

The astute collector can infrequently spot an inverted star prefix in a dealer's inventory without being labeled as such, particularly on the series of 1935-G $1 SC with motto. As in any specialty arena, knowledge truly reigns supreme.

$1 SC 1935-A Stuck digit R-4
Fine: $35 **EF: $75** **CU: $125**

$1 SC 1957 Inverted block character, upside down "W" instead of "M" in upper right prefix R-7
Fine: $250 **EF: $500** **CU: $750**

$1 FRN 1963-A Stuck digit R-4
Fine: $35 **EF: $100** **CU: $125**

$1 FRN 1988-A Turned suffix letter R-3
Fine: $10 **EF: $35** **CU: $50**

$5 FRN 1950-C Partially turned digit R-1
Fine: $15 **EF: $25** **CU: $35**

$5 USN 1953-B Stuck digit
Fine: $50 **EF: $150** **CU: $250**

$5 FRN 1974 Stuck digit R-4
Fine: $35 **EF: $75** **CU: $125**

$10 FRN 1974 Stuck digit R-4
Fine: $35 **EF: $75** **CU: $125**

$50 FRN 1974 Stuck digit R-4
Fine: $100 **EF: $125** **CU: $175**

PART FOUR

FOLDS AND OTHER ERRORS

CUTTING ERRORS

GUTTER OR INTERIOR FOLDS

PRINTED OR EXTERIOR FOLDS

MISCELLANEOUS ERRORS

Plant trees under whose shade
you do not expect to sit.
— *Nelson Henderson*

Cutting Errors

Cutting errors come in two distinct varieties. Both the precipitating cause and the resultant appearance are distinctly different. However, in both scenarios the mistake occurs after the currency stock correctly accepts the first, second, and third printings. The miscut arises during the terminal stages of production when the 16-subject half-sheets are separated into 2-subject blocks and then into individual notes.

A cutting error generated by misalignment of the uncut sheets upon meeting the knives produces a batch of notes with identical mistakes. Typically, such an error contains most of a dominant primary note and varying degrees of a secondary note nestled within the confines of the dimensions prescribed for the class of paper money. A direct one to one ratio exists such that the greater the amount of the primary note missing, the greater the amount of secondary note visible. An entire spectrum of outcomes is possible. The division can range from the finished product exhibiting equal parts of the primary and secondary notes (and consequently possessing two different serial numbers) to a primary note with an abnormally wide margin or simply the design border of the secondary note. The cutting error—unlike the faulty alignment mistake—demonstrates an equal amount of poor centering on both sides of the note. Not surprisingly, the value of this type of cutting error rests directly upon the amount of the secondary note present.

The alternate cause of the cutting error is a fold in the sheet at the time of cutting. This type most commonly involves a small section of the blank edge of the sheet folding over onto a corner of a note. When the flap opens, the corner assumes a "butterfly" or "bow tie" configuration; hence, these terms are sometimes utilized to describe this defect. In other instances, minor to massive portions of the currency sheet fold over creating notes that vary from the proper dimensions. Typically such miscuts will contain part of secondary and potentially tertiary notes.

Fractional notes. Any alleged cutting error on fractional currency must be viewed with suspicion. Whole and partial uncut sheets of various denominations and from different issues remain extent nearly one and one-half centuries after being printed. Therefore, little effort would be required to fabricate a spurious cutting error.

Large-size notes. Numerous genuine examples of cutting errors exist on large-size paper money. The author has inspected miscuts from the series of 1862 United States notes through the series of 1882 and 1902 national currency to the series of 1923 silver certificates (SC). Many examples demonstrate a retained butterfly fold of adjacent currency paper. An equal number possess a small strip of the secondary note adjacent to the bulk of the primary note. Despite the rela-

tive availability of minor cutting errors on large-size paper money, truly significant examples prove incredibly difficult to locate. Although uncut sheets of large-size notes may be found in certain sophisticated collections, because of their intrinsic value, pedigrees, and recorded serial numbers it seems unlikely that someone would sacrifice a sheet in an attempt to produce a spurious error.

The government delivered national currency to the individual bank, most often in the form of uncut sheets. Local tellers or secretaries severed the sheets into separate notes. In many cases, little regard for accuracy was executed. Numerous pieces of poorly cut large-size national currency can be located without difficulty. As the cutting was performed outside of the Bureau of Engraving and Printing (BEP), such poorly cut notes do not qualify as errors.

Small-size notes. No class of paper money issued since 1929 has escaped erroneous cutting. Minor cutting errors—those containing the design frame from an adjacent note—exist on every class of small-size paper money. Every denomination through $1,000 contains documented examples. As one might anticipate, the most visually spectacular miscuts are limited to FRN.

In contrast to most situations, the butterfly-shaped cutting error appears in a higher percentage of instances on blue, rather than green, seals. Although certainly available on the Federal Reserve notes (FRN), the corner protrusion exists more abundantly on SC.

Since the BEP resumed sales of uncut sheets to collectors, a prime opportunity for fraud and misrepresentation has emerged. Unscrupulous persons will purchase an uncut sheet, to generate pseudo-cutting errors by extracting segments of the sheet and incorporating portions of two or more notes. The dishonest then attempt to sell these fabrications to the unsuspecting public. Any purported cutting error on a series of 1976, $2 star note; series of 1981 or later $1; or recent issue $5, $10, or $20 must be approached with caution. Although there has been some variability, in general, uncut sheets sold by the BEP begin with 98,640,000 or higher. If the serial number on the note in question meets or exceeds this, the piece is a fantasy alteration.

Insights and Incidents. Some legitimately phenomenal cutting errors have traded hands, both publicly and privately, during the past five years. Two stellar notes come to mind: a $1 and $20 FRN which exhibit a complete primary note, greater than 50% of a secondary note, and nearly 35% of a tertiary note. Such spectacular pieces arise from a huge, oblique fold on the uncut half-sheets after the application of the third print.

However, the most dramatic cutting error I've ever seen surfaced at a paper money show in Chicago in 1998. The magnificent piece arose from insertion of the half-sheet edge—instead of end—first into the cutting knives; a ninety-degree misorientation. Although of proper dimensions, the note contains two portraits of Andrew Jackson perpendicular to the long axis of the paper! Compounding the magnificence was a BEP-applied rubber stamp, in purple ink, declaring, "NO VALUE/RETURNED BY/BEP," within a rectangle. Of the innumerable alterations and additions seen, this blockbuster piece represents the lone example whereby application of a stamp actually enhances the value and desirability. The note—a series of 1985, $20 FRN from the Kansas City district—was submitted

to the BEP by the teller who initially found it. Government employees stamped the note prior to returning it.

Collectors and dealers new to the error specialty continue to be duped by fraudulent cutting errors. Most disconcerting are those on modern $1, $2, $5, $10, and $20 FRN sold in sheet form by the BEP. The abundance of pieces altered for profit is sickening. Internet auctions make ideal outlets for disposing of these fabrications. A simple recollection of the facts concerning the serial numbers made available to collectors, in sheet form, would eliminate financial nightmares, emotional turmoil, and unscrupulous sellers. A quick rule of thumb: any $1 through $10 FRN after series of 1981 bearing a serial number greater than 98,640,00 must be suspect. While one must refine the rough parameters given here to more accurately assess a particular piece, a conservative collector generally cannot be led astray by adhering to these guidelines.

A case in point: in August 1998, I was urged to take the next available flight to Puerto Rico to evaluate and purchase the "greatest collection of $5 errors." Through patient persistence I was able to eventually secure photocopies of some of the notes. A process which took entirely too long in the days of fax machines, e-mail, and overnight express. *Every* piece represented in the photocopies proved to be alterations from recently released uncut sheets of series of 1995, $5 FRN.

Although dramatic cutting errors certainly exist, the opportunity to acquire legitimate ones occurs infrequently. The collector must remain on guard against spurious fabrications. No dealer or auction house can be expert in all nuances of United States paper money. However, reputable firms must permit an unqualified return in the event a piece is proven fake.

Examples Of The Error

MINOR

MODERATE

MAJOR

$1 SC 1923 Cutting error with large flap of un-printed paper retained

Fine: $350 **EF: $750** **CU: $1250**

$1 SC 1935-F Cutting error, broad fold-over after the final printing R-6

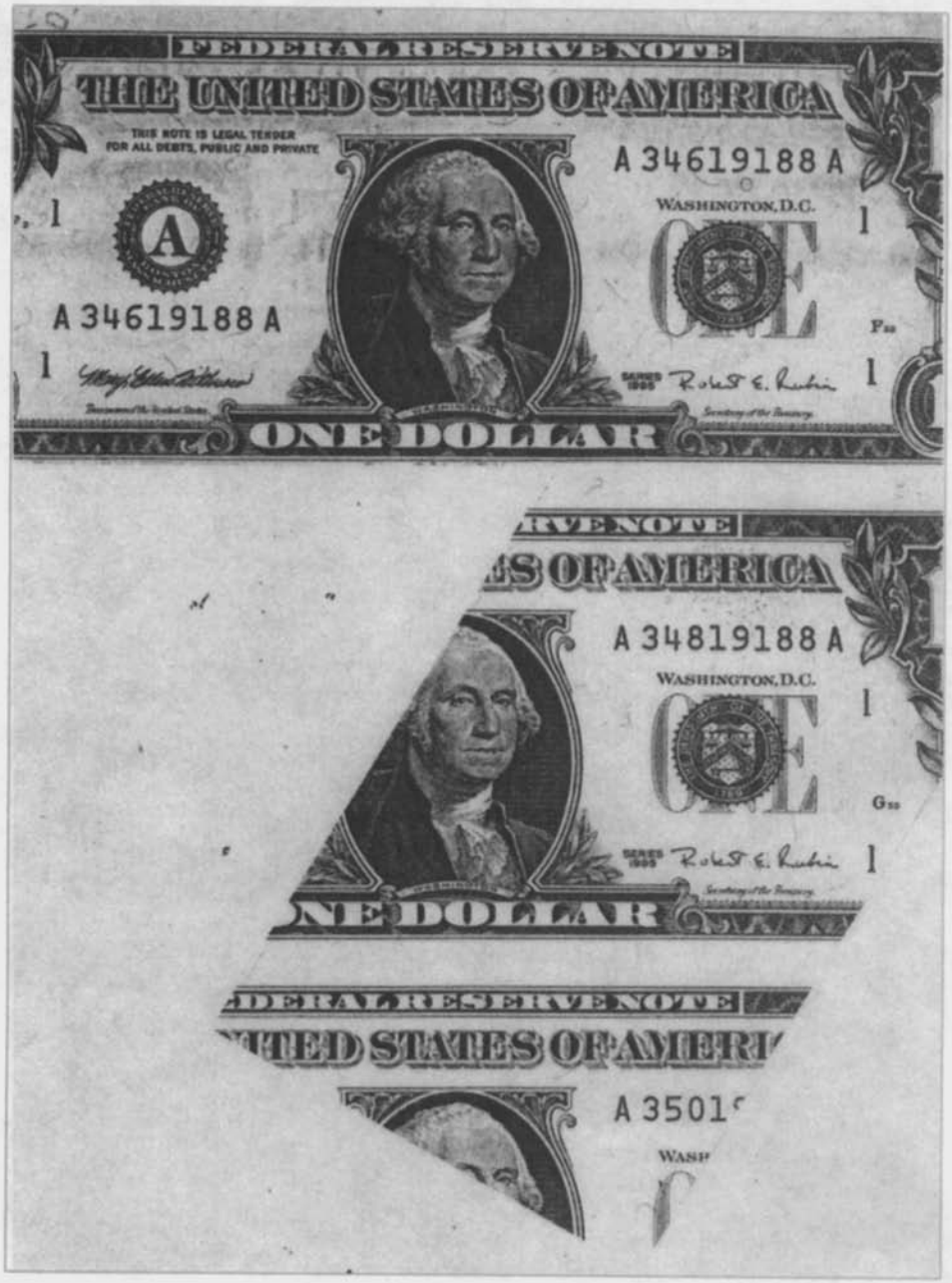
Fine: $150 **EF: $400** **CU: $750**

$1 FRN 1977 Borderline moderate cutting error from torn sheet R-4

Fine: $55 **EF: $150** **CU: $200**

$1 FRN 1988-A Irregular contour to finished product from cutting error R-6

Fine: $— **EF: $500** **CU: $750**



$1	FRN	1995	Monstrous cutting error with primary, secondary, and tertiary notes present	R-6
Fine: $—			**EF: $1500**	**CU: $3500**

$2 FRN 1976 Spectacular cutting error R-7
Fine: $— **EF: $2500** **CU: $3500**

$2 FRN 1976 Major cutting error due to horizontal fold in sheet R-7
Fine: $— **EF: $2500** **CU: $3500**

$5 FRN 1985 Incredible cutting error as a result of sheet becoming tangled and mangled subsequent to final printing operation R-6

Fine: $— **EF: $750** **CU: $1500**

$5 FRN 1988-A Wild vertical misplacement of uncut sheet for cutting knives, with nearly 50% of two different notes comprising piece R-6

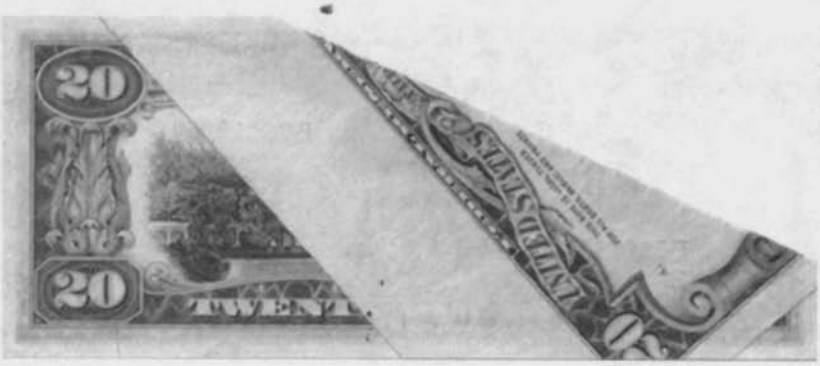
Fine: $1500 **EF: $2500** **CU: $3500**

$10 FRN 1969-B Star or replacement note with minor cutting error R-5

Fine: $50 **EF: $150** **CU: $250**

$10 FRN 1974 Moderate cutting error with rectangular section inferior note R-5

Fine: $75 **EF: $150** **CU: $350**



$20 FRN 1950-A Blockbuster fold-over with tremendous selvage attached R-6

Fine: $— **EF: $1500** **CU: $3500**

$20 FRN 19xx Bizarre cutting error contains fragments of three notes R-6

Fine: $— **EF: $1500** **CU: $3500**

$20 FRN 1985 Phenomenal cutting error with resultant effect of Jackson both vertically and horizontally R-6

Fine: $— **EF: $2500** **CU: $4500**

$20 FRN 1985 Magnificent cutting error from horizontal fold R-6

Fine: $— **EF: $1500** **CU: $2500**

$20 FRN 1993 Cutting error caused by oblique pleat, note offset of black district seal and district number in an otherwise white top R-6

Fine: $— **EF: $1500** **CU: $3500**

$20 FRN 1993 Spectacular fold-over with three notes present R-6

Fine: $— **EF: $1500** **CU: $3500**

$20 FRN 1995 Major cutting error R-6

Fine: $— **EF: $1500** **CU: $3000**

$100 FRN 1985 Stunning cutting error with one and one-half notes present, the two portraits creating a titillating appearance R-6

Fine: $— **EF: $5000** **CU: $6500**

$1 SC 1935-E Fake cutting error created by slicing a sheet released in uncut form. Although one encounters such fabrications regularly on modern FRN, the consumer needs to consider the origin of any purported cutting error offered for sale. In this case, a record of serial numbers reserved for uncut sheet sales provided the information necessary to expose the bogus nature.

So do not ask for whom the bell tolls,
it tolls for thee.

— *Ernest Hemingway*

Gutter Or Interior Folds

Gutter or interior folds demonstrate a blank, unprinted, white channel interrupting the back, face, or over printing. Gutter folds develop when a double wrinkle occurs in the currency paper as it receives a printed image. The pleated area remains protected and continues devoid of an impression. With the pleat or fold intact and undisturbed from its position at the time of printing, no error is apparent. The design appears complete and the note seems to conform to appropriate dimensions. However, when the crease is opened, the characteristic white gutter disturbing the design becomes exposed.

Single gutter or interior folds involve an overlap of the paper caused by the wrinkle. Not too infrequently, numerous wrinkles occur yielding a note with multiple gutters that open accordion style. Single and multiple gutters may affect only the face or back or both surfaces of a note. Interior folds are relatively common on all types of United States paper money.

Fractional notes. Unquestionably, gutter folds represent the most common error on fractional currency. The author has examined nearly three-dozen different examples. Undoubtedly, countless others exist in private and public holdings. Most are single interior folds affecting only one side of the note. However, a spectacular piece from the first issue, on a five-cent value, exhibits several gutters on both sides.

Large-size notes. Large-size paper money contains far more gutter folds than most collectors and dealers realize. Although not as common as similar errors on small-size notes, an interior fold on large-size currency is *not* a rarity. Even accounting for the popularity of errors on large-size notes, such errors are frequently overpriced when offered for sale. Gutter folds are known on all denominations between $1 and $20. These affect silver certificates (SC), gold certificates, United States notes, Federal Reserve bank notes, national currency, and Federal Reserve notes (FRN). Reliable sources report the existence of a gutter fold on series of 1914 $100 blue seal FRN.

Small-size notes. Gutter folds are known on all classes of small-size currency. Even the Federal Reserve bank notes, gold certificates, and national currency contain a sprinkling of examples. Among the FRN, this error can be confirmed on every denomination through the $1,000. Despite the relative availability of notes with a gutter fold, locating a truly dramatic piece with either one extremely wide gutter or with multiple interior folds remains a moderate challenge. Single gutter folds on circulated notes, especially on the $20 through $100 denominations, carry little collector premium. Many are spent at face value, even by those aware of the mistake or languish in dealers' inventories for prolonged periods.

Insights and Incidents. A new slant in the retailing of gutter folds involves a price structure based upon the number of printing stages interrupted. An interior fold disrupting the back, face, and overprint carries a significant premium above

a note wherein merely one or two printings are split. Intuitively, this approach to pricing makes sense. One can expect this trend to continue into the foreseeable future.

As the error field has matured into a distinct subspecialty within the general United States paper money market, collectors have become increasingly sophisticated. Today, far greater numbers of collectors recognize the rarity of the common gutter fold on uncommon host notes. These advanced collectors are prepared to pay appropriately to secure examples of the error on national currency, gold certificates, Federal Reserve bank notes, and the "Hawaii" and "North Africa" issues of World War II. Other collectors focus on obtaining gutter folds on star or replacement notes.

Once relegated to a second-class status and dismissed as an unworthy error, unusual gutter folds now command appropriate recognition. Sophisticated collectors recognize the importance of securing interesting specimens for their enjoyment.

Examples Of The Error

MINOR

MODERATE

MAJOR

$1 USN 1917 Star or replacement note with large gutter fold
Fine: $1500 **EF: $2500** **CU: $3500**

$1 USN 1917 Enormous oblique gutter bisecting second printing
Fine: $1000 **EF: $1500** **CU: $2500**

$1 SC 1923 Thin vertical gutter
Fine: $250 **EF: $500** **CU: $750**

$2 USN 1917 Multiple gutters interrupting front design
Fine: $750 **EF: $1500** **CU: $3000**

$1 SC 1928 Broad, single gutter fold R-3
Fine: $100 **EF: $250** **CU: $400**

$1 SC 1935-E Star or replacement note with multiple average size gutters R-4
Fine: $150 **EF: $350** **CU: $500**

$1 FRN 1974 Two essentially parallel pleats creating un-printed strips R-3
Fine: $25 **EF: $50** **CU: $75**

$1 FRN 1988-A Enormous gutter fold of un-imaginable width R-3

Fine: $100 **EF: $250** **CU: $500**

$5 NBN 1929-II Narrow gutter fold coursing through portrait

Fine: $500 **EF: $1000** **CU: $1500**

$5 FRN 1981 Multiple gutter folds creating an accordion effect R-3

Fine: $50 **EF: $150** **CU: $250**

$5 FRN 1995 Stunning gutter fold, among the finest known R-4
Fine: $— **EF: $2500** **CU: $3500**

$10 FRN 1981 Impressive, missile-shaped gutter R-3
Fine: $150 **EF: $350** **CU: $500**

$10 FRN 1993 Amazing occurrence with phenomenal separation of printing R-3
Fine: $250 **EF: $500** **CU: $750**

$20 FRN 1969-C Predominantly horizontal orientation to gutter fold R-1

Fine: $35 **EF: $75** **CU: $150**

$50 FRN 1985 Wild gutter fold providing exceptional eye appeal R-3

Fine: $250 **EF: $500** **CU: $750**

$100 FRN 1974 Typical gutter fold R-1

Fine: $100 **EF: $125** **CU: $150**

\$100 FRN 1990 Wedge-shaped gutter fold lower right corner R-1

Fine: \$125 **EF: \$175** **CU: \$250**

\$500 FRN 1934 Oblique gutter right end, all errors on the \$500 denomination are rare

Fine: \$1750 **EF: \$2000** **CU: \$2500**

\$1000 FRN 1934 Narrow gutter right of portrait, all errors on the \$1,000 denomination are rare

Fine: \$2000 **EF: \$2500** **CU: \$3500**

Do not follow where the path may lead.
Go instead where there is no path and
leave a trail.

— *Muriel Strode*

Printed Or Exterior Folds

Printed or exterior folds demonstrate a portion of the design intended for one side printed on the opposite side of the note. Currency paper is subject to being folded along the entire route from blank sheet to finished product. Whenever a section of the sheet folds over onto itself prior to or during contact with a printing plate, a printed fold error ensues. The sheet may remain folded after the printing or open prior to subsequent, if any, printing operations and the cutting knives. The ultimate shape of the note depends upon whether the sheet unfolds before being cut.

Minor exterior folds—such as those that affect one corner—appear with moderate frequency. Large printed folds involving a major percentage of a note exist in very limited numbers. Especially elusive are major printed folds where the sheet folded between the back and face printing and opened prior to the application of the third print. This striking mistake includes a portion of the face design atop the already present back. When unfolded, a portion of the serial numbers and/or seals rest against a stark white background, which was protected during the second print.

Notes which remain folded for the cutting and banding operations enter banking channels and public circulation demonstrating an irregular shape when unfolded. Obviously the more visually alluring the specimen, the greater the value.

Fractional notes. Locating a printed fold on fractional currency requires years of diligence and a dose of luck. The author has examined three such pieces during the past two decades. There are unconfirmed reports of two other printed folds on these Civil War substitutes for paper money. Even the tiniest example represents an enormous find.

Large-size notes. Exterior folds on large-size paper money are prohibitively rare. Of the seven pieces examined, one is especially memorable. The lower right corner of a series of 1880 $5 United States note (USN) folded upward capturing most of the large seal. The piece originally sold publicly in the Albert A. Grinnell auctions during the 1940s. It was auctioned again in August 2000. Any example of a printed fold on large-size paper money should be a highly cherished trophy.

Small-size notes. The most spectacular examples exist on Federal Reserve notes (FRN) of the series of 1977 and later. The printed fold error is known on *all* denominations of FRN from $1 through $1000. There remain two documented examples on series of 1928 gold certificates; one involves the $10 denomination, the other a $20. None are confirmed on Federal Reserve bank notes. Approximately two dozen are reported on national currency. Of the small-size silver certificates and USN, the former offer roughly six times as many opportunities to obtain an example than the later.

Insights and Incidents. When my father—a professional numismatist with four and one-half decades of experience—located a printed fold on a piece of fractional currency in 1996, I advertised it as "possibly unique." However, the fickle finger of fate turned sharply against me. Within twelve months, a few more pieces entered the marketplace. All originated with the Milton Friedberg collection sold by Currency Auctions of America. Even "experts" must revise their opinions in a dynamic market with ever-changing facts. Nonetheless, whether described as "unique," "possibly unique," or "nearly unique" (an oxymoron), printed folds on fractional currency remain genuinely rare.

Since the publication of the first edition, another printed fold on large-size paper money has crept out of the woodwork and into the census. Specifically, it is a series of 1917 $1 USN with a moderate fold over affecting the lower left corner of the face. The flap caught a portion of the second print. The note came from an elderly gentleman in the Silicon Valley region of California. The error had been displayed under two-sided glass since his mother extracted it from circulation—due to the apparent mistake—during the Great Depression.

Truly amazing printed folds filter into the marketplace at a rate of about one every six months. While some collectors perceive these stunning specimens to be priced too high, others relish the privilege to add such incredible notes to their holdings. Perception remains critical. Yet, the collector who perceives that fairly priced examples cost too much will never own one with bragging rights.

Examples Of The Error

MINOR

MODERATE

MAJOR

$1 FRBN 1918 Printed fold, with excess paper trimmed during final cutting

Fine: $1500 **EF: $3500** **CU: $4500**

$1 SC 1935-E Large printed fold with signature, seal and series on flap R-7

Fine: $100 **EF: $300** **CU: $500**

$1 SC 1957-A Printed tear with fold before second and third printings R-5

Fine: $50 **EF: $100** **CU: $200**

$1 FRN 1969-D Bow-tie effect with dramatic outcom from fold R-7

Fine: $100 **EF: $250** **CU: $450**

$1 FRN 1969-D Printed tear with accordion style pleats and gutters R-5

Fine: $75 **EF: $200** **CU: $350**

$1 FRN 1974 Major printed fold with adequate overlap to capture the overprint from both sides of the note R-7

Fine: $150 **EF: $500** **CU: $850**

$1 FRN 1988-A Fantastic printed tear with serial number perfectly positioned in white margin R-7

Fine: $150 **EF: $350** **CU: $500**

$1 FRN 1988-A Superb example of the printed fold error, opened for illustrative purposes R-7

Fine: $150 **EF: $300** **CU: $650**

$2 FRN 1976 Large printed fold on a Bicentennial deuce R-7

Fine: $1000 **EF: $2500** **CU: $3500**

$5 FRN 1950 Gigantic fold-over with attractive location of district seal R-6

Fine: $500 **EF: $1500** **CU: $2500**

$5 FRN 1977-A Above average example of the printed fold error R-5

Fine: $100 **EF: $200** **CU: $350**

$5 FRN 1981 Common presentation for a printed fold R-5

Fine: $75 **EF: $150** **CU: $250**

$5 FRN 1985 Double fold beneath Treasury seal and suffix letter R-5

Fine: $100 **EF: $250** **CU: $400**

$10 SC 1953 Enormous fold under prior to first printing, finest known on a ten-dollar silver certificate R-7

Fine: $500 **EF: $1500** **CU: $2500**

$10 FRN 1974 Significant right angle fold, serial number and seal on back R-5

Fine: $150 **EF: $300** **CU: $400**

$10 FRN 1981 Printed tear leaving a goal post effect R-5
Fine: $150 **EF: $250** **CU: $450**

$20 NBN 1929-I Brown Treasury seal captured on verso due to corner fold
Fine: $1500 **EF: $2500** **CU: $3500**

$20 FRN 1974 Stellar specimen with countless characteristics of the error R-7
Fine: $— **EF: $1500** **CU: $2500**

$20 FRN 1974 Amazing printed fold, absent portion of portrait was trimmed away during cutting operation; serial number and seal under fold-over at right R-7

Fine: $— **EF: $1500** **CU: $2500**

$20 FRN 1974 Unusual horizontal fold under prior to first printing R-5

Fine: $100 **EF: $350** **CU: $500**

$20 FRN 1990 Gargantuan fold-over affecting more than one-half of front R-7

Fine: $500 **EF: $1500** **CU: $2000**

$20 FRN 1985 More or less typical degree of involvement R-4
Fine: $100 **EF: $250** **CU: $350**

$20 FRN 1993 Enormous printed fold covering 60% of front with corresponding blank area beneath flap when open R-7
Fine: $500 **EF: $1500** **CU: $2000**

$50 FRN 1990 Portions of three overprints aligned vertically on back as a result of a large fold in the uncut sheet before third printing R-7
Fine: $500 **EF: $1000** **CU: $1500**

$20 FRN 1985 More or less typical degree of involvement R-4
Fine: $100 **EF: $250** **CU: $350**

$20 FRN 1993 Enormous printed fold covering 60% of front with corresponding blank area beneath flap when open R-7
Fine: $500 **EF: $1500** **CU: $2000**

$50 FRN 1990 Portions of three overprints aligned vertically on back as a result of a large fold in the uncut sheet before third printing R-7
Fine: $500 **EF: $1000** **CU: $1500**

It is neither wealth nor splendor, but
tranquility and occupation, which
give happiness.

— *Thomas Jefferson*

Miscellaneous Errors

This chapter addresses several different types of mistakes. These miscellaneous errors cannot be compartmentalized conveniently into other categories. The varieties included are the end of roll error, mixed denomination sets, wrong stock error, engraving errors, printed scrap, transposed currency stock, missing magnetic ink, watermark variations, pre-printed stock, and district designator variances.

The end of roll error originates from markings or splices created by Crane and Co. This firm supplies the Bureau of Engraving and Printing (BEP) with currency stock. Markings take various forms. Until recently, an impregnated red or purple diagonal line indicated the end of the roll. Since the series of 1990, a matte green indicator strip forewarns the press operator. When the matte green marked paper is accidentally utilized for currency production, the marking appears vertically at one end usually correlating with a faulty alignment on the opposite side. Splices occur at the paper production facility. The mill adjoins several strips of paper to create a roll that meets BEP contract specifications. A turquoise-colored, double-sided, water-soluble tape is utilized to connect the independent sheets forming the enormous roll. At the BEP, as the roll is cut into individual sheets before the first printing, electronic sensors scan the roll. The sensors should identify the splices and the alert the workmen to extract and discard that portion of the paper. When the sensors fail, the paper enters currency production. The final product will assume a double thickness, from the overlap of the ends of the sheets united to form the roll. Characteristically, one edge will be feathered. Since the publication of the first edition, numerous end-of-roll errors have reached circulation.

Mixed denomination sets occur when a sheet of stock prepared for one denomination becomes mixed within a stack of sheets for another denomination and the entire group enters the overprinting press. Caution must be exercised as this can be replicated outside of government facilities. One can intermingle notes from two packs of different denominations with the same serial numbers. There are four documented sets of mixed denomination notes. One is a series of 1974, $20 Federal Reserve note (FRN) found in a pack of series of 1976, $2 denominations from the Chicago district. Another set is a $10-$20-$10 combination from the series of 1974 FRN on the Richmond district. This trio can unhesitatingly be declared genuine, because BEP documents confirm that the serial number on the $20 note was previously printed on a series of 1969-C FRN in August of 1974. The $10 notes with which the $20 was found were printed exactly two years later. The third mixed denomination set encompasses a sequential run of twelve notes from the series of 1990. The first four notes are of the (correct) $20 denomination, the intervening four notes bear the $50 denomination, and the final pieces revert to the $20 value. Last, Stephen M. Sullivan reports a mixed denomination pair from the series of 1977 from the Boston district. The lower numbered note, a

$1, is sequential to a $5 FRN. Apparently the error was documented prior to the serial number actually being used on the $5 denomination. Additional data appear in the table on mixed denomination sets.

The **wrong stock error** shares the elite stratum with the rarest of paper money mistakes. The wrong stock error carries the first and second printing of one type of currency and the overprint of another. These ultra-rarities occurred during periods when the BEP was producing more than one class of currency simultaneously; specifically from the mid-1950s through the early-1960s. There are three separate varieties documented. One transitional piece involves a series of 1957-B silver certificate (SC) overprinted with a black Federal Reserve seal and district numbers plus green serial numbers and Treasury seal. Another subset, of which two specimens exist, is the series of 1950 $5 FRN with the blue overprint of the series of 1953 SC. The final piece is a series of 1950-B $5 FRN demonstrating a red overprint from the series of 1953 United States note (USN).

Some authorities postulate that the series of 1988-A, $1 FRN was printed on a web press created by the Hamilton-Stevens Company of Ohio, and subsequently, overprinted with a star suffix for the Atlanta district qualify as wrong stock errors. As the intended overprint for all web notes was the standard currency overprinting and processing equipment already in place for overprinting FRN, this particular variety—however interesting and collectible—fails to satisfy the criteria for the wrong stock error. In this instance, a FRN (albeit manufactured on different equipment) received the overprint of a FRN. Although the BEP indicated it did not plan to issue star or replacement notes on web-fed host notes, it nonetheless did so inadvertently.

Engraving errors represent mistakes in the production of plates employed to print paper money. As such, these irregularities are the fault of the BEP engraver. Few currency errors originate with the engravers. Engraving errors remain significantly different than most of the mistakes addressed in this book which result from mechanical problems.

A vast spectrum of engraving errors plague United States paper money, both large and small size. Numerous denominations and types exist. The most famous engraving error on large-size currency involves the transposed locations of the engraved signatures of William Elliott and John Burke on the series of 1917, $1 USN. The mistake shows the engraved signature of Burke, on the left, over the position for the registrar of the Treasury and the signature of Elliott, on the right, above the designator for the treasurer of the United States. The engraving error affects faceplate number 1519 only.

An engraving error—which exists in greater supply than most realize—appears on the series of 1907, $5 USN. In particular, the Speelman-White signature combination of the so-called "woodchopper family" design. The obligation, engraved on the back, reads "for all debts PCBLIC and private." To the unaided eye the error is obvious.

A subtle engraving error appears on the series of 1899, $1 SC. Below the engraved signature of Charles H. Treat, the title Treasurer of the United States reads "Treasurer of the United State.," lacking the final "s" and concluding with a period. The engraving error affects faceplate 2985 in the check position B only.

Another difficult to appreciate engraving error exists on the series of 1886, $5 SC. This type is often called the "silver dollar back," as five Morgan dollars comprise the back design. This error was identified during a time when interest in paper money mistakes seemed virtually non-existent. More than a century ago, Joseph Hooper, writing in the March, 1896 volume of *The Numismatist*, observed that "The third one of these (silver dollars) from the left end of the certificate has the word TRUST spelled TRAST. On all the others the word is properly spelled."

Research by Peter Huntoon on proof impressions of uncut sheets in government archives unearthed another engraving error on large-size paper money. This particular example is a series of 1902, $20 national currency from The First National Bank of Oxnard, California, bank charter number 9481. The signature of Charles H. Treat appears twice; once (correctly) over the Treasurer of the United States and also above the Register's position. Although printed on a bi-denominational sheet, with a $10-$10-$10-$20 configuration, the engraving error affects the $20 denomination with check position "A" only.

On small-size paper money, several engraving errors are confirmed. Certainly one of the most popular is the series of 1928, $2 USN produced without a back plate number. Research by pioneering small-size currency specialist Chuck O'Donnell suggests the correct number should be plate 100. However, others have disputed this claim. Although most circulated unnoticed, a fair supply still exists in uncirculated condition to satisfy the demands of modern error collectors. One can occasionally locate a generic specimen, which has not been attributed as an error. Three star or replacement notes lacking the back plate number on this issue are recorded.

A bona fide rarity on small-size paper money concerning engraving errors occurs on the series of 1928, $10 gold certificates. Three examples are known without a faceplate number. The author has examined two of the specimens and found no evidence of tampering.

Another subtle mistake that involves the back plate number occurs on the series of 1974, $1 FRN. The back plate reads 905, instead of 1905. The Atlanta and St. Louis districts carry examples affecting the F-D and H-A blocks, respectively. The incorrect back plate was mated with at least five different faceplates.

The BEP resumed public sales of uncut sheets of paper money with the series of 1981 $1 FRN—and immediately released an engraving error. The mistake appears on the 32-subject sheets, from the E-E block. The back plate error reads 7273, instead of the correct 3273. The engraving error affects plate position H1 only.

Undoubtedly the most abundant engraving error appears on the series of 1981-A and 1985 $1 FRN. The misengraved back plate was utilized during the summer months of 1985 amidst the time frame when the BEP was in transition from 1981-A to 1985. Approximately three million pieces were printed and released with an improperly positioned back plate number. The number was engraved beneath the "O" in "ONE" on the left side of the back, rather than below the "E" on the right. This error exists in every one of the thirty-two positions from the back plate cylinder. For the series of 1981-A, the back plate 129 error has been recorded on the Philadelphia, St. Louis, Minneapolis, and San Francisco districts. On the series of 1985, all districts are confirmed, with the exception of Philadelphia, Minneapolis, Kansas City, and Dallas. Additional data appear in the table on back plate 129 engraving errors.

Since the opening of the Forth Worth (Texas) facility of the BEP, notes printed there are distinguished by two characteristics. First, the initials "FW" precede the face check letter and faceplate number in the lower-right corner of the front. Second, the back check number measures 1mm; whereas, notes printed at the Washington, D.C. headquarters show back check numbers 0.6mm in height. A staggering quantity of $1 FRN produced at the Forth Worth facility were released with back plate numbers of the smaller size. The error affects twelve blocks from six different districts. Star or replacement notes—issued only on the Chicago district—are especially rare. The error affects back plate number 295 only. Additional data appear in the table on back plate 129 engraving errors.

The **printed scrap mistake** occurs extremely infrequently. Generally, one considers scrap to be paper other than that intended for currency production. However, fragments of currency stock that accidentally enter the printing press also qualify as printed scrap. Most often the scrap—typically of smaller size than issued notes—falls to the floor as the pallets of paper money are moved from station to station. All examples are tremendously rare outside of the BEP. The few known pieces of printed scrap arose from small-size FRN. In an era of uncut sheets being publicly available, one must verify beyond doubt that an offered item reflects a genuine printed scrap error.

A fascinating—and extremely rare—variety of the printed scrap error encompasses overprints on sizing paper. There are three verified examples. In each, an entire third print rests on bright white sizing paper. The paper appears so markedly different from typically currency stock that no room for confusion exists. One of the specimens demonstrates a faint offset from a $20 FRN, exposing its origin. The overprinted sizing paper and intended host note, if recovered together, might also be classified as an obstructed print with retained fragment.

The **transposed currency stock error** represents a fairly recent phenomenon. Effective with the series of 1990, $100 FRN, the BEP began to incorporate a polymer thread in the currency stock before printing. The security strip—which bears alternating numerals indicative of the denomination and the abbreviation USA—reflects one of many anti-counterfeiting devices. Beginning with the redesigned series of 1996, $100 FRN a watermark—matching the portrait—was introduced to United States paper money. These blind devices dictate the orientation of the currency stock when it encounters the printing press. To facilitate alignment at the BEP, employees of Crane and Company notch the sheets prior to delivery. If the stack is marked incorrectly or if the pie-shaped cut is misinterpreted, the subsequent designs will vary in position relative to the security strip or watermark. Until such devices were instituted, it made no difference how the paper stock was positioned for the back printing.

Two distinct varieties exist. One simply involves the right to left end transposition of the sheets prior to the printing stages. The final product demonstrates the security thread and/or watermark on the wrong side(s). A more complicated happenstance occurs when the currency stock is rotated bottom to top before the printings. The resultant security features will appear with the polymer security thread on the incorrect side plus the watermark inverted on the other end of the note. Although seemingly unlikely, the BEP admits to printing 320,000 series of

1996, $100 FRN with the transposed security thread and inverted watermark. Most bear the New York district designator; a far lesser number carry the Cleveland marking. As these errors possess no eye appeal—in fact, the error remains obscure until held to a light source—they are unpopular with collectors.

The **missing magnetic ink error** began with the series of 1990 FRN, when the BEP instituted numerous anti-counterfeiting changes. Among the alterations was the use of magnetic ink, in a checkerboard pattern, on the face of the notes. Regular, non-magnetic ink completes the second print image. Approximately 35% of the face printing comes from magnetic ink. When the entire checkerboard pattern of magnetic ink is lacking, an attractive and desirable error ensues. Should only a portion of the magnetic ink fail to imprint—typically affecting the left end—collectors become less enthusiastic. The author has verified partial or complete patterns of missing magnetic ink on $5, $10, $20, $50, and $100 FRN.

Watermark variations exist because the security feature, initiated with the series of 1996 and later redesigned FRN, is embedded while the paper stock still consists of greater than 50% water during production at Crane and Company. As the currency stock dries at the mill, slight variations in the appearance of the president's portrait, who appears in the watermark, are possible. Although interesting, these minor variations attract nearly zero interest from collectors. As these watermark variations fall within normal quality control parameters, they do not technically qualify as errors.

Pre-printed stock examples remain exceedingly rare. To qualify as a pre-printed stock error, the first, second, or third printing must rest on top of an underlying (and extraneous) image. Authentication is best performed with the aid of magnification. A mere three specimens—all on modern $20 FRN—exist. A series of 1990 demonstrates an inexplicable chevron pattern imprinted into the stock before the application of the second or third printings. The note surfaced in Tallassee, Alabama. A series of 1995 contains precise circles of black coloration in multiple locations on both the face and back. Adding intrigue to the note is the co-existence of the overprint on the back. Finally, a series of 1996 exhibits a bold, retrograde impression of a bar code and control numbers underneath the portrait oval and the upper left serial number. Although many purported pre-printed stock errors arise, the critical element of BEP printings resting atop a pre-existing impression is lacking.

The **district designator variance** represents the latest error uncovered. In February and March of 2001, a handful of series 1999 $20 FRN came to light bearing an incorrect type (size) on the district letter-number combination beneath the upper left serial number. All currently verified examples originated with either the BD-A or BD-B block and faceplates 1, 2, 3, 4, and 6. The black D4 designator measures 3mm (versus normal of 3.5mm) on the errors. Although seemingly a minor difference, the variation stands out impressively. The rarity and desirability of this error will be determined in the next few years. Thus far, no star replacement notes (BD-*) have been identified with variance in the district designator.

TABLE OF MIXED DENOMINATION SETS

Denomination	Type	Series	Serial number	Catalog number
$10	FRN	1974	E 01300024 C	KL-2226, Fr-2022
$20	FRN	1974	E 01300025 C	KL-2503, Fr-2071
$10	FRN	1974	E 01300026 C	KL-2226, Fr-2022
$2	FRN	1976	G 28949988 A	KL-1633, Fr-1935
$20	FRN	1974	G 28949989 A	KL-2505, Fr-2071
$2	FRN	1976	G 28949990 A	KL-1633, Fr-1935
$1	FRN	1977	A 88585910 A	KL-1585, Fr-1909 (1)
$5	FRN	1977	A 88585911 A	KL-1936, Fr-1974
$20	FRN	1990	K 14174901 A	KL-3962, Fr-2078
$20	FRN	1990	K 14174902 A	
$20	FRN	1990	K 14174903 A	
$20	FRN	1990	K 14174904 A	
$50	FRN	1990	K 14174905 A	KL-3974, Fr-2124
$50	FRN	1990	K 14174906 A	
$50	FRN	1990	K 14174907 A	
$50	FRN	1990	K 14174908 A	
$20	FRN	1990	K 14174909 A	KL-3962, Fr-2078
$20	FRN	1990	K 14174910 A	
$20	FRN	1990	K 14174911 A	
$20	FRN	1990	K 14174912 A	

(1) per Stephen M. Sullivan

TABLE OF BACK PLATE 129 ENGRAVING ERRORS

Denomination	Type	Series	Block	Catalog number
$1	FRN	1981-A	C-A	KL-Fr-1912 (Philadelphia)
			H-B	KL-3607-A (St. Louis) (1)
			I-A	KL-3608-A (Minneapolis)
			I-B	(Minneapolis) (2)
			L-G	KL-3611-A (San Francisco)
		1985	A-A	KL-3700-A, Fr-1913 (Boston)
			B-A	KL-3701-A (New York)
			D-A	KL-3703-A (Cleveland)
			E-A	KL-3704-A (Richmond) (1)
			F-A	KL-3705-A (Atlanta)
			G-A	KL-3706-A (Chicago)
			H-A	KL-3707-A (St. Louis)
			L-A	KL-3711-A (San Francisco)

(1) most common block for the series
(2) rarest block for back plate 129 engraving errors

TABLE OF FORT WORTH 295 MICRO BACK PLATE ERRORS

Denomination	Type	Series	Block	Catalog number
$1	FRN	1995	G-*	KL-4090-*, Fr-1922 (Chicago)
			G-M	KL-4090, Fr-1922
			G-N	(1)
			H-E	KL-4091 (St. Louis)
			I-F	KL-4092 (Minneapolis) (1)
			I-G	
			I-H	
			J-F	KL-4093 (Kansas City)
			K-I	KL-4094 (Dallas)
			K-J	
			L-W	KL-4095 (San Francisco) (1)
			L-X	

(1) common block; the micro back plate mated with at least seventeen different face plates

$1 FRN 1974 End of roll marking, older style with horizontal red indicator R-8

Fine: $150 **EF: $500** **CU: $750**

$2 FRN 1976 End of roll marking, vertical matte green stripe left edge R-8

Fine: $50 **EF: $250** **CU: $500**

$5 FRN 1950 Wrong stock error, blue silver certificate overprint on Federal Reserve note stock R-9

Fine: $5000 **EF: $8500** **CU: $15,000**

$10-$20-$10	1974	Mixed denomination set	R-9
Fine: $—		**EF: $—**	**CU: $5000**

$1 USN 1917 Engraving error, transposed signatures of Burke and Elliott

Fine: $500 **EF: $1000** **CU: $1500**

$1 FRN 1974 Engraving error, back plate entered as "905" instead of the correct plate number "1905" R-8

Fine: $25 **EF: $50** **CU: $100**

$1 FRN 1981-A Engraving error, back plate "129" engraved on left R-4

Fine: $25 **EF: $50** **CU: $100**

$10 GC 1928 Engraving error, face plate number absent
Fine: $500 **EF: $750** **CU: $1250**

$5 FRN 19xx Printed scrap, torn and mutilated currency sheet entered the overprint press R-9
Fine: $— **EF: $—** **CU: $1500**

$20 FRN 19xx Printed scrap, after normal printing and cutting operations, this fragment re-entered the presses and captured parts of two overprints R-9
Fine: $— **EF: $—** **CU: $1750**

$20 FRN 19xx Printed scrap, heavy white bond paper not intended for paper money production. The other side is blank except for part of a serial number, arguably the finest example known. R-9

Fine: $— **EF: $—** **CU: $25,000**

$100 FRN 1990 Missing magnetic ink, classic example with checkerboard pattern across entire front on note R-5

Fine: $250 **EF: $750** **CU: $1250**

$20 FRN 1969-C Pre-printed stock, chevron pattern beneath second and third printings R-9

Fine: $1000 **EF: $1500** **CU: $2000**

$20 FRN 1996 Pre-printed stock, mirror image of bar code beneath second and third printings R-9

Fine: $1000 **EF: $1500** **CU: $2000**

$20 FRN 1999 District designator variance

Fine: $25 **EF: $75** **CU: $100**

$1 FRN 1981 Defective paper stock, very thin with translucent right end R-9

Fine: $1000 **EF: $1500** **CU: $2500**

$20 FRN 1977 Defective paper stock, upper note in photo extremely thin with secondary gutters; consecutive note is normal R-9

Fine: $— **EF: $2000** **CU: $3000**

$1 FRN 1969-D Identical serial numbers, middle two notes bear the exact same serial number, unique R-9

Fine: $— **EF: $—** **CU: $15,000**

Epilogue

Press on. Nothing in the world can take the place of persistence. Talent will not: nothing is more common than unsuccessful men with talent. Genius will not: unrewarded genius is almost a proverb. Education alone will not: the world is full of educated derelicts. Persistence and determination alone are omnipotent.

— Calvin Coolidge

[Numismatics]...was his life;
it was not his livelihood.
And it made him feel so happy
and it made him feel so good.
— *Harry Chapin*

About The Author

Frederick J. Bart embodies complex and diversified experiences and interests. By education and training, he is a podiatric surgeon who holds a doctorate from the Ohio College of Podiatric Medicine. He specialized in emergency and elective re-constructive operations. He managed gun shot wounds, car accidents, chain saw injuries, and other traumatic events, his bachelors' degree is from The University of Michigan.

He completed a postgraduate surgical residency under the auspices of The Johns Hopkins Hospital and a subsequent one-year fellowship for specialized training. Frederick J. Bart has lectured extensively throughout North America to other surgeons, and has published nearly forty articles in medical journals, written chapters for several textbooks, and received numerous awards for medical research.

Frederick J. Bart's primary passion remains hunting. He has pursued caribou with Inuit Eskimos on the arctic tundra, black bear in northern Alberta, record book antelope on the plains of Wyoming, wild boar in southern swamps, white-tail deer, bobcat, turkey, and other species.

Amidst myriad other life-defining events and experiences, Frederick J. Bart ranks the honor of carrying the Olympic Torch among the highest. He served as a Torchbearer for the 2002 Olympic Games in Salt Lake City.

Frederick J. Bart enjoys eclectic numismatic and syngraphic interests. These interests span the spectrum from nineteenth-century proof coinage to serial number one national currency. He holds membership in the Professional Numismatists Guild, American Numismatic Association, Professional Currency Dealers Association, plus other regional and state organizations. He also collects rock-n-roll memorabilia and historical autographs.